Section D.

Water Supply, Demand, and Water Budget

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Table of Contents

List of Figures

List of Tables

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Section D. Water Supply, Demand, and Water Budget

San Luis Obispo's IRWM planning region area is approximately 3,322 square miles, and currently includes 36 actively reporting unincorporated and incorporated communities (see **Table D-1**) situated within 26 watersheds including urban, rural, and agricultural water demands. The need to separate the water demand and supply budgets and balance from **Section C – Region Description** is prudent to the importance of keeping track of the region's water issues. The content of this section is instrumental in the identification of the region's trends, the stakeholders involved, and the potential solutions amongst grouped water users in each of the Water Planning Areas (WPAs).

D.1 INTRODUCTION

This section of the San Luis Obispo IRWM Plan provides a discussion and analysis of the current and projected water supply and demand for the San Luis Obispo IRWMP planning region. This section is limited to descriptions of supply infrastructure and demand areas addressed in **Section C – Region Description**. To address the requirements of the IRWM Plan, the Region Description provides the broader descriptions of the San Luis Obispo watershed system and maintains a relatively high level evaluation of critical water issues; whereas, this section delves into the details of water demands and supplies for each water use sector of each WPA, using data from individual water districts and watersheds.

The data contained within this section is taken from existing published documents describing the water demands and supply of a water use sector, water district, or environmental demand. Unlike the 2012 San Luis Obispo Master Water Report (MWR), the analysis window used in this section specifies exact dates for the planning horizon. The years from 2010 through 2035, in five-year increments, are used to match the IRWM Plan's planning window as well as the planning windows of many General Plans and Urban Water Management Plans (UWMPs). The ramification of this change in definition is that water demand projections need to have a higher level of scrutiny to ensure the correct comparison of water demands and supplies occur over time. Schedules for water supply projects driven by increasing water demands can be phased appropriately over time; thereby, increasing the level of confidence for IRWM project implementation.

Table D-1. List of Communities and Water Districts with Active Water Demand Reporting

WPA No.	Joint Management Agencies	Community/Water District Name
North Coast		
1		San Simeon CSD
2		Cambria CSD
3	Cayucos Area Water Organization	Cayucos Cemetery District
		CSA 10A
		Morro Rock Mutual Water Co
		Paso Robles Beach Water Assn
4		City of Morro Bay
4	Chorro Valley Water System	California Men's Colony
		Camp SLO - National Guard
		County Operation Center of Education
		Cuesta College
5	Community of Los Osos	Golden State Water Company – Los Osos
		Los Osos CSD
		S & T Mutual Water Company
South County		
6		Avila Beach CSD
6		Avila Valley Mutual Water Co
6		Cal Poly San Luis Obispo
6		City of San Luis Obispo
6		CSA 12
6		Port San Luis
6		San Miguelito MWC
7		Golden State Water Company – Edna
7	Nipomo Mesa Management Area	Conoco Phillips Co
		Golden State Water Company – Nipomo
		Nipomo CSD
		Rural Water Company/Cypress Ridge Sewer Co
		Woodlands Mutual Water Company
7	Northern Cities Management Area	City of Arroyo Grande
		City of Grover Beach
		City of Pismo Beach
		Oceano CSD
North County		
12		CSA 23
12		Santa Margarita Ranch
13		Atascadero Mutual Water Co
13		Garden Farms C.W.D.
13		Paso Robles Municipal Well Pumping
13		Templeton CSD
14	Paso Robles Groundwater Basin Users	Camp Roberts
		City of Paso Robles
		San Miguel CSD
		SLO CSA No. 16 – Shandon
16		Heritage Ranch CSD
16		Nacimiento Water Company

D.1.1 *Intended Use of the Water Budget*

What follows is a relatively linear accounting of water supply and demand for each of the WPAs. The first subsections provide the setting for potential water supply and conservation efforts in relation to the different WPAs, and used to identify areas where: 1) water demands are known to be outpacing available water supplies, 2) opportunities for in-Region transfers exist, or 3) alternative water supply options can be studied. The importance is in the comparison between supply and demand and to Identify critical issues so that solutions can be sought.

D.1.2 *Use of IRWM Plan for Determining Adequacy of Water Supplies Under Senate Bill 610 and 221*

This section does not make any conclusions on the adequacy of water supplies to meet water demands, but does discuss likely deficiencies and probable actions. The rigor of analysis required as part of the required study of sustainable water supplies under Senate Bills 610 and 221 for new developments should be done as a separate evaluation supported by the latest local UWMPs and groundwater management plans.

D.2 REGIONAL WATER SUPPLY AVAILABILITY

Water is drawn from a number of supply sources, both inside and outside of the County. In-county reservoirs have a significant role in water supply, drainage and flood control, potential hydro-power, and recreation for the region. Groundwater basins, while currently threatened by contamination and over-pumping, are the largest source of in-county supply currently in use. As groundwater basins are relied upon for their Perennial yield of drinking water, imported surface water from the California State Water Project helps reduce the pressure on these basins when used conjunctively, based on availability of state water and facility capacity, over hydrologic wet and dry periods.

Below are brief summaries of the current supply sources either in use or being planned for near term implementation. By establishing what is known of water supplies currently (2013), future forecasting of supply needs can be placed in context with the constraints and costs associated with each supply source.

D.2.1 *Surface Water*

Water is drawn from a number of surface sources, both inside and outside of the County. This section describes the reservoirs in and out of the County that are used as water supply sources within the County. It also includes a brief description of the State Water Project. Allocations and key user agreements are described for each water source.

Local Surface Water

Many of the local reservoirs are multi-purpose by providing flood control, water supply, groundwater recharge, environmental, hydropower, and recreation benefits. Dams and reservoirs were constructed as the need for supplemental water supplies and flood control became apparent with growing development in the region.

Table D-2. In-County Reservoir Contracted Amounts

Surface Water Source (Year Built)	Storage Capacity (AF)	Contracted Amount/ Average Annual Yield in SLO IRWM Region (AFY)	Primary Purpose(s)	Owner/ Operator (if different)	Sub-Region(s) Supplied
Nacimiento Reservoir (1957)	377,900	15,750[(1)]	Water supply Flood control Groundwater recharge	Monterey County Water Resources Agency	North Coast, South County, North County
Whale Rock Reservoir (1961)	40,662	40,660[(2)]	Water supply	Whale Rock Commission / City of San Luis Obispo	North Coast, South County
Lopez Lake (1968)	49,388	4,530	Water supply Flood protection	San Luis Obispo County Flood Control & Water Conservation District	South County
San Margarita Lake/ Salinas Reservoir (1941)	23,843	6,950	Water supply	U.S. Army Corps of Engineers / San Luis Obispo County Flood Control & Water Conservation District	South County, North County
Chorro Reservoir (1941)	90	140	Water supply	CA Dept of Corrections[(3)]	North Coast
Twitchell Reservoir[(4)]	224,300	0	Irrigation	Santa Maria Valley Water Conservation District	South County

Notes:
1. 17,500 AFY total, less 1,750 AFY for lakeside users 15,750 AFY available to SLO Co Nacimiento Water Project.
2. 40,660 AFY of Whale Rock Reservoir water is allocated to the joint right-holders in addition to downstream water rights, which are accounted for separately.
3. Per CA Dam Safety website inventory.
4. Straddles SLO County with the Dam located in Santa Barbara County

D.2.2 *Groundwater Supply*

The IRWM planning region contains 25[1] hydraulically separated groundwater basins (see **Figure D-2**), each relatively independent of the others, with only a few exceptions. The availability of fresh groundwater supplies remain the primary staple for most of this Region's communities and, especially, for the private well owners living in rural and agricultural areas. Groundwater

[1] Based on 2012 Master Water Report (District, 2012) listed groundwater basins, not including sub-basins. See **Section C – Region Description** for brief descriptions, and **Appendix L – Groundwater Basin Descriptions** for detailed descriptions of each basin.

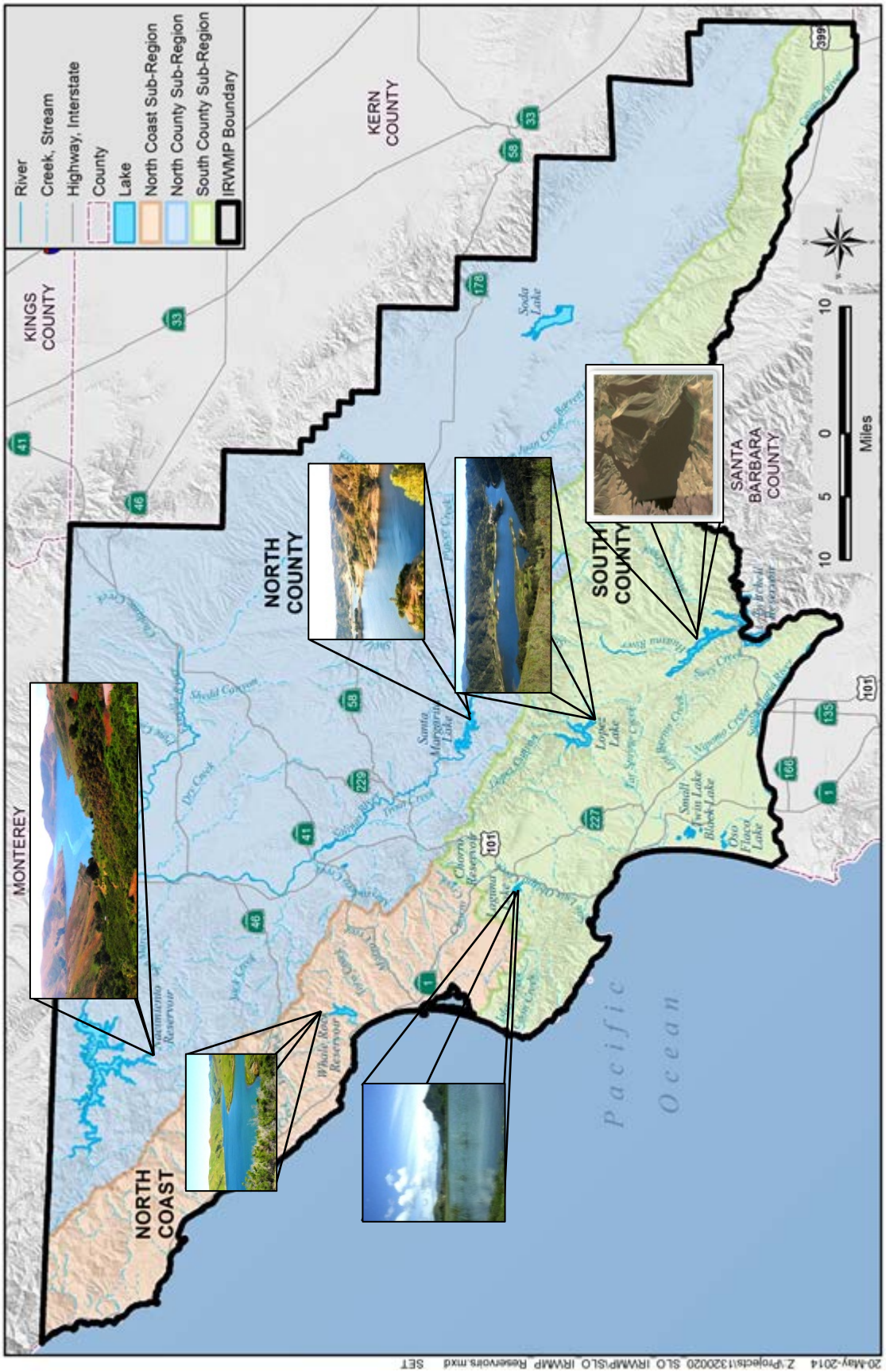


Figure D-1. San Luis Obispo County Reservoirs

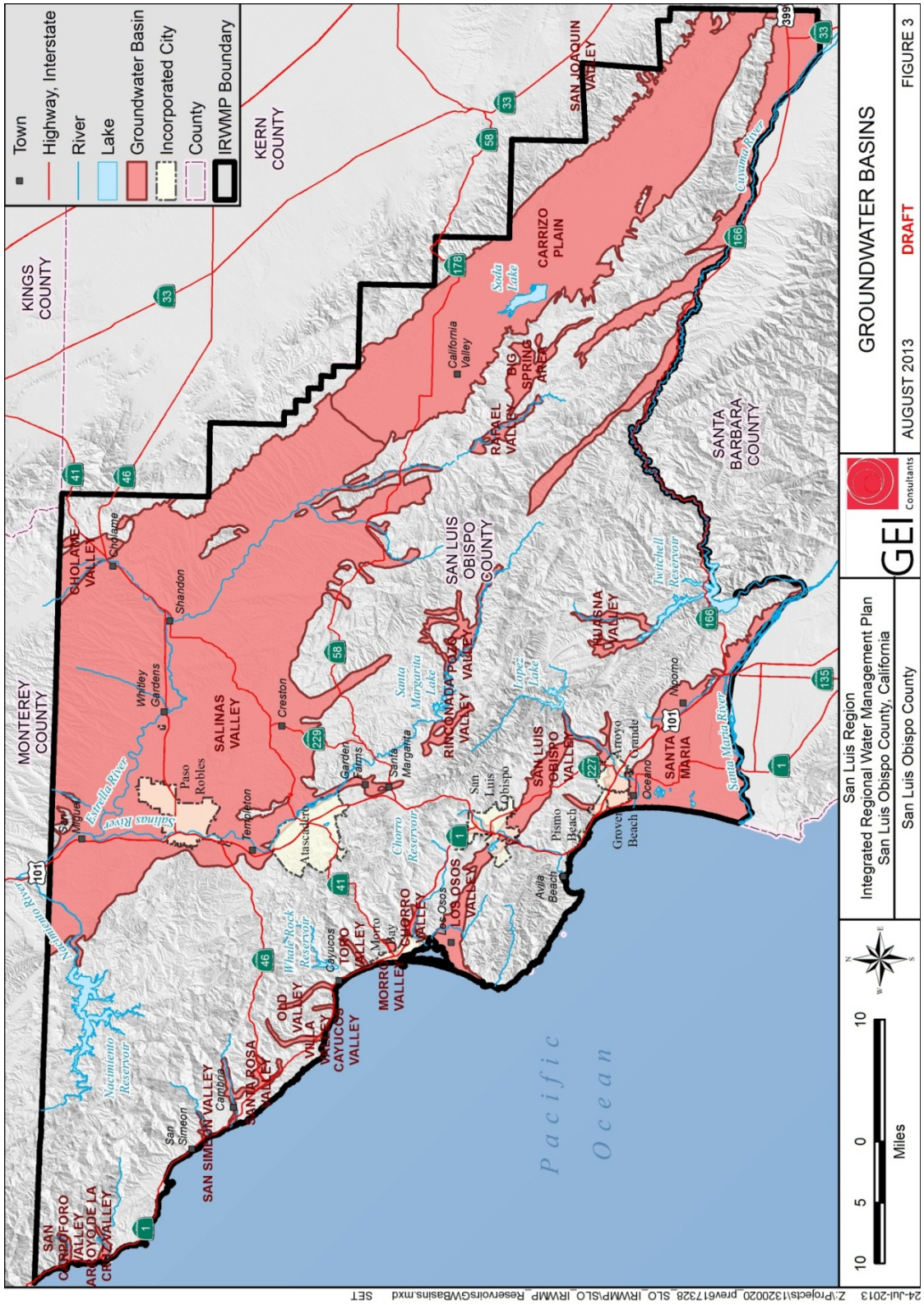


Figure D-2. San Luis Obispo County Groundwater Basins

studies conducted in the past provide some understanding of the perennial average safe yield of the various groundwater basins, but many still are without some form of groundwater management and setting of a perennial yield amount as shown in **Table D-3**. Identified sources are based on the MWR identification of hydrogeologic studies and groundwater management plans containing the latest perennial yield annual volumes.

Table D-3. Groundwater Basin Yields

Groundwater Basin Name	Estimated Perennial Yield (AFY)	WPA	Groundwater Basin Name	Estimated Perennial Yield (AFY)	WPA
Arroyo de la Cruz Valley	1,244	1	Pismo Creek Valley Sub-basin[2]	No estimates of basin yield exist.	7
Pico Creek Valley	120	1	Nipomo Valley Sub-basin[2]	No estimates of basin yield exist.	7
San Carpoforo Valley	No estimates of basin yield exist.	1	Nipomo Mesa Management Area	4,800 - 6,000	7
San Simeon Valley	1,040	2	Northern Cities Management Area	5,600 - 6,800	7
Santa Rosa Valley	2,260	2	Santa Maria Valley Management Area	124,000	7
Villa Valley	1,000	2	Huasna Valley	No estimates of basin yield exist.	8
Cayucos Valley	600	3	Cuyama Valley	10,000	9
Old Valley	505	3	Carrizo Plain	8,000 - 11,000	10
Toro Valley	532	3	Big Spring Area	No estimates of basin yield exist.	11
Chorro Valley	2,210	4	Rafael Valley	No estimates of basin yield exist.	11
Morro Valley	1,500	4	Pozo Valley	1,000	12
Los Osos Valley	3,200	5	Rinconada Valley	No estimates of basin yield exist.	12
Avila Valley Sub-basin[1]	No estimates of basin yield exist.	6	Santa Margarita Valley	No estimates of basin yield exist.[3]	12
Edna Valley Sub-basin[2]	4,000	6	Atascadero Sub-Basin	16,400	13
San Luis Valley Sub-basin[1]	2,000	6	Paso Robles[4]	97,700	13, 14
Arroyo Grande Valley Sub-basin[2]	No estimates of basin yield exist.	7	Cholame Valley	No estimates of basin yield exist.	15
			Salinas River Underflow[5]	State Permitted 11,419	13, 14

Sources: 2012 Master Water Report (District, 2012), Paso Robles Groundwater Basin Modeling Report (Draft, 2014)

Notes:

1. Sub-basin of the San Luis Obispo Valley Groundwater Basin
2. Sub-basin of the Santa Maria River Valley Groundwater Basin
3. 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.
4. Includes 16,400 AFY perennial yield from the Atascadero Groundwater Sub-basin.
5. The Salinas River Underflow is managed by the State Water Resources Control Board through issuance of water right permits; although consider to be groundwater and a sub-basin of the Paso Robles groundwater basin.

D.2.3 *California Department of Water Resources State Water Project Supply*

The California Department of Water Resources (CDWR) owns and operates the State Water Project (SWP). Shown in **Figure D-3,** it is the largest state-built water and power project in the United States. The SWP first started delivering water to Californians in the 1960s. In 1963, the San Luis Obispo County Flood Control and Water Conservation District (District) contracted with DWR for 25,000 AFY of State Water. However, the Central Coast was not served State Water until 1997 when the Coastal Branch conveyance and treatment facilities, serving Santa Barbara and San Luis Obispo counties, were completed.

Table D-4 below summarizes the regional SWP Water Service Amounts (WSAmt) for the San Luis Obispo Region. Additional detail on the SWP infrastructure delivering to the San Luis Obispo Region is discussed in **Section C – Region Description** and the MWR.

Table D-4. State Water Project Water Service Amount

Contractor	WSAmt (AFY)	Drought Buffer (AFY)	Total Reserved (AFY)	6 percent Allocation Year (1977) (AFY)	66-69% Allocation Year (AFY)	100% Allocation Year (AFY)	WPA
Chorro Valley Turnout							
Morro Bay, City of	1,313	2,290	3,603	216	1,313	1,313	4
California Men's Colony	400	400	800	48	400	400	4
County Operations Center	425	425	850	51	425	425	4
Cuesta College	200	200	400	24	200	200	4
Subtotal	**2,338**	**3,315**	**5,653**	**339**	**2,338**	**2,338**	
Lopez Turnout							
Pismo Beach, City of	1,240	1,240	2,480	149	1,240	1,240	7
Oceano CSD	750	0	750	45	495	750	7
San Miguelito MWC	275	275	550	33	275	275	6
Avila Beach CSD	100	0	100	6	66	100	6
Avila Valley MWC	20	60	80	5	20	20	6
San Luis Coastal USD	7	7	14	1	7	7	6
Subtotal	**2,392**	**1,582**	**3,974**	**239**	**2,103**	**2,392**	
Shandon Turnout							
Shandon	100	0	100	6	66	100	14
Subtotal	**100**	**0**	**100**	**6**	**66**	**100**	
Total Reserved	**4,830**	**4,897**	**9,727**	**584**	**4,507**	**4,830**	
Total District Allocation			**25,000**				
"Excess Allocation"			**15,273**				

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.

Figure D-3. California Department of Water Resources State Water Project Facilities

Maintenance schedules and repair requirements can cause reduced deliveries or a 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 conditions coupled with pumping restrictions in consideration of endangered species habitat lowered that amount to 35 percent in 2008, 40 percent in 2009, and 0 percent at the start of 2014. To receive a greater portion of State Water during these shortages (up to their full WSAmts), most agencies have entered into "Drought Buffer Water Agreements" with the District for use of an additional portion of the District's SWP allocation, as shown in the table above. For example, when the SWP can only deliver 50 percent of contracted allocations, an agency with 100 AFY WSAmt and 100 AFY drought buffer allocation can still receive 100 AFY WSAmt – 50 percent of their 100 AFY allocation plus 50 percent of their 100 AFY drought buffer allocation equals 100 AFY.

Coastal Branch

The District has 15,273 AFY of unsubscribed SWP allocation (equal to District allocation (25,000 AFY) minus Total Reserved (9,727 AFY)), commonly referred to as the "excess allocation." Hydraulics, treatment plant capacity, and contractual terms and conditions limit how the excess allocation (or capacity) can be used. In 2011, the District evaluated the available hydraulic capacity in the treated water portion of the Coastal Branch, and compiled a report in partnership with the Central Coast Water Authority (CCWA) titled, "Capacity Assessment of the Coastal Branch, Chorro Valley, & Lopez Pipelines." This comprehensive report can be found at:

<http://www.slocountywater.org/site/Major%20Projects/State%20Water%20Project/pdf/Capacity%20Study.pdf>

The reach of pipeline reviewed in the report begins at the Devil's Den Pumping Plant and ends at Tank 5 (see close-up figure above of **Figure D-3**), including the Chorro Valley and Lopez pipelines in San Luis Obispo county. The capacity assessment provides the recommendations to consider in rating the pipeline capacity, and develops operational scenarios for future optimal use.

The following is a summarized list of options for use of excess pipeline capacity:

- Direct delivery after contract-revision negotiation for use of any additional capacity available in the Coastal Branch treatment and conveyance facilities for use as a conjunctive use supply to relieve groundwater basins in the wet hydrologic years when surface water availability is at its highest
- As additional drought buffer water to supplement deficiencies in other supply sources in dry and critical years
- Permanent, multi-year or single year transfer or exchange to other SWP contractors, utilizing revenues to improve the reliability of existing water systems
- As a source of either direct groundwater recharge through injection or spreading basins, or as a source of water for reservoir storage
- As a source of irrigation supply in lieu of groundwater use in normal/wet year hydrology through extension of raw water conveyance and distribution facilities beginning at the Coastal Branch Water Treatment Plant, where the larger SWP raw water pipeline terminates, and delivering to Paso Robles Basin residents and agricultural lands

Further detailed discussion on the reliability of SWP supply to the San Luis Obispo Region can be found in the MWR.

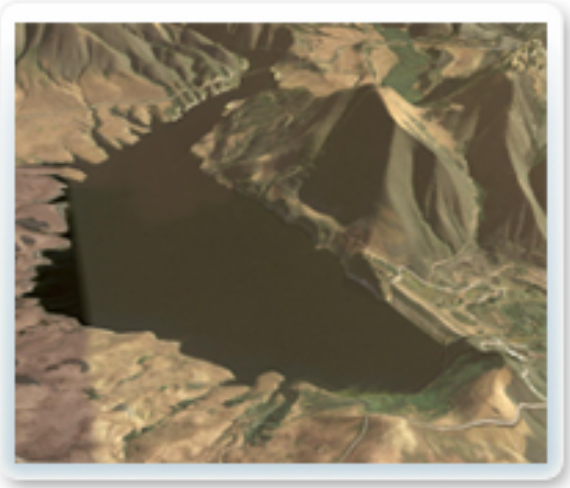
D.2.4 *Appropriated Water Rights*

The State Water Resources Control Board has historically regulated and permitted diversions from rivers and creeks for beneficial purposes. Appropriative water right permits are held by numerous entities (i.e., water agencies, landowners, industry, etc.) and typically have a maximum diversion limit stated in the permit. The seniority of water rights is based on the permit number with older permits having seniority over more recent permits. The location and diversions amounts of this type are perhaps the most difficult to site and quantify given that many diverters are private landowners using water for irrigation with no annual reporting of the quantity used. Urban water agencies, however, do report their diversion locations and amounts, and are included in the overall water budget for the IRWM Region.

D.2.5 *Other Sources of Water Supply*

In a few cases, water originating from outside the IRWM planning region is used within a WPA. In these cases, the source of water is either from a watershed and groundwater basin shared between two regions, resulting in coordinated management, or the water comes from non-potable sources such as ocean water or treated wastewater, delivered in the form of desalinated or recycled water supplies, respectively.

D.2.5.1 Twitchell Reservoir



Twitchell Dam is on the Cuyama River about six miles upstream from its junction with the Sisquoc River. Though the dam is located in Santa Barbara County to the south, and operated by the Santa Maria Valley Water Conservation District (SMVWCD), the reservoir straddles the county line and some agricultural land within San Luis Obispo County (South County Sub-Region) is irrigated from the Santa Maria Groundwater Basin, which is replenished by the reservoir's and downstream Cuyama River flood plain's natural groundwater recharge capacity.

The multiple-purpose Twitchell Reservoir has a total capacity of 224,300 AF. It stores floodwaters of the Cuyama River, which are released as needed to recharge the groundwater basin and to prevent sea water intrusion. The reservoir supplies on average 32,000 AFY of recharge to the Santa Maria Valley Groundwater Basin, though this value fluctuates significantly relative to annual precipitation. Because the reservoir is managed for flood control and groundwater recharge, the reservoir is empty much of the time. A majority of the groundwater flows towards the ocean, though a small gradient flows seasonally to the Nipomo Mesa Management Area groundwater basin.

D.2.5.2 Desalination

The Cambria CSD service area is isolated from inland areas by the Santa Lucia mountain range to the east and the Pacific Ocean to the west, and there are currently no nearby aqueducts from which to import freshwater into the area. These factors resulted in the CSD's Water Master Plan's Program-level EIR (WMP PEIR) to recommend sea water desalination as the most cost-effective alternative for supplemental potable drinking water supplies.

Since then, the Army Corps of Engineers conducted four facilitated workshops in 2012, which evaluated and screened numerous supply alternatives. This process identified a brackish water project located on CCSD property off of San Simeon Creek Road as being a technically preferred alternative. The CCSD's current emergency water supply project used this earlier San Simeon Brackish water supply alternative as a starting point in developing its design. The project's advanced water treatment plant will include reverse osmosis for removing salt from brackish water. The brackish water is a combination of creek underflow, percolated wastewater

treatment plant effluent, and a mixture of freshwater and seawater from a deeper saltwater wedge area.

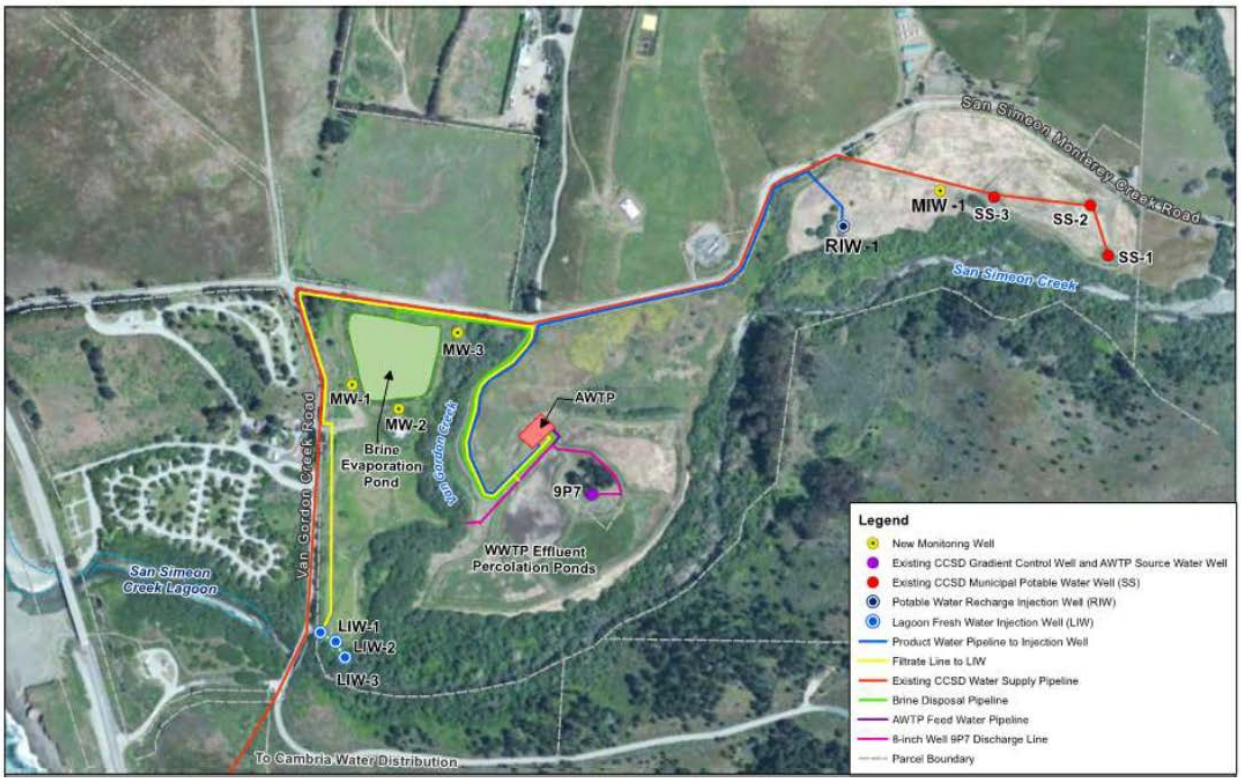


Figure D-4. Cambria CSD Desalination Schematic

Once completed, the emergency supply project will be capable of producing 250 AF of potable water over a six-month dry season period. In addition to the current emergency project, the CCSD Army Corps of Engineers is completing a longer term supply project through a WRDA authorization. An EIS is currently being completed by the Corps, which will identify a preferred long term water supply alternative.

The plant, if implemented, is expected to produce up to 602 AFY, and is planned to operate during the summer season to augment supply during the summer and high demand periods (from summer tourism). A recycled water system is also planned, with an estimated 65 AFY made available for unrestricted outdoor irrigation use.

In addition, the City of Arroyo Grande, the City of Grover Beach, and the Oceano Community Services District participated in the evaluation of a desalination project to supplement their existing potable water sources. Currently, all three agencies receive water from various sources, including the California State Water Project, Lopez Lake Reservoir, and groundwater from the Arroyo Grande Plain Hydrologic Subarea that is part of the Santa Maria Valley Groundwater Basin. Recent projections of water supply shortfalls in the region motivated the agencies to

conduct a more detailed study of desalination as a supplemental water supply.[2] The study focused on utilizing the existing South San Luis Obispo County Sanitation District's (SSLOCSD) wastewater treatment plant to take advantage of utilizing the existing ocean outfall, while having the plant located near the ocean sea water source. The feasibility study, completed in 2008, was based on a 2,300 AFY sea water desalination facility. Some of the major points of interest and concern of this study include:

- Some 20 or more beach wells may be needed to provide enough sea water to produce the 2,300 AFY potable water
- Permitting and environmental issues could be complex, and implementation could take eight years or longer

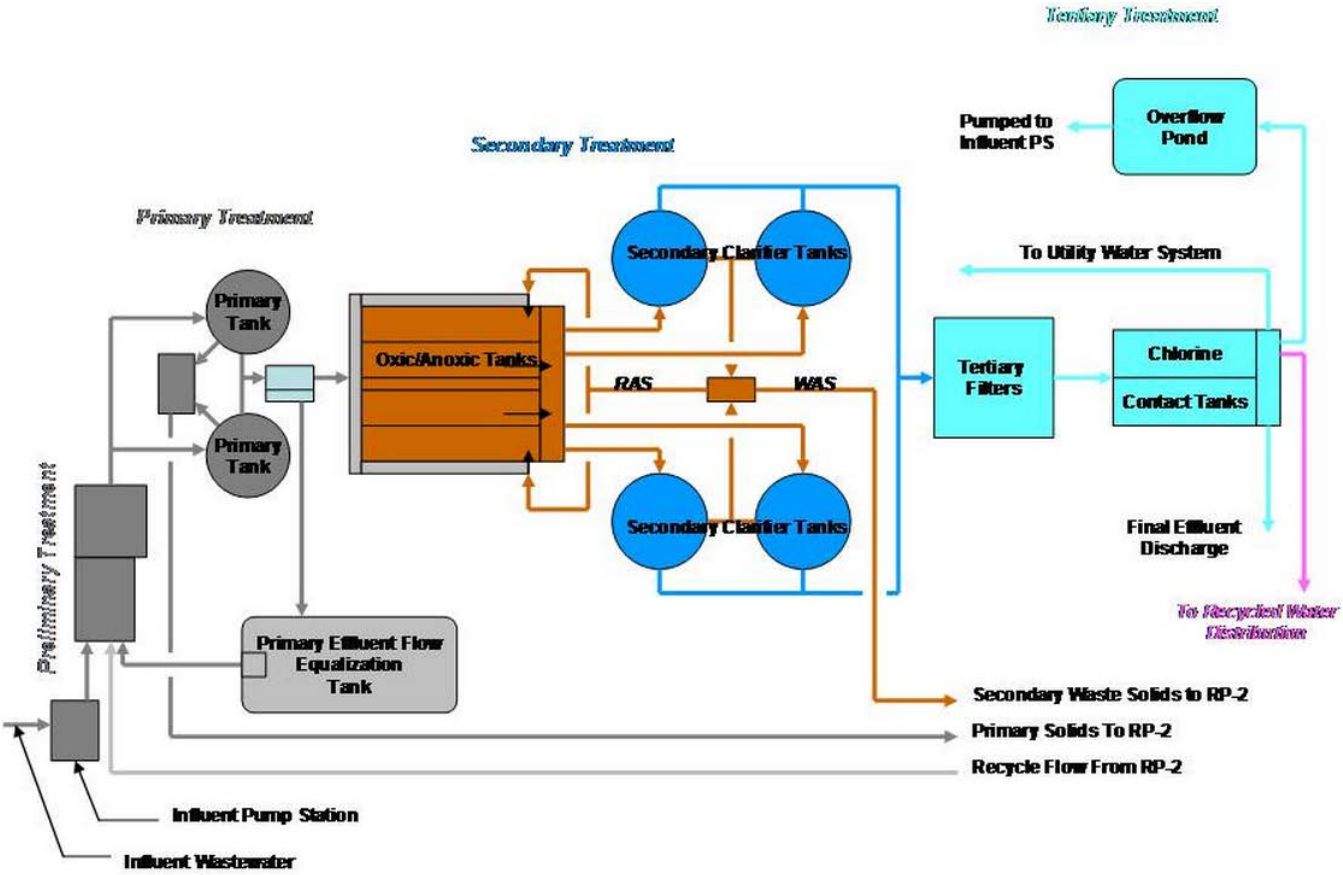
Initial capital cost could be in the range of $35 million, and customer rates could be impacted by 18 percent to over 100 percent to fund the project, and would cost approximately $2,300 per AF or more, on a 20-year life cycle basis; project design could begin by 2016, depending on availability of existing water supplies.

D.2.5.3 Water Recycling

Several purveyors and agencies in the County recycle municipal wastewater (see **Figure D-5** for illustration of water recycling process). Details of each purveyor or sanitary agency's recycled water program are discussed later in this report. Recycled water qualities range from secondary quality (as defined by Title 22 California Code of Regulations (CCR)) to the highest level of treatment for unrestricted use.

The most established water recycling program in the County is that of the City of San Luis Obispo. The City of San Luis Obispo currently delivers 135 AFY to nearby golf courses, schools, and commercial establishments, with expectations of increasing recycled water deliveries to 1,000 AFY. The City must also maintain treated effluent discharge from their wastewater treatment plant to San Luis Obispo Creek, and this flow amounts to approximately 1,800 AFY.

[2] City of Arroyo Grande 2010 UWMP currently cites a 2006 report entitled, *Water Supply Study; Desalination,* concluding that the estimated cost per acre-foot of desalination water of $2,675/AF (2010 Dollars) makes desalination infeasible.



Source: http://www.ieua.org/facilities/rp5.html

Figure D-5. Municipal Water Recycling Process

Other water recycling projects in the County include those listed in **Table D-5** and are discussed briefly in the MWR, and in the draft San Luis Obispo County Regional Recycled Water Strategic Plan (RRWSP).[3] The planned future use of recycled water from San Luis Obispo County agencies are included in their forecasted water supply portfolio discussed in water demand sections below.

[3] June 2014 Public Draft Regional Recycled Water Strategic Plan (Review for Public Comments) <http://www.slocountywater.org/site/Frequent%20Downloads/Integrated%20Regional%20Water%20Management%20Plan/Recycled%20Water/>

Table D-5. Existing and Projected Recycled Water Use

Agency / WWTP	Existing Effluent		Inland Discharge	Ocean / Coastal Discharge	Existing Reuse	Planned Future Reuse
North Coast Sub-Region	(mgd)	(AFY)	(AFY)	(AFY)	(AFY)	(AFY)
California Men's Colony	1.20	1,340	1,140[3]	--	200[3]	200
Cambria CSD	0.50	540	--	540	--[4]	
Cayucos CSD	0.25	275	--	275	--	
Los Osos WWTP[5]	1.20	1,340	1,340	--	--	
Morro Bay	0.87	975	--	975	--	1,121
San Simeon CSD	0.07	80	--	80	--[6]	
North County Sub-Region						
City of Atascadero	1.00	1,100	800	--	300	300
Heritage Ranch CSD	0.20	230	230	--	--	--
City of Paso Robles	3.00	3,300	3,300	--	--	--
San Miguel CSD	0.10	130	130	--	--	--
TCSD Meadowbrook WWTP[1]	0.15	170	170[2]	--	--	750
South County Sub-Region						
Avila Beach CSD	0.05	50	--	50	--	
NCSD Blacklake WWTP	0.05	50	--	--	50	80
NCSD Southland WWTF	0.60	640	640[7]	--	--	1,900
Pismo Beach	1.10	1,230	--	1,230	--	2,020
Rural Water Company	0.05	50	--	--	50	50
City of San Luis Obispo[8]	5.10	5,700	5,540[8]	--	160	400
San Miguelito MWC	0.15	170	--	170	--	
SSLOCSD WWTP	2.60	2,910	--	2,910	--	3,920
Woodland MWC	0.05	50	--	--	50	50
Total	**18.29**	**20,330**	**13,290**	**6,230**	**810**	**10,791**

Source: (Public Draft RRWSP, June 19, 2014), MWR, and UWMPs

Notes:

1 Templeton CSD is considering diverting existing sewer flows that go to the Paso Robles WWTP (approximately 0.22mgd) and conveying the flow for treatment at the TCSD Meadowbrook WWTP.

2 Templeton CSD retrieves the percolated water at downstream wells.

3 Must maintain a minimum discharge of 0.75 cfs (0.5mgd ; 540AFY) to Chorro Creek.

4 Percolated effluent serves as a barrier to slow the seaward migration of subterranean fresh water.

5 Currently under construction and start of operations planned for 2016.

6 Trucking of recycled water for irrigation started in 2014.

7 Percolated water is accounted for in the Nipomo Mesa Management Area groundwater balance.

8 Must maintain a minimum discharge of 2.5 cfs (1.6mgd ; 1,800AFY) to San Luis Obispo Creek.

D.2.6 *Other Cooperative Supply Opportunities*

Other cooperative supply opportunities exist between agencies internal to the planning region. There are also future programs such as expansion of the existing Nacimiento Water Project (NWP). Currently, 9,655 AFY of water available from the project is subscribed for and 6,095 AFY

is unsubscribed for. The following are examples from the MWR of how the use of the NWP could be used as a viable supply source in the future.

Unsubscribed Urban Use: This would entail direct delivery of the unsubscribed water to existing or new urban participants.

Unsubscribed Non-Urban Use: This would entail delivery to new rural and/or agricultural participants directly or via wheeling through existing participants' infrastructure.

Groundwater Banking or Recharge: This would entail direct or in-lieu delivery of subscribed and/or unsubscribed water to a recharge location for later extraction and/or to benefit the groundwater basin. In-lieu delivery refers to delivering additional NWP water to existing participants in-lieu of those existing participants pumping groundwater.

Exchanges: This would entail using the unsubscribed water in exchange of a currently used water resource. Examples include connecting CMC or Cal Poly to the NWP and freeing up State Water and/or Whale Rock Reservoir water for use by others; the City of San Luis Obispo utilizing additional water from the NWP and freeing up Salinas Reservoir water for use by others; or delivering unsubscribed water to urban areas to free up groundwater for rural and/or agricultural users.

Other more developed supply sources of the County that are outside of groundwater basins discussed above are listed in **Table D-6**. If the District requires more detailed information, focused studies would be necessary.

Table D-6. Other Developed Supply Sources

ıb-Region	Area
North Coast	Villa/Cayucos/Old/Willow/Toro Creek Roads
North County	Nacimiento/San Antonio Lakes
North County	Adelaida
North County	Park Hill
North County	Templeton Hills
South County	Coast San Luis Hills/Oak Park
South County	Coast Nipomo Valley/Los Berros/Tematte Ridge

Source: 2012 MWR

Most of these opportunities do provide a reliable source of water due to the nature of existing contract provisions and surface water rights. However, given the affordability and institutional challenges associated with new urban or non-urban participants working both inside and outside of the San Luis Obispo County IRWM region, and costs associated with a banking/recharge program that would likely only have a short-term benefit, further studies are needed to look at:

- Developing supply scenarios and evaluating each scenario regarding the needs,

willingness of participants, capacity availability, stakeholder review and/or approval, exchange valuation assessments, and water rights issues.
- Conducting flow tests or reservoir releases to evaluate the benefit of outside cooperative new supply scenarios.

D.2.7 *Current Water Supply Total*

Total current water supplies of the IRWM planning region are presented in two different aggregations to present the supply totals on both a Sub-Region and WPA level. The breakdown of water supplies includes five categories of water supply sources:

1. **Groundwater** – groundwater indigenous to the Sub-Region
2. **SWRCB Water Rights Diversions** – SWRCB permitted surface water diversions within the IRWM Region
3. **Imported Surface Water** – includes SWP water from the Coastal Branch WTP
4. **Reuse/Recycled water** – includes recycled and desalination supplies
5. **Other Cooperative Supply Opportunities** – includes working within and adjoining IRWM regions in securing urban and non-urban supplies for direct use or banking and exchange using groundwater basins.

D.2.7.1 Current Urban Water Supply Breakdown by Sub-Region

As shown in **Table D-7** and **Figure D-6**, approximately two-thirds of the current urban water supply comes from groundwater. Typical for many regions, the dependency on groundwater is a result of using the least cost/best quality water supply alternative. With groundwater elevations continually sliding downward causing increased pumping costs, and with the real threat of sea water intrusion and upwelling of high TDS groundwater requiring expensive treatment, the reduced availability of low cost fresh groundwater supplies is driving the need for looking to supplemental surface water, recycled water, and desalinated water supplies.

Table D-7. Current (2010) Urban Water Supply for Entire IRWM Planning Region

Total Water Supply By Sub-Region (AFY)							Sub-Region Totals
Sub Region	Groundwater	SWRCB Water Rights Diversions	Imported Surface Water	ReUse/ Recycled	Desalinated	Other Cooperative Supply Opportunities	
North Coast	5,028	3,609	0	300	645	600	10,182
North County	24,093	7,672	66	475	0	1,700	34,006
South County	10,205	11,749	1,735	2,635	0	7,919	34,243
Region Total	**39,326**	**23,030**	**1,801**	**3,410**	**645**	**10,219**	**78,431**

Source: IRWM Database

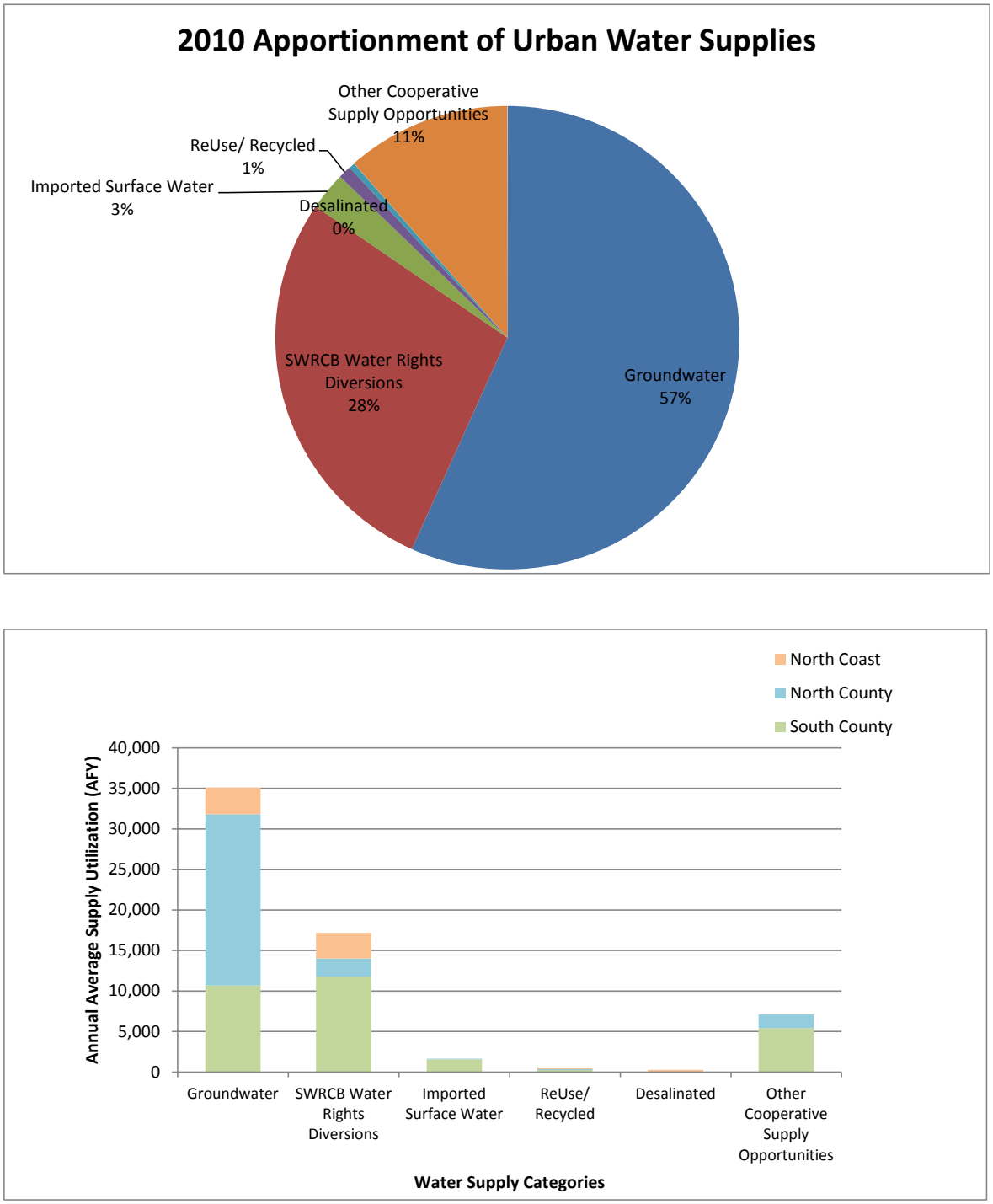


Figure D-6. Urban Water Supply Breakdown by Sub-Region and for Total Region

D.2.7.2 Urban Water Supply Summary by Water Sector and WPA

To better represent the urban supply usage, **Table D-8** and **Table D-9** provide a breakdown in water supplies in the IRWM planning region by WPA and Sub-Region for the years 2010 and 2035. Urban supplies often use a mix of groundwater, surface water, imported water, recycled water and/or desalinated water. **Figure D-7** illustrates the change in water supplies between

2010 and 2035 showing increases in all supply sources with recycled water and desalinated water having the largest percent change.

Table D-8. Water Supplies for 2010 Urban Uses

WPA	Total Water Supply (AFY) by WPA						Totals
	Groundwater	SWRCB Water Rights Diversions	Imported Surface Water	ReUse/ Recycled	Desalinated	Other Cooperative Supply Opportunities	
North Coast							
1.San Simeon	140	-	-	-	-	-	140
2.Cambria	673	-	-	-	-	-	673
3.Cayucos	-	661	-	-	-	-	661
4.Morro Bay	328	2,508	-	200	258	-	3,294
5.Los Osos	2,156	-	-	-	-	-	2,156
North Coast Total	**3,297**	**3,169**	**-**	**200**	**258**	**-**	**6,924**
North County							
10.Carrizo	-	-	-	-	-	-	-
11.Rafael/Big Spring	-	-	-	-	-	-	-
12.Santa Margarita	1,785	22	-	-	-	-	1,807
13.Atascadero/Templeton	12,452	2,250	-	132	-	-	14,834
14.Salinas/Estrella	6,898	-	66	-	-	-	6,964
15.Cholame	-	-	-	-	-	-	-
16.Nacimiento	-	-	-	-	-	1,700	1,700
North County Total	**21,135**	**2,272**	**66**	**132**	**-**	**1,700**	**25,305**
South County Total							
6.San Luis Obispo/Avila	238	11,749	-	151	-	23	12,161
7.South Coast	10,432	-	1,571	76	-	5,379	17,458
8.Huasna Valley	-	-	-	-	-	-	-
9.Cuyama Valley	-	-	-	-	-	-	-
South County Total	**10,670**	**11,749**	**1,571**	**227**	**-**	**5,402**	**29,619**
IRWM Total Urban	**35,102**	**17,190**	**1,637**	**559**	**258**	**7,102**	**61,848**

Sources: IRWM Database, 2014

D.3 CURRENT AND FUTURE WATER DEMANDS AND SUPPLIES

Having established the baseline of water supplies above, the balance of those supplies are compared against current and future water demands. This water balance is used to recognize where problems are either already occurring or will occur, and if there are data gaps making the balance of supplies and demands not possible unless further study is completed.

D.3.1 *Water Demand Data Sources*

The primary sources of data used to develop the water balance for the San Luis Obispo Planning Region were 2010 Urban Water Management Plans and the 2012 San Luis Obispo County Master Water Report. Additional information was provided by urban water suppliers within the San Luis Obispo Planning Region.

Table D-9. Water Supplies for 2035 Urban Uses

WPA	Total Water Supply (AFY) by WPA						Totals
	Groundwater	SWRCB Water Rights Diversions	Imported Surface Water	ReUse/ Recycled	Desalinated	Other Cooperative Supply Opportunities	
North Coast							
1.San Simeon	140	-	-	-	-	-	140
2.Cambria	809	-	-	100	-	600	1,509
3.Cayucos	-	661	-	-	-	-	661
4.Morro Bay	1,923	2,948	-	200	645	-	5,716
5.Los Osos	2,156	-	-	-	-	-	2,156
North Coast Total	**5,028**	**3,609**	**-**	**300**	**645**	**600**	**10,182**
North County							
10.Carrizo	-	-	-	-	-	-	-
11.Rafael/Big Spring	-	-	-	-	-	-	-
12.Santa Margarita	1,785	22	-	-	-	-	1,807
13.Atascadero/Templeton	13,447	2,250	-	475	-	-	16,172
14.Salinas/Estrella	8,861	5,400	66	-	-	-	14,327
15.Cholame	-	-	-	-	-	-	-
16.Nacimiento	-	-	-	-	-	1,700	1,700
North County Total	**24,093**	**7,672**	**66**	**475**	**-**	**1,700**	**34,006**
South County Total							
6.San Luis Obispo/Avila	238	11,749	-	400	-	23	12,410
7.South Coast	9,967	-	1,735	2,235	-	7,896	21,833
8.Huasna Valley	-	-	-	-	-	-	-
9.Cuyama Valley	-	-	-	-	-	-	-
South County Total	**10,205**	**11,749**	**1,735**	**2,635**	**-**	**7,919**	**34,243**
IRWM Total Urban	**39,326**	**23,030**	**1,801**	**3,410**	**645**	**10,219**	**78,431**

Sources: IRWM Database, 2014

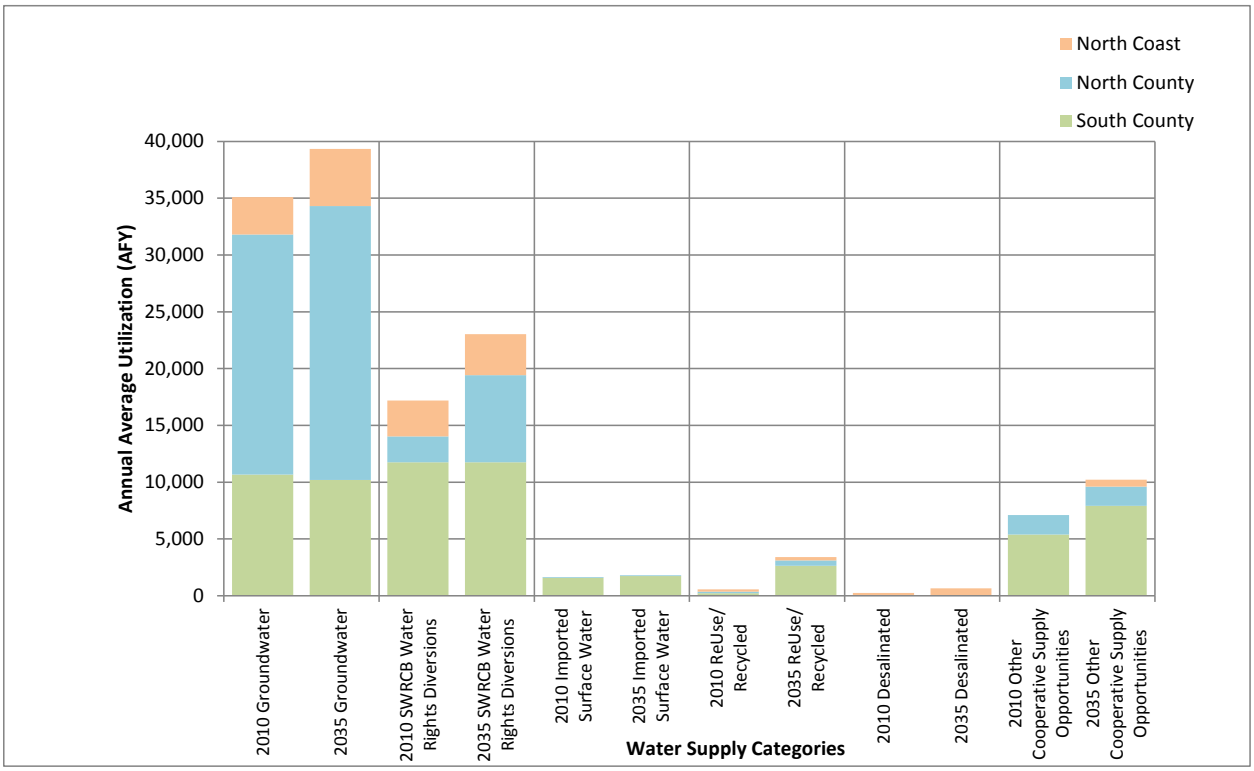


Figure D-7. Comparison in Urban Water Supply Portfolio 2010 and 2035

D.3.1.1 2010 Urban Water Management Plans

Urban Water Management Plans (UWMPs) are prepared by California's urban water suppliers to support their long-term resource planning and ensure adequate water supplies are available to meet existing and future water demands. Every urban water supplier that either provides over 3,000 acre-feet of water annually or serves 3,000 or more connections is required to assess the reliability of its water sources over a 20-year planning horizon considering normal, dry, and multiple dry years. This assessment is included in an urban water supplier's UWMP, which are prepared every five years and submitted to the Department of Water Resources. The following water suppliers prepared 2010 UWMPs that were used in this analysis (see **Section N – Relation to Local Water and Land Use Planning**, Table N-1 for list of UWMP and their URLs):

- City of Arroyo Grande
- Cambria Community Services District
- City of Grover Beach
- City of Morro Bay
- Nipomo Community Services District
- City of Paso Robles
- City of Pismo Beach
- City of San Luis Obispo

D.3.1.2 2012 San Luis Obispo Master Water Report

The Master Water Report (MWR) is a compilation of the current and future water resource management activities being undertaken by various entities within the County and is organized by WPA. The MWR explores how these activities interrelate, analyzes current and future supplies and demands, identifies future water management strategies and ways to optimize existing strategies, and documents the role of the MWR in supporting other water resource planning efforts.

The MWR evaluates and compares the available water supplies (apart from the untreated ocean) to the water demands for the different water planning areas. This was accomplished by reviewing or developing the following:

- Current water supplies and demands based on available information
- Forecast water demands and water supplies available in the future under current land use policies and designations
- Criteria under which there is a shortfall when looking at supplies versus demands
- Criteria for analyzing potential water resource management strategies, projects, programs, or policies
- Potential water resource management strategies, projects, programs, or policies to resolve potential supply deficiencies

Given the amount of overlap between the MWR and the IRWM Plan, the District is going to manage updates of the information in the MWR as part of the IRWM Plan update process. The IRWM Plan has to update urban water demands based on all of the 2010 UWMPs, which were not available when the MWR was written. Agricultural water demands are also updated from the MWR based on a 2013 updated county survey and groundwater modeling work currently taking place in the Paso Robles groundwater basin (see **Figure D-9**). Much of the descriptive information has either been brought into the IRWM Plan or is summarized with a reference to the MWR. To adhere to the MWR's methods of reporting, the water budget tables are kept very close to the same look and content, but the forecast numbers and supply sources have changed. More specifically, each demand source is assigned a supply source regardless of the uncertainty. For instance, in rural cases where the water supply comes from groundwater, groundwater supplies are assigned to equal the demand, even if "Other Groundwater Sources" is the named supply source.

D.3.2 *Method for Developing Projected Water Demands*

The IRWM region demand analysis period starts at the year 2010, corresponding to the most recent Urban Water Management Plans, and extends through 2035; the planning horizon of this IRWM Plan Update. Unlike the MWR, the IRWM analysis does not consider a build-out demand, unless the urban area is truly built-out by 2035. It is important, in this case, to place IRWM projects on a common timeline with the availability of water supplies, and regional statewide projects.

D.3.2.1 Urban Water Demand

Figure D-8 provides a mapping of population density by census block to identify urban areas requiring public water service for drinking water and outdoor water use. The Urban /Reserve Boundaries indicate the potential build-out of incorporated cities and communities. Urban water demand refers to residential, commercial, industrial, parks, institutional, and golf course water demand within the unincorporated communities and incorporated cities in the IRWM Region.

For purposes of the IRWM Plan, the urban water demand includes all unincorporated communities and incorporated cities in the County where water purveyors have provided water demand information for the purposes of reporting in the IRWM Plan. As mentioned above, the urban water demand analysis relies heavily on the 2010 UWMPs. Data analysis was completed in five-year estimates, reflecting the information provided by the 2010 UWMPs. Notification was made to all urban water districts not having a UWMP, with some not responding to the data request. In these cases, the MWR is used as the basis assuming the districts are small enough to not change significantly.

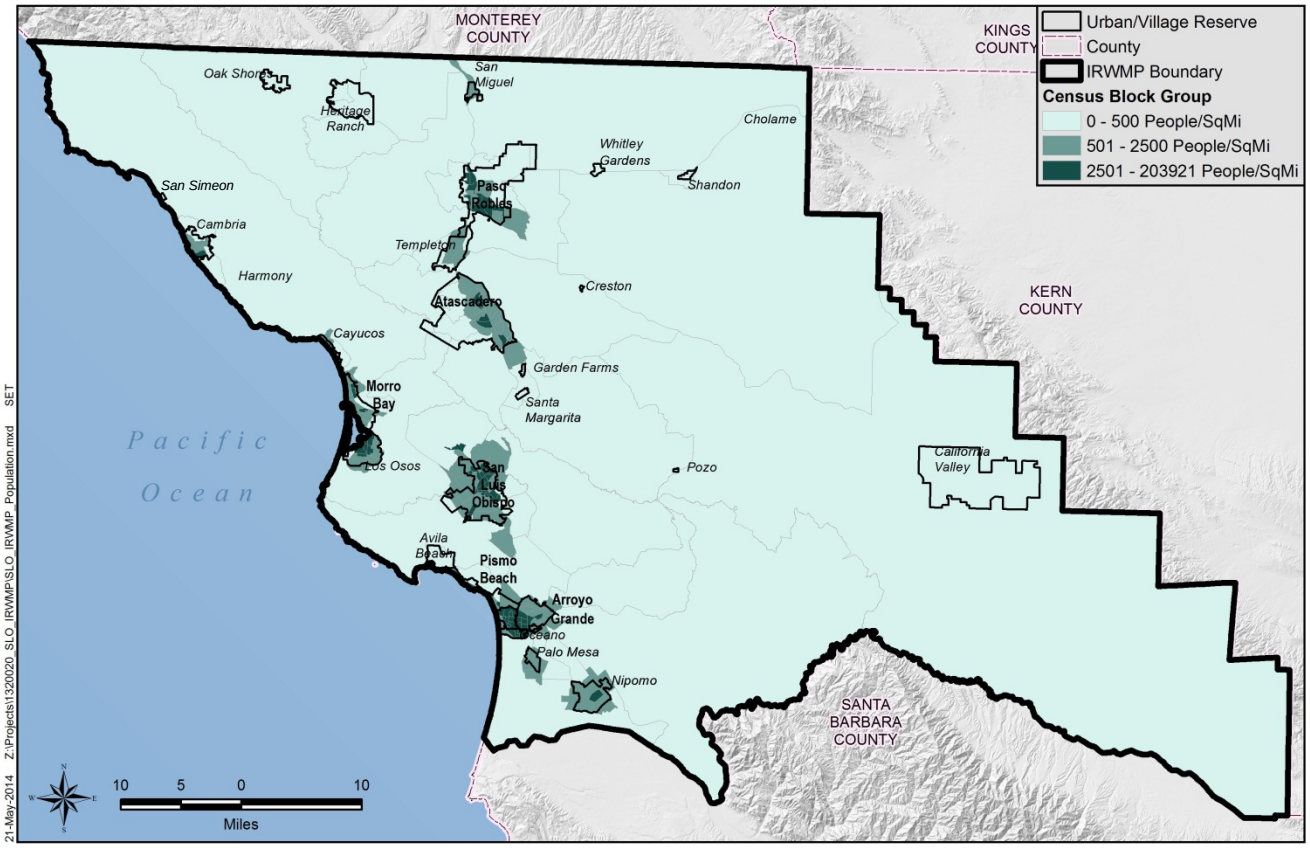


Figure D-8. Map of Urban and Rural Areas

D.3.2.2 Rural Water Demand

Rural water demand refers to water demands that are not considered agricultural or urban, and typically supplied through a private well or small water system. The typical land use is small to medium acreage ranchette homes of 5 to 20 acres in size with minimal urban-style landscaping. Since no update of the rural areas was conducted as part of the IRWM Plan Update, the analysis used herein, to determine rural water demands relies wholly on the estimated current and projected MWR demands. For purposes of illustration, the areas shown on **Figure D-8** to be of population densities 501 to 2,500 people per square mile are considered to be typical of rural residential zoning.

D.3.2.3 Agricultural Water Demand

Agricultural water demand (see **Figure D-9**) refers to the annual applied water in all agricultural areas in the IRWM planning region. The current agricultural water demand was calculated using the same method and crop-specific applied water variables employed by the MWR, which utilized information on crop evapotranspiration, effective rainfall, leaching requirements,

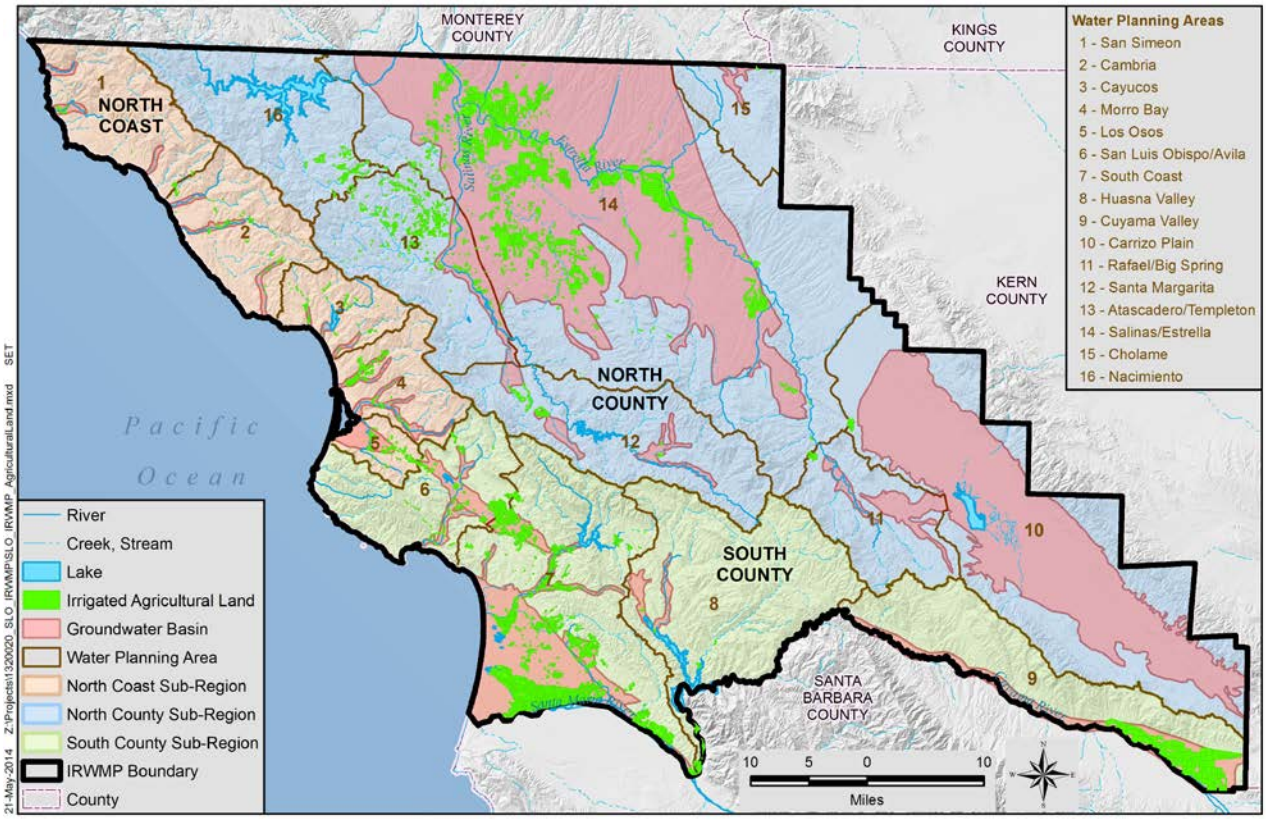


Figure D-9. Agricultural Areas

irrigation efficiency, deficit irrigation, and frost protection. The variables used in the 2012 MWR were reviewed and determined to be the most current values available. The Agricultural/Crop ArcGIS® layer for the San Luis Obispo County from August 2013 was provided to update the 2008 MWR agricultural water use estimates. The seven (7) crop categories presented in the IRWM represent approximately 37 crop types (or Primary Commodities, see **Table D-10**) with each category's water demand being based on a calculation of applied water using the crop-specific evapotranspiration, contribution from rain or shallow water table, leaching requirements, irrigation efficiency, and frost protection.

Table D-10. Crop Group Primary Commodities

Seven (7) Crop Categories	Crop Types (Primary Commodities)	
Alfalfa	• Alfalfa	
Nursery	• Christmas trees • miscellaneous nursery plants	• flowers
Pasture	• miscellaneous grasses • mixed pasture	• sod/turf • sudan grass
Citrus	• Avocados • Grapefruits • Lemons	• Oranges • Olives • Kiwis • pomegranates
Deciduous	• Apples • Apricots • Berries • Peaches • Nectarines • Plum	• Figs • Pistachios • Persimmons • Pears • Quince • strawberries
Vegetables	• Artichokes • Beans • miscellaneous vegetables	• mushrooms • onions • peas • peppers • tomatoes
Vineyard	• wine grapes • table grapes	

For the Paso Robles groundwater basin, agricultural areas were taken from the recent groundwater modeling effort to ensure consistency of the two ongoing efforts. Replacement of the Paso Basin areas in the county data was done in GIS to create a single agricultural area layer for calculation purposes.

For details on the methodology used for calculating agricultural water demands, see Chapter 4.6.3 of the MWR. For a detailed report on agricultural water demands presented in the IRWM, see **Appendix J-1 – Agricultural Water Demand Analysis**.

D.3.2.4 Environmental Demand and Unimpaired Runoff

Environmental water demand refers to the amount of water needed in an aquatic ecosystem, or released into it, to sustain aquatic habitat and ecosystem processes. The federally threatened south-central California coast steelhead (Oncorhynchus mykiss) was used as the primary indicator species for the development of a reasonable estimation of the amount of water needed to support this species. Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The Unimpaired Mean Annual Discharge (UMAD) is estimated to translate the total volume of water yielded from the watershed

unimpaired from any impoundments or other regulated flow structures. The Environmental Water Demand and UMAD are calculated for the entire WPA and not for individual streams. These estimates, taken from the MWR, are not available for all WPAs and the calculation of both Environmental and UMAD flow volumes are described fully in the MWR.

> *Note: Environmental water demands were to be determined based on watershed "snapshots" provided by the County through a consultant contract being completed in parallel with the IRWM Plan Update. Given delays, the environmental demands provided in this section come directly from the MWR, unless updated demands become available prior to the Public Draft.*

As noted in the MWR, DWR identified over 1,000 water rights applications and permits for San Luis Obispo County (DWR, 2009b) in 2009. Because many of those water rights are uncertain as to their use and permitted amounts, and for purposes of the MWR analysis, the Environmental and UMAD flow volumes are presented without including an analysis of the 1,000 diversion rights in the IRWM region.

> *In order to obtain a better understanding of how much surface water is available for aquatic life, the District would need to identify and quantify all diversion rights and instream flow requirements in the watershed. (MWR)*

D.3.2.5 Assumptions

As in all planning studies where projections are based on what is known today, with an eye towards the future using General and Community plans and various population projections, the goal is to minimize the level of uncertainty to the extent possible given the data available. The three primary planning documents used in this section are the 2007 IRWM plan, the 2012 MWR, and various 2010 UWMPs. To achieve this goal, a number of assumptions are made in the development of the San Luis Obispo Region water demand analysis using these three sources, including the GIS analysis conducted for agricultural demands:

- Existing and projected urban water demand values are obtained from the 2010 UWMPs, if available. If no 2010 UWMP is available, such as in the case of a smaller water district, the water district is notified of the need to update their water demands
- For the purposes of IRWM Plan's reporting of urban water demands where no UWMP or requested update exists, 2010 is assumed to be the MWR demand labeled as existing, and 2035 is assumed to be the MWR demand labeled as Build-out. Moreover, a straight-line interpolation is used in most cases to obtain the urban demands in five-year intervals, unless information is available to change the assumption on the rate of growth
- Projected 2010 UWMP urban water demand values are assumed to include existing

and planned conservation measures, including those implemented to meet the California 20x2020 Water Conservation Plan (SBX7-7)

- Where the MWR water demand is used and demands are presented as a range representing conservation and maximum build-out, the average of that range is calculated and used in this analysis
- For rural and agricultural water demands, MWR and GIS updated values, respectively, are used for each WPA, and straight-line interpolation is used in most cases to obtain the demands in five-year intervals
- Agricultural and rural water supplies are approximated based on the area of each groundwater basin underlying the agricultural and rural land uses. Surface water use is estimated based on availability of water rights and assumed areas to utilize surface water for irrigation (e.g., areas not overlying a groundwater basin)

D.4 WATER DEMAND AND SUPPLIES BY SUB-REGION AND WPA

Each of the Sub-Regions and WPAs described in **Section C – Region Description** are included below to represent the forecast summary of water demands and 2035 water budget in the form of a water balance showing demands for urban, rural, and agriculture water uses and available supplies. Environmental water and estimated UMAD are also included to capture each WPA's full water supply requirements. This information is stored and managed in the Region Description Database (see **Section K – Data Management**) and the tables produced are exported for each WPA and Sub-Region. For further detailed information on supplies and demands, please refer to the MWR. One significant change from the MWR is the use of actual assumed values where, in some cases, supply amounts are listed as unknown. The purpose is to provide a placeholder that allows for the summation of demands and supplies for a comparison. Estimated values will be the focus of future updates to improve the understanding of a very complex water demand and supply comparison.

This section is organized by Sub-Region, starting with a summary table (**Table D-11**) and graph (**Figure D-10**) for the three Sub-Regions of the IRWM region, followed by a summary of the WPAs for each Sub-Region, and ending with detailed information for each WPA at the scale of a water district. More importantly, the collection of water demand and supply information contained below is a reporting of published material, especially the 2012 MWR and 2010 UWMPs included in **Section M – Technical Analysis**, and a reporting of calculated agricultural demands based upon analysis conducted by crop type for each WPA. No separate unpublished findings of water supply sufficiency are made within this section.

Table D-11. IRWM Plan Sub-Region Demand Totals

Sum Urban, Rural, Ag	2010	2015	2020	2025	2030	2035
North Coast	11,354	12,109	12,732	13,366	13,974	15,179
North County	117,909	126,043	134,414	142,760	148,316	154,457
South County	106,282	104,262	99,984	96,477	93,021	89,665
Total for IRWM Region	**235,545**	**242,414**	**247,130**	**252,603**	**255,311**	**259,301**

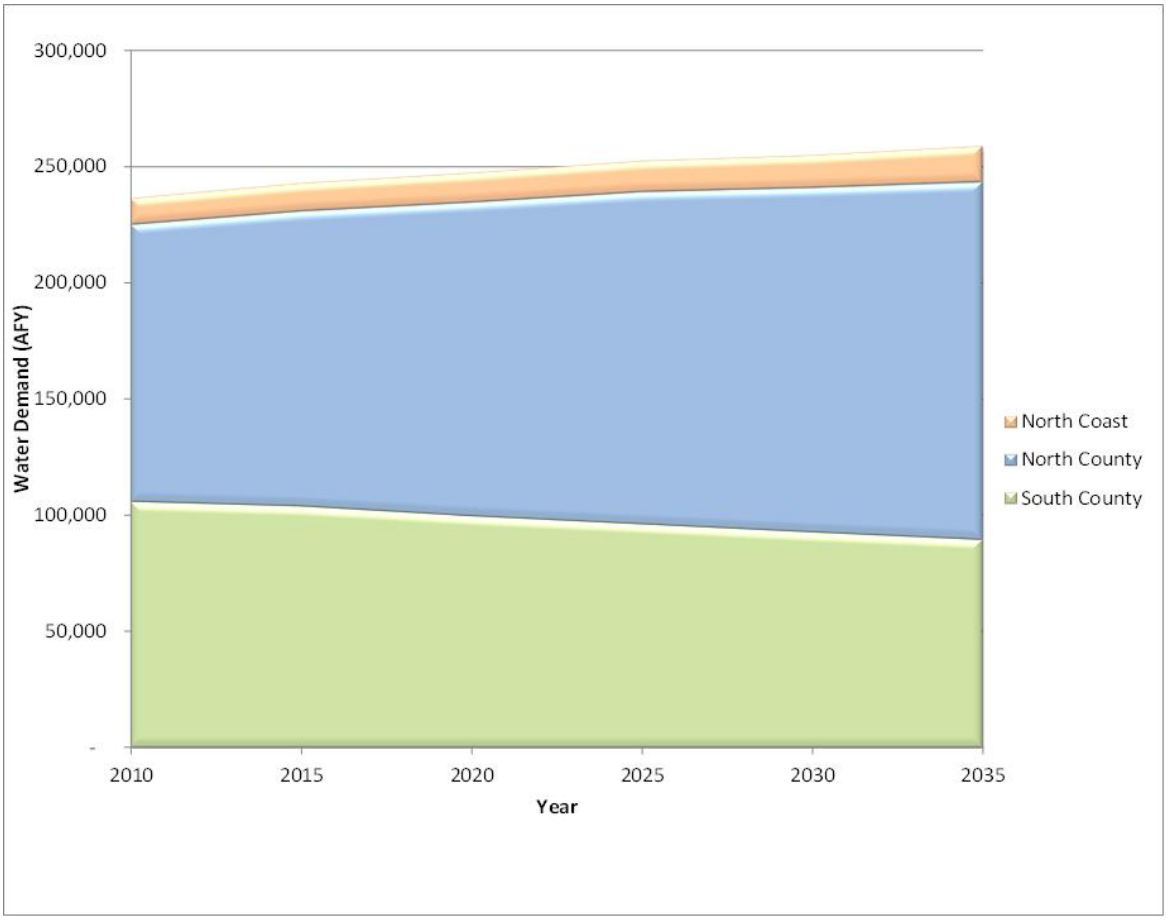


Figure D-10. IRWM Plan Sub-Region Projected Demand Totals

D.4.1 *North Coast Sub-Region*

As listed in **Table D-12**, the North Coast Sub-Region includes five WPAs (See **Figure D-8**). Most of the urban water demands stem from small coastal communities reliant on small groundwater basins where the ocean's salinity influence on fresh groundwater supplies is of critical concern (i.e., see basin descriptions in **Section C – Region Description**). A small amount of surface water, desalinated water, and recycled water is used in the southern portion of the sub-region. Pockets of rural and agricultural demands are reliant on local groundwater supplies using private wells to meet both irrigation and potable water demands.

Table D-12. North Coast Subregion WPA Annual Average Water Demand Summary (AFY)

Sum Urban, Rural, Ag	2010	2015	2020	2025	2030	2035
WPA No. 1 - San Simeon	169	203	238	271	305	339
WPA No. 2 - Cambria	1,293	1,563	1,768	1,949	2,088	2,581
WPA No. 3 - Cayucos	1,348	1,353	1,360	1,365	1,371	1,376
WPA No. 4 - Morro Bay	4,945	5,039	5,055	5,098	5,157	5,802
WPA No. 5 - Los Osos	5,052	5,113	5,185	5,263	5,342	5,435
Total for Sub-Region	**12,807**	**13,271**	**13,606**	**13,946**	**14,263**	**15,533**

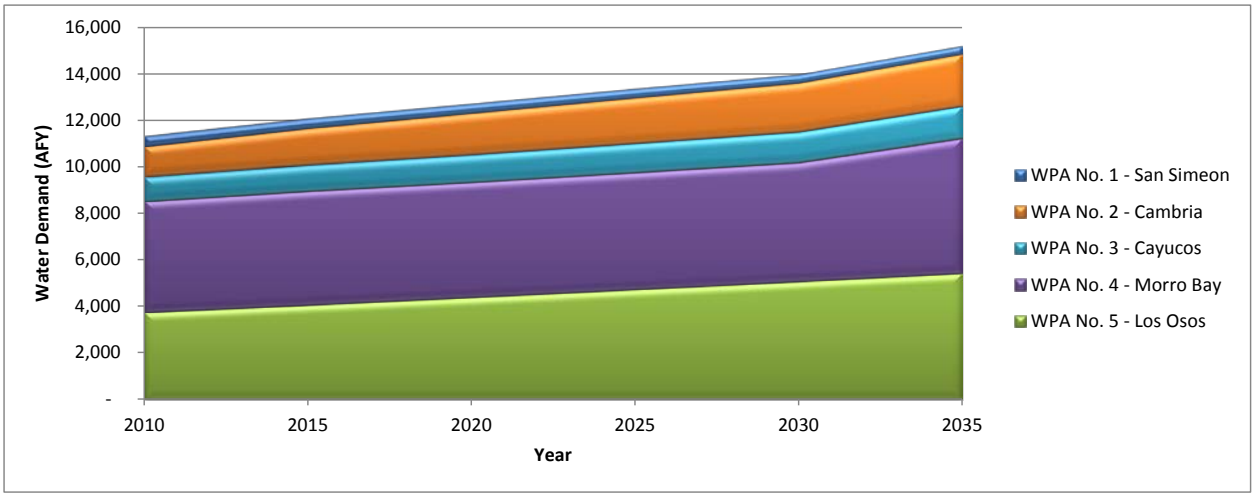


Figure D-11. North Coast WPA Water Demand Summary

D.4.1.1 <u>WPA 1 – San Simeon</u>

<u>Water Demands</u>

Water demands for the primary water use sectors are presented in both **Figure D-12** and **Table D-13**. For urban water demands, the San Simeon Community Services District (San Simeon CSD) is the only urban water supplier in WPA 1. With sea water intrusion being a continuous threat to their groundwater supplies, an effort to reduce groundwater demand included San Simeon CSD adopting strict conservation measures and critical ordinances. The first ordinance, passed in 1986, declared the serious water quality problem and issued a building moratorium citing the threat to public health and safety. In 1988, the San Simeon CSD issued a permanent building

moratorium which, to this day, is still in place. San Simeon CSD is looking to implement recycled water in the near future to reduce the need for severe rationing in the summer months when both irrigation demands and tourism is at its highest. Urban demands indicated by the CSD in **Table D-13** reflect an aggressive growth schedule, in hopes that system improvements and alternative supplies will be perfected and the building moratorium lifted after 25+ years.

The existing annual applied water for agriculture in WPA 1 is approximately 324 AFY. The existing crops in this area include citrus, deciduous, pasture, and vineyards. The projected future annual applied water for WPA 1 decreases significantly to an average of 38 AFY in 2035. The projected future agricultural demand is less than existing, due to increased irrigation efficiencies, fallowing or redevelopment of agricultural lands, and reduced growth of agricultural uses in this area. Agriculture water can provide improved sustainability in groundwater supplies and better overall management of salinity intrusion and tidal influences currently occurring.

According to the MWR, the total UMAD in WPA 1 is approximately 104,490 AFY and environmental water demand is approximately 72,980 AFY.

Demand Supply Balance

Table D-14 indicates a deficit of water supply due to the current restriction of further growth on groundwater. Planned growth indicates a 2035 demand of 250 AFY with only 140 AFY of perennial groundwater supplies. Absent implementation of recharge, recycled water, and desalination projects and programs, the WPA 1 imbalance will continue into the future. Given the DAC status of the community of San Simeon, project formulation and implementation through grant and loan programs are needed to achieve the most cost-effective alternative supply.

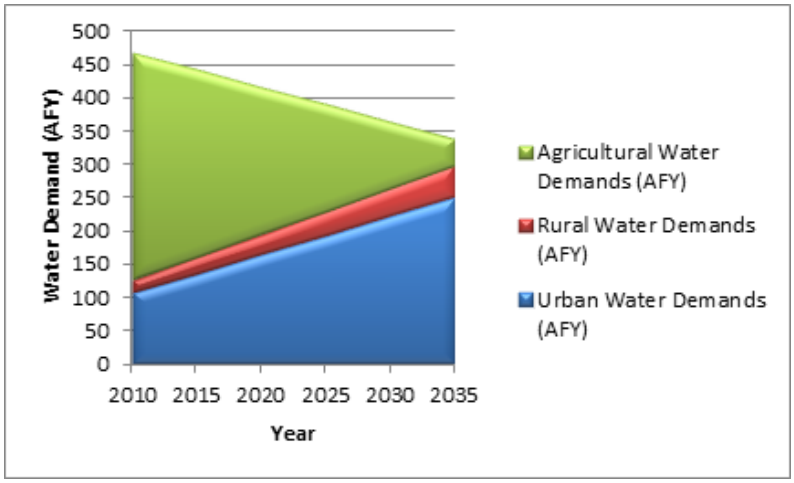


Figure D-12. WPA-1 San Simeon Water Demands

Table D-13. WPA No. 1 - San Simeon

Urban Water Demands (AFY)								
	Urban Water District	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	San Simeon CSD	108	136	165	193	222	250	1
	Total	**108**	**136**	**165**	**193**	**222**	**250**	
Rural Water Demands (AFY)								
	Rural Areas/Districts	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	San Simeon - Rural	20	26	32	38	44	50	2
	Total	**20**	**26**	**32**	**38**	**44**	**50**	
Agricultural Water Demands (AFY)								
	Crop Types	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Alfalfa	0	0	0	0	0	0	
	Citrus	20	17	13	10	6	2	
	Deciduous	2	2	2	1	1	0	
	Nursery	0	0	0	0	0	0	
	Pasture	286	236	186	135	85	34	
	Vegetable	0	0	0	0	0	0	
	Vineyard	16	13	10	8	5	2	
	Total	**324**	**268**	**211**	**154**	**97**	**38**	
Total Water Demands (AFY)								
	Sum Urban, Rural, Ag	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Total Water Demand	**452**	**430**	**408**	**385**	**363**	**338**	
Environmental Water Demands (AFY)								
	Environmental Category	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Estimated Unimpaired Mean Annual Discharge	72,980	72,980	72,980	72,980	72,980	72,980	2
	Estimated Environmental Water Demand	104,490	104,490	104,490	104,490	104,490	104,490	2

Notes:

1 Straight line interpolation between 2010 demand and 2035.
2 Straightline Interpolation 2010 to 2035

Table D-14. WPA No. 1 – San Simeon Demand Supply Balance

WPA No. 1 - San Simeon

	Water Districts/Use Sectors/Environmental/Unimpaired Summary	San Simeon CSD		San Simeon - Agriculture		San Simeon - Rural		Environmental & UMAD		Total	
		Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes
Urban/Ag/ Rural Water Demands	**Existing Demands**	108	1	324	6	20	6	0		452	
	Forecasted Demands (2035)	**250**	2	**38**	6	**50**	6	**0**		**338**	
Water Supply Source	**Groundwater**	GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)	
	Pico Creek Valley Basin	140	3	0	3					140	
	San Carpoforo Valley	0	4	0	7					0	
	Arroyo de la Cruz Valley	0		14	8	18	8			32	
	Other GW Supply Sources	0				22				22	
	Total GW	**140**		**14**		**40**		**0**		**194**	
	Surface Water	SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)	
	SWRCB-WPA 1	0	5	8	5	10	5			18	
	Total SW	**0**		**8**		**10**		**0**		**18**	
	Total Supplies	**140**		**21**		**50**		**0**		**211**	
	Balance (Supplies - Demand)	**-110**		**-17**		**0**		**0**		**-127**	
Environmental Water								72,980			
Unimpaired Mean Annual Inflow								104,490			

Notes:

1. Demands fluctuate between 70 and 140 AFY due to changes in tourism.
2. Extensive conservation program in place. No further conservation expected at build-out by San Simeon CSD. Most recent master plan forecast a build-out demand of 224 AFY, but San Simeon CSD's current build-out demand estimate is 250 AFY.
3. Estimated safe basin yield of Pico Creek underflow is 120 AFY.
4. No estimates of basin yield exist
5. Diversions from sources other than the three basins noted above total 238 AFY according to diversion reporting forms to the SWRCB from Hearst Holdings Inc. (June 2010) and the SWRCB diversion database.
6. Agricultural and rural demand calculations do not account for livestock operations and likely underestimates actual water demands. For example Hearst Holdings Inc. makes up the majority of agriculture/rural land ownership in this WPA and has submitted surface water diversion reporting forms to the SWRCB estimating 1829 AFY of irrigation livestock and domestic usage for their property from surface sources.
7. No estimates of basin yield exist.
8. 1,607 AFY of Arroyo De La Cruz Underflow is reported in the State Board diversion database as a permitted appropriative water right for Hearst Holdings Inc. Estimated safe basin yield is 1,244 AFY and all pumping is for agricultural or rural users.

D.4.1.2 WPA 2 – Cambria

Water Demands

As shown in **Table D-15**, the Cambria Community Services District (Cambria CSD) is the only urban water supplier in WPA 2. Cambria, along with other nearby water districts is currently in the feasibility stage of implementing recycled water in the local region. Planned implementation of recycled water use will increase potable supplies in summer months when tourism and irrigation demands are at their highest. Similar to San Simeon, Cambria is also under a building moratorium due to insufficient water supplies and infrastructure.

The existing annual applied water for agricultural uses in WPA 2 is approximately 521 AFY. The existing crops in this area include citrus, deciduous, pasture, vegetable, and vineyards. The projected future annual applied water for WPA 2 averages approximately 1,115 AFY. The projected future agricultural demand is higher than existing due to increases in acreage of existing crop groups, especially vegetables and vineyards.

The total UMAD in WPA 2 is approximately 87,050 AFY and environmental water demand is approximately 51,460 AFY.

Demand Supply Balance

Table D-16 indicates a total surplus of water supplies due to forecasted implementation of recycled water and possibly desalinated water by 2035. Absent the addition of new supplies or a groundwater basin management strategy to increase the perennial yield, the existing supplies are insufficient to accommodate the expected growth over the next 20 years as per the Cambria Community Plan.

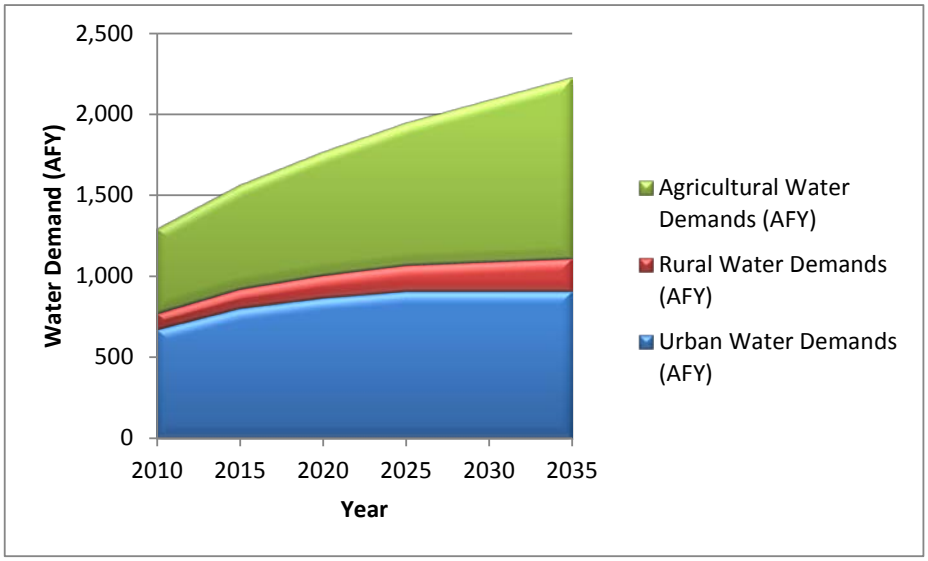


Figure D-13. WPA 2. Cambria Water Demands

Table D-15. WPA No. 2 - Cambria

Urban Water Demands (AFY)								
	Urban Water District	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Cambria CSD	673	804	868	909	909	909	1
	Total	**673**	**804**	**868**	**909**	**909**	**909**	
Rural Water Demands (AFY)								
	Rural Areas/Districts	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Cambria - Rural	100	121	142	163	184	205	2
	Total	**100**	**121**	**142**	**163**	**184**	**205**	
Agricultural Water Demands (AFY)								
	Crop Types	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Alfalfa	0	0	0	0	0	0	
	Citrus	311	382	453	524	595	666	
	Deciduous	8	9	11	13	14	16	
	Nursery	0	0	0	0	0	0	
	Pasture	23	29	34	39	45	50	
	Vegetable	148	182	216	249	283	317	
	Vineyard	31	38	45	52	59	66	
	Total	**521**	**640**	**759**	**877**	**996**	**1,115**	
Total Water Demands (AFY)								
	Sum Urban, Rural, Ag	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Total Water Demand	**1,294**	**1,565**	**1,769**	**1,949**	**2,089**	**2,229**	
Environmental Water Demands (AFY)								
	Environmental Category	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Estimated Unimpaired Mean Annual Discharge	51,460	51,460	51,460	51,460	51,460	51,460	
	Estimated Environmental Water Demand	87,050	87,050	87,050	87,050	87,050	87,050	3

Notes:

1 2012 MWR Future demand given as a range, 1009-1514 AFY. Average of range used for 2035.

2 Straightline Interpolation 2010 to 2035

3 Mean daily flow values from stream gaging stations representative of long-term, unimpaired (or natural) flow conditions were used to derive unimpaired mean annual discharge (MAD) estimates. The unimpaired MAD is the cumulative flow for the creeks within the water planning area that were included in the calculation.

Table D-16. WPA No. 2 – Cambria Demand Supply Balance

WPA No. 2 - Cambria

	Water Districts/Use Sectors/Environmental/Unimpaired Summary	Cambria CSD		Cambria - Agriculture		Cambria - Rural		Environmental & UMAD		Total	
		Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes
Urban/Ag/ Rural Water Demands	**Existing Demands**	673	1	521		100		0		1,294	
	Forecasted Demands (2035)	**909**	2	**1,115**		**205**		**0**		**2,229**	
Water Supply Source	**Groundwater**	**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**	
	San Simeon Valley	610	3	11	7	2	7			623	
	Santa Rosa Valley - WPA 2	199	4	301	8	55	8			555	
	Villa Valley	0		112	9	21	9			132	
	Other GW Supply Sources	0		691		127				818	
	Total GW	**809**		**1,115**		**205**		**0**		**2,129**	
	Surface Water	**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**	
	Other	600	5							600	
	Recycled Water	100								100	
	SWRCB-WPA 1	0	6							0	
	Total SW	**700**		**0**		**0**		**0**		**700**	
	Total Supplies	**1,509**		**1,115**		**205**		**0**		**2,829**	
	Balance (Supplies - Demand)	**600**		**0**		**0**		**0**		**600**	
Environmental Water								51,460			
Unimpaired Mean Annual Inflow								87,050			

Notes:

1 Existing Demand = Projected 2015 Water Demand using the 20x2020 interim water use target. 20x2020 target water use was calculated using DWR Method 3.

2 Assumes 20x2020 per capita target water use.

3 State Board allows Cambria CSD 1230 AFY maximum extraction and 370 AF dry season extraction.
California Coastal Commission limits Cambria CSD total diversion from both San Simeon and Santa Rosa Creeks to 1230 AFY

4 State Board allows Cambria CSD 518 AFY maximum extraction and 260 AF dry season extraction.
California Coastal Commission limits Cambria CSD total diversion from both San Simeon and Santa Rosa Creeks to 1230 AFY

5 Alternatives identified in a 2004 Assessment of Long-Term WS Alts included seawater desalination an exchange of buying Nacimiento reservoir water for the use of water stored in the Whale Rock Reservoir direct transmission of Nacimiento reservoir

6 Diversions do not distinguish type of use. Potentially 158 AFY could be diverted for use to either agriculture or rural residential.

7 Estimated safe basin yield is 1,040 AFY. State Board allows Cambria CSD 1,230 AFY maximum extraction and 370 AF dry season extraction

8 Estimated safe basin yield is 2,260 AFY. State Board allows Cambria CSD 518 AFY maximum extraction and 260 AF dry season extraction. California Coastal Commission limits Cambria CSD total diversion from both San Simeon and Santa Rosa Creeks to 1,230 AFY

9 Estimated safe basin yield is 1,000 AFY and all pumping is for agricultural or rural users.

D.4.1.3 WPA 3 – Cayucos

Water Demands

As shown in **Table D-17,** there are four urban water suppliers in WPA 3: Cayucos Cemetery District, Paso Robles Beach Water Association, Morro Rock Mutual Water Company, and County Service Area 3. Information on these water districts is in **Section C – Region Description**. The urban water demands for WPA 3 are shown below.

The existing annual applied water for WPA 3 is approximately 547 AFY. The existing crops in this area include citrus, pasture, vegetables, and vineyards. The projected future annual applied water for WPA 3 averages approximately 617 AFY. The projected future agricultural demand is higher than existing due to slight increases in acreage of citrus and vineyards, and a significant increase in vegetables.

For WPA 3, the total UMAD is approximately 33,340 AFY and environmental water demand is approximately 26,160 AFY.

Demand Supply Balance

Table D-18 indicates a reliance on Whale Rock Reservoir and the Nacimiento Water Project (CSA 10) for meeting potable supply needs. Supply sources for agriculture and rural come from local groundwater basins. With a moderate growth rate in all land uses (see **Figure D-14**), the existing supply sources are shown to meet forecasted water supply demands.

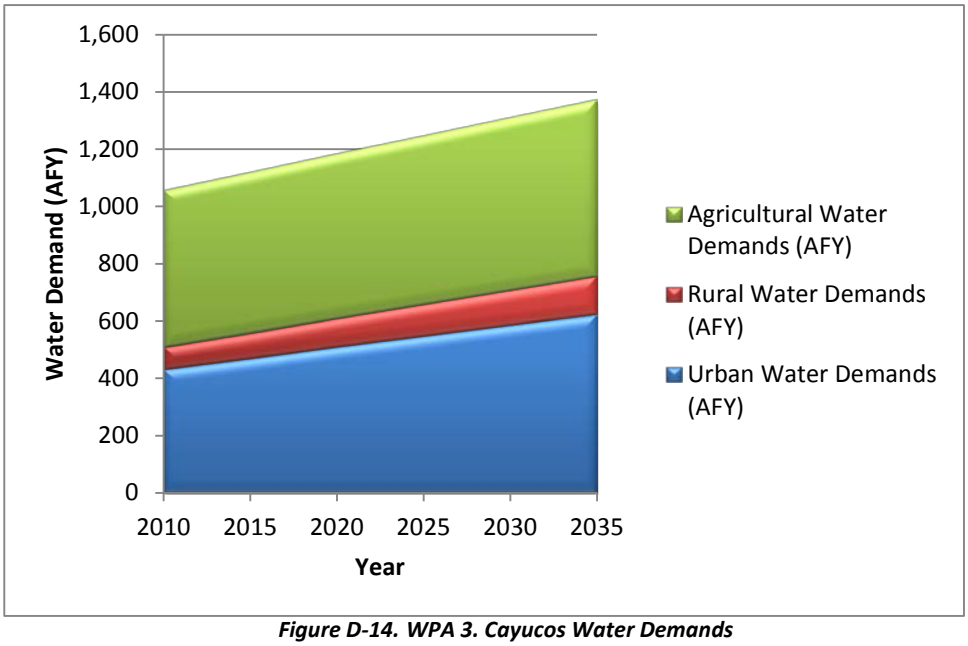


Figure D-14. WPA 3. Cayucos Water Demands

Table D-17. WPA No. 3 - Cayucos

Urban Water Demands (AFY)								
	Urban Water District	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Morro Rock Mutual Water Co	121	130	140	150	159	168	1
	Paso Robles Beach Water Assn	163	173	183	193	203	212	2
	CSA 10A	132	151	170	188	207	226	3
	Cayucos Cemetary District	16	16	17	17	17	18	4
	Total	**432**	**470**	**510**	**548**	**586**	**624**	
Rural Water Demands (AFY)								
	Rural Areas/Districts	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Cayucos - Rural	80	91	102	113	124	135	5
	Total	**80**	**91**	**102**	**113**	**124**	**135**	
Agricultural Water Demands (AFY)								
	Crop Types	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Alfalfa	3	3	3	3	3	3	
	Citrus	101	104	106	109	111	114	
	Deciduous	2	2	2	2	2	2	
	Nursery	0	0	0	0	0	0	
	Pasture	441	453	464	475	487	498	
	Vegetable	0	0	0	0	0	0	
	Vineyard	0	0	0	0	0	0	
	Total	**547**	**562**	**575**	**589**	**603**	**617**	
Total Water Demands (AFY)								
	Sum Urban, Rural, Ag	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Total Water Demand	**1,059**	**1,123**	**1,187**	**1,250**	**1,313**	**1,376**	
Environmental Water Demands (AFY)								
	Environmental Category	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Estimated Unimpaired Mean Annual Discharge	26,160	26,160	26,160	26,160	26,160	26,160	5
	Estimated Environmental Water Demand	33,340	33,340	33,340	33,340	33,340	33,340	5

Notes:

1 2012 MWR Future demand given as a range, 164-173 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.

2 2012 MWR Future demand given as a range, 207-218 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.

3 2012 MWR Future demand given as a range, 220-232 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.

4 2012 MWR Future demand given as a range, 17-18 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.

5 Straightline Interpolation 2010 to 2035

Table D-18. WPA No. 3– Cayucos Demand Supply Balance

WPA No. 3 - Cayucos

	Water Districts/Use Sectors/Environmental/Unimpaired Summary	Morro Rock Mutual Water Co		Paso Robles Beach Water Assn		CSA 10A		Cayucos Cemetery District		Cayucos - Agriculture		Cayucos - Rural		Environmental & UMAD		Total	
		Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes
Urban/Ag/ Rural Water Demands	**Existing Demands**	121	*1*	163	*1*	132	*1*	16	*1*	547		80		0		1059	
	Forecasted Demands (2035)	**168**	*1*	**212**	*1*	**226**	*1*	**18**	*1*	**617**		**135**		**0**		**1,376**	
	Groundwater	GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)	
	Cayucos Valley	0		0		0				49	*2*	11	*2*			60	
	Old Valley									12		3				15	
	Other GW Supply Sources									555		122				677	
	Total GW	**0**		**0**		**0**		**0**		**617**		**135**		**0**		**752**	
Water Supply Source	**Surface Water**	SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)	
	SWRCB - WPA 3	3														3	
	Whale Rock Reservoir	170		222		190		18								600	
	Nacimiento Project					58										58	
	Total SW	**173**		**222**		**248**		**18**		**0**		**0**		**0**		**661**	
	Total Supplies	**173**		**222**		**248**		**18**		**617**		**135**		**0**		**1,413**	
	Balance (Supplies - Demand)	**5**		**10**		**22**		**0**		**0**		**0**		**0**		**37**	
Environmental Water														26,160			
Unimpaired Mean Annual Inflow														33,340			

Notes:

1 The Cayucos Area Water Organization includes the Morro Rock MWC, the Paso Robles Beach Water Association, CSA 10A, and the Cayucos Cemetery District.

2 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.

D.4.1.4 WPA 4 – Morro Bay

Water Demand

As shown in **Table D-19**, there are five urban water suppliers and users in WPA 4: City of Morro Bay, California Men's Colony, Camp San Luis Obispo – National Guard, County Operation Center of Education, and Cuesta College. Information on these water districts and water users is in **Section C – Region Description**. The urban water demands for WPA 4 are shown below:

The existing annual applied water for WPA 4 is approximately 1,923 AFY. The existing crops in this area include alfalfa, citrus, deciduous, irrigated pasture, vegetable, and vineyards. The projected 2035 annual applied water is estimated at approximately 2,065 AFY. The projected future agricultural demand is higher than existing due to increases in acreage of vegetables and vineyards.

The UMAD for WPA 4 is approximately 43,430 AFY and environmental water demand is approximately 27,880 AFY.

Demand Supply Balance

Table D-20 indicates a reliance on groundwater and surface water supplies. In addition, desalinated water use in the City of Morro Bay[4] is currently, and in the future, a large source of the region's water supply to reduce reliance on constrained groundwater aquifers in use by urban, agriculture, and rural sectors.

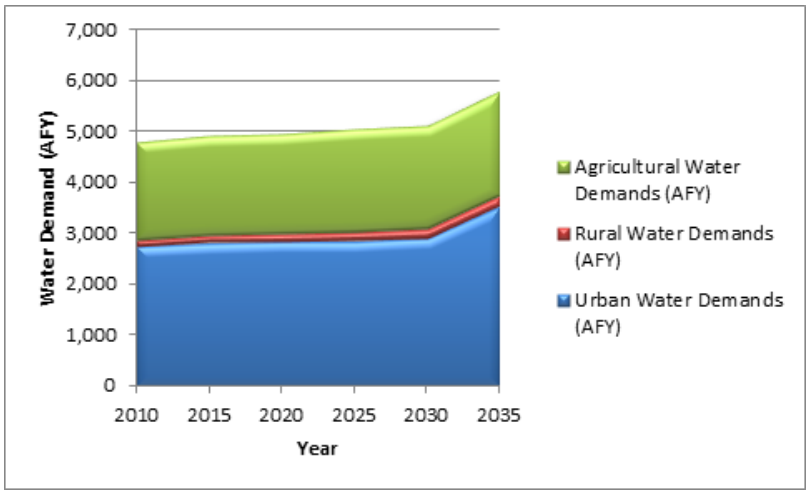


Figure D-15. WPA 2. Morro Bay Water Demands

[4] City of Morro Bay is currently (Feb 2014) going through a re-permitting process for their desalination plant with the California Coastal Commission. <http://www.newtimesslo.com/news/10642/the-run-on-state-water-is-creating-more-problems-for-morro-bay/>

Table D-19. WPA No. 4 - Morro Bay

Urban Water Demands (AFY)								
	Urban Water District	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	City of Morro Bay	1,255	1,334	1,336	1,364	1,409	2,040	1
	California Mens Colony	1,135	1,135	1,135	1,135	1,135	1,135	2
	Camp SLO - National Guard	138	138	138	138	138	138	2
	County Operation Center of Education	94	94	94	94	94	94	2
	Cuesta College	125	125	125	125	125	125	2
	Total	**2,747**	**2,826**	**2,828**	**2,856**	**2,901**	**3,532**	
Rural Water Demands (AFY)								
	Rural Areas/Districts	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Morro Bay - Rural	120	137	154	171	188	205	3
	Total	**120**	**137**	**154**	**171**	**188**	**205**	
Agricultural Water Demands (AFY)								
	Crop Types	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Alfalfa	27	28	28	29	29	29	
	Citrus	1,196	1,213	1,231	1,249	1,267	1,284	
	Deciduous	6	6	6	7	7	7	
	Nursery	0	0	0	0	0	0	
	Pasture	19	19	19	20	20	20	
	Vegetable	613	623	632	641	650	659	
	Vineyard	62	63	63	64	65	66	
	Total	**1,923**	**1,952**	**1,979**	**2,010**	**2,038**	**2,065**	
Total Water Demands (AFY)								
	Sum Urban, Rural, Ag	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Total Water Demand	**4,790**	**4,915**	**4,961**	**5,037**	**5,127**	**5,802**	
Environmental Water Demands (AFY)								
	Environmental Category	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Estimated Unimpaired Mean Annual Discharge	27,880	27,880	27,880	27,880	27,880	27,880	3
	Estimated Environmental Water Demand	43,430	43,430	43,430	43,430	43,430	43,430	3

Notes:

1 2012 MWR Future demand given as a range, 164-173 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.

2 Assumed demand was held constant between Current (2010) and Future (build-out/2035).

3 Straightline Interpolation 2010 to 2035

Table D-20. WPA No. 4 – Morro Bay Demand Supply Balance

WPA No. 4 - Morro Bay

	Water Districts/Use Sectors/Environmental/Unimpaired Summary	City of Morro Bay		California Mens Colony		Camp SLO - National Guard		County Operation Center of Ed.		Cuesta College		Morro Bay - Agriculture		Morro Bay - Rural		Environmental & UMAD		Total	
		Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes
Urban/Ag/ Rural Water Demands	Existing Demands	1,255	1	1,135	7	138	7	94	7	125	7	1,923		120				4,790	
	Forecasted Demands (2035)	**2,040**	2	**1,135**	7	**138**	7	**94**	7	**125**	7	**2,065**		**205**		**0**		**5,802**	
	Groundwater	GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)	
	Morro Valley	581	3									310	3	31				922	
	Chorro Valley	1,142	4			200	9					124	4	12				1,478	
	Other GW Supply Sources											1,631		162				1,793	
	Total GW	**1,723**		**0**		**200**		**0**		**0**		**2,065**		**205**		**0**		**4,193**	
Water Supply Source	**Surface Water**	SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)	
	DeSal Plant - Other	645																645	
	SWRCB - WPA 4	1,313	5	735				150	10	140	10							2,338	
	Whale Rock Reservoir	0	6	420				25	11									445	
	Chorro Reservoir			25		140												165	
	Recycled Water			200	8													200	
	Total SW	**1,958**		**1,380**		**140**		**175**		**140**		**0**		**0**		**0**		**3,793**	
	Total Supplies	**3,681**		**1,380**		**340**		**175**		**140**		**2,065**		**205**		**0**		**7,986**	
	Balance (Supplies - Demand)	**1,641**		**245**		**202**		**81**		**15**		**0**		**0**		**0**		**2,184**	
Environmental Water																27,880			
Unimpaired Mean Annual Inflow																43,430			

Notes:

1. Existing Demand = Projected 2015 Water Demand using the 20x2020 interim water use target. 20x2020 target water use was calculated using DWR Method 3.
2. Assumes 20x2020 per capita target water use.
3. Estimated safe basin yield is 1500 AFY and the groundwater is used by urban agriculture and rural users.
4. Perennial yield estimated at 2210 AFY and the groundwater is used by urban agriculture and rural users.
5. State Water Project average allocation assumed 66 percent of contract water service amount.
6. Mutual aid agreements with CMC and Whale Rock Commission for emergency supply only.
7. Part of Chorro Valley Water System.
8. Must maintain a minimum discharge of 0.75 cfs (0.5mgd 540AFY) to Chorro Creek.
9. County Well No. 1.
10. CMC receives 60 AFY of Cuesta College 200 AFY allocation. County Operations Center provides up to 275 AFY from their 425 AFY State Water Project allocation to CMC. Totals in table reflect these agreements.
11. 25 AFY of Whale Rock water provided by CMC as part of the County Well No. 1 development agreement.

D.4.1.5 WPA 5 – Los Osos

Water Demand

As shown in **Table D-21**, there are three urban water suppliers in WPA 5: S & T Mutual Water Company, Los Osos Community Services District, and Golden State Water Company-Los Osos. Information on these water districts and water users is in **Section C – Region Description**.

The majority of WPA 5 is composed of agricultural and urban areas, with only a small number of parcels in WPA 5 zoned for additional rural development.

The existing annual applied water for WPA 5 is approximately 1,888 AFY. The existing crops in this area include citrus, deciduous, nursery, pasture, vegetable, and vineyards. The projected future annual applied water for WPA 5 averages approximately 3,258 AFY. The increase is due primarily to an increase in irrigated pasture and nursery crops.

The UMAD for WPA 5 is approximately 8,200 AFY and environmental water demand is approximately 7,040 AFY.

Demand Supply Balance

Table D-21 indicates total reliance on local groundwater supplies in the Los Osos Valley.[5] Between urban and agriculture uses, demands exceed the existing groundwater supply of 3,200 AFY of perennial yield in the Los Osos Valley basin. The community and surrounding rural and agricultural pumpers are pro-actively managing the groundwater basin to improve yield through active management (i.e., improve recharge), reduced demand and improved water quality. No alternative source of supply has been identified to meet forecasted increases in demand; assuming that new growth will not occur unless sufficiency in supplies can be shown.

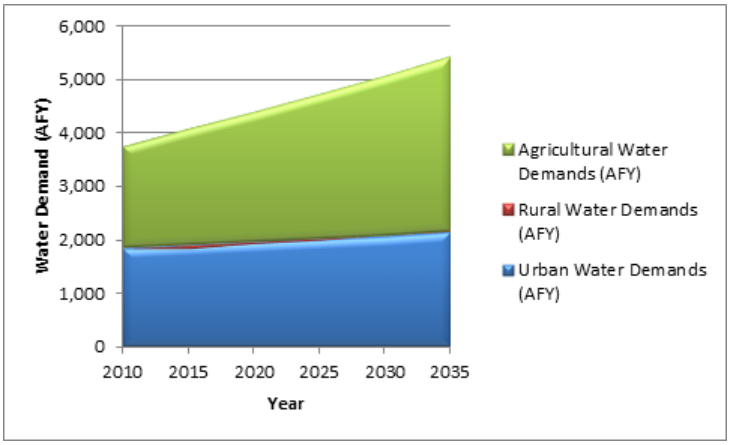


Figure D-16. WPA 5. Los Osos Water Demands

[5] Given active groundwater and water demand management activities taking place, groundwater supplies are shown to increase, with re-use and improved recharge increasing the effective basin yield in the future.

Table D-21. WPA No. 5 - Los Osos

Urban Water Demands (AFY)								
	Urban Water District	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	S & T Mutual Water Company	998	1,106	1,213	1,321	1,429	1,557	
	Los Osos CSD	78	65	65	70	75	75	1
	Golden State Water Company – Los Osos	775	724	674	624	574	524	2
	Total	**1,851**	**1,895**	**1,952**	**2,015**	**2,078**	**2,156**	
Rural Water Demands (AFY)								
	Rural Areas/Districts	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Los Osos - Rural	20	20	20	20	20	20	3
	Total	**20**	**20**	**20**	**20**	**20**	**20**	
Agricultural Water Demands (AFY)								
	Crop Types	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Alfalfa	0	0	0	0	0	0	
	Citrus	33	37	42	47	51	56	
	Deciduous	11	13	14	16	18	19	
	Nursery	26	29	33	37	41	44	
	Pasture	35	40	45	50	55	60	
	Vegetable	1,781	2,040	2,299	2,558	2,817	3,076	
	Vineyard	2	2	2	2	2	3	
	Total	**1,888**	**2,161**	**2,435**	**2,710**	**2,984**	**3,258**	
Total Water Demands (AFY)								
	Sum Urban, Rural, Ag	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Total Water Demand	**3,759**	**4,076**	**4,407**	**4,745**	**5,082**	**5,434**	
Environmental Water Demands AFY)								
	Environmental Category	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Estimated Unimpaired Mean Annual Discharge	7,040	7,040	7,040	7,040	7,040	7,040	3
	Estimated Environmental Water Demand	8,200	8,200	8,200	8,200	8,200	8,200	3

Notes:

1 2015-2035 values were calculated using an average straight line interpolation of 2010-2012 values provided.

2 2012 MWR Future demand given as a range, 1384-1730 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.

3 Straightline Interpolation 2010 to 2035

Table D-22. WPA No. 5 – Los Osos Demand Supply Balance

WPA No. 5 - Los Osos

	Water Districts/Use Sectors/Environmental/Unimpaired Summary	Golden State Water Company – Los Osos		S & T Mutual Water Company		Los Osos CSD		Los Osos - Agriculture		Los Osos - Rural		Environmental & UMAD		Total	
		Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes
Urban/Ag/ Rural Water Demands	**Existing Demands**	998		78		775	2	1,888		20				3,759	
	Forecasted Demands (2035)	**1,557**		**75**		**524**	2	**3,258**		**20**		**0**		**5,434**	
Water Supply Source	**Groundwater**	GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)	
	Los Osos Valley	1,557	1	75	1	524	1	1,271	1	8	1			3,434	
	San Luis Obispo Valley							33	3	0				33	
	Other GW Supply Sources							1,955	4	12				1,967	
	Total GW	**1,557**		**75**		**524**		**3,258**		**20**		**0**		**5,434**	
	Surface Water	SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)	
	SWRCB - WPA 5							0						0	
	Total SW	**0**		**0**		**0**		**0**		**0**		**0**		**0**	
	Total Supplies	**1,557**		**75**		**524**		**3,258**		**20**		**0**		**5,434**	
	Balance (Supplies - Demand)	**0**		**0**		**0**		**0**		**0**		**0**		**0**	
Environmental Water															
Unimpaired Mean Annual Inflow												7,040			
												8,200			

Notes:

1 Estimated safe basin yield is 3200 AFY and all pumping is for urban agricultural or rural users. Purveyors have 2100 AFY available for their use. The remaining 1100 AFY is used for agricultural irrigation private domestic use and golf course irrigation.

2 2015-2035 values were calculated using an average straight line interpolation of 2010-2012 values provided.

3 Increased demands are assumed to be met with groundwater supplies. See MWR for local actions being taken to improve the effective groundwater yield in the future.

4 A small area of WPA 5 overlies the San Luis Obispo Valley sub-basin based on location of agricultural land uses.

D.4.2 *South County Sub-Region*

As listed in **Table D-23**, the South County Sub-Region includes four WPAs (See **Figure D-17**). Most of the urban water demands coastal communities reliant on groundwater basins constrained by both the ocean's salinity and by the long term impacts of septic systems. With use of local and SWP surface water supplies, active groundwater management, and agricultural fallowing and development, sufficient supplies are shown to meet the majority of future growth projections. A small amount of recycled water is also used to meet a portion of the sub-region non-potable demands. Pockets of rural and agricultural demands are reliant on local groundwater supplies using private wells to meet both irrigation and potable water demands. Southern WPAs have no urban demands, and supply source are primarily groundwater with little knowledge of the amount of water rights being diverted for agriculture.

Table D-23. South County WPA Annual Average Water Demand Summary (AFY)

Sum Urban, Rural, Ag	2010	2015	2020	2025	2030	2035
WPA No. 6 - San Luis Obispo/Avila	10,362	11,065	11,449	11,794	12,178	12,551
WPA No. 7 - South Coast	63,179	60,567	56,018	52,274	48,547	44,927
WPA No. 8 - Huasna Valley	1,548	1,807	2,065	2,327	2,585	2,845
WPA No. 9 - Cuyama Valley	30,724	30,380	30,035	29,691	29,347	29,003
Total for Sub-Region	**105,813**	**103,819**	**99,567**	**96,086**	**92,657**	**89,326**

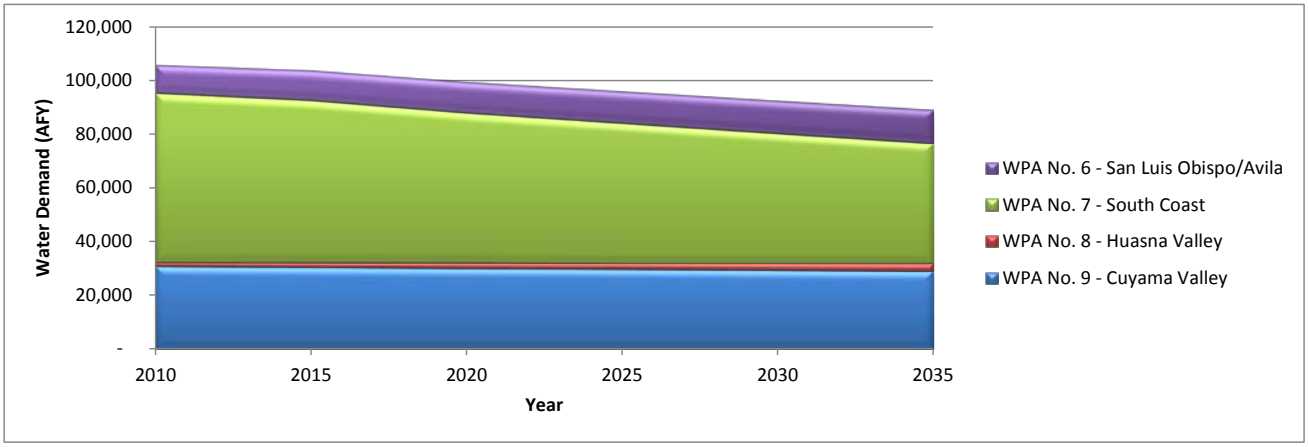


Figure D-17. South County WPA Water Demand Summary

D.4.2.1 WPA 6 – San Luis Obispo/Avila

Water Demands

There are seven urban water suppliers and users in WPA 6: City of San Luis Obispo, Cal Poly San Luis Obispo, Avila Beach Community Services District, Avila Valley Mutual Water Company, San

Miguelito Mutual Water Company, County Service Area 12, and Port San Luis. Information on these water districts and water users is in **Section C – Region Description**.

The existing annual applied water for WPA 6 is approximately 3,195 AFY. The existing crops in this area include citrus, deciduous, pasture, vegetable, and vineyards. The projected future annual applied water for WPA 6 increases gradually to a 2035 demand of 3,466 AFY. Increases in applied water are primarily due to a projected increase in vegetable crops.

The UMAD for WPA 6 is approximately 45,820 AFY and environmental water demand is approximately 33,030 AFY.

Demand Supply Balance

The urban water providers depend on primarily surface water from the SWP, Nacimiento Project, Salinas Reservoir and Whale Rock Reservoir. Local groundwater supplies are the primary source of supply for agriculture and rural users. Given the current surface water contracts and water rights, supplies are sufficient to meet projected water demands. The regionalization of water conveyance facilities ensures the maximum conjunctive use potential for the region to better manage groundwater quantity and quality in 2035.

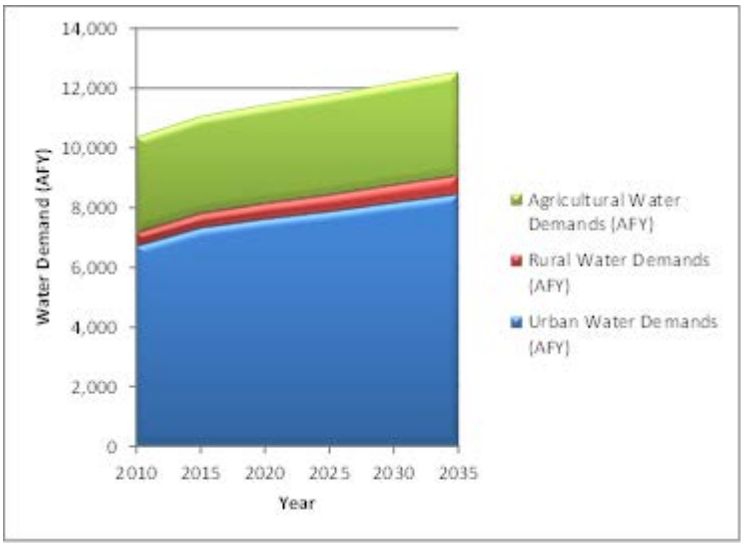


Figure D-18. WPA-6 San Luis Obispo/Avila Water Demands

Table D-24. WPA No. 6 - San Luis Obispo/Avila

Urban Water Demands (AFY)								
	Urban Water District	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	City of San Luis Obispo	5,218	5,689	5,843	5,956	6,109	6,251	1
	Cal Poly San Luis Obispo	1,040	1,136	1,231	1,327	1,422	1,518	2
	Avila Beach CSD	51	74	97	120	143	166	3
	Avila Valley Mutual Water Co	32	32	32	31	31	31	4
	San Miguelito MWC	263	287	311	335	359	383	5
	CSA 12	68	68	67	67	67	66	6
	Port San Luis	35	35	35	35	35	35	6
	Total	**6,707**	**7,321**	**7,616**	**7,871**	**8,166**	**8,450**	
Rural Water Demands (AFY)								
	Rural Areas/Districts	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	San Luis Obispo/Avila - Rural	460	495	530	565	600	635	7
	Total	**460**	**495**	**530**	**565**	**600**	**635**	
Agricultural Water Demands (AFY)								
	Crop Types	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Alfalfa	0	0	0	0	0	0	
	Citrus	359	365	371	377	383	389	
	Deciduous	475	483	491	499	507	515	
	Nursery	0	0	0	0	0	0	
	Pasture	235	239	243	247	251	255	
	Vegetable	1,114	1,133	1,152	1,171	1,190	1,209	
	Vineyard	1,012	1,029	1,046	1,064	1,081	1,098	
	Total	**3,195**	**3,249**	**3,303**	**3,358**	**3,412**	**3,466**	
Total Water Demands (AFY)								
	Sum Urban, Rural, Ag	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Total Water Demand	**10,362**	**11,065**	**11,449**	**11,794**	**12,178**	**12,551**	
Environmental Water Demands (AFY)								
	Environmental Category	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Estimated Unimpaired Mean Annual Discharge	33,030	33,030	33,030	33,030	33,030	33,030	
	Estimated Environmental Water Demand	45,820	45,820	45,820	45,820	45,820	45,820	

Notes:

1 Straightline Interpolation 2010 to 2039

2 2012 MWR Future demand given as a range, 1479-1557 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.

3 2012 MWR Future demand given as a range, 162-170 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.

4 2012 MWR Future demand given as a range, 30-32 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.

5 2012 MWR Future demand given as a range, 373-393 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.

6 2012 MWR Future demand given as a range, 65-68 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.

7 Straightline Interpolation 2010 to 2040

Table D-25. WPA No. 6 – San Luis Obispo/Avila Demand Supply Balance

WPA No. 6 - San Luis Obispo/Avila

	Water Districts/Use Sectors/Environmental / Unimpaired Summary	City of San Luis Obispo		Cal Poly San Luis Obispo		Avila Beach CSD	Avila Valley Mutual Water Co		San Miguelito MWC	CSA 12		Port San Luis	San Luis Obispo/ Avila - Agriculture	San Luis Obispo/Avila - Rural	Environ-mental & UMAD	Total
		Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Demand (AFY)	Notes	Demand (AFY)	Demand (AFY)	Notes	Demand (AFY)	Demand (AFY)	Demand (AFY)	Demand (AFY)	Demand (AFY)
Urban/ Ag/ Rural Water Demands	**Existing Demands**	5,218	1	1,040		51	32	7	263	68		35	3,195	460		10,362
	Forecasted Demands (2035)	**6,251**	2	**1,518**		**166**	**31**		**383**	**66**		**35**	**3,466**	**635**	**0**	**12,552**
	Groundwater	GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)	GW Supply (AFY)		GW Supply (AFY)	GW Supply (AFY)		GW Supply (AFY)	GW Supply (AFY)	GW Supply (AFY)	GW Supply (AFY)	GW Supply (AFY)
	San Luis Valley Sub-basin	100		0									970	178		1,248
	Avila Valley Sub-basin						20		118	0	8		0			138
	Other GW Supply Sources												2,496	457		2,953
	Total GW	**100**		**0**		**0**	**20**		**118**	**0**		**0**	**3,466**	**635**	**0**	**4,339**
	Surface Water	SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)	SW Supply (AFY)		SW Supply (AFY)	SW Supply (AFY)		SW Supply (AFY)	SW Supply (AFY)	SW Supply (AFY)	SW Supply (AFY)	SW Supply (AFY)
Water Supply Source	Loss of Availability Due to Siltation	-500														-500
	Nacimiento Project	3,380	3									0				3,380
	Recycled Water	400	4													400
	Salinas Reservoir	3,470	5													3,470
	Whale Rock Reservoir	3,470	5	1,384	6											4,854
	SWRCB - WPA 6			45												45
	Lopez Lake					68	12			61		100				241
	SWP - WPA 6								275	7	9					282
	Total SW	**10,220**		**1,429**		**68**	**12**		**275**	**68**		**100**	**0**	**0**	**0**	**12,172**
	Total Supplies	**10,320**		**1,429**		**68**	**32**		**393**	**68**		**100**	**3,466**	**635**	**0**	**16,511**
	Balance (Supplies - Demand)	**4,069**		**-89**		**-98**	**1**		**10**	**2**		**65**	**0**	**0**	**0**	**3,960**
Environmental Water															33,030	
Unimpaired Mean Annual Inflow															45,820	

Notes:

1 Existing Demand = Projected 2015 Water Demand using the 20x2020 interim water use target. 20x2020 target water use was calculated using DWR Method 3.

2 Assumes 20x2020 per capita target water use.

3 Nacimiento Project went on-line in 2010

4 The City's current recycled water use is 130 AFY. Expansion of the City of San Luis Obispo Water Reclamation Facility could make 4690 AFY of recycled water available for use but the current plans are to use only 1000 AFY in the future.

5 The City of San Luis Obispo's withdrawals from the Salinas Reservoir are coordinated with Whale Rock Reservoir. San Luis Obispo's combined safe yield of the two reservoirs was 6940 AFY in 2010.

6 Includes 600 AFY of treated water delivered from the City of San Luis Obispo.

7 2012 MWR

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 7 AFY of SWP water allocated to the San Luis Coastal Unified School District.

D.4.2.2 WPA 7 – South Coast

Water Demands

There are ten urban water suppliers and users in WPA 7: Conoco Phillips Company, City of Arroyo Grande, City of Grover Beach, Oceano Community Services District, City of Pismo Beach, Golden State Water Company – Nipomo, Golden State Water Company – Edna, Nipomo Community Services District, Rural Water Company, and Woodlands Mutual Water Company. Information on these water districts and water users is in **Section C - Region Description**.

The existing rural demand for WPA 7 is 3,466 AFY and the average projected demand is 5,661 AFY. The existing annual applied water for agricultural lands within WPA 7 is estimated at 45,746 AFY, which supports citrus, deciduous, nursery, pasture, vegetable and vineyard crops. The projected future agricultural demand decreases to 20,222 AFY due to the significant decrease in vegetable crops. The 25,524 AFY decrease in agriculture is offset by the urban (increase of 5,000 AFY) and rural residential (increase of 2,200 AFY) areas.

The UMAD for WPA 7, inclusive of the water management areas, is approximately 49,100 AFY and environmental water demand of 32,960 AFY.

Demand Supply Balance

With a significant reliance on both surface water and groundwater, WPA 7 can meet its forecasted water demands through agricultural off-sets, surface water transfers, recycled water and expanded surface water and groundwater facilities. Groundwater is constrained in the region both in quantity and quality, and requires management efforts to increase its effective yield in providing for the region. See MWR for a full detailed description of the region's water supply portfolio.

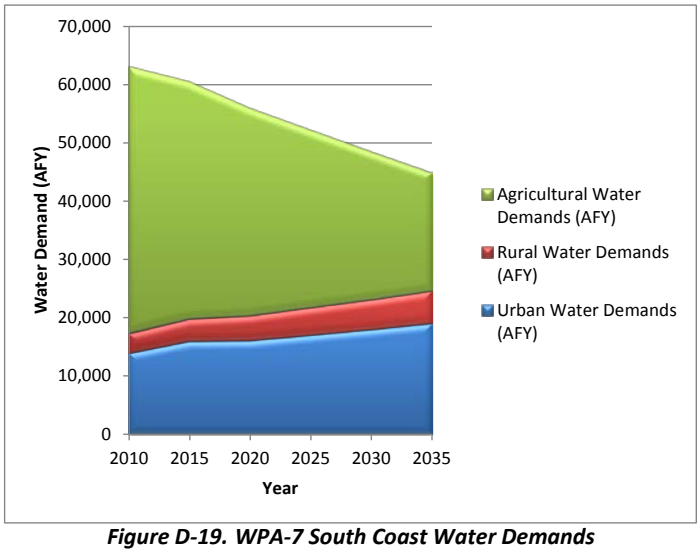


Figure D-19. WPA-7 South Coast Water Demands

Table D-26. WPA No. 7 - South Coast

Urban Water Demands (AFY)

	Urban Water District	2010	2015	2020	2025	2030	2035	Notes
	Golden State Water Company – Edna	410	410	411	412	412	458	1
	City of Pismo Beach	1,944	2,036	2,002	2,182	2,364	2,550	1
	City of Arroyo Grande	2,956	3,288	2,987	3,089	3,176	3,318	2
	City of Grover Beach	1,605	1,781	1,634	1,669	1,703	1,755	2
	Oceano CSD	855	954	1,052	1,151	1,249	1,348	3
	Golden State Water Company – Nipomo	1,060	1,217	1,375	1,532	1,690	1,847	4
	Nipomo CSD	2,367	3,404	3,588	3,775	3,995	4,198	2
	Rural Water Company/Cypress Ridge Sewer Co	720	720	720	720	720	720	5
	Woodlands Mutual Water Company	850	984	1,118	1,252	1,386	1,520	6
	Conoco Phillips Co	1,200	1,226	1,252	1,278	1,304	1,330	7
	Total	**13,967**	**16,020**	**16,139**	**17,060**	**17,999**	**19,044**	

Rural Water Demands (AFY)

	Rural Areas/Districts	2010	2015	2020	2025	2030	2035	Notes
	South Coast - Rural	3,466	3,905	4,344	4,783	5,222	5,661	8
	Total	**3,466**	**3,905**	**4,344**	**4,783**	**5,222**	**5,661**	

Agricultural Water Demands (AFY)

	Crop Types	2010	2015	2020	2025	2030	2035	Notes
	Alfalfa	0	0	0	0	0	0	
	Citrus	7,614	6,765	5,915	5,065	4,216	3,366	
	Deciduous	4,701	4,176	3,651	3,127	2,602	2,078	
	Nursery	655	582	508	435	362	289	
	Pasture	725	644	563	483	402	321	
	Vegetable	29,263	25,998	22,732	19,467	16,201	12,936	
	Vineyard	2,788	2,477	2,166	1,854	1,543	1,232	
	Total	**45,746**	**40,642**	**35,535**	**30,431**	**25,326**	**20,222**	

Total Water Demands (AFY)

	Sum Urban, Rural, Ag	2010	2015	2020	2025	2030	2035	
	Total Water Demand	**63,179**	**60,567**	**56,018**	**52,274**	**48,547**	**44,927**	

Environmental Water Demands (AFY)

	Environmental Category	2010	2015	2020	2025	2030	2035	
	Estimated Unimpaired Mean Annual Discharge	32,960	32,960	32,960	32,960	32,960	32,960	
	Estimated Environmental Water Demand	49,100	49,100	49,100	49,100	49,100	49,100	

Notes:

1 2012 MWR Future demand given as a range, 434-482 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.
2 2035 demand calculated using straight line interpolation from 2020 and 2030 given demands.
3 2012 MWR Future demand given as a range, 1277-1419 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.
4 2012 MWR Future demand given as a range, 1750-1944 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.
5 Future (Build-out/2035) demand not available; calculations not performed.
6 2012 MWR Future demand given as a range, 1440-1600 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.
7 2012 MWR Future demand given as a range, 1260-1400 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.
8 Straightline Interpolation 2010 to 2035

Table D-27. WPA No. 7 – South Coast Demand Supply Balance

WPA No. 7 - South Coast

	Water Districts/Use Sectors/Environmental/ Unimpaired Summary	Golden State Water Company – Edna		City of Pismo Beach		City of Arroyo Grande		City of Grover Beach		Oceano CSD		Golden State Water Company – Nipomo		Nipomo CSD		Rural Water Company/Cypress Ridge Sewer Co		Woodlands Mutual Water Company		Conoco Phillips Co	South Coast - Agriculture	South Coast - Rural	Environ-mental & UMAD	Total
Urban/Ag / Rural Water Demands		Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Demand (AFY)	Demand (AFY)	Demand (AFY)	Demand (AFY)
	Existing Demands	410	1	1,944		2,956	5	1,605	7	855	9	1,060	1	2,367	7	720	12	850	1	1,200	45,746	3,466		63,179
	Forecasted Demands (2035)	**458**	1	**2,550**	3	**3,318**	6	**1,755**	3	**1,348**		**1,847**		**4,198**	3	**720**	13	**1,520**		**1,330**	**20,222**	**5,661**	**0**	**44,927**
Water Supply Source	**Groundwater**	GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)	GW Supply (AFY)	GW Supply (AFY)	GW Supply (AFY)	GW Supply (AFY)
	Edna Valley	482	2																					482
	Northern Cities Management Area			700																				700
	Pismo Creek Valley (outside NCMA)					160																		160
	Arroyo Grande Plain (Part of Santa Maria Valley Basin)					1,323		1,423	8	900														3,646
	Nipomo Mesa Hyd Sub-Area-Santa Maria Basin											852		1,448		462		817		1,400				4,979
	San Luis Obispo Valley																				809	226		1,035
	Santa Maria Valley																				7,482	2,095		9,577
	Other GW Supply Sources																				11,931	3,340		15,271
	Total GW	**482**		**700**		**1,483**		**1,423**		**900**		**852**		**1,448**		**462**		**817**		**1,400**	**20,222**	**5,661**	**0**	**35,850**
	Surface Water	SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)	SW Supply (AFY)	SW Supply (AFY)	SW Supply (AFY)	SW Supply (AFY)
	Lopez Lake			896		2,290		800		303														4,289
	Recycled Water			1,985												50		200	16					2,235

WPA No. 7 - South Coast

Water Districts/Use Sectors/Environmental/ Unimpaired Summary	Golden State Water Company – Edna	City of Pismo Beach	City of Arroyo Grande	City of Grover Beach	Oceano CSD	Golden State Water Company – Nipomo	Nipomo CSD	Rural Water Company/Cypress Ridge Sewer Co	Woodlands Mutual Water Company	Conoco Phillips Co	South Coast - Agriculture	South Coast - Rural	Environ-mental & UMAD	Total
SWP - WPA 7		1,240 *4*			495 *10*									1,735
Ag Land Conversion Credit			112 *14*	209 *14*										321
In-Region Transfer			100 *11*											100
Transfers - WPA 7					-100 *11*									-100
Nipomo Supplemental Water Project						208 *15*	2,167 *15*	208 *15*	703 *15*					3,286
Total SW	**0**	**4,121**	**2,502**	**1,009**	**698**	**208**	**2,167**	**258**	**903**	**0**	**0**	**0**	**0**	**11,866**
Total Supplies	**482**	**4,821**	**3,985**	**2,432**	**1,598**	**1,060**	**3,615**	**720**	**1,720**	**1,400**	**20,222**	**5,661**	**0**	**47,716**
Balance (Supplies - Demand)	**24**	**2,271**	**667**	**677**	**250**	**-787**	**-583**	**0**	**200**	**70**	**0**	**0**	**0**	**2,789**
Environmental Water													32,960	
Unimpaired Mean Annual Inflow													49,100	

Notes:

1 2012 MWR

2 Edna Valley Sub-basin estimated safe basin yield is 4000 AFY and all pumping is for urban agricultural rural users golf courses and CSA 18.

3 Assumes 20x2020 per capita target water use.

4 140 AFY of the 1240 AFY contracted amount has been allocated for Pismo Ranch.

5 20x2020 target water use was calculated using DWR Method 1.

6 Provided by City of Arroyo Grande

7 Existing Demand = Projected 2015 Water Demand using the 20x2020 interim water use target. 20x2020 target water use was calculated using DWR Method 4.

8 Non-potable groundwater pumped from irrigation wells used on the State Parks Department golf course and a City park. The portion of the 225 AFY attributed to the golf course predates the Gentlemen's Agreement.

9 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.

10 Oceano CSD has a 750 AFY allocation but no drought buffer. Therefore the 66 percent assumption for State Water Project delivery is 495 AFY.

11 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.

12 Existing demand = 2010 demand. Currently there are over 100 lots within the service area that could request water service, plus other potential requests for service

13 2015 Demand

14 2002 Settlement Agreement provides that groundwater allocations can be increased when land within the incorporated boundaries is converted from agricultural uses to urban uses.

15 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.

16 All effluent is currently reused at the Monarch Dunes Golf Course and capacity remains to reuse more effluent at the course as flows to the plant increase.

D.4.2.3 WPA 8 – Huasana Valley

Water Demand

There are no large population centers in WPA 8.

For WPA 8, the existing annual rural water demand is 90 AFY and the projected future demand is 405 AFY. The existing annual applied water for WPA 8 is approximately 1,458 AFY. The existing crops in this area include alfalfa, citrus, deciduous, pasture, vegetables, and vineyards. The projected future annual applied water for WPA 8 averages 2,440 AFY. The projected future agricultural demand is higher than existing due to increases in acreage of nursery, pasture, and vineyards.

The UMAD for WPA 8 inclusive of the water management areas is approximately 34,220 AFY and environmental water demand of 25,020 AFY.

Demand Supply Balance

The water supply sources for this WPA include the Santa Maria and Huasna Valley groundwater basins, other groundwater supply sources, and unquantified State Board water diversions. With no urban land uses, and the uncertainty of existing water rights and use of surface water supplies, groundwater is shown to meet demands to the extent sufficiency in all supplies can be achieved in the future.

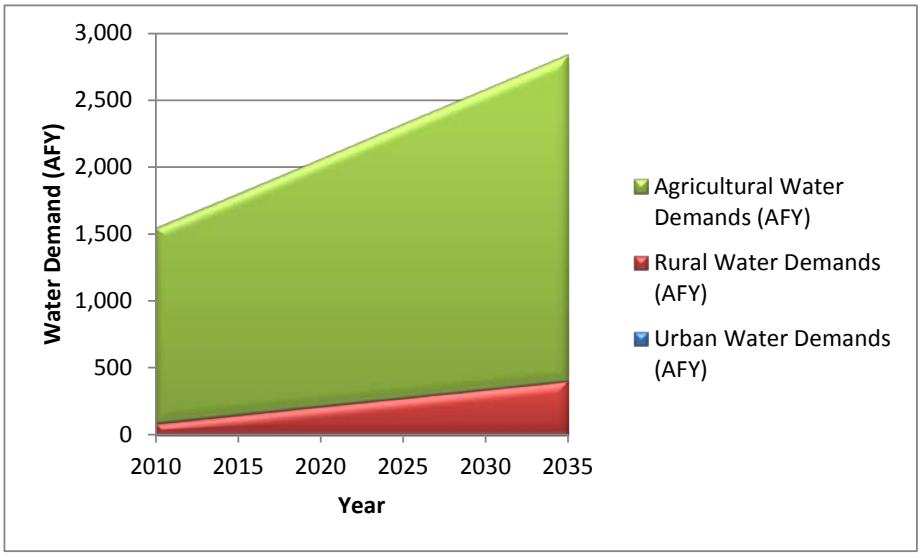


Figure D-20. WPA-8 Huasna Valley Water Demands

Table D-28. WPA No. 8 - Huasna Valley

Urban Water Demands (AFY)								
	Urban Water District	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
Rural Water Demands (AFY)								
	Rural Areas/Districts	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Huasna Valley - Rural	90	153	216	279	342	405	1
	Total	**90**	**153**	**216**	**279**	**342**	**405**	
Agricultural Water Demands (AFY)								
	Crop Types	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Nursery	202	229	256	284	311	338	
	Pasture	183	208	232	257	282	306	
	Vegetable	13	14	16	18	19	21	
	Vineyard	0	0	0	0	0	0	
	Alfalfa	18	20	22	25	27	30	
	Citrus	135	153	171	189	207	225	
	Deciduous	907	1,030	1,152	1,275	1,397	1,520	
	Total	**1,458**	**1,654**	**1,849**	**2,048**	**2,243**	**2,440**	
Total Water Demands (AFY)								
	Sum Urban, Rural, Ag	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Total Water Demand	**1,548**	**1,807**	**2,065**	**2,327**	**2,585**	**2,845**	
Environmental Water Demands (AFY)								
	Environmental Category	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Estimated Unimpaired Mean Annual Discharge	25,020	25,020	25,020	25,020	25,020	25,020	
	Estimated Environmental Water Demand	34,220	34,220	34,220	34,220	34,220	34,220	

Notes:

1 Straightline Interpolation 2010 to 2042

Table D-29. WPA No. 8 - Huasna Valley Demand Supply Balance

WPA No. 8 - Huasna Valley

	Water Districts/Use Sectors/Environmental/Unimpaired Summary	Huasna Valley - Agriculture		Huasna Valley - Rural		Environmental & UMAD		Total	
		Demand (AFY)	*Notes*	Demand (AFY)	*Notes*	Demand (AFY)	*Notes*	Demand (AFY)	*Notes*
Urban/Ag/ Rural Water Demands	**Existing Demands**	1,458		90				1,548	
	Forecasted Demands (2035)	**2,440**		**405**		**0**		**2,845**	
Water Supply Source	**Groundwater**	**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**	
	Santa Maria Valley	488		81				569	
	Huasna Valley	122		20				142	
	Other GW Supply Sources	1,830		304				2,134	
	Total GW	**2,440**		**405**		**0**		**2,845**	
	Surface Water	**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**	
	SWRCB - WPA 7	0						0	
	Total SW	**0**		**0**		**0**		**0**	
	Total Supplies	**2,440**		**405**		**0**		**2,845**	
	Balance (Supplies - Demand)	**0**		**0**		**0**		**0**	
Environmental Water						25,020			
Unimpaired Mean Annual Inflow						34,220			

D.4.2.4 WPA 9 – Cuyama Valley

Water Demand

There are no large population centers in WPA 9 that lie within San Luis Obispo County. The communities of Cuyama and New Cuyama both lie within Santa Barbara County.

For WPA 9, the existing annual rural water demand is 10 AFY and the average projected future demand is 180 AFY. The existing annual applied water for WPA 9 is approximately 30,714 AFY. The existing crops in this area include alfalfa, deciduous, vegetables, and vineyards. The projected future annual applied water for WPA 9 is shown to decrease to 28,823 AFY as a result of a reduction in vegetable crops.

The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences. No environmental flows are included for this WPA.

Supply Demand Balance

The water supply sources for this WPA include the Cuyama Valley Groundwater Basin, other groundwater supply sources, and unquantified State Board water diversions. With no urban land uses, and the uncertainty of existing water rights and use of surface water supplies, groundwater is shown to meet demands to the extent sufficiency in all supplies can be achieved in the future.

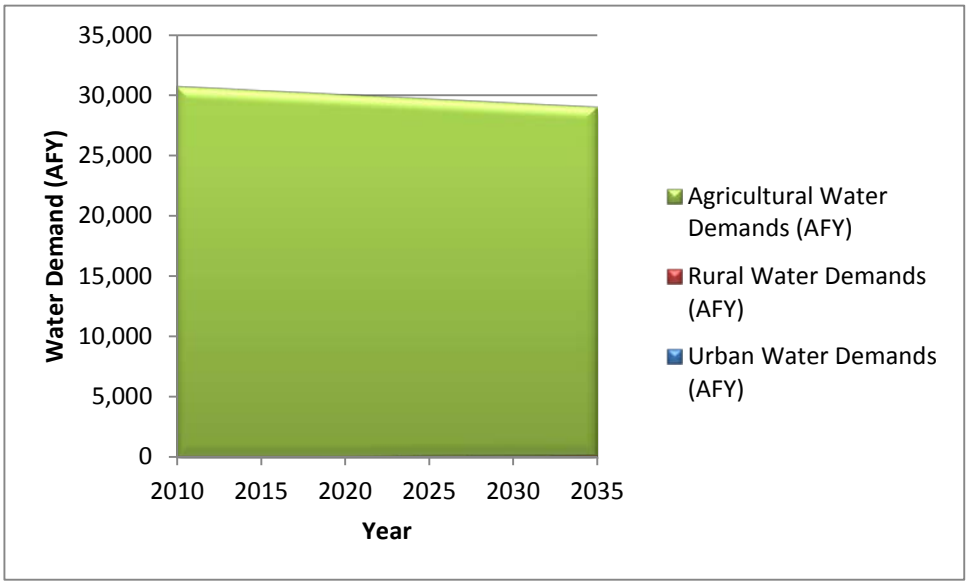


Figure D-21. WPA-9 – Cuyama Water Demands

Table D-30. WPA No. 9 - Cuyama Valley

Urban Water Demands (AFY)								
	Urban Water District	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
Rural Water Demands (AFY)								
	Rural Areas/Districts	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Cuyama Valley - Rural	10	44	78	112	146	180	1
	Total	**10**	**44**	**78**	**112**	**146**	**180**	
Agricultural Water Demands (AFY)								
	Crop Types	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Alfalfa	2,428	2,398	2,368	2,338	2,308	2,278	
	Citrus	0	0	0	0	0	0	
	Deciduous	172	170	167	165	163	161	
	Nursery	0	0	0	0	0	0	
	Pasture	0	0	0	0	0	0	
	Vegetable	28,114	27,768	27,422	27,076	26,730	26,384	
	Vineyard	0	0	0	0	0	0	
	Total	**30,714**	**30,336**	**29,957**	**29,579**	**29,201**	**28,823**	
Total Water Demands (AFY)								
	Sum Urban, Rural, Ag	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Total Water Demand	**30,724**	**30,380**	**30,035**	**29,691**	**29,347**	**29,003**	
Environmental Water Demands (AFY)								
	Environmental Category	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Estimated Unimpaired Mean Annual Discharge	0	0	0	0	0	0	2
	Estimated Environmental Water Demand	0	0	0	0	0	0	3

Notes:

1 Straightline Interpolation 2010 to 2043

2 Straightline Interpolation 2010 to 2042

3 The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

Table D-31. WPA No. 9 – Cuyama Valley Demand Supply Balance

WPA No. 9 - Cuyama Valley

	Water Districts/Use Sectors/Environmental/Unimpaired Summary	Cuyama Valley - Agriculture		Cuyama Valley - Rural		Environmental & UMAD		Total	
		Demand (AFY)	*Notes*	Demand (AFY)	*Notes*	Demand (AFY)	*Notes*	Demand (AFY)	*Notes*
Urban/Ag/ Rural Water Demands	**Existing Demands**	30,714		10				30,724	
	Forecasted Demands (2035)	**28,823**		**180**		**0**		**29,003**	
Water Supply Source	**Groundwater**	GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)	
	Cuyama Valley	9,800	*1*	61	*1*			9,861	
	Other GW Supply Sources	19,023		119				19,142	
	Total GW	**28,823**		**180**		**0**		**29,003**	
	Surface Water	SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)	
	SWRCB - WPA 9	0						0	
	Total SW	**0**		**0**		**0**		**0**	
	Total Supplies	**28,823**		**180**		**0**		**29,003**	
	Balance (Supplies - Demand)	**0**		**0**		**0**		**0**	
Environmental Water						0	*2*		
Unimpaired Mean Annual Inflow						0	*3*		

Notes:

1 There is no separate yield estimate for the San Luis Obispo County portion of the basin.

2 Not Available

3 The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

D.4.3 *North County Sub-Region*

As listed in **Table D-32**, the South County Sub-Region includes seven WPAs (See **Figure D-17**). Most of the urban water demands rely on groundwater supplies from the Paso Groundwater Basins and its many sub-basins.

Table D-32. North County Subregion WPA Water Demand Summary

Sum Urban, Rural, Ag	2010	2015	2020	2025	2030	2035
WPA No. 10 - Carrizo Plain	733	2,978	5,223	7,469	9,714	11,959
WPA No. 11 - Rafael/Big Spring	519	633	748	862	976	1,090
WPA No. 12 - Santa Margarita	3,523	4,513	5,500	6,488	7,477	8,465
WPA No. 13 - Atascadero/Templeton	22,151	23,644	25,167	26,687	27,832	29,559
WPA No. 14 - Salinas/Estrella	87,127	89,409	91,903	94,370	94,425	94,482
WPA No. 15 - Cholame	118	143	168	193	218	243
WPA No. 16 - Nacimiento	3,269	4,280	5,288	6,300	7,310	8,320
Total for Sub-Region	**117,440**	**125,600**	**133,997**	**142,369**	**147,952**	**154,118**

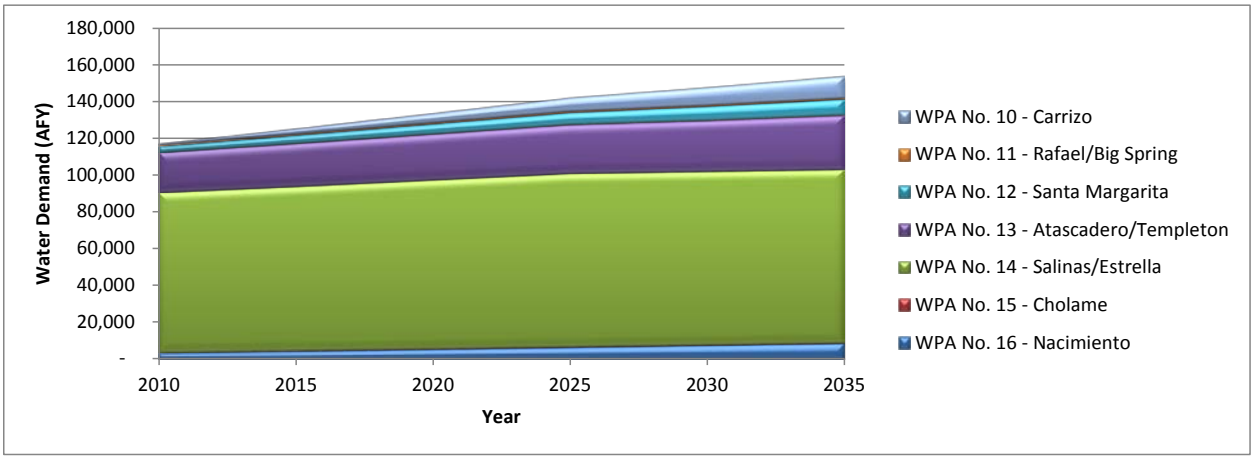


Figure D-22. North County WPA Water Demand Summary

D.4.3.1 WPA 10 – Carrizo Plain

Water Demand

There are no large population centers in WPA 10. Two solar power facilities exist in this WPA. These two large solar farms are referred to as the Topaz Solar Farm, and the SunPower-California Valley Solar Ranch. The estimated water demand of these facilities is 13.8 AFY, but is not shown in this water balance (for purposes of consistency with MWR).

The estimated rural demand for the Carrizo Plain, WPA 10, is 210 AFY and has a future demand of 11,175 AFY. However, it is unlikely that the number of residential units that are zoned as potential residential will be developed due to limited water availability and other factors. The existing annual applied water for WPA 10 is approximately 520 AFY. The existing crops in this area are primarily citrus crops. The projected future annual applied water for WPA 10 averages approximately 784 AFY.

The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences. No environmental flows are included for this WPA.

Supply Demand Balance

The primary source of water supply for this WPA is the Carrizo Plain Groundwater Basin, and to a limited extent, other groundwater basins and State Board water diversions. With no urban land uses, groundwater is shown to meet demands to the extent sufficiency in all supplies can be achieved in the future. Potential demands occurring from the two identified future solar power projects are not included.

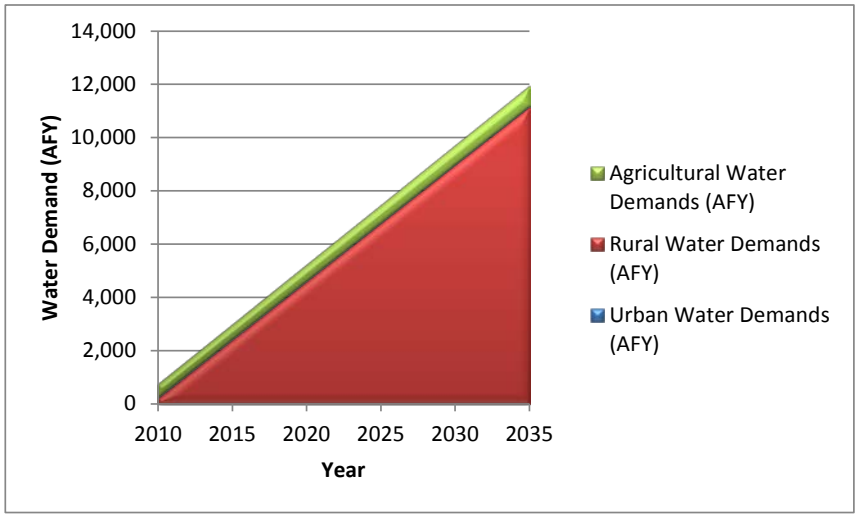


Figure D-23. WPA-10 Carrizo Plain Water Demands

Table D-33. WPA No. 10 – Carrizo Plain

Urban Water Demands (AFY)								
	Urban Water District	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
Rural Water Demands (AFY)								
	Rural Areas/Districts	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Carrizo - Rural	210	2,403	4,596	6,789	8,982	11,175	1
	Total	**210**	**2,403**	**4,596**	**6,789**	**8,982**	**11,175**	
Agricultural Water Demands (AFY)								
	Crop Types	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Alfalfa	0	0	0	0	0	0	
	Citrus	523	575	627	680	732	784	
	Deciduous	0	0	0	0	0	0	
	Nursery	0	0	0	0	0	0	
	Pasture	0	0	0	0	0	0	
	Vegetable	0	0	0	0	0	0	
	Vineyard	0	0	0	0	0	0	
	Total	**523**	**575**	**627**	**680**	**732**	**784**	
Total Water Demands (AFY)								
	Sum Urban, Rural, Ag	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Total Water Demand	**733**	**2,978**	**5,223**	**7,469**	**9,714**	**11,959**	
Environmental Water Demands (AFY)								
	Environmental Category	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Estimated Unimpaired Mean Annual Discharge	0	0	0	0	0	0	2
	Estimated Environmental Water Demand	0	0	0	0	0	0	2

Notes:

1 Straightline Interpolation 2010 to 2044. Carrizo Plain rural demand projections are based on existing zoning, which includes the potential for extensive California Valley development. The actual development may be much lower than the range shown due to water quality and other considerations.

2 The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

Table D-34. WPA No. 10 – Carrizo Plain Demand Supply Balance

WPA No. 10 - Carrizo

	Water Districts/Use Sectors/Environmental/Unimpaired Summary	Carrizo - Agriculture		Carrizo - Rural		Environmental & UMAD		Total	
		Demand (AFY)	*Notes*	Demand (AFY)	*Notes*	Demand (AFY)	*Notes*	Demand (AFY)	*Notes*
Urban/Ag/ Rural Water Demands	**Existing Demands**	523		210				733	
	Forecasted Demands (2035)	**784**		**11,175**		**0**		**11,959**	
Water Supply Source	**Groundwater**	**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**	
	Carrizo Plain	800	*1*	224				1,023	
	Other GW Supply Sources	0		10,952				10,952	
	Total GW	**800**		**11,175**		**0**		**11,975**	
	Surface Water	**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**	
	SWRCB - WPA 10	0	*2*	0	*2*			0	
	Total SW	**0**		**0**		**0**		**0**	
	Total Supplies	**800**		**11,175**		**0**		**11,975**	
	Balance (Supplies - Demand)	**16**		**0**		**0**		**16**	
Environmental Water						0	*3*		
Unimpaired Mean Annual Inflow						0	*3*		

Notes:

1 The safe seasonal yield was estimated at 8000 - 11000 AFY.

2 Diversions do not distinguish type of use. Potentially 81 AFY could be diverted for use to either agriculture or rural residential.

3 The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

D.4.3.2 WPA 11 – Rafael/Big Spring

Water Demand

There are no large population centers in WPA 11.

There is minimal or no existing rural demand for WPA 11, but in the future, if water is available and development occurs, there could be up to 1,090 AFY. There are minimal (519 AFY) applied water demands estimated in 2010, and no future agricultural demands, with existing citrus shown as declining to zero by 2035 likely being replaced by rural development, and constrained from a lack of reliable water supplies.

The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

Demand Supply Balance

The primary source of water supply for this WPA is the Rafael Valley and Big Spring Valley Groundwater Basins, and to a limited extent, State Board water diversions. The water supply sources for this WPA include other groundwater supply sources because the amount of groundwater taken from the two larger basins, and from smaller basins, has not been quantified. With no urban land uses, groundwater is shown to meet demands to the extent sufficiency in all supplies can be achieved in the future.

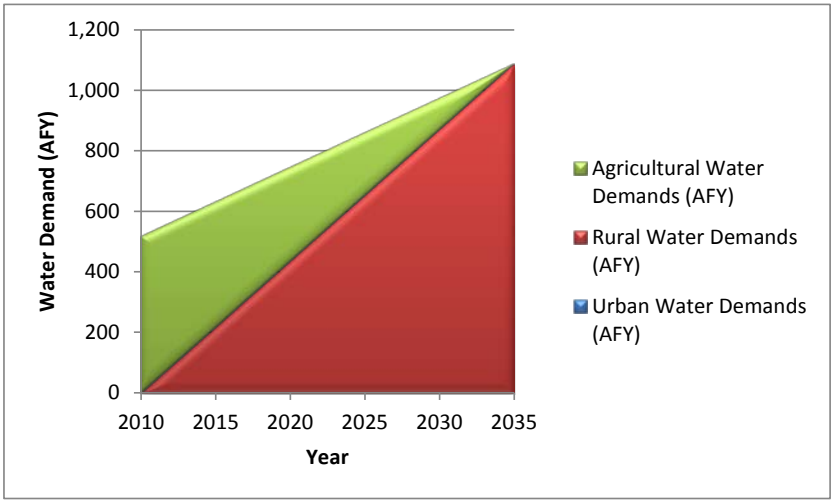


Figure D-24. WPA-11 Rafael/Big Spring Water Demands

Table D-35. WPA No. 11 - Rafael/Big Spring

Urban Water Demands (AFY)								
	Urban Water District	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
Rural Water Demands (AFY)								
	Rural Areas/Districts	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Rafael/Big Spring - Rural	0	218	436	654	872	1,090	1
	Total	**0**	**218**	**436**	**654**	**872**	**1,090**	
Agricultural Water Demands (AFY)								
	Crop Types	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Alfalfa	0	0	0	0	0	0	
	Citrus	519	415	312	208	104	0	
	Deciduous	0	0	0	0	0	0	
	Nursery	0	0	0	0	0	0	
	Pasture	0	0	0	0	0	0	
	Vegetable	0	0	0	0	0	0	
	Vineyard	0	0	0	0	0	0	
	Total	**519**	**415**	**312**	**208**	**104**	**0**	
Total Water Demands (AFY)								
	Sum Urban, Rural, Ag	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Total Water Demand	**519**	**633**	**748**	**862**	**976**	**1,090**	
Environmental Water Demands (AFY)								
	Environmental Category	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Estimated Unimpaired Mean Annual Discharge	0	0	0	0	0	0	2
	Estimated Environmental Water Demand	0	0	0	0	0	0	2

Notes:

1 Straightline Interpolation 2010 to 2045

2 The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

Table D-36. WPA No. 11 – Rafael/Big Spring Demand Supply Balance

WPA No. 11 - Rafael/Big Spring

	Water Districts/Use Sectors/Environmental/Unimpaired Summary	Rafael/Big Spring - Agriculture		Rafael/Big Spring - Rural		Environmental & UMAD		Total	
		Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes
Urban/Ag/ Rural Water Demands	Existing Demands	519						519	
	Forecasted Demands (2035)	**0**		**1,090**		**0**		**1,090**	
	Groundwater	**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**	
Water Supply Source	Rafael Valley	0	1					0	
	Big Spring Area	0	1					0	
	Other GW Supply Sources	0	2	1,090	2			1,090	
	Total GW	**0**		**1,090**		**0**		**1,090**	
	Surface Water	**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**	
	SWRCB - WPA 11	0	3					0	
	Total SW	**0**		**0**		**0**		**0**	
	Total Supplies	**0**		**1,090**		**0**		**1,090**	
	Balance (Supplies - Demand)	**0**		**0**		**0**		**0**	
Environmental Water						0	4		
Unimpaired Mean Annual Inflow						0	4		

Notes:

1 There is no information describing the basin yield.

2 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 and use of each basin.

3 Diversions do not distinguish type of use. Potentially 59 AFY could be diverted for use to either agriculture or rural residential.

4 The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

D.4.3.3 WPA 12 – Santa Margarita

Water Demand

There are two urban water suppliers and users in WPA 12: County Service Area 23 and Santa Margarita Ranch Mutual Water Company. Information on these water districts and water users is in **Section C – Region Description**.

The estimated rural demand for the Santa Margarita area, WPA 12, is 240 AFY and has a future demand of 485 AFY. However, it is unlikely that the number of residential units that are zoned as potential residential will be developed due to limited water availability and other factors. The existing annual applied water for WPA 12 is approximately 1,498 AFY. The existing crops in this area include alfalfa, deciduous, pasture, and vineyards. The projected future annual applied water for WPA 12 is estimated to be 2,202 AFY. The projected future agricultural demand is higher than existing due to increases in acreage of citrus, pasture, and vineyards.

The UMAD for WPA 12 inclusive of the water management areas is approximately 46,630 AFY and environmental water demand of 32,850 AFY.

Demand Supply Balance

The primary source of water supply for this WPA is the Santa Margarita, Rinconada, and Pozo Valley Groundwater Basins, Santa Margarita Creek Alluvial Aquifer, and to a limited extent other groundwater supplies and State Board water diversions. The water supply sources for this WPA include other groundwater supply sources because the amount of groundwater taken from the two larger basins, and from smaller basins, has not been quantified. Based on preliminary review of basin perennial yield, groundwater is shown to be in deficit for the two urban districts, requiring the development of alternative supplies from surface water and potentially recycled water.

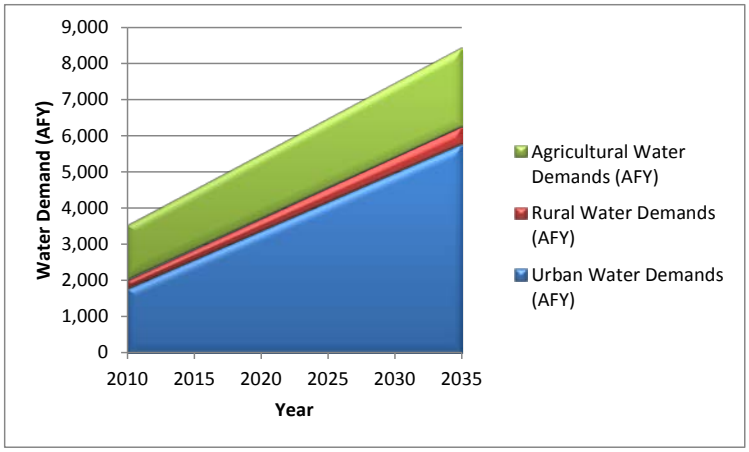


Figure D-25. WPA-12 Santa Margarita Water Demands

Table D-37. WPA No. 12 - Santa Margarita

Urban Water Demands (AFY)								
	Urban Water District	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	CSA 23	164	168	171	175	179	182	1
	Santa Margarita Ranch Mutual Water Company	1,621	2,416	3,211	4,006	4,801	5,596	2
	Total	**1,785**	**2,584**	**3,382**	**4,181**	**4,980**	**5,778**	
Rural Water Demands (AFY)								
	Rural Areas/Districts	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Santa Margarita - Rural	240	289	338	387	436	485	3
	Total	**240**	**289**	**338**	**387**	**436**	**485**	
Agricultural Water Demands (AFY)								
	Crop Types	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Alfalfa	200	219	238	256	275	294	
	Citrus	0	0	0	0	0	0	
	Deciduous	29	32	34	37	40	43	
	Nursery	0	0	0	0	0	0	
	Pasture	21	23	25	27	29	31	
	Vegetable	0	0	0	0	0	0	
	Vineyard	1,248	1,366	1,483	1,600	1,717	1,834	
	Total	**1,498**	**1,640**	**1,780**	**1,920**	**2,061**	**2,202**	
Total Water Demands (AFY)								
	Sum Urban, Rural, Ag	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Total Water Demand	**3,523**	**4,513**	**5,500**	**6,488**	**7,477**	**8,465**	
Environmental Water Demands (AFY)								
	Environmental Category	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Estimated Unimpaired Mean Annual Discharge	32,850	32,850	32,850	32,850	32,850	32,850	
	Estimated Environmental Water Demand	46,630	46,630	46,630	46,630	46,630	46,630	

Notes:

1 2012 MWR Future demand given as a range, 173-192 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.

2 2012 MWR Future demand given as a range, 5301-5890 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.

3 Straightline Interpolation 2010 to 2046

Table D-38. WPA No. 12 – Santa Margarita Demand Supply Balance

WPA No. 12 - Santa Margarita

Water Districts/Use Sectors/Environmental/Unimpaired Summary		CSA 23		Santa Margarita Ranch MWC		Santa Margarita - Agriculture		Santa Margarita - Rural		Environmental & UMAD		Total	
		Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes
Urban/Ag/ Rural Water Demands	**Existing Demands**	164	1	1,621		1,508		240				3,533	
	Forecasted Demands (2035)	**182**		**5,596**		**2,202**		**485**		**0**		**8,465**	
Water Supply Source	**Groundwater**	GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)	
	Santa Margarita Valley	164	2	1,621	2	0	2					1,785	
	Rinconada Valley	0	3	0	2	308	3	68				376	
	Pozo Valley	0	4	0	4	110	4	24				134	
	Other GW Supply Sources					1,762		388				2,150	
	Salinas River Underflow					22		5				27	
	Total GW	**164**		**1,621**		**2,202**		**485**		**0**		**4,472**	
	Surface Water	SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)	
	SWRCB-WPA 1			22	5							22	
	Total SW	**0**		**22**		**0**		**0**		**0**		**22**	
	Total Supplies	**164**		**1,643**		**2,202**		**485**		**0**		**4,494**	
	Balance (Supplies - Demand)	**-18**		**-3,953**		**0**		**0**		**0**		**-3,971**	
Environmental Water										32,850			
Unimpaired Mean Annual Inflow										46,630			

Notes:

1 2012 MWR

2 No comprehensive studies to determine the perennial yield are known to exist. However some reports indicate an average annual yield may range between 400 to 600 AFY.

3 There is no information describing the basin yield.

4 The safe available storage has been reported to be 1000 AFY. There is insufficient information to characterize water availability.

5 Supplemental water supply options for Santa Margarita Ranch are State Water and Nacimiento water.

D.4.3.4 WPA 13 – Atascadero/Templeton

Water Demand

There are three urban water suppliers and users in WPA 13: Garden Farms Community Water District, Atascadero Mutual Water Company, and Templeton Community Services District. Information on these water districts and water users is in **Section C – Region Description**.

The estimated rural demand for the Atascadero/Templeton area, WPA 13, is 1,480 AFY and has a future demand of 1,870 AFY. However, it is unlikely that the number of residential units that are zoned as potential residential will be developed due to limited water availability and other factors. The existing annual applied water for WPA 13 is approximately 7,852 AFY. All crop types are currently grown in this area. The projected future annual applied water for WPA 13 is estimated to be 12,170 AFY. The projected future agricultural demand is slightly higher than existing due to increases in acreage of deciduous, nursery, pasture, vegetable, and vineyards.

The UMAD for WPA 13 inclusive of the water management areas is approximately 74,090 AFY and environmental water demand of 41,010 AFY.

Demand Supply Balance

The primary source of water supply for this WPA is the Atascadero Groundwater Sub-basin (Paso Robles Formation and Salinas River Underflow), recycled water, Nacimiento Water Project, and to a limited extent, other groundwater supplies and State Board water diversions. The Templeton CSD can extract water from the Paso Robles Formation any time during the year; however, the Templeton CSD extracts the majority of the water during the summer months when the main river water allocation is not available. The agencies, County, District, and local land owners intend to actively and cooperatively manage the Paso Robles Groundwater Basin via the development of a Groundwater Management Plan.

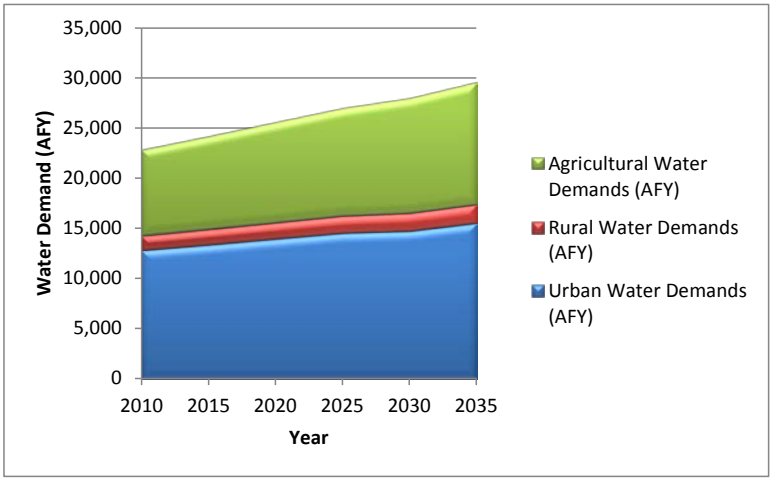


Figure D-26. WPA-13 Atascadero/Templeton Water Demands

Table D-39. WPA No. 13 - Atascadero/Templeton

Urban Water Demands (AFY)								
	Urban Water District	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Garden Farms C.W.D.	48	57	66	75	84	93	1
	Templeton CSD	1,682	1,775	1,868	1,961	2,054	2,147	2
	Atascadero Mutual Water Co	7,026	7,476	7,955	8,431	8,867	9,551	3
	Paso Robles Municipal Well Pumping	4,063	4,063	4,063	4,063	3,728	3,728	3
	Total	**12,819**	**13,371**	**13,952**	**14,530**	**14,733**	**15,519**	
Rural Water Demands (AFY)								
	Rural Areas/Districts	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Atascadero/Templeton - Rural	1,480	1,558	1,636	1,714	1,792	1,870	4
	Total	**1,480**	**1,558**	**1,636**	**1,714**	**1,792**	**1,870**	
Agricultural Water Demands (AFY)								
	Crop Types	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Alfalfa	319	354	389	424	459	494	
	Citrus	156	173	190	207	224	241	
	Deciduous	44	48	53	58	63	68	
	Nursery	25	28	31	34	37	39	
	Pasture	1,518	1,685	1,852	2,019	2,186	2,353	
	Vegetable	34	38	42	46	50	53	
	Vineyard	5,756	6,389	7,022	7,655	8,288	8,922	
	Total	**7,852**	**8,715**	**9,579**	**10,443**	**11,307**	**12,170**	
Total Water Demands (AFY)								
	Sum Urban, Rural, Ag	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Total Water Demand	**22,151**	**23,644**	**25,167**	**26,687**	**27,832**	**29,559**	
Environmental Water Demands (AFY)								
	Environmental Category	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Estimated Unimpaired Mean Annual Discharge	41,010	41,010	41,010	41,010	41,010	41,010	
	Estimated Environmental Water Demand	74,090	74,090	74,090	74,090	74,090	74,090	

Notes:

1 Straight line interpolation between 2010 demand and 2035 demand.

2 2012 MWR Future demand given as a range, 2034-2260 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.

3 2035 demand calculated using straight line interpolation from 2020 and 2030 given demands.

4 Straightline Interpolation 2010 to 2047

Table D-40. WPA No. 13 - Atascadero/Templeton Demand Supply Balance

WPA No. 13 - Atascadero/Templeton

	Water Districts/Use Sectors/Environmental/Unimpaired Summary	Garden Farms C.W.D.	Notes	Templeton CSD	Notes	Atascadero Mutual Water Co	Notes	Paso Robles Municipal Well Pumping	Notes	Atascadero/ Templeton - Agriculture	Notes	Atascadero/ Templeton - Rural	Notes	Environ-mental & UMAD	Total
		Demand (AFY)		Demand (AFY)		Demand (AFY)		Demand (AFY)		Demand (AFY)		Demand (AFY)		Demand (AFY)	Demand (AFY)
Urban/ Ag/ Rural Water Demands	Existing Demands	48	1	1,682	1	7,026	1	4,063		7,852		1,480			22,151
	Forecasted Demands (2035)	**93**		**2,147**		**9,551**		**3,728**		**12,170**		**1,870**		**0**	**29,559**
	Groundwater	**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**	**GW Supply (AFY)**
	Paso Robles	93	2	1,050	3	3,193	8	0	10			0	14		4,336
	Salinas River Underflow			500	4	4,883	9	3,728	11	2,434	12	374			11,919
	Atascadero					0	7								0
	Other GW Supply Sources									9,736		1,496			11,232
	Total GW	**93**		**1,550**		**8,076**		**3,728**		**12,170**		**1,870**		**0**	**27,487**
Water Supply Source	**Surface Water**	**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**	**SW Supply (AFY)**
	Nacimiento Project			250	5	2,000									2,250
	Recycled Water			475	6										475
	SWRCB - WPA 13									0	13	0	13		0
	Total SW	**0**		**725**		**2,000**		**0**		**0**		**0**		**0**	**2,725**
	Total Supplies	**93**		**2,275**		**10,076**		**3,728**		**12,170**		**1,870**		**0**	**30,212**
	Balance (Supplies - Demand)	**0**		**128**		**525**		**0**		**0**		**0**		**0**	**653**
	Environmental Water													41,010	
	Unimpaired Mean Annual Inflow													74,090	

Notes:

1. 2012 MWR
2. Perennial yield estimated to be 16400 AFY. Extractions occur primarily from Salinas River Underflow and deeper formations. Depending on the estimated use sub-basin studies are indicating that the perennial yield may be exceeded in the future.
3. Nine of Templeton CSD's wells extract groundwater from the Atascadero Groundwater Sub-basin.
4. Templeton CSD is permitted to extract 500 AFY from the Salinas River Underflow between October 1 and April 1.
5. Nacimiento Project went on-line in 2010
6. Percolation of treated wastewater effluent into the Salinas River underflow and extraction of the same amount 28 months later. Currently about 132 AFY is percolated and extracted. This could increase to 475 AFY in the future.

7 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.

8 Included with Salinas River Underflow

9 Atascadero MWC currently has rights to 3372 AFY from Salinas River underflow. Increased supplies from the underflow are shown due to UWMP shwing 4613 AFY in 2030.

10 Amount included in Salinas River Underflow

11 It was assumed that half (4063 AFY) of the existing Paso demand of 8126 AFY was extracted from the Salinas River Underflow via the Thunderbird Well Field in WPA 13

12 SWRCB records indicate that 745 AFY could have been diverted from the Salinas River (direct diversion or underflow). It is assumed that the entire amount is used for agriculture.

13 Diversions do not distinguish type of use. Potentially 1431 AFY could be diverted for use to either agriculture or rural residential. Diversions were not analyzed as to whether they are within or outside the Sub-basin.

14 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.

D.4.3.5 WPA 14 – Salinas/Estrella

Water Demand

There are four urban water suppliers and users in WPA 14: Camp Roberts, City of Paso Robles, San Miguel Community Services District, and San Luis Obispo County Service Area 16 (Shandon). Information on these water districts and water users is in **Section C – Region Description**.

The estimated rural demand for the Salinas/Estrella area, WPA 14, is 3,590 AFY and has a future demand of 5,900 AFY. However, it is unlikely that the number of residential units that are zoned as potential residential will be developed due to limited water availability and other factors. The existing annual applied water for WPA 14 is approximately 76,639 AFY. All crop types are currently grown in this area. The projected future annual applied water for WPA 14 is estimated to decrease slightly to 73,782 AFY. The projected future agricultural demand is slightly lower than existing due to decreases in acreage of alfalfa, citrus, and vineyards.

The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

Demand Supply Balance

The primary source of water supply for this WPA is the Paso Robles Groundwater Basin (Paso Robles Formation (and/or alluvium) and Salinas River Underflow), Nacimiento Water Project, and to a limited extent, other groundwater supplies and State Board water diversions. The DAC community of San Miguel overlies a portion of the Paso Basin not constrained by groundwater. The City of Paso Robles is currently construction the Nacimiento Project providing for an estimated 5,400 AFY of surface water. Shandon is also planning for the construction of a turnout for SWP water, but will continue to rely mostly on less costly groundwater supplies to the extent that the basin can sustain the total demands of all pumpers.

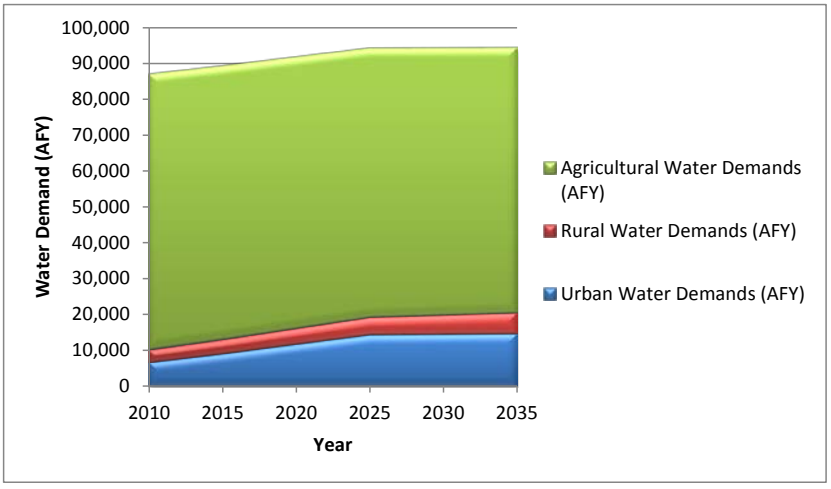


Figure D-27. WPA-14 Salinas/Estrella Water Demands

Table D-41. WPA No. 14 - Salinas/Estrella

Urban Water Demands (AFY)								
	Urban Water District	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	San Miguel CSD	235	293	351	408	466	524	1
	Camp Roberts	190	190	190	190	190	190	2
	City of Paso Robles	6,326	8,550	10,990	13,400	13,400	13,400	2
	SLO CSA No. 16 – Shandon	147	255	362	470	578	686	3
	Total	**6,898**	**9,288**	**11,893**	**14,468**	**14,634**	**14,800**	
Rural Water Demands (AFY)								
	Rural Areas/Districts	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Salinas/Estrella - Rural	3,590	4,052	4,514	4,976	5,438	5,900	4
	Total	**3,590**	**4,052**	**4,514**	**4,976**	**5,438**	**5,900**	
Agricultural Water Demands (AFY)								
	Crop Types	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Alfalfa	10,560	10,481	10,402	10,323	10,245	10,166	
	Citrus	1,190	1,182	1,173	1,164	1,155	1,146	
	Deciduous	1,585	1,573	1,561	1,550	1,538	1,526	
	Nursery	147	146	145	144	143	142	
	Pasture	3,815	3,787	3,758	3,730	3,701	3,673	
	Vegetable	2,878	2,857	2,835	2,814	2,792	2,771	
	Vineyard	56,464	56,043	55,622	55,201	54,779	54,358	
	Total	**76,639**	**76,069**	**75,496**	**74,926**	**74,353**	**73,782**	
Total Water Demands (AFY)								
	Sum Urban, Rural, Ag	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Total Water Demand	**87,127**	**89,409**	**91,903**	**94,370**	**94,425**	**94,482**	
Environmental Water Demands (AFY)								
	Environmental Category	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Estimated Unimpaired Mean Annual Discharge	0	0	0	0	0	0	5
	Estimated Environmental Water Demand	0	0	0	0	0	0	5

Notes:

1 2012 MWR Future demand given as a range, 466-582 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.

2 Assumed demand was held constant between Current (2010) and Future (build-out/2035).

3 2012 MWR Future demand given as a range, 271-1100 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.

4 Straightline Interpolation 2010 to 2048

5 The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

Table D-42. WPA No. 14 – Salinas/Estrella Demand Supply Balance

WPA No. 14 - Salinas/Estrella

	Water Districts/Use Sectors/Environmental/Unimpaired Summary	San Miguel CSD		Camp Roberts		City of Paso Robles		SLO CSA No. 16 – Shandon		Salinas/Estrella - Agriculture		Salinas/ Estrella - Rural		Environmental & UMAD		Total
		Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)
Urban/Ag/ Rural Water Demands	**Existing Demands**	235	1	190	1	6,326	3	147	1	76,639		3,590				87,127
	Forecasted Demands (2035)	**524**		**190**		**13,400**		**686**		**73,782**		**5,900**		**0**		**94,482**
Water Supply Source	**Groundwater**	GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)		GW Supply (AFY)
	Paso Robles	524	2	190		3,400	4	147		51,647		4,130				60,038
	Salinas River Underflow					4,600	5			14,756	7	1,180				20,536
	Other GW Supply Sources									3,689		295				3,984
	Total GW	**524**		**190**		**8,000**		**147**		**70,093**		**5,605**		**0**		**84,559**
	Surface Water	SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)		SW Supply (AFY)
	Nacimiento Project					5,400										5,400
	SWP - WPA 14							66	6							66
	SWRCB - WPA 14									3,689	8	295	8			3,984
	Total SW	**0**		**0**		**5,400**		**66**		**3,689**		**295**		**0**		**9,450**
	Total Supplies	**524**		**190**		**13,400**		**213**		**73,782**		**5,900**		**0**		**94,009**
	Balance (Supplies - Demand)	**0**		**0**		**0**		**-473**		**0**		**0**		**0**		**-473**
Environmental Water														0	9	
Unimpaired Mean Annual Inflow														0	9	

Notes:

1 2012 MWR

2 The local Paso Basin yield underlying San Miguel is assumed to be sufficient for meeting future demands. Future groundwater management and governance of the Paso Basin will need to provide proof of sufficiency.

3 The 20x2020 target water use was calculated using DWR Method 1, which is 80% of the Base Daily per Capita Water Use.

4 The deeper formations of the Paso Robles Groundwater Basin contribute approximately 2856 AFY to the City of Paso Robles supply. The City plans to maintain this extraction rate in the future.

5 The City of Paso Robles is permitted to extract up to 8 cfs (3590 gpm) with a maximum extraction of 4600 AFY (January 1 to December 31).

6 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 equate to 66 AFY.

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 Diversions do not distinguish type of use. Potentially 4884 AFY could be diverted for use to either agriculture or rural residential.

9 The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

D.4.3.6 WPA 15 – Cholame Valley

Water Demand

There are no large population centers in WPA 15.

The estimated rural demand for the Cholame Valley area, WPA 15, is 10 AFY and has a future demand of 170 AFY. However, it is unlikely that the number of residential units that are zoned as potential residential will be developed due to limited water availability and other factors. The existing annual applied water for WPA 15 is approximately 108 AFY shown to be solely from citrus crops. The projected future annual applied water for WPA 15 is estimated to decrease slightly to 73 AFY. The projected future agricultural demand is slightly lower than existing due to a decrease in the citrus (olive) crops.

The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

Demand Supply Balance

The primary source of water supply for this WPA is the Cholame Valley Groundwater Basin, and to a limited extent, other groundwater supplies and State Board water diversions. Given the current land use, the projection for WPA 15 in particular could be refined significantly by taking ranching operations water use and conservation easement provisions into account. There is no information for basin yields.

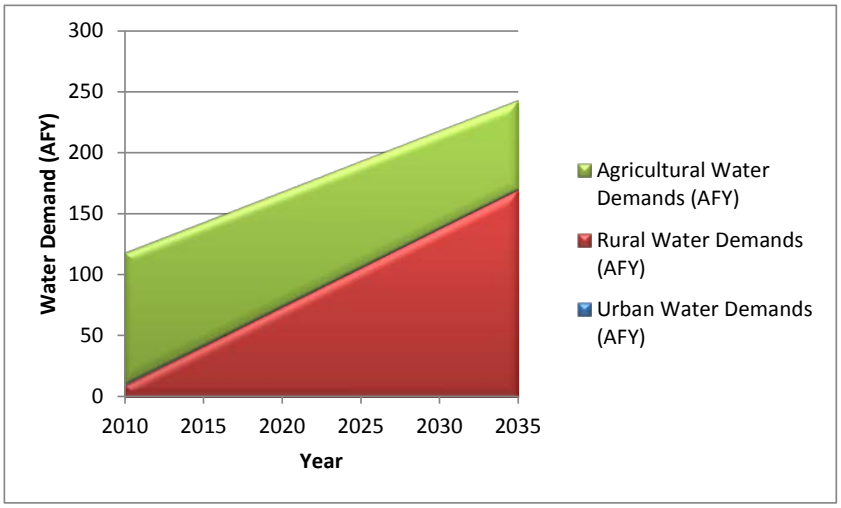


Figure D-28. WPA-15 Cholame Water Demands

Table D-43. WPA No. 15 - Cholame

Urban Water Demands (AFY)								
	Urban Water District	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
Rural Water Demands (AFY)								
	Rural Areas/Districts	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Cholame - Rural	10	42	74	106	138	170	1
	Total	**10**	**42**	**74**	**106**	**138**	**170**	
Agricultural Water Demands (AFY)								
	Crop Types	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	**Notes**
	Alfalfa	0	0	0	0	0	0	
	Citrus	108	101	94	87	80	73	
	Deciduous	0	0	0	0	0	0	
	Nursery	0	0	0	0	0	0	
	Pasture	0	0	0	0	0	0	
	Vegetable	0	0	0	0	0	0	
	Vineyard	0	0	0	0	0	0	
	Total	**108**	**101**	**94**	**87**	**80**	**73**	
Total Water Demands (AFY)								
	Sum Urban, Rural, Ag	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Total Water Demand	**118**	**143**	**168**	**193**	**218**	**243**	
Environmental Water Demands (AFY)								
	Environmental Category	**2010**	**2015**	**2020**	**2025**	**2030**	**2035**	
	Estimated Unimpaired Mean Annual Discharge	0	0	0	0	0	0	2
	Estimated Environmental Water Demand	0	0	0	0	0	0	2

Notes:

1 Straightline Interpolation 2010 to 2049

2 The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

Table D-44. WPA No. 15 – Cholame Demand Supply Balance

WPA No. 15 - Cholame

Water Districts/Use Sectors/Environmental/Unimpaired Summary		Cholame - Agriculture		Cholame - Rural		Environmental & UMAD		Total	
		Demand (AFY)	*Notes*	Demand (AFY)	*Notes*	Demand (AFY)	*Notes*	Demand (AFY)	*Notes*
Urban/Ag/ Rural Water Demands	**Existing Demands**	108		10				118	
	Forecasted Demands (2035)	**73**		**170**		**0**		**243**	
Water Supply Source	**Groundwater**	**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**	
	Cholame Valley	80	*1*					80	
	Other GW Supply Sources	0		170				170	
	Total GW	**80**		**170**		**0**		**250**	
	Surface Water	**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**	
	SWRCB - WPA 15	41						41	
	Total SW	**41**		**0**		**0**		**41**	
	Total Supplies	**121**		**170**		**0**		**291**	
	Balance (Supplies - Demand)	**48**		**0**		**0**		**48**	
Environmental Water									
Unimpaired Mean Annual Inflow						0	*2*		
						0	*2*		

Notes:

1 The perennial yield was estimated to be 977,00 AFY (includes 16,400 AFY from the Atascadero Groundwater Sub-basin). Previous studies estimated that the total groundwater pumping in the basin during 2006 including Monterey County demands was 88154 acre-feet

2 The eastern portion of the County (i.e., WPAs 9, 10, 11, 14, and 15) was ultimately excluded from the environmental water demand analysis due to the lack of data and regional physiographic differences.

D.4.3.7 WPA 16 – Nacimiento

Water Demand

There are two urban water suppliers and users in WPA 16: Heritage Ranch Community Services District and Nacimiento Water Company. Information on these water districts and water users is in **Section C – Region Description**.

The estimated rural demand for the Nacimiento area, WPA 16, is 280 AFY and has a future demand of 805 AFY. However, it is unlikely that the number of residential units that are zoned as potential residential will be developed due to limited drought year water availability. The existing annual applied water for WPA 16 is approximately 1770 AFY shown to be from citrus, deciduous, pasture, and vineyard crops. The projected future annual applied water for WPA 16 is estimated to increase to 5,928 AFY. The projected future agricultural demand is higher than existing due to an increase in all existing crop types.

The UMAD for WPA 16 inclusive of the water management areas is approximately 251,124 AFY and environmental water demand of 108,390 AFY.

Demand Supply Balance

The primary source of water supply for this WPA is Lake Nacimiento, and to a limited extent, other groundwater supplies and State Board water diversions. 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. It is sufficient to provide water for 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. Alternative sources are under consideration, including taking water directly from the lake and connecting to the Nacimiento Pipeline.

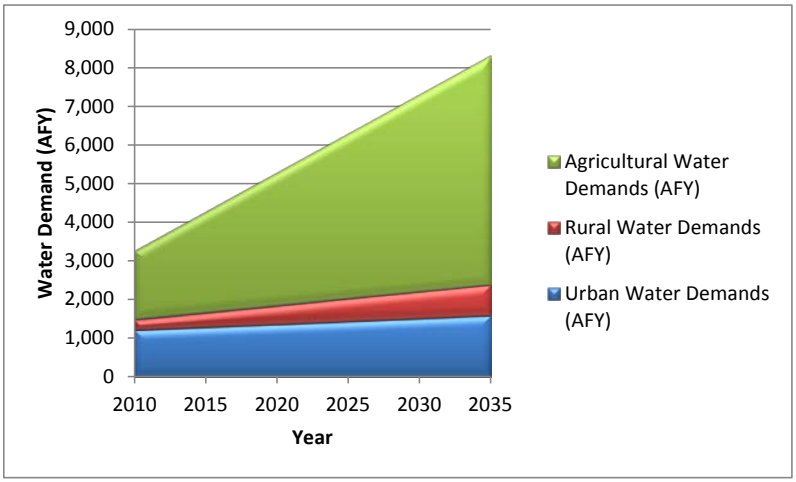


Figure D-29. WPA-16 Nacimiento Water Demands

Table D-45. WPA No. 16 - Nacimiento

Urban Water Demands (AFY)

	Urban Water District	2010	2015	2020	2025	2030	2035	Notes
	Nacimiento Water Company	600	600	600	600	600	600	1
	Heritage Ranch CSD	619	693	766	840	913	987	2
	Total	**1,219**	**1,293**	**1,366**	**1,440**	**1,513**	**1,587**	

Rural Water Demands (AFY)

	Rural Areas/Districts	2010	2015	2020	2025	2030	2035	Notes
	Nacimiento - Rural	280	385	490	595	700	805	3
	Total	**280**	**385**	**490**	**595**	**700**	**805**	

Agricultural Water Demands (AFY)

	Crop Types	2010	2015	2020	2025	2030	2035	Notes
	Alfalfa	0	0	0	0	0	0	
	Citrus	27	40	52	65	78	90	
	Deciduous	8	12	15	19	23	26	
	Nursery	0	0	0	0	0	0	
	Pasture	0	0	0	0	0	0	
	Vegetable	0	0	0	0	0	0	
	Vineyard	1,735	2,550	3,365	4,181	4,996	5,812	
	Total	**1,770**	**2,602**	**3,432**	**4,265**	**5,097**	**5,928**	

Total Water Demands (AFY)

	Sum Urban, Rural, Ag	2010	2015	2020	2025	2030	2035	
	Total Water Demand	**3,269**	**4,280**	**5,288**	**6,300**	**7,310**	**8,320**	

Environmental Water Demands (AFY)

	Environmental Category	2010	2015	2020	2025	2030	2035	
	Estimated Unimpaired Mean Annual Discharge	108,390	108,390	108,390	108,390	108,390	108,390	
	Estimated Environmental Water Demand	251,120	251,120	251,120	251,120	251,120	251,120	

Notes:

1 Current (2010) and Future (Build-out/2035) demands not available; calculations not performed.

2 2012 MWR Future demand given as a range, 935-1039 AFY. Average of range used for 2035. Straight line interpolation between 2010 demand and the average of the 2035 demand range.

3 Straightline Interpolation 2010 to 2050

Table D-46. WPA No. 16 - Nacimiento Demand Supply Balance

WPA No. 16 - Nacimiento

	Water Districts/Use Sectors/Environmental/Unimpaired Summary	Nacimiento Water Company		Heritage Ranch CSD		Nacimiento - Agriculture		Nacimiento - Rural		Environmental & UMAD		Total	
		Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes	Demand (AFY)	Notes
Urban/Ag/ Rural Water Demands	**Existing Demands**	600		619		1,770		280				3,269	
	Forecasted Demands (2035)	**600**		**987**		**5,928**		**805**		**0**		**8,320**	
	Groundwater	**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**		**GW Supply (AFY)**	
	Other GW Supply Sources					5,928	*2*	805	*2*			6,733	
	Total GW	**0**		**0**		**5,928**		**805**		**0**		**6,733**	
Water Supply Source	**Surface Water**	**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**		**SW Supply (AFY)**	
	Nacimiento Lake	600	*1*	1,100	*1*							1,700	
	SWRCB - WPA 15					0						0	
	Total SW	**600**		**1,100**		**0**		**0**		**0**		**1,700**	
	Total Supplies	**600**		**1,100**		**5,928**		**805**		**0**		**8,433**	
	Balance (Supplies - Demand)	**0**		**113**		**0**		**0**		**0**		**113**	
Environmental Water										108,390			
Unimpaired Mean Annual Inflow										251,120			

Notes:

1 The 600 AFY water supply allocation for Oak Shores is part of the 1750 AFY reserved for San Luis Obispo County residents in the Lake Nacimiento area. Heritage Ranch CSD's allocation of Lake Nacimiento is 1100 AFY.

2 Groundwater supply sources around Lake Nacimiento are the typical sources of supply for wells that serve agricultural and rural users. There is no information on yield of groundwater supplies.

D.4.4 *Need for Per Capita Water Demand*

An IRWM Plan's use of per capita demands in place of aggregated land use-based demands is often preferred where the correlation in daily indoor water use and population work well and are useful in showing progress in meeting given levels of water conservation over time.

The California Water Conservation Plan calls for a 20 percent per capita water use reduction statewide by the year 2020. As part of the Urban Water Management Plan Act, urban water suppliers are required to complete a plan and set an interim (2015) 10 percent reduction goal as per the DWR guidance manual to meet the goals of the California Water Conservation Plan as briefly summarized in the excerpts below:

> *#1. An urban retail water supplier shall include in its urban water management plan…due in 2010 the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.*
>
> *#2. Urban wholesale water suppliers shall include in the urban water management plans . . . an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part (10608.36). Urban retail water suppliers are to prepare a plan for implementing the Water Conservation Bill of 2009 requirements and conduct a public meeting, which includes consideration of economic impacts (CWC §10608.26).*
>
> *#25. Quantify, to the extent records are available, past and current water use, and projected water use (over the same five-year increments described in subdivision (a)), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses: (A) Single family residential; (B) Multifamily; (C) Commercial; (D) Industrial; (E) Institutional and governmental; (F) Landscape; (G) Sales to other agencies; (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof; (I) Agricultural (10631(e)(1) and (2)).*

The table below presents the baseline and target per capita water demands for the urban water suppliers required by the Urban Water Management Plan Act.

Table D-47. Per Capita 20X2020 Goals for Large Urban Water Suppliers

	Per Capita Water Use (GPCD)		
Urban Water Supplier	**Baseline**	**2015 Interim**	**2020 Target**
City of Arroyo Grande	186	167	149
Cambria CSD	112.4	109	105
City of Grover Beach	140.7	127	113
City of Morro Bay	125	119	113
City of Paso Robles	241	217	193
City of Pismo Beach	236	214	192
City of San Luis Obispo	124	120	117
Nipomo CSD	240	222	204

Source: 2010 UWMPs

D.5 DEMAND REVIEW SUMMARY DISCUSSION

As noted earlier in this section, no "unpublished" conclusions are made by the IRWM Plan. The reasoning behind this decision is to maintain local agency control over reporting of water demands and water supply use and management practices, including agricultural and rural users. From the UWMPs and various planning documents, it appears that, in some WPAs, the current and projected water supply cannot keep up with the growing water demands where planned growth is already approved.

An additional concern is the inherent uncertainty of water demands where supplies for rural and agricultural water use are estimated based on current land use and crop demand coefficients. In some parts of the region, the water supply for rural and agricultural water uses is currently in deficit and/or the basin safe basin yield in unknown. It should be noted that the main source of supply for rural and agricultural applications is groundwater, and 16 out of the 37 groundwater basins supplying the San Luis Obispo Region do not have reported safe basin yields. This leaves uncertainty when estimating water balances. Moreover, many of the DWR groundwater basin studies are out of date, such as the study for the Santa Maria Valley Basin in 2002, which was prior to the formal establishment of both the Nipomo Mesa Management Area, Northern Cities Management Area and Santa Maria Valley Management Area. Without an assessment on the safe basin yields for all of the groundwater sources in the San Luis Obispo Region, the total future supply sustainability is unknown.

Urban water supply appears more balanced due to the use of multiple water supply sources. In addition to groundwater, urban water demand is met by surface water, State Water Project Water, and alternative sources such as recycled water. However, as with the rural and agricultural water applications, not knowing the current state of the groundwater basins in the San Luis Obispo Region makes any true and meaningful comparison difficult to impossible.

While uncertainty exists around groundwater supplies and sustainability, the region has made a concerted effort to increase water reliability by diversifying communities' water portfolios. Communities and unincorporated areas of the region are considering the potential for various surface water sources, recycled water and desalination facilities to improve sustainability. As is described in **Section G – Project Solicitation, Selection and Prioritization**, stakeholders are considering a number of projects to help adapt water supplies to the changing situations this region faces (e.g. climate change, extended droughts, etc.).

San Luis Obispo Integrated Regional Water Management Plan