San Luis Obispo County
Master Water Plan
Urban Demand - Current and Projected

SUMMARY

The existing and projected urban demands have been developed based upon a review of the existing water master plans of the County's cities and communities. Where those were unavailable or did not exist, the preparation of future demands relied upon County population growth figures and historical per capita water use. Table 1 summarizes the current and projected urban water demands for each of the Water Planning Areas (WPAs).

Table 1
Summary of Urban Water Demands

WPA	Existing[a] Demand	2020 [b] Demand	Buildout [b] Demand
1. North Coast	700	1,250	2,750
2. Cayucos	470	600	750
3. Los Osos/Morro Bay	3,700	5,150	6,950
4. SLO/Avila	8,470	13,250	14,500
5. Five Cities	7,040	10,200	12,000
6. Nipomo	2,820	5,030	5,050
9A. Salinas	14,450	25,850	41,100

a. All figures in the existing demand column have been rounded to the nearest 10's from Table 7.
b. All figures in the 2020 and buildout demand columns have been rounded to the nearest 10's from Table 7.

Definition

For the purposes of this study, urban demand is described as occurring within the incorporated cities and unincorporated communities of the County. All other water demand of the unincorporated areas within the County has been analyzed under Rural Demand and is described and discussed in a separate section.

Sources

Data used to prepare the urban water demands included information from a range of sources. Water master plans and urban water management plans prepared by incorporated cities and water purveyors were relied on primarily where available. In addition, historical water demand data tracked by the County for unincorporated communities was also used. In addition, historical population data and population projections obtained from the County Planning and Building Department for both incorporated cities and unincorporated communities was also used as available.

Method/Assumptions

Where available, existing and future water demand data were extracted from recent master water plans and urban water management plans prepared by the existing purveyors and incorporated cities within the County. For the communities where such documents were not available, primarily for unincorporated areas, alternative sources were used. In those cases, the

development of existing demands relied upon the County's *Annual Resource Summary Report 1997* for recent historical population and demand information for the years 1992 to 1997. The existing per capita water use was then calculated using the average of the 1992 to 1997 water use. Future water demands were then calculated for these areas based upon the existing per capita water use, in combination with the County's future population projections.

Existing demands generally reflect the year 1995, except where noted. Future demands have been calculated for both the year 2020 and the buildout scenario for each city or community.

DEVELOPMENT OF WATER DEMANDS

The lingering effects of the drought have impacted most areas of the County. In the last 4 to 5 years, however, water use has been slowly rebounding in most parts of the County. The preparation of urban water demands followed two general approaches based upon the available data. The first was used primarily in the preparation of urban water demand within incorporated cities, and the second within unincorporated communities. Both approaches are briefly described below.

Water Plans of Incorporated Cities

Recent master water plans and urban water management plans have been prepared by many of the incorporated cities and/or water purveyors which service incorporated cities. These plans describe existing water demand and have made projections for future water demand. The analyses within these plans used a range of methods in determining future demands including reliance on both per capita water use and projected population figures and water duties tied to specific land uses and the number of acres within each. Because a great deal of recent analysis had already been prepared for these areas, this information has been relied upon.

The year 1995 was generally used to present existing demands, because that was the most recent year for which most cities and purveyors had data available; many of the plans did not include data for more recent years (1996-1997). Where more recent existing demands are available, those areas have been noted for each of the cities in the WPAs. Table 2 reflects the existing and future water demands as reflected within the water plans prepared by the incorporated cities, and purveyors providing services to those cities.

Table 2
Summary of Water Demands for the Incorporated Cities
(acre-feet per year)

City/Purveyor	Existing Demand	2020 Demand	Buildout Demand
Morro Bay	1,445	2,327	2,463
San Luis Obispo[1]	7,652	12,196	13,143
Arroyo Grande	2,628	3,540	3,540
Grover Beach	1,794	2,547	2,547
Pismo Beach	1,742	2,878	2,878
Atascadero	6,781	10,646	10,646
Paso Robles	6,220	13,080	26,780

1. Demands for San Luis Obispo include 600 ac-ft annually for water demand at Cal Poly.

Water Plans of Unincorporated Communities

A few unincorporated communities within the County and/or purveyors to those communities have prepared water master plans for planning purposes. Cayucos, Nipomo Community Services District, and Southern California Water Company for the Nipomo System have prepared such plans. Where such recent plans were available, the analyses within these plans were relied on rather than the use of the County data. The demands for these service areas are detailed under the WPA discussion.

County Water Production Records

In addition, for the unincorporated areas of the County, the County Planning and Building Department tracks water production through its *Annual Resource Summary Report*. In the preparation of water demands, the County's water production figures have been used in combination with County population figures to prepare existing and future water demands, as described below.

Existing Water Demand

In order to determine existing water demand using the County data, an average water production figure was calculated for the period 1993 to 1997 for each unincorporated community. The figures were derived from the County's *Annual Resource Summary Report*. This average production figure is reflected in Table 3. Because 1995 was a year of relatively low water use for many areas, an average of the five most recent years was deemed more appropriate. This was considered a reasonable average based upon various factors including increasing awareness of conservation since the drought, statewide mandates for low water use fixtures, and increasing water use as the recovery from the drought continues. This average production figure was then used in combination with 1995 population figures from Table 4 to determine an existing per capita water use rate for each community. This per capita water use rate is also shown in Table 3.

Table 3
Average Water Production Figures and Resulting Per Capita Values

Community	Average Production (ac-ft) 1993 to 1997	Per Capita Values (gallons per day)
Cambria	699	115
Los Osos	2,256	139
Avila Beach	59	139
Oceano	878	124
San Miguel	265	197
Santa Margarita	218	161
Templeton	968	272

Future Water Demand

Because future water demands have not been prepared for many of the unincorporated communities, existing County data was also used as the basis upon which to prepare those demands. To determine future water demands, the existing per capita water value was then applied to the projected 2020 and buildout population figures obtained from the County for each community. Although per capita use is expected to go down in the future, the number of people

per households is generally expected to increase, therefore, the same per capita value was maintained under existing and future scenarios. A discussion on the uncertainty of per capita water use is discussed at the end of this memo. Future population projections are shown in Table 4. The existing and future water demands for all the unincorporated communities are reflected in Table 5.

Table 4
Existing and Projected Population Figures for Unincorporated Communities

Unincorporated Communities	1990[1]	1995[2]	2020[3]	Buildout[4]
Cambria	5,377	5,401	9,536	21,525
Los Osos	14,369	14,444	18,275	28,688
Avila Beach	381	379	494	2,295
Oceano	6,127	6,300	8,917	21,781
San Miguel	1,123	1,200	1,876	3,599
Santa Margarita	1,066	1,208	1,411	1,426
Templeton	2,795	3,173	4,717	8,664

Source: San Luis Obispo County Planning Department.
1. Population numbers are from the U.S. Census of Population and Housing. Avila Beach and Santa Margarita were developed by County Planning Department.
2. 1995 figures based upon the California Department of Finance and County Planning, and include group quarters.
3. 2020 figures have been projected by the County.
4. Buildout figures were obtained from the County

Population Growth Projections

The County Planning and Building Department updates population figures for the cities and communities within the County on a regular basis. Historical population figures for the unincorporated communities were collected for the years 1990 and 1995 for the water demand analysis and are shown in Table 4. Figures shown for 1990 are taken from the U.S. Census, and 1995 figures are based upon the California State Department of Finance.

In addition, based on regular updates from the Department of Finance, the Planning Department prepares population projections for the cities and communities within the County. These projected population figures have been listed for the year 2020 and buildout conditions in Table 4. In some communities, buildout is anticipated to occur prior to the year 2020, where as in others buildout will likely occur beyond the year 2020.

The projected demands based upon the above calculations are reflected in Table 5. Table 5 also includes the existing and projected water demand for those unincorporated communities for which certain water purveyors have prepared water plans for their service areas.

Table 5
Summary of Water Demands for the Unincorporated Communities
(acre-feet per year)

Community	Existing Demand	2020 Demand	Buildout Demand
Cambria	699	1,228	2,772
Cayucos	465	577	749
Los Osos	2,256	2,845	4,466
Avila Beach	59	77	357
SLO-Group Quarters[1]	760	990	990
Oceano	834	1,238	3,025
Nipomo CSD	1,621	2,580	2,580
Cal. Cities - Nipomo	1,103	2,450	2,450
San Miguel	265	414	794
Santa Margarita	218	254	257
Templeton	968	1,437	2,639

1. Includes the water demand for the Group Quarters within the unincorporated portion of the County

DEMANDS BY WPA

The following discussion summarizes the urban water demands for the incorporated cities and/or purveyors and unincorporated communities in each WPA. Under each WPA, the details of the preparation of existing and future water demand have been discussed for each city and/or community. The total demands are reflected within Table 1 discussed earlier, which summarizes demand for each WPA. The water demand of rural areas outside of the service areas discussed below are discussed under a Rural Demand section, following. Such areas would include San Simeon, Heritage Ranch, Nacimiento, Garden Farms and the Los Ranchos/Edna Area.

Water Planning Area 1 - North Coast

Cambria

The water production of the Cambria Community Services District (CSD) is tracked by the County through its *Annual Resource Summary Report (1997)*. During the period 1993 to 1997 water production ranged from a low of 654 in 1995 to a high of 776 in 1997, a range of 18.6 percent. However, during the period 1990 to 1996, population growth was relatively stable, increasing from 5,377 to 5,531 less than a 3 percent (SLO County Dept. of Planning). Prior to 1993, a mandatory conservation program was responsible for reducing water use by 28 percent compared with 1989 demands. A per capita value was determined by taking average water production for the period 1993 to 1997 (699 ac-ft), and calculating that against Cambria's 1995 population. This per capita value was determined to be 115 gpcd.

Future demand for Cambria was calculated by applying the future population projection to the per capita value. The same per capita value determined when analyzing existing demand was used in determining future demand, as discussed earlier. The County projected population for 2020 at 9,536 residents. Based upon this population growth, and the 1995 per capita rate, an estimated future water use of 1,228 ac-ft annually would be the result.

Water Planning Area 2 - Cayucos

Cayucos

The unincorporated community of Cayucos has three water purveyors which provide services to the local area: Morro Rock Mutual Water Company, Paso Robles Beach Water Company, and County Service Area #10-A. Based on the County's *Annual Resource Summary Report* total water production for the three purveyors has ranged from 395 to 441 during the period 1992 to 1997. Water production in 1995 was 400 ac-ft, based on a population of 2,876, the gross per capita water use for 1995 was 124 gpcd.

The Cayucos Area Water Organization (CAWO) prepared a 1996 Water Management Plan Update also reviewed for this memo. In the 1996 Water Management Plan Update for CAWO metered water use amounted to 465 ac-ft annually, with an estimated service area population of 3,325 (1995), a gross per capita of about 125 gpcd.. Actual residential usage since 1990 has been approximately 103 gpcd. This represented a demand reduction from previous years due to water awareness following the drought. Some rebounding of demand is expected as time goes on, and for future demands some increases are still expected in per capita residential use.

Future demands were analyzed within the 1996 Water Management Plan Update by examining the number of meters within the service area, seasonal use, and vacancy rates. Residential usage ranges among the three CAWO members from 73% to 99% of overall usage. For future demands, 110 gpcd was estimated within the document as a reasonable residential per capita for planning purposes. Based on such a "normal" residential demand of 408 ac-ft annually was estimated to serve existing residential uses. Future commercial use was projected based upon historical use at 58 ac-ft annually. To project future demands residential (408 ac-ft) plus commercial and cemetery (76 ac-ft) demands were added to the additional demand required to provide for "will-serve" commitments (42 ac-ft). Total projected demand was thus estimated as 526 ac-ft with a 10 percent cushion added for water planning purposes to bring total projected demand to 577 ac-ft annually.

Water Planning Area 3 - Los Osos/Morro Bay

Morro Bay

The City of Morro Bay recently completed a 1997 Water Master Plan Update which details historical water production for the period 1960-1996. Demand in 1995 was 1,445 ac-ft based on an estimated population of 9,988, resulting in a gross per capita of 129 gpcd. Since the drought, per capita demand has ranged between 124 and 134 gallons per capita per day (gpcd). Current average day demand (1997) was estimated at 1.43 mgd (approx. 1,579 ac-ft annually). The County's records record 1995 water demand in the City at 1,408 ac-ft, based on a population of 9,518, resulting in a per capita of 132 gpcd. Projecting demand using the County population growth projections and a per capita rate of 132 gpcd would result in a demand of 1,715 ac-ft annually.

Projected demand within the Water Master Plan Update was developed based upon examination of the vacant lot and general plan land use information and an ultimate buildout population of 14,760, quite a bit higher than County projections. Projected average day demand was calculated as 2.08 MGD (approximately 2,330 ac-ft annually), which equates to a per capita of 141 gpcd.

Los Osos

The Los Osos area is served by three water purveyors, County Service Area #9-A, California Cities Water Company and S&T Mutual Water Company. During the period 1993 to 1997, the combined water production for these three purveyors ranged between 2,112 and 2,423, an increase of 15 percent, despite growth remaining stable. The average water production during that period was 2,256 ac-ft annually. In calculating per capita rates, the average production figure (2,256 ac-ft) and a 1995 population of 14,444 were used, resulting in a per capita of 139 gpcd.

Future demand for Los Osos was calculated by applying the future population projection to the per capita value. The same per capita value determined when analyzing existing demand (139 gpcd) was used in determining future demand. The 2020 population for Los Osos was projected by the County at 18,275 with a buildout population of 28,688. Based upon this population growth, and the 1995 per capita rate, an estimated future water use of 2,845 ac-ft annually in 2020 and 4,466 ac-ft annually at the time of buildout would be the result.

Water Planning Area 4 - San Luis Obispo/Avila Beach

Avila Beach

The community of Avila Beach has been subject to a building moratorium for a number of years which has prevented any new development. Although population in the community has remained relatively stable, water use has experienced a 19 percent range in use over the last six years. During the period 1993 to 1997, water production ranged from 55 to 62 ac-ft annually, with an average of 59 ac-ft during the period. This range in water production equates to a per capita range of 122 to 146 during that period. Based upon the 1995 population of Avila Beach (379), a per capita water use of 139 gpcd was calculated based upon average production figures.

Future demand for Avila Beach was calculated by applying the future population projection to the per capita value (139 gpcd). The County projected the 2020 population for Avila Beach at 494. Buildout demand was projected at 2,295. Based on this data, 2020 water demand was projected at 77 ac-ft annually, and buildout demand was projected at 357 ac-ft annually.

San Luis Obispo

Historical water use for the City was reviewed back to 1980. The gross per capita water use figure for the City has ranged from 182 gpcd in 1986 and 1987 to 86 gpcd in 1991 to, a significant reduction in water use, brought on by the drought. Actual demand in the City in 1995 was 5,656 ac-ft (SLO County Planning), resulting in a rebounding of gross per capita water use since the drought to 122 to 123 gpcd in 1995.

The City of San Luis Obispo prepared an Urban Water Management Plan in 1994. The City's Plan analyzed two approaches in determining future water demands. The two methods included: 1) Production and Population (use of a per capita based on historic demand, population, and conservation); and 2) Metered Use by Land Use Development Type and Land Use Element (based on land use, historic demand and conservation). The two methods resulted in a range of per capita figures from 145 to 152 gpcd. Based on the analysis and the inclusion of a long term water conservation program, 145 gpcd was used throughout the plan for long term water supply planning purposes.

Total City demand in 1995 was projected at 5,476 ac-ft by the plan (180 ac-ft less than actual). (Demand for Cal Poly is not included in this figure, but was outlined in the plan as averaging 600 ac-ft annually). A calculation of existing (1994) demand using the 145 gpcd, resulted in an existing demand in the plan of 7,052 ac-ft. This calculated (existing) demand is higher than actual due to the lingering effects of the drought, which have continued but are slowly rebounding. Actual existing demands are the figure included within the total water needs table. For calculation of future water demands, buildout was estimated by the plan as occurring at a population of 56,000, which is fairly consistent with the SLOCOG estimate. Given that buildout population, ultimate water demand for the city would be 9,096 ac-ft annually. However, the City also includes within their demands 2,000 ac-ft as a reliability reserve and 500 acre-feet as a siltation reserve, for a total demand of 11,596 ac-ft annually. This figure does not include the additional 600 ac-ft annual water use at Cal Poly.

Unincorporated Group Quarters

Group quarters are tracked by the County and have been included within the population of the incorporated cities where appropriate. Because the bulk of unincorporated group quarters are located in close vicinity to San Luis Obispo, we have included them within WPA 4.

The unincorporated group quarters are broken out separately to maintain consistency with County Planning population data.

Total population for these facilities has been estimated by the County at 11,345, and includes the Cal Poly dormitories, the California Men's Colony and the County Jail. Current population at these facilities is as follows: Cal Poly dorms - 2,935, California Men's Colony - 6,385, and the County Jail - 368, for a total of 9,691. An additional population of 1,654 people would be included other facilities considered group quarters such as nursing homes, school dormitories, military barracks, and hospitals. A gross per capita water use has been estimated for the entire grouping at 60 gpcd, which would result in a total existing water demand of 760 ac-ft. annually.

The County has projected that unincorporated group quarters would increase to a population of 13,846. Based on the earlier per capita of 60 gpcd, this would result in a future water demand of 930 ac-ft annually.

Water Planning Area 5 - Five Cities

Arroyo Grande

The City of Arroyo Grande is currently in the draft stage of an updated Urban Water Management Program. Residential use currently accounts for nearly 80% of total water consumption, with an average single-family use of 386 gallons per day in 1996. Per capita residential water use within Arroyo Grande has remained fairly constant between 117 to 126 gpcd, with a gross per capita of about 155 gpcd. In accordance with the City's Long Range Planning Report (November 1995), the population of the City is expected to increase from 15,500 to 18,500 over the next twenty years. Although conservation efforts (especially retrofits of existing properties) are expected to reduce per capita usage over the next 20 years, these efforts are expected to be partially offset by the larger lots and homes anticipated being associated with future development.

The City has prepared data for existing water use (1995) and projected water use through six main customer sectors: single-family residential, multi-family residential, commercial/institutional, governmental, landscape irrigation and unaccounted for losses. Unaccounted for losses are assumed at approximately 5 percent. In reviewing total water use for the City, water use has actually been reduced by approximately 10 percent when comparing 1995 to 1990. The draft report concludes that this is likely due to increased conservation awareness, since residential per-capita use was reduced. Based upon the tracking of use, 1995 total water use was 2,628 acre-feet, as opposed to 2,922 in 1990.

Future water use has been projected consistent with growth in the City's Long Range Planning Report, which uses a growth rate of approximately 0.9%. Ultimate water demand has been estimated as 3,540 ac-ft annually, by the year 2015, which equate to a gross per capita of 171 gpcd based upon a projected 2015 population of 18,500. Interim annual demands for the years 2000, 2005 and 2010 are estimated at 3,090 ac-ft, 3,240 ac-ft, and 3,390 ac-ft, respectively.

Grover Beach

Based upon information provided by Garing Taylor and Associates (Contract City Engineer for Grover Beach) annual water production over the period 1992 to 1997 has grown from 1,774 to 2,041 ac-ft, a rise of 15 percent during that period. Demand data was derived through production records for the City's four wells, as well as surface water obtained via Lopez Lake. Future demands were projected by Garing by using 2020 population projections by the City (15,225 people) multiplied by a per capita water use of 149 gpcd, a per capita use based upon comparable existing use.

Pismo Beach

Limited recent information is available for Pismo Beach. Based upon the city's 1995 population of 7,966 and water use of 1,742 ac-ft, a gross per capita figure of 195 gpcd. Based upon County data, the population of Pismo Beach is projected to increase to 13,178 by the year 2020. Based upon the existing gross per capita water use for the area, water demand would increase to approximately 2,878 ac-ft annually.

Oceano

The Oceano Community Services District provides water to the community of Oceano. The County tracks water production in the community through the Annual Resources Summary Report. In that report, water production during the period 1993 to 1997 has ranged 8 percent from 834 to 901 ac-ft annually, with a dip in demand (834) occurring in 1995. Average production over the period was 878 ac-ft. Population in the community increased moderately from 6,127 (1990) to 6,612 in 1998 an increase of 5 percent during the period. The 1995 population of Oceano was 6,300, as reflected in Table 4. A per capita water use was calculated based upon the average production figure (878 ac-ft) and the 1995 population of Oceano. This per capita value was 124 gpcd.

Future demand for Oceano was calculated by applying the future population projection to the per capita value. The same per capita value determined when analyzing existing demand (124 gpcd) was used in determining future demand. The County projected the 2020 population for Oceano at 8,917 residents. Buildout population was projected at 21,781 residents. Based upon these figures, 2020 water demand was projected at 1,238 ac-ft annually, and buildout demand was projected at 3,025 ac-ft annually.

Water Planning Area 6 - Nipomo Mesa

Nipomo CSD

Nipomo Community Services District (CSD) completed a Water and Sewer Master Plan in 1995 addressing existing and future demands. Nipomo CSD serves water to a portion of Nipomo. The estimated service area population in 1995 was 9,650 people. Overall water production was outlined based upon residential per capita rates and non-residential water duties and historical use, resulting in a total existing demand of 1,718 ac-ft. Water use calculations included the Main Nipomo Water System and the Black Lake Water System.

Future demand was calculated in the document based upon the total number of acres for residential uses factoring occupancy rates and residential per capita use. Growth was based upon an increase of 61 dwelling units per year to reach approximately 15,080 people by the year 2020. Non-residential use and water duties were also applied similarly to those for existing use. Based on these assumptions, total future demand was estimated at 2,580 ac-ft annually.

California Cities Water Company

Southern California Water Company (SCWC) is a public utility that provides water to a portion of Nipomo. SCWC prepared a system master plan for their Nipomo service area in January 1996. The portion of Nipomo served by the SCWC is in the southwestern corner of the unincorporated area of San Luis Obispo County, bounded by Tejas Place, Hazel Lane and Orchard Road on the northeast, near Cielo Lane on the southwest, and near Scenic View on the west. Development is generally semi-rural consisting of 1-acre lots with custom homes. As of October 1995, the system had 1,305 active and 21 inactive connections for a total of 1,326 connections. Service connections grew by 10.4 percent during the period 1990 to 1995. In 1995, annual water demand was 1,102 ac-ft. The water use based on 1995 was determined to be 754 gallons per connection per day.

Future demand for the service area includes all development in this area north of Riverside Road. Growth in the number of service connections is expected to increase to 2,183 by the year 2010. The System Master Plan reviewed past water use during the period 1990 to 1995 and determined that the mean water use per connection was 815 gallons per connection per day. This per connection use is approximately 8 percent higher than the 1995 value, which was the lowest during the 1990 to 1995 period. This figure was then used to calculate future demand in the year 2010 at 1,992 ac-ft annually. Because the year 2020 is used within the San Luis Obispo Master Water Plan, we have taken the growth line prepared by SCWC and extended it to the year 2020 to reflect a future demand for that year of 2,450 ac-ft annually.

Water Planning Areas 7 (Cuyama) and 8 (California Valley)

There are no urban demands in these WPAs.

Water Planning Area 9A - Salinas

Atascadero

Atascadero Mutual Water Company prepared a Water System Master Plan in 1993, and updated existing and projected demand figures in 1996 for use during their Booster Station Upgrade Project. In reviewing prior water use for the period 1984 to 1992, the Master Plan determined

that gross per capita water use had ranged from 168 gpcd in 1991 to 236 gpcd in 1984. In determining future water demands, a combination of residential and non-residential duty factors were used. Based on the total number of acres for residential land uses included in the City and County General Plans, build-out service area population is projected to be 32,450. Future population within the existing City limits is estimated to be 31,500.

The 1993 Master Plan represented existing average day demand as 4,044 gpm (6,522 ac-ft annually), and projected buildout demand as 5,580 gpm (8,999 ac-ft annually). In the 1996 water demand update, actual service area population was noted as 26,015. Existing demand was described as 6.054 mgd (6,781 ac-ft annually), and future demand was projected at 9.505 mgd (10,646 ac-ft annually). Gross per capita for that year, based on the given data, was approximately 233 gpcd within the City's range for those years examined within the 1993 Plan.

Paso Robles

The April 1995 Update of the City's Water Master Plan (1993) was reviewed. Demand estimated within that document was based upon non-drought conditions, while considering some voluntary conservation. Demand within the City is expected to rebound as drought awareness lessens. Water use for each land use category was compiled and projected to be 2,029 MGY (6,220 ac-ft annually) which would equate to a gross per capita figure of 266 gpcd. Actual water use during 1995, which is tracked by the County was actually 4,804 ac-ft, based upon a population of 20,915, equating to a gross per capita figure of 205 gpcd.

Projected demands for 2020 were based on the total number of acres for residential land uses included in the General Plan at occupancy levels stated in the General Plan update. The City's 2020 population is projected to be 35,000. Demand was determined by using the City's General Plan and water duty factors, and determined to be 13,080 ac-ft annually, resulting in a gross per capita of 334 gpcd. This is a substantially larger per capita than other communities within the County, which is due largely to the approach which took into account non-drought conditions, and some voluntary conservation measures.

Buildout demand was determined in much the same manner using the City's buildout population, which is projected to be 70,700. Demand was then calculated using a residential per capita rate and non-residential water duties to conclude a resulting estimate of 26,790 ac-ft annually for ultimate buildout. This estimate results in a gross per capita of approximately 338 gpcd.

San Miguel

The community of San Miguel is served water through the County Waterworks District #1. The County tracks water production in the community through the *Annual Resources Summary Report*. In that report, water production during the period 1993 to 1997 has ranged 18 percent from 247 to 292 ac-ft annually, with a peak in demand (292) occurring in 1996. Average production over the period was 265 ac-ft. Population in the community increased relatively slowly from 1,066 to 1,134 (1990 to 1996) an increase of 6 percent during the period. A gross per capita water value was calculated using the average water production (265 ac-ft) and the 1995 population of 1,200 residents for a gross per capita value of 197 gpcd.

Future demand for San Miguel was calculated using population projections and the per capita value (197 gpcd). The County projected 1,876 residents for 2020, and 3,599 at buildout, as

shown in Table 4. Based upon these population growth figures, and the per capita value, an estimated future water demand of 414 ac-ft annually for 2020, and 794 ac-ft at buildout.

Santa Margarita

The community of Santa Margarita is served water through the County Waterworks District #6. The County tracks water production in the community through the *Annual Resources Summary Report*. In that report, water production during the period 1993 to 1997 has grown 29 percent from 197 to 248 ac-ft annually, with a dip in demand (206) occurring in 1995. Average production over the period was 218 ac-ft. Population in the community increased moderately from 1,123 to 1,222 (1990 to 1996) an increase of 9 percent during the period. A gross per capita water value was calculated using the average water production (218 ac-ft) and the 1995 population of 1,208 residents for a gross per capita value of 161 gpcd.

Future demand for Santa Margarita was calculated using population projections and the per capita value (161 gpcd). The County projected 1,411 residents for 2020, and 1,426 at buildout, as shown in Table 4. Based upon these population growth figures, and the per capita value, an estimated future water demand of 254 ac-ft annually for 2020, and 257 ac-ft at buildout.

Templeton

The Templeton Community Services District provides water to the community of Templeton. The County tracks water production in the community through the *Annual Resources Summary Report*. In that report, water production during the period 1993 to 1997 has ranged from 879 to 1,057 ac-ft annually, with a dip in demand (879) occurring in 1995. Average production over the period was 968 ac-ft. Population in the community increased moderately from 2,795 to 3,293 (1990 to 1996) an increase of 18 percent during the period. A gross per capita water value was calculated using the average water production (968 ac-ft) and the 1995 population of 3,173 residents for a gross per capita value of 272 gpcd.

Future demand for Templeton was calculated using population projections and the per capita value (272 gpcd). The County projected 4,717 residents for 2020, and 8,664 at buildout, as shown in Table 4. Based upon these population growth figures, and the per capita value, an estimated future water demand of 1,437 ac-ft annually for 2020, and 2,639 ac-ft at buildout.

Water Planning Areas 9b (Creston), 9c (Shandon) and 10 (Nacimiento)

There are no urban demands in these WPAs.

Existing Water Use and Projected Demand for Cities and Communities in SLO

In Table 6, all of the data collected for the preparation of this memorandum concerning population, existing water use, per capita values and projected water demand is presented for the incorporated cities and unincorporated communities within each WPA of the County. In addition, population figures for the rural areas of the County have been included for each WPA based on County data; however, water demands for the rural areas will be discussed in the rural demand memorandum. The shaded portions of the table represent the figures used for the final water demand calculations, summarized earlier in Table 1.

Insert Table 6 <popsdemand.xls>

Population figures are shown in the first set of columns for both 1995 and the year 2020, based upon County tracking of growth and the projections of the Planning Department. The next set of population columns includes those population figures listed within the Water Master Plans or Urban Water Management Plans for each city or community listed, when they differ with those listed for the County.

Water demand is presented in the next set of columns. The left side presents 1995 water demand as tracked by the County. Based upon the per capita derived through the water use in that year, the same per capita was applied to the 2020 population projection for that community to achieve a water demand projection for the year 2020. Although per capita figures will likely decline somewhat due to conservation that occurs over time, some of this savings will likely be offset by the larger lots and houses that are anticipated to be associated with a portion of the future growth within the unincorporated portion of the County. About half the cities and communities have prepared water plans examining existing demand and estimating future demand. The right side of the demand column presents the existing and future demands as presented in such plans (future demands are for 2020, except where noted in the table). The resulting gross per capita rates based upon the first two sets of columns are reflected in the third set of columns. These gross per capita figures are shown for 1995 and 2020 and are based either upon the County figures or those examined within the water plan of the city or community listed.

The final set of columns includes population and demands for buildout. Some cities and communities anticipate ultimate buildout to occur at or prior to the year 2020, while others project growth to continue beyond that timeline. Projected buildout figures for population and water demand for those areas are included in the columns on the far right of Table 6. To determine these figures, the buildout population was obtained from the County and/or city water plans and was applied to the same gross per capita figure, which resulted from examining 2020 demands. The shaded areas are those figures that were considered most reasonable for inclusion within the SLO Master Water Plan.

TOTAL URBAN WATER DEMANDS

In Table 7 existing and projected urban water demands are presented as prepared for the MWP. These figures include both the incorporated cities and the unincorporated communities within each of the WPAs. The figures presented in Table 4 have relied upon the existing water master plans of many of the cities and communities that have recently prepared them. For many communities, where those resources were unavailable, the preparation of future demands relied upon County growth figures and historical per capita demand levels as described above. After examination of all available information, as summarized earlier in Table 6, final existing and projected urban demand numbers were included in Table 7.

In Table 7, the total Existing Urban Demand for all WPAs is 37,651 ac-ft annually. Future Urban Demands in all WPAs for 2020 have been projected at 61,304 ac-ft annually and at 83,076 ac-ft for ultimate buildout.

Only 7 of the 12 WPAs include urban demands as defined earlier in this memorandum, and therefore, Urban Demands in the remaining 5 WPAs are “0”. For other unincorporated and rural areas, demands have been discussed in the rural technical memorandum.

Table 7
Existing and Projected Urban Water Demand for the Water Planning Areas
(acre-feet per year)

WPA	City or Community	Existing Demand	2020 Demand	Buildout* Demand
1	**North Coast**			
	Cambria	699	1,228	2,772
	Subtotal	**699**	**1,228**	**2,772**
2	**Cayucos**			
	Cayucos	465	577	749
	Subtotal	**465**	**577**	**749**
3	**Morro Bay**			
	Morro Bay	1,445	2,327	2,463
	Los Osos	2,256	2,845	4,466
	Subtotal	**3,701**	**5,172**	**6,929**
4	**SLO/Avila**			
	San Luis Obispo	7,052	11,596	12,543
	Cal Poly University	600	600	600
	Avila Beach	59	77	357
	Unincorporated Group Quarters	760	990	990
	Subtotal	**8,471**	**13,263**	**14,490**
5	**Five Cities**			
	Arroyo Grande	2,628	3,540	3,540
	Grover Beach	1,794	2,547	2,547
	Pismo Beach	1,742	2,878	2,878
	Oceano	878	1,238	3,025
	Subtotal	**7,042**	**10,203**	**11,990**
6	**Nipomo**			
	Nipomo CSD	1,718	2,580	2,580
	California Cities Water Co.	1,103	2,450	2,450
	Subtotal	**2,821**	**5,030**	**5,030**
9A	**Salinas**			
	Atascadero	6,781	10,646	10,646
	Paso Robles	6,220	13,080	26,780
	San Miguel	265	414	794
	Santa Margarita	218	254	257
	Templeton	968	1,437	2,639
	Subtotal	**14,452**	**25,831**	**41,116**

*Buildout demand for some cities and communities occurs sooner than the year 2020, in which case the same number is reflected.

Analysis of Uncertainties in Urban Demand

There are inherent uncertainties in preparing any type of projections for the future. The same is true for the projection of urban water demands within each of the WPAs. Ranges of demand can include possible variations in weather, water quality, the uncertainty of population projections,

and the uncertainty of water savings as the result of conservation. Because demands were primarily made up of two components: population and a gross per capita water use, our discussion will focus on the uncertainties associated with each.

Population growth is tracked and projected by incorporated cities and the County Planning Department. Based upon the historical use that has been experienced within the County, population growth has remained fairly steady with growth for most areas ranging between 1 and 9 percent during the period 1990 through 1998. Due to this steady growth, it is anticipated that only minor fluctuations in population growth would be experienced with slow steady growth continuing. Population estimates could vary by as much as 5 percent above or 5 percent below those projected for the year 2020. The bigger population uncertainty is the difference between 2020 population and build-out. This difference could be in excess of 100% (e.g. Paso Robles).

Gross per capita water use has experienced wide shifts of as much as 28 percent change in just one year in some areas. Gross per capita use is dependent upon a variety of shifting factors including conservation, weather influence, new development (which may include larger yards), and new commercial or industrial facilities. Because a relatively low (1995) gross per capita water use was used in calculating the demands, there is potential for per capita use to increase. However, at the same time it is anticipated that per capita use will decline into the future based upon the statewide mandates of low water use fixtures and continuing awareness of the necessity for water conservation.

Based on these factors it is assumed that gross per capita water use could increase up to 10 percent, and decrease up to 5 percent. The low (1995) per capitas are also offset by those gross per capitas resulting from the city water plans which typically are higher than actual use.

Each of these variables has influence on annual use, and therefore, annual demand. The combination of such factors in one direction would be considered to be possible but unlikely. While a range of +12/-5 percent margin of error is a reasonable approximation for variations in either the 2020 or build-out demands, the difference between 2020 demands and build-out demands clearly defines the range.

Table 3
Existing and Projected Water Demand for the Unincorporated Communities

Unincorporated Communities	1995[1] Population	1995[2] Demand	1995[3] Per Capia	2020[4] Demand	Buildout[4] Demand
1. Cambria	5,401	654	108	1,155	2,606
3. Los Osos	14,444	2,116	131	2,677	4,203
4. Avila Beach	379	55	120	72	333
5. Oceano	6,300	834	118	1,180	2,883
9A. San Miguel	1,200	273	203	427	819
9A. Santa Margarita	1,208	206	152	241	243
9A. Templeton	3,173	879	247	1,307	2,400

1. Population numbers are from the California Department of Finance.
2. Demand figures are from the County's 1996 Annual Resource Summary Report.
3. Per Capita figures are based upon all water use within the community.
4. Demands are calculated using the 1995 per capita figure for each community.

In addition to the Department of Finance and the San Luis Obispo Council of Governments (COG), population projections in the urban water management plans of the cities and purveyors sometimes differed from County projections. In some cases, these figures were used to estimate future demands for the few communities which have not prepared recent water plans.