



SECTION 3 – SYSTEM WATER USES

3.1 DOCUMENT REQUIREMENTS

3.1.1 UWMP Requirements

This section will include the following:

- Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data. (CWC, 10608.20(e))
- *Wholesalers*: Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. *Retailers*: Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009. (CWC, 10608.36, 10608.26(a))
- Report progress in meeting urban water use targets using the standardized form. (CWC, 10608.40)
- Quantify past, current, and projected water use, identifying the uses among water use sectors, for the following: (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, conjunctive use, and (I) agriculture. [past = 2010, present = 2015, and projected to be 2020, 2025, 2030, 2035, and 2040 optional] (CWC, 10631(e)(1))
- Provide documentation that either the retail agency provided the wholesale agency with water use projections for at least 20 years, if the UWMP agency is a retail agency, OR, if a wholesale agency, it provided its urban retail customers with future planned and existing water source available to it from the wholesale agency during the required water-year types. [Average year, single dry year, multiple dry years for 2020, 2025, 2030, 2035, and 2040 optional] (CWC, 10631(k))
- Include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier. (CWC, 10631.1(a))
- Requires a plan to quantify and report on distribution system water loss.
- Water use projections must display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans, when that information is available and applicable to an urban water supplier.
- Requires a plan to quantify and report on distribution system water loss.



3.1.2 AWMP Requirements

This section describes the water uses for agricultural, environmental, recreational, municipal and industrial, groundwater recharge, transfers and exchanges, and other water uses within the agricultural water supplier's service area.

Water Code §10826 (b) requires a description of the quantity of all underlying items, including the water uses identified under §10826 (b)(5). Section 10826 (b)(5) requires that the AWMP include a description of the following:

“Water uses within the agricultural water supplier's service area, including all of the following:

- (A) Agricultural.
- (B) Environmental.
- (C) Recreational.
- (D) Municipal and industrial.
- (E) Groundwater recharge.
- (F) Transfers and exchanges.
- (G) Other water uses”.

The legislation also does not require a specific method, timescale, or other parameters for quantifying water uses under this element in this section. Additionally, Executive Order B-29-15 directs that AWMP include quantification of water supplies and demands for 2013, 2014, and 2015 to the extent data are available.

If available, it is suggested (but not required) that quantities of water used from each water source within the service area, for each water use type, be reported along with additional information that can be used in determining the overall water budget. This would allow for greater flexibility in water management planning.

In order to provide a meaningful and consistent basis for water accounting in accordance with Water Code §10826 (b)(7), it is suggested that:

- Information be reported using the same year(s) and timeframe for all water use types as listed under Water Code §10826 (b)(5).
- Monthly or bi-monthly water usage data is provided for each water use type.
- Data for each water use type can be presented in a similar format as shown in the Worksheets 20 through 29. Depending upon the number of locations or complexity regarding each type of water use in the service area, this table can be expanded or summarized as necessary. For instance, for a particular water use type, if the same amount of water is required each year and/or each month, it would not provide more information to report monthly use for the past five years; reporting the consistent demand quantity and a notation to that effect would be essentially the same.



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If special management or usage areas have been identified in Section II of the AWMP, it would further assist in water management planning to provide a table of water use estimates, delineating the water use in each applicable area for each water use type (e.g., agriculture, environmental, and others).

It is suggested that the AWMP also include a detailed description of their basis for reporting water quantities:

1. What year(s) are used to describe the water quantities, and if there were any special conditions relevant to the determination of quantities (e.g., excessively wet year, water measurement system only partially implemented, couldn't measure a particular source or use, or others).
2. A Representative Year and/or the Plan Cycle year can be used as a basis for determining water quantities.

CADWR encourages water supplier to use the same basis (year(s)) and timeframe (e.g., Water Year months, calendar year, or other) to report water quantities in all tables/descriptions in Sections III through IV of the AWMP (detailed in Sections 3.3 through 3.5 of this Guidebook). For example, the agricultural water supplier could use the first Plan Cycle year 1 (2012/2013) data and identify that data is based on the Water Year from October 2012 to September 2013.

CADWR encourages agricultural water suppliers to report water quantities based on a Plan Cycle yearly-basis and include information for the past five years. In accordance with Executive Order B-29-15, quantification of water demands is to be reported for 2013, 2014, and 2015 to the extent data is available.

If a Representative Year is used to describe and tabulate water uses and supplies, it should be defined and the year(s) it is based on identified. The Representative Year can be an average or a range of hydrological variation: Drought, normal, and wet years. The rationale/description of what constitutes a Representative Year(s) should be included in this section, if applicable (refer to Worksheet 19).

If water uses are estimated instead of measured, CADWR encourages the agricultural water supplier to provide justification and documentation of calculations and data used for the estimation. This information can be summarized in the discussion pertaining to quantification of the specific supplies and/or uses with details included as an attachment in Section VIII. This information can also provide the basis for the Aggregated Farm Gate Delivery Report.

For water management planning, it is often advantageous to estimate future water use demands. While not required, the agricultural water supplier can also include a description of any anticipated changes or trends in water demand within their service area in order to facilitate the AWMP's use as a planning document. This could include changes in water use related to the following:

- Changes in crop types resulting in different crop water use requirements than current conditions.
- Expected market fluctuations that would affect the type and amount of crops grown.
- Increased water use efficiency that would reduce water uses through reduced non-recoverable water.



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- Increased energy costs that would potentially reduce the amount of water used from higher energy sources (e.g., pumped groundwater); and/or,
- Anticipated changes in land use (e.g., conversion of agricultural land to developed land).

3.2 CUSTOMER CLASSIFICATIONS

3.2.1 Residential

Residential customers are typically single-family residences. The residential classification also includes a limited amount of multi-residential accounts. Casitas MWD is providing additional residential water allocations only if additional water supply is identified. Casitas MWD is also implementing water conservation best management practices that are likely to reduce water usage as well. Limited growth in new housing due to economic and land planning factors are also likely contributing factors to this decrease. The number of new customers over the last five years averaged five per year, most being residential customers and some agricultural-residential customers. Casitas MWD does not anticipate any growth in this category.

3.2.2 Multiple-Family Residential

The Casitas MWD recently added the customer category for multiple family. Data regarding annual use and trends are very limited at this time.

3.2.3 Agricultural

Agricultural classification includes customers with agricultural properties with total water use of greater than 50 units per month. The United States Bureau of Reclamation has classified approximately 12,500 acres of land as irrigable lands within Casitas MWD district boundaries. Casitas MWD provides water service to nearly 5,400 acres irrigated lands (see **Section 2 Table 2-4, and Appendix F Worksheets 20-23** for details). Some agricultural lands are served by a private well or receive water from other water agencies. Based on Casitas MWD's 2014 crop report data, Casitas MWD provides water directly to 3,361 acres and supplements groundwater use on approximately 1,993 acres of irrigated crop lands. Casitas MWD water is provided for primarily avocado and citrus orchards, and a limited amount of flowers, strawberries, apples and walnuts (see **Section 2, Table 2-3** for details). Agricultural water demand will fluctuate depending on weather conditions, but generally demands an annual average of two and a half acre-feet per acre for inland areas and two acre-feet per acre on the coast. Agricultural water demand is not expected to increase over the next twenty years. Agricultural expansion requires approval and purchase of additional allocation, which is cost prohibitive for most agricultural interests. Casitas MWD recently had 5 acre-feet of agricultural water allocations purchased.

3.2.4 Agricultural-Residential

Agricultural properties with minor residential water use. Total water use must be less than 50 units per month.



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3.2.5 Business

Businesses directly served by the Casitas MWD range from small restaurants, gas stations, beauty shops and small strip malls to two local golf courses. Casitas MWD is implementing water conservation best management practices that are likely to reduce some water usage. Casitas MWD does not anticipate any growth in this category.

3.2.6 Industrial

A limited number of industrial customers are served directly by the Casitas MWD. Industrial services are primarily oil field and gas production facilities. High-pressure water injection for oil recovery is the primary use of the industrial demand. The changes in the economics of the oil industry may result in greater oil pumping, which could result in greater water usage in this sector. Recently, a large oil producer converted a part of its Casitas MWD water demand to an alternative groundwater source and lessened the demand for Casitas MWD water. The industrial classification includes approximately 24 acre-feet per year (0.3 percent) with 11 meters.

3.2.7 Interdepartmental

This classification is for the Casitas MWD's own services, which includes the Lake Casitas Recreation Area, Dam tender's house, and Casitas MWD's office. This usage represents a small portion of Casitas MWD's overall usage.

3.2.8 Institutional/Government

This classification includes government and non-profit organizations. Water demand in this category is not expected to change much since the number of customers is unlikely to change.

3.2.9 Resale

Within Casitas MWD's boundaries there are nine other public and private water agencies known as resale customers (see **Section 2.6** for details). Resale customers represent approximately 45 percent of Casitas MWD annual water demands. The majority of the resale agencies are primarily dependent upon available local groundwater as one of their main sources of water supply. The resale agencies rely on Casitas MWD as a primary supply, and or supplemental supply, and or drought contingency supply.

The City of Ventura generally relies on Casitas MWD water to provide 100 percent of the water supply for the portion of the City within the CMWD service area. The City of Ventura forecasts purchases from Casitas MWD for the years 2015-2025 at 5,409 acre-feet per year. (City of Ventura, 2015)

3.2.10 Classifications Unavailable

Casitas MWD does not currently separate customer accounts with the category of "landscape".



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3.3 CURRENT WATER USES

Total annual water demand includes water delivered to the various Casitas MWD customer classifications, minor losses in the distribution system due to leaks, and flushing of the system for water quality maintenance. The phrase “water demand” and “water use” will be used interchangeably throughout this document. Casitas MWD water demand can vary dramatically from year to year. Casitas MWD water demand can range from 11,694 acre-feet in 1993 (wet water-year) to 24,416 acre-feet in 1989 (dry water-year). (CMWD, 2016) Water demand is closely tied to local precipitation. During wet years, there is a major reduction in water demand compared to dry years.

During dry water-years, resale and agricultural water demand for Casitas MWD water supply can increase dramatically when local groundwater sources become diminished or no longer available. During dry periods, resale and agricultural customers rely more on Casitas MWD’s surface water, and in some cases rely exclusively on water deliveries from Lake Casitas, until groundwater supplies are replenished by rainfall events. Depending on the severity and duration of the drought period, it could be anticipated that any one or more resale agencies and or agricultural customer will have limited groundwater supply and may rely on Casitas MWD for the balance of essential water supply needs.

Water consumption within the Casitas MWD service area has decreased slightly in recent years. **Table 3-1** includes a summary of total water demands for 2000-2015. Upon comparison of 2000 demands and 2015 demands, **Table 3-1** indicates that total demands decreased by nearly 14 percent. The Casitas MWD has promoted and coordinated extensive demand management programs including water allocations and public outreach (see **Sections 6 and 7**) which are likely drivers for the decrease in water demand. Other factors that may contribute to the decreased water demand include, but not limited to, minimal population growth and limited new water demands.

The historical record of annual water deliveries from Lake Casitas is significantly impacted by drought conditions, especially during the multiple years of drought conditions that occurred from 1988 to 1991. By the early 1990’s, the number of new accounts added annually diminished considerably as the area became nearly built out. Locally, years with above average precipitation are associated with low water demand, and years with below average rainfall are associated with increases in water demand. Resale and agricultural customer groups have a much stronger influence on Casitas MWD water demands during low rainfall periods, as compared to the Casitas MWD residential customers that show very little response to weather conditions. Residential water demand represents a small portion of the overall demand within Casitas MWD service area. Agricultural customers have a higher rate of increase in water demand versus residential customers during low annual rainfall years because their primary groundwater sources become depleted quickly and they then must rely on Casitas MWD’s surface water supplies. Casitas MWD’s water demand has historically increased during drought conditions due to the nature of Casitas MWD being a backup water supply to local groundwater resources that quickly diminish during drought conditions. Casitas MWD’s Lake Casitas reservoir is managed as a long term water supply with a 21-year safe yield of 20,840 acre-feet based



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on the historical 1944-1965 drought cycle under certain conditions as highlighted in the “Water Supply and Use Status Report” (CMWD, 2004). A copy of this report is provided in **Appendix H**.

In 1989, Casitas MWD’s supply and demand studies indicated water demand was approaching the annual safe-yield and any significant increase above existing levels could ultimately lead to demand out-stripping supplies. A continued water supply deficit could lead to future supply shortages during long-term drought conditions. In 1992, Casitas MWD’ Water Efficiency and Allocation Program was adopted by the Casitas MWD’s Board of Directors to encourage efficient use of water to reduce overall water demand and to ensure the safe annual yield of supply would not exceed the critical 21,920 acre-feet per year average (as it was determined at that time). Average demand is not anticipated to increase above the current safe-yield of 20,840 that is derived from the “Water Supply and Use Status Report”. (CMWD, 2004). Casitas MWD has taken additional steps to limit future demand including changes in the allocation program. The Ojai City Council adopted a growth management plan that restricted housing and population growth to less than 1 percent annually through 2010. Census data reported in 2011 indicated that the City of Ojai had a 5 percent decrease in population (for the 2000-2010 period).

Table 3-1 summarizes the Casitas MWD water demands for recent fiscal years 2000, 2005, 2010, and 2015. **Table 3-1** indicates the 2000 demands were 19,389 AF (average water-year), including sales to other agencies of 7,186 AF (37%), agricultural sales of 9,115 AF (47%), and non-agricultural retail sales of 3,088 AF (16%). In comparison, **Table 3-1** indicates that Casitas MWD water demands for 2015 (dry water-year) were 16,747 AF, including sales to other agencies of 6,192 AF (37%), agricultural sales of 8,048 AF (48%), and non-agricultural retail sales of 2,507 AF (15%). See **Appendix E Table 4-1** for additional details. By comparison of 2000 demands and 2015 demands, **Table 3-1** indicates that total demands decreased by nearly 14 percent, sales to other agencies decreased by 994 AF (14%), agricultural sales decreased by 1,067 AF (12%), and retail sales decreased by 581 AF (19%). Much of this decrease in water demand is the direct result of demand management measures implemented by the Casitas MWD and regional water agencies (as discussed in **Section 7**).



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**TABLE 3-1
PAST AND CURRENT POTABLE WATER USES 2000-2015**

Category (1)	2000	2005	2010	2015
Sales to other agencies	7,186	7,118	6,482	6,192
Agricultural sales (2)	9,115	8,939	6,398	8,048
Retail sales (2)	3,088	2,821	2,427	2,507
Total	19,389	18,877	15,307	16,747

Notes:

(3) Source, CMWD, 2016. All values in AF, rounded. Data does not include water losses.

(4) Direct sales to CMWD customers.

Table 3-2 summarizes the Casitas MWD retail water uses for 2015. In 2015, Casitas MWD total retail water demands were 10,554 AF, including agriculture sales (historically the category with highest water demand) of 8,048 AF (76%), and residential sales (including single-family and multiple-family accounts) of 1,512 AF (14%). **Table 3-2** excludes sales to other agencies.

Table 3-3 summarizes the agricultural water use for the period 2011-2015. As previously noted, local agricultural water demand is historically the highest water demand for Casitas MWD. In addition, agricultural water demand within the Casitas MWD service area can vary dramatically from year to year. Agricultural customer groups have a much stronger influence on Casitas MWD water demands during low rainfall periods. Agricultural customers have a higher rate of increase in water demand during low annual rainfall years because their primary groundwater sources become depleted quickly and they then must rely on Casitas MWD’s surface water supplies. **Table 3-3** indicates that annual average agricultural water use within the service area was 7,425 AF for the period 2011-2015, including a low of 5,206 AF in 2011 to a high of 9,427 AF in 2014. For additional details related to agricultural water demands see **Appendix F, Worksheets 20-22**.



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**TABLE 3-2
RETAIL WATER USES FOR 2015**

Category (1,2)	2015 Retail Water Use	Percent of Retail Water Use
Residential (3)	1,512	14
Commercial	587	6
Industrial	29	0.3
Interdepartmental/Governmental	159	1.5
Agriculture (4)	8,048	76
Recreation	0	0
Environmental	0	0
Other (5)	219	2.1
Total	10,554	100

Notes:

- (1) Source, CMWD, 2016. All values in AF, rounded.
- (2) Excludes sales to other agencies.
- (3) Includes accounts for single-family and multi-family residential.
- (4) Includes all agriculture accounts including accounts with domestic use on site.
- (5) Includes accounts for fire, temporary, transfers and exchanges, etc.

**TABLE 3-3
AGRICULTURAL WATER USE 2011-2015**

Category	2011	2012	2013	2014	2015
Agricultural Sales (1)	5,206	6,295	8,151	9,427	8,048

Notes:

- (1) Source, CMWD, 2016. All values in AF, rounded.



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3.4 WATER LOSSES

Casitas MWD prepared a water audit as defined by the American Water Works Association. For fiscal year 2015, Casitas MWD estimated water losses at approximately 670 acre feet. This annual water loss amount represents approximately 4 percent of sales. See **Appendix E Table 4-4** for additional details.

3.5 PROJECTED WATER USES

The Casitas MWD is not anticipating a significant change in population growth within its service area boundaries within the next twenty-five years. The low population growth is likely to limit overall customer water demand in the future because most of this growth is likely to occur in resale agencies service area, which will allow other agencies groundwater sources to supplement the increased demand. Resale agencies seeking additional water supplies from Casitas MWD will need to negotiate additional water allocations from Casitas MWD and or find other water supplies including additional groundwater sources, recycled water, and or implement additional water demand management programs.

Table 3-4 summarizes the Casitas MWD projected water uses for the period 2020-2040 (see **Appendix E Tables 4-2** and **4-3** for additional details). **Table 3-4** indicates the period 2020 to 2030 total water demands are projected to be approximately 17,200 AF (average water-year). For the period 2020 to 2030 (during average water-years), sales to other agencies are projected to be 6,200 AF, agricultural sales 8,000 AF, and non-agricultural retail sales of 3,000 AF. For the period 2030 to 2040, total water demands are projected to be approximately 17,500 AF. For the period 2030 to 2040, **Table 3-4** indicates that sales to other agencies are projected to be 6,500 AF, agricultural sales 8,000 AF, and non-agricultural retail sales of 3,000 AF. Casitas MWD estimates that agricultural sales and retail sales will remain fairly consistent for the period 2015 to 2040 due to current and future demand management measures implemented within the service area (as discussed in **Section 7**).

3.6 WATER USE FOR LOWER INCOME HOUSEHOLDS

As a wholesale agency, Casitas MWD is not required to include the projected water use for lower income households.



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**TABLE 3-4
PROJECTED POTABLE WATER USES 2020-2040**

Category (1)	2020	2025	2030	2035	2040
Sales to other agencies	6,200	6,200	6,500	6,500	6,500
Agricultural sales (2)	8,000	8,000	8,000	8,000	8,000
Retail sales (2)	3,000	3,000	3,000	3,000	3,000
Total	17,200	17,200	17,500	17,500	17,500

Notes:

(3) Source, CMWD, 2016. All values in AF, rounded. Data does not include water losses.

(4) Direct sales to CMWD customers.

3.7 WATER CONSERVATION ACT OF 2009

In February 2008, former Governor Arnold Schwarzenegger introduced a seven-part comprehensive plan for improving the Sacramento-San Joaquin Delta. A key component of this plan was a goal to achieve a 20 percent reduction in per capita water use statewide by the year 2020 (also known as the 20x2020 target). As a wholesale agency, Casitas MWD is not required to establish and meet targets for daily per capita water use in compliance with the 20x2020 target. In addition, wholesale agencies are not required to complete the SB X7-7 verification form. Details are provided in **Section 7** regarding the present and proposed Casitas MWD measures, programs, and policies that may assist retail agencies within the Casitas MWD service area achieve 20x2020 water use reduction targets. However, Casitas MWD has been working diligently to comply with water conservation regulations imposed by State Water Resources Control Board and Governor Jerry Brown in 2015. Casitas MWD is required to meet a reduction in cumulative water demand of 32 percent upon comparison of current monthly demands with demands in 2013. This requirement took effect in June 2015. To date, the Casitas MWD has reduced water demands by over 777,000,000 gallons in 9 months (over 86,000,000 gallons per months) for a cumulative reduction of 21.9 percent. The Casitas MWD anticipates implementing additional demand management measures in the near future in order to achieve compliance with the 32 percent water demand reduction requirement. Details regarding demand management measures are provided in **Section 7**.