

## Section 3: System Demands

This section describes the urban water system demands. It quantifies the current water system demand by sector and projects these demands through the year 2035.

For purposes of the UWMP:

Water demand - means all the water that is used by a water agency for any purpose.

Sectors - portions of water use that are clearly distinct from other water uses.

This section is divided into the following subsections:

- [Water Demands by Sector](#) (*clickable link*)
- [Distribution System Losses](#) (*clickable link*)
- [Water Savings from Codes, Ordinances, or Transportation and Land Use Plans](#) (*clickable link*)
- [Coordination Between Retailers and Their Wholesaler\(s\)](#) (*clickable link*)
- [Water Use for Lower Income Households](#) (*clickable link*)

Each subsection concludes with a checklist for ensuring that all requirements and recommended elements have been addressed.

### Why is Accurate Demand Projection Important?

Estimating future demand as accurately as possible allows water agencies to plan their future infrastructure appropriately.

Including expected conservation savings in demand projections could guide a water supplier to delay or down size new and costly infrastructure projects.

Additionally, planning agencies, whether local, regional, or statewide, rely upon reported demand and demand projections from individual agencies in order to manage water resources on a larger scale.

### Factors to Consider in Projecting Demand

It is important to include a realistic estimate of conservation savings when projecting demand. This includes savings that are planned for meeting the targeted 20% reduction by 2020. It also includes savings that will come from changes in plumbing codes, landscape ordinances and other codes or standards, also known as passive savings.

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Water agencies will need to include estimates of future growth in their water demand projections. This will require coordination with local planning agencies.

Climate change impacts to an agency's water demand should also be included in projected demand estimates. For example, hotter and drier weather may lead to increased demand for landscape irrigation.

**Water Demands by Sector** (*Distribution System Losses are covered in the following section, "Distribution System Water Losses".*)

### CWC 10631(e)(1) and (2)

*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...*

### **Potable and Non-Potable Demand**

In order to clearly distinguish between the potable (drinking water) uses and non-potable uses, agencies will report these uses in separate tables.

Potable Water – Water intended for human consumption, delivered through a public water system, and regulated by a State or local health agency. Potable water demand will be reported in Tables 3-1 and 3-2.

Non-Potable Water -Water supply other than potable. This includes raw water and recycled/reclaimed water. Non-potable demand and will be reported in Tables 3-3 and 3-4. Recycled water will be described in fuller detail in Section 5: System Supplies.

### **Demand Sectors Listed in Water Code**

Suppliers are encouraged to use as many water demand sectors as are applicable in order to provide a full accounting of the total demand.

Agencies are directed to use the water sectors listed in the water code, to the extent that these are available. If there is a difference between the sectors used by the agency and the sectors listed in the water code, agencies may report using the "Other" sector in the required tables.

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Agricultural – Water used for commercial agricultural production where \$1000 or more of agricultural products were sold, or normally would have been sold, during the year. USDA and Census Bureau

Commercial – A water user that provides or distributes a product or service. SBX.

Conjunctive use – A management strategy where surplus surface water is stored in an underground aquifer. DWR

Groundwater recharge – The intentional replenishment of natural ground water supplies using man-made conveyances such as infiltration basins or injection wells. EPA.

Industrial – A water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development. SBX

Institutional and governmental - A water user dedicated to public service. This type of user includes, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions. SBX

Landscape – Water connections supplying water solely for landscape irrigation

Multifamily - Multiple dwelling units contained within one building or several buildings within one complex.

Saline water intrusion barriers – Injection of water into a fresh water aquifer to prevent the intrusion of salt water. EPA

Single-family residential – Lots with a free-standing building containing one dwelling unit. May include a detached secondary dwelling.

### **Demand Sectors in Addition to Those Listed in Water Code**

The water demand sectors below, though not specifically listed in the water code, can help some agencies account for the entirety of their demand.

Environmental – Water used for a managed environmental use to improve an environmental condition. (derived from CWP)

Long Term System Storage- If system storage (groundwater or surface water) is greater at the end of the year than at the beginning, it indicates that water has entered the distribution system but has not been delivered to customers. If the change in distribution system storage is expected to be insignificant, or if data needed to calculate the change in distribution system storage are not available, the water supplier may forgo reporting water demand for this sector.

Other Non-Revenue Water - This includes water used for firefighting, line flushing, and other demands that do not generate revenue. For purposes of UWMPs, distribution system water loss is reported separately.

Other – Any water demand that does not fall into a sector defined above.

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When using the “Other” category for a water use sector, the agency should include a narrative description of that category in order for readers to understand this water use.

## Consistency of Reporting

Estimates of demand should be consistent throughout the UWMP and with other agency reports of water use.

- Supply should equal demand for the years 2010 and 2015.
- Estimates of projected future demands should account for the assumed reductions to meet the water use targets in 2015 and 2020. (See Section 4 Baselines and Targets.)
- Savings from codes etc... should be accounted for in demand projections
- Distribution system water losses should be consistent between the AWWA worksheets and the Water Use tables.
- Data reported in UWMPs should be consistent with Public Water Systems annual reports to the State Water Resources Control Board.

**Table 3-1 Potable Water Use by Sector**

Table 3-1: Potable Water Use - Retail																				
Water Use Sector	Reporting Year																			
	2010				2015				2020				2025		2030		2035		2040	
	No. of Metered Accounts	Metered Use (AFY)	No. of Non-Metered Accounts	Non-Metered Use (AFY)	No. of Metered Accounts	Metered Use (AFY)	No. of Non-Metered Accounts	Non-Metered Use (AFY)	No. of Metered Accounts	Metered Use (AFY)	No. of Non-Metered Accounts	Non-Metered Use (AFY)	No. of Metered Accounts	Metered Use (AFY)	No. of Metered Accounts	Metered Use (AFY)	No. of Metered Accounts	Metered Use (AFY)	No. of Metered Accounts	Metered Use (AFY)
<b>Units:</b> <i>drop down menu with AF, CCF, MG others</i>																				
Single Family																				
Multi-Family																				
Commercial																				
Industrial																				
Institutional/ Governmental																				
Landscape																				
Agriculture																				
Other (Define)																				
Distribution System Losses		<i>optional</i>		<i>optional</i>																
Groundwater Recharge																				
Saline Barrier																				
Long Term Storage (optional)																				
Other Non-Revenue Water (optional)																				
Environmental (optional)																				
<b>Subtotal</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	

**Table 3-2 Potable Water Sales to Other Agencies**

Table 3-2: Potable Sales to Other Agencies							
	2010 Water Sold AFY	2015 Water Sold AFY	2020 Water Sold AFY	2025 Water Sold AFY	2030 Water Sold AFY	2035 Water Sold AFY	2040 Water Sold AFY
<b>Units:</b> <i>drop down menu with AF, CCF, MG others</i>							
Agency							
Agency							
Agency							
<b>Subtotal</b>							

**Table 3-3 Non-Potable Water Use by Sector**

Table 3-3: Non-Potable Water Use - Retail														
Non-Potable Water Use Sector	Reporting Year													
	2010		2015		2020		2025		2030		2035		2040	
	No. of Accounts	Water Use (AFY)												
<b>Units:</b> drop down menu with AF, CCF, MG others														
Commercial														
Industrial														
Landscape														
Agriculture														
Other (Define)														
Groundwater Recharge														
Saline Barrier														
Long Term Storage (optional)														
Environmental (optional)														
<b>Subtotal</b>	0	0	0	0	0	0	0	0	0	0	0	0	0	0

**Table 3-4 Non-Potable Sales to Other Agencies**

Table 3-4: Non-Potable Sales to Other Agencies - Retail							
	2010 Water Sold AFY	2015 Water Sold AFY	2020 Water Sold AFY	2025 Water Sold AFY	2030 Water Sold AFY	2035 Water Sold AFY	2040 Water Sold AFY
<b>Units:</b> drop down menu with AF, CCF, MG others							
Agency							
Agency							
<b>Subtotal</b>							

**Table 3-5 Total Water Use**

Table 3-5 : Total Water Use - Retail (auto-filled)							
Water Use	2010	2015	2020	2025	2030	2035	2040 - opt
<b>Units:</b> (auto-filled)							
Total Potable							
Total Non-Potable							
<b>Total</b>	0	0	0	0	0	0	0

**Checklist**

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- Required:** Include completed Tables 3-1 and 3-2 for potable water demand  
Page number or location of the tables. \_\_\_\_\_
- Provide the information for potable demand identified in (A) through (F) and (H) through (J) using Table 3-1.
  - Provide the information for potable demand identified in (G) (Sales to other agencies) using Table 3-2.
- Required:** Include completed Tables 3-3 and 3-4 for non-potable water demand  
Page number or location of the tables. \_\_\_\_\_
- Provide the information for non-potable demand identified in (A) through (F) and (H) through (J) using Table 3-3.
  - Provide the information for non-potable demand identified in (G) Sales to other agencies, using table 3-4.
- Recommended:** Include a narrative description of how demand projections are estimated.  
Page number or location of the narrative description. \_\_\_\_\_  
*Agencies are not required to use any particular method for estimating projected water demands. It is beneficial to the reader and reviewer of plans to have an understanding of how projections were estimated.*
- Recommended:** Provide narrative description of water sectors that differ from the water code, i.e., single family and multi-family are combined as “residential”.  
Page number or location of the narrative description. \_\_\_\_\_

### Distribution System Water Losses

CWC 10631(e)(1) and (2)

*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:...(J) Distribution system losses*

CWC §10631 (e)(3)(A) *For the 2015 urban water management plan update, the distribution system water loss shall be quantified for the most recent 12-month period available. For all subsequent updates, the distribution system water loss shall be quantified for each of the five years preceding the plan update.*

*(B) The distribution system water loss quantification shall be reported in accordance with a worksheet approved or developed by the department through a public process. The water loss quantification worksheet shall be based on the water system balance methodology developed by the American Water Works Association.*

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Distribution system water losses (also known as real losses) are the physical water losses from the pressurized water system and the utility's storage tanks, up to the point of customer consumption.

The 12 month period used for reporting distribution system water loss must be the same 12-month period used for system demands.

*GUIDANCE PENDING*

### Checklist

- Required:** Include the completed water loss worksheets as an Appendix in the UWMP.  
Page number or location of the water loss worksheets \_\_\_\_\_
  
- Required:** Record the Real Losses that were calculated in the worksheets in Table 3-1  
Page number or location of the table. \_\_\_\_\_

### Water Savings from Codes, Standards, Ordinances, or Transportation and Land Use Plans *Optional*

CWC §10631 (e)(4)(A) *If available and applicable to an urban water supplier, water use projections may display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area. (B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following: (i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.(ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.*

*GUIDANCE PENDING*

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Water Savings from Codes, Standards, Ordinances, or Transportation and Land Use Plans are also known as passive savings.

**Table 3-6 Savings from Codes, Standards**

Table 3-6 Passive Savings
<i>PENDING GUIDANCE</i>

### Checklist

- Recommended:** Include completed Table 3-6: Passive Savings. Page number or location of the table. \_\_\_\_\_
  
- Recommended:** Indicate the extent that the water use projections in Table 3-1 have incorporated estimated savings from codes, standards, ordinances, or transportation and land use plans.

### Coordination between Retailers and their Wholesalers

*CWC 10631(k) Urban water suppliers that rely upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available.*

Retail agencies that receive a water supply from one or more wholesalers are required to provide water use projections to the wholesaler(s) of the retail agency's projected water use, from that source, in five year increments for 20 years, or as far as data is available.

Providing these projections allows both the retail and wholesale agencies to better plan for expected appropriations.

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## Checklist

- Required for retailers receiving water from wholesale agency(ies):** Provide the water use projection data found in **Tables XX (supply tables?)** to the agency's wholesale provider(s).
- Required for retailers receiving water from wholesale agency(ies):** Include a statement that such water use projections have been provided.

## Water Use for Lower Income Households

*CWC 10631.1(a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.*

*California Health and Safety Code 50079.5 (a) "Lower income households" means persons and families whose income does not exceed the qualifying limits for lower income families... In the event the federal standards are discontinued, the department shall, by regulation, establish income limits for lower income households for all geographic areas of the state at 80 percent of area median income, adjusted for family size and revised annually.*

### **INTENT**

*CWC 10631.1 (b) It is the intent of the Legislature that the identification of projected water use for single-family and multifamily residential housing for lower income households will assist a supplier in complying with the requirement under Section 65589.7 of the Government Code to grant a priority for the provision of service to housing units affordable to lower income households.*

*65589.7 (a) ... Each public agency or private entity providing water or sewer services shall grant a priority for the provision of these services to proposed developments that include housing units affordable to lower income households.*

A lower income household is defined as a household with an income limit of 80 percent of area median income, adjusted for family size.

Estimate the lower income water use projections for single-family and multi-family housing units identified in the housing elements of the general plans applicable to the water supplier's service area.

Use the following method to estimate lower income water use projections:

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1. Identify the number of projected lower income housing units allocated for the service area.
  - Identify which cities and counties are served by the water agency.
  - Obtain the General Plan(s) for these city(ies) and county(ies). Go to the Housing Element(s) within the general plan(s) to find the projected allocation of lower income housing for each of the city(s) or county(s).
  - If the projected allocation is not included in the current general plan(s), obtain this projection from the Regional Housing Needs Assessment (RHNA) of the local Council of Governments.
  - If the water supplier serves only a portion of a city or a county, estimate the percentage of lower income housing units that would likely be allocated to the area served by the supplier. This estimate can be based on area, population, likely housing starts, land use, or other factors likely to influence the apportionment of housing units.
  - Calculate the total number of lower income housing units estimated for allocation to the supplier’s service area. This is done by adding up the units allocated for each city and/or county served by the supplier. Enter this into Table 3-7.
  
2. Determine the estimated water demands for the projected allocation of lower income housing.
  - Estimate or calculate the average water demand for one housing unit, based on historical averages from the water agency.
  - Multiply the number of projected housing units by the per unit water demand. Enter this into Table 3-7.

**Table 3-7 Lower Income Water Demand**

Table 3-7 Lower Income Water Demand 2020			
	Total Housing Units	Water Demand (ac-ft) per housing unit	Total water demand (ac-ft)
Single Family			
Multi-Family			
<b>TOTAL</b>			

**Checklist**

**Required:** Include completed Table 3-7  
 Page number or location of the table. \_\_\_\_\_