FINAL

CITY OF LEMOORE

2015 URBAN WATER MANAGEMENT PLAN

NOVEMBER 2017

FINAL

2015 URBAN WATER MANAGEMENT PLAN

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ACRONYMS AND ABBREVIATIONS

Act	Urban Water Management Planning Act of 1983
AF	acre-feet
City	City of Lemoore
CWC	California Water Code
DMMs	Demand Management Measures
DOF	Department of Finance
DWR	Department of Water Resources
GPCD	Gallons per Capita per Day
GSA	Groundwater Sustainability Agency
Guidebook	*2015 Guidebook for Urban Water Suppliers*
GWP Update	*Lower Kings Basin Groundwater Management Plan Update*
KCWEC	Kings County Water Education Committee
LRAA	locational running annual average
MCL	maximum contaminant level
MG	million gallons
mg/L	milligrams per liter
mph	miles per hour
msl	mean sea level
PWS	Public Water System
QK	QK Inc.
SB	Senate Bill
SGMA	Sustainable Groundwater Management Act
SR	State Route
SWRCB	State Water Resources Control Board
TDS	total dissolved solids
TTHM	total trihalomethane
UWMP	Urban Water Management Plan
WMA	Water Management Area
WSCP	water shortage contingency plan
WSIHIST	DWR's Chronological Reconstructed Sacramento and San Joaquin Valley Water Year Hydrologic Classification Indices 1995 to 2015
WWTP	wastewater treatment plant
20x2020 Plan	20x2020 Water Conservation Plan
^{0}F	degrees Fahrenheit

SECTION 1 - INTRODUCTION

1.1 - Overview

This document presents the 2015 Urban Water Management Plan (UWMP) for the City of Lemoore (City) as required by the Urban Water Management Planning Act of 1983 (Act). It was prepared in cooperation with City staff to address the requirements stipulated in California Water Code Division 6, Part 2.6, Sections 10610 through 10656. Throughout this 2015 UWMP is italicized text quoting specific requirements of the Act. The quoted text precedes sections relevant to a specific portion of the Act to serve as an aid to the reader. A copy of the Act is included as Appendix A. This section describes the general background and purpose of an UWMP, previous City plans, as well as this 2015 UWMP's organization and contents.

The City adopted UWMP's in 1998 and 2000. The UWMP was amended in 2004 and updates were completed in 2006 for the 2005 calendar year, and in 2013 for 2010 calendar year. This 2015 UWMP is for the 2015 update of the 2010 Plan.

1.2 - Background and Purpose

The California Water Code (CWC) Division 6, Part 2.6, Section 10617 defines an "urban water supplier" as a public or private supplier, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. If qualified as an urban water supplier, a public or private supplier is required to create or update an UWMP every five years and submit it to the Department of Water Resources (DWR) for review and approval (State of California, 2010). This is the requirement of the Act to ensure local water agencies are adequately planning.

An UWMP is a planning tool that was created to help generally guide the actions of urban water suppliers in successfully preparing for potential water supply disruptions and issues. It provides a framework for long-term water planning and informs the public of a supplier's plans for long-term resource planning that ensures adequate water supplies for existing and future demands. An UWMP is not a substitute for project-specific planning documents, nor was it intended to be so mandated by the State Legislature (California Department of Water Resources, 2016).

CWC requires that an UWMP must include historic, current, and future supplies and demands for water; address conservation measures, describe potential supply deficiencies during drought conditions and the ability to mitigate these conditions; compare total projected water use and supply sources over 20 years in 5-year increments for a single dry water year and for multiple dry water years; and include provisions for recycled water use, demand management measures, and a water shortage contingency plan.

In addition to the Urban Water Management Planning Act, Governor Schwarzenegger established the 20x2020 Water Conservation Plan (20x2020 Plan). The 20x2020 Plan determines that for California to continue to have enough water to support its growing

population, the State needs to reduce the amount of water each person uses per day (per capita daily consumption, which is measured in gallons per capita per day). This 2015 UWMP's stipulated reduction of 20% per capita use by the year 2020 is supported by legislation passed in November 2009, the Water Conservation Act (Senate Bill [SB] X7-7). These changes have amended and repealed some sections of the CWC and affect the reporting requirements under the Act and other government codes. Beginning in 2016, retail water suppliers are required to comply with the water conservation requirements in SB X7-7 to be eligible for State water grants or loans. Retail water agencies are required to set targets and track progress toward decreasing daily per capita urban water use in their service area, which will assist the State in meeting its 20% reduction goal by 2020 (California Department of Water Resources, 2016).

To assist urban water suppliers in preparing UWMP's the DWR developed the *2015 Guidebook for Urban Water Suppliers* (Guidebook). The Guidebook is updated every five years to ensure it addresses any changes in State legislation (such as SB X7-7) and all requirements of the CWC. The current Guidebook is an update of the 2010 version and reflects new legislation, provides information to the public regarding water suppliers and water management programs, and provides a framework for minimizing the negative effects of potential water shortages. Additionally, the Guidebook provides a general layout for how UWMPs could be organized. This 2015 UWMP largely utilizes the Guidebook's layout.

1.3 - Document Organization and Contents

The content and format of this 2015 UWMP are designed to meet the requirements of the Guidebook dated March 2016. It contains the following sections:

Section 1 – Introduction: This section provides an overview of Act and CWC requirements, document organization, and a discussion of the importance and extent of Lemoore's water management planning efforts.

Section 2 – Plan Preparation: This section provides information on the UWMP development process, including coordination and outreach efforts.

Section 3 – System Description: This section provides a detailed description of the City's current water system.

Section 4 – System Water Use: This section describes and quantifies the current and projected water uses within the City's service area.

Section 5 – Baselines and Targets: This section describes the methods used for calculating the City's baseline and target water consumption. It will describe City plans for achieving its 2020 water use target.

Section 6 – System Supplies: This section describes and quantifies the current and projected sources of water available to the City.

Section 7 – Water Supply Reliability: This section describes the reliability of the City water supply and projects that reliability for 20 years. Such reliability is projected for normal, single-dry, and multiple-dry years.

Section 8 – Water Shortage Contingency Planning: This section provides the City's staged plan for dealing with water shortages, including a catastrophic supply interruption.

Section 9 – Demand Management Measures: This section describes the City's efforts to promote conservation and to reduce demand on their water supply and specifically addresses several demand management measures.

Section 10 – Plan Adoption, Submittal, and Implementation: This section describes the steps to be taken to adopt and submit the 2015 UWMP and to make it publicly available. It also includes a discussion of the City's plan for implementation of the 2015 UWMP.

SECTION 2 - PLAN PREPARATION

2.1 - Basis for Preparing a Plan

2.1.1 - OVERVIEW

CWC 10617. "Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

CWC 10620(b). Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

CWC 10620(a). Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero, except as provided in subdivisions (d).

CWC 10620(d). Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.

The City of Lemoore currently supplies approximately 2,076 million gallons (MG) of water per year and maintains 6,784 service connections, which is over the identified 3,000 connection threshold as defined in CWC Section 10617.

This 2015 UWMP has been prepared by QK Inc. (QK) as an independent contractor to the City. Accordingly, and as set forth herein, this 2015 UWMP has been prepared in accordance with the Act, SB X7-7, and the technical guidance documentation prepared and published by the DWR.

2.1.2 - PUBLIC WATER SYSTEMS

The California Health and Safety Code 116275(h) defines a "Public Water System" (PWS) as a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year. PWS's are regulated by the State Water Resources Control Board (SWRCB), Division of Drinking Water.

PWS data reported to the SWRCB is used to determine whether a retail supplier has reached the UWMP reporting threshold of 3,000 or more connections or 3,000 acre-feet of water supplied (California Department of Water Resources, 2016). Table 2-1 describes the City's PWS information and, as noted above, the City supplies water to over 3,000 connections. The City is not a wholesale water supplier.

Table 2-1 Retail Only: Public Water Systems

Table 2-1 Retail Only: Public Water Systems			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015
CA1610005	City of Lemoore	6,784	2,076
	TOTAL	6,784	2,076

2.2 - Regional Planning

The City is not involved in any regional water planning efforts nor will it be involved in developing a cooperative 2015 UWMP or Regional UWMP or Regional Plan.

2.3 - Individual Planning and Compliance

This 2015 UWMP is intended to address those aspects of the Act and SB X7-7, which are under the control of the City, specifically water supply and water use. The City is undertaking individual reporting to address all requirements for applicable uses served within the Lemoore City limits (see Table 2-2).

Table 2-2: Plan Identification

Table 2-2: Plan Identification			
Select Only One	**Type of Plan**		**Name of RUWMP or Regional Alliance** *if applicable* *drop down list*
☑	**Individual UWMP**		
	☐	Water Supplier is also a member of a RUWMP	
	☐	Water Supplier is also a member of a Regional Alliance	
☐	**Regional Urban Water Management Plan (RUWMP)**		
NOTES: The City of Lemoore is updating their 2010 Individual UWMP.			

2.4 - Calendar Year and Units of Measure

As shown in Table 2-3, the City reports on a calendar year basis and uses MG as the unit of measure when reporting water volumes. This 2015 UWMP includes water use and planning data for calendar years.

Table 2-3: Agency Identification

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
☐	Agency is a wholesaler
☑	Agency is a retailer
Fiscal or Calendar Year (select one)	
☑	UWMP Tables Are in Calendar Years
☐	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Date that the Fiscal Year Begins (mm/dd)	
Units of Measure Used in UWMP (select from Drop down)	
Unit	MG

2.5 - Coordination and Outreach

CWC 10620(d)(2). Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

CWC 10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

While preparing this 2015 UWMP, the City coordinated its efforts with relevant local agencies to ensure that the data and issues are presented accurately, and encouraged public involvement in full compliance with CWC 10642.

2.5.1 - Coordination Within the City

The preparation of this 2015 UWMP was coordinated with all appropriate City staff, including solicitation of input and data from the various departments during its preparation. Draft copies of the 2015 UWMP were made available to Department managers for comment and revision prior to adoption.

The City's Planning Department makes available projections on population growth and land annexations from which demand projections and decisions regarding water management can be made. These projections, in concert with the City's water, sewer, and storm water master plans and the recently adopted General Plan, form a factual basis for this document.

2.5.2 - Coordination with Other Agencies and the Community

The City's water supply is produced solely from groundwater wells within the Tulare Lake Subbasin as defined in DWR Bulletin 118 (Update 2003) (Department of Water Resources, 2003). The City has furnished copies of a draft Plan to and requested comments by Kings River Conservation District, Kings County Water District and Laguna Irrigation District, as entities providing water management in the northwest portion of Kings County. The districts are adjacent to or near the City and their activities affect the groundwater basin from which the City draws its primary water supply. A copy of the draft Plan was also furnished to, and comments requested from, the Lemoore Canal and Irrigation Company. The City holds a minor share in that company allowing for the discharge of City storm water into its canals for transport to Natural Resources Conservation Service wetlands and other agriculture areas (City of Lemoore, 2012). Additionally, this ownership gives the City water rights for irrigation of the municipal golf course. The City has met the 60-day local agency notification requirement of CWC Section 10621(b).

As previously discussed, the City does not import any of its water supply. All water supply is pumped from the Tulare Lake Subbasin through City-owned groundwater wells. As shown in Table 2-4, the City does not obtain water supply from a wholesale water supplier.

Table 2-4 Retail: Water Supplier Information Exchange

Table 2-4 Retail: Water Supplier Information Exchange
The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
Wholesale Water Supplier Name *(Add additional rows as needed)*
Not Applicable

2.5.3 - Notice to Cities and Counties

CWC 10621(b). Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

The City's 2015 UWMP will be available for the public and the County of Kings for a 60-day review prior to the UWMP public hearing from April 27, 2017 through June 26, 2017. Written

comments on the draft 2015 UWMP must be postmarked by June 26, 2017. Submit written comments are to be submitted to:

City of Lemoore
119 Fox Street
Lemoore, CA 93245

Copies of the draft 2015 UWMP will be available for review at the City's main office. See *Section 10 – Plan Adoption, Submittal, and Implementation* for more information on notifications to the public, cities, and counties.

SECTION 3 - SYSTEM DESCRIPTION

3.1 - Service Area

10631(a). Describe the service area of the supplier.

The City is located within the northern portion of Kings County, in the center of the San Joaquin Valley, approximately 200 miles north of Los Angeles and 210 miles south of San Francisco. The City is situated at the junction of State Highway (SR) 198 and SR-41 (Figure 3-1). The City is surrounded by agricultural development, with smaller parcels north and east of the community and large holdings west and south. A major economic factor in the community's economy is Lemoore Naval Air Station located west of the City. The City of Lemoore's water system serves the incorporated area of the City (see Figure 3-2).

3.2 - System

The City does not sell water to any other agencies nor to any water users outside the City limits. Information about the water system comes from the *2030 Lemoore General Plan Draft Environmental Impact Report* (City of Lemoore, 2007).

The City currently utilizes local groundwater as its sole source of municipal water supply. The City's municipal water system extracts its water supply from underground aquifers via six active groundwater wells within the City limits (see Figure 3-3) and two in a wellfield approximately 5 miles north of the City. Water is conveyed from the wells to the consumers via a distribution system with pipe sizes between 6 and 16 inches in diameter. The City maintains four ground-level storage reservoirs within the distribution system, with a total capacity of 4.4 million gallons (MG). The City's main water distribution plant is located along G Street west of Lemoore Avenue. In addition to the main domestic water supply, the City operates a separate system to supply industrial water to the Olam tomato processing plant. The two water systems can be connected in case of an emergency such as a major fire or natural disaster.

3.3 - Climate

10631(a). Describe the climate of the service area of the supplier.

The climate of the Lemoore area is characteristic of that of the Southern San Joaquin Valley. The summer climate is hot and dry, while winters are cool and periodically humid. Mean daily maximum temperatures range from a low of approximately 40 degrees Fahrenheit (^{0}F) in February to a high of about 96^{0}F in August. Rainfall is concentrated during the six months from October to May. December and January typically experience heavy fog, mostly nocturnal, caused when moist cool air is trapped in the valley by high pressure systems. In

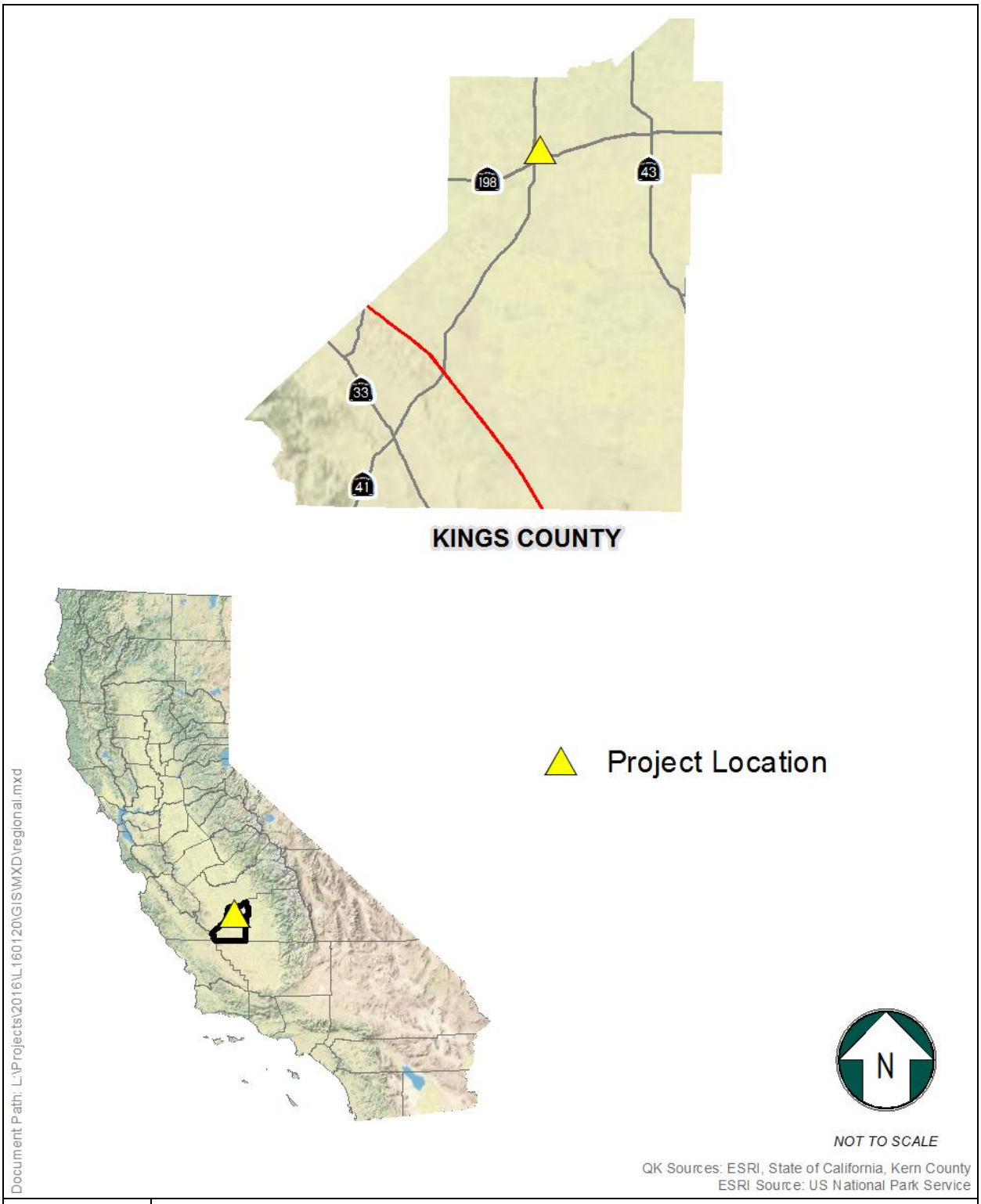

Figure 3-1
Regional Area

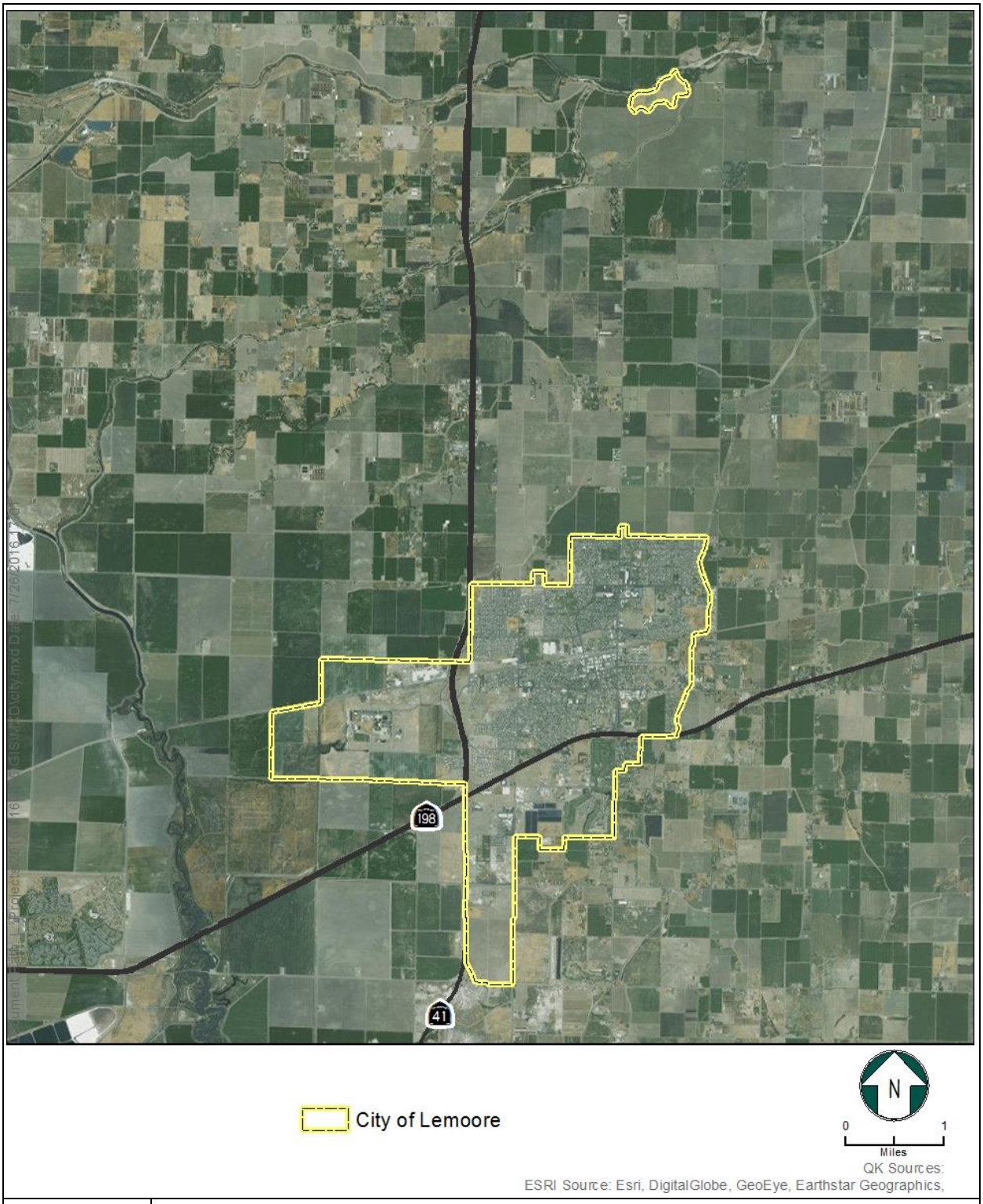

Figure 3-2
City Limits

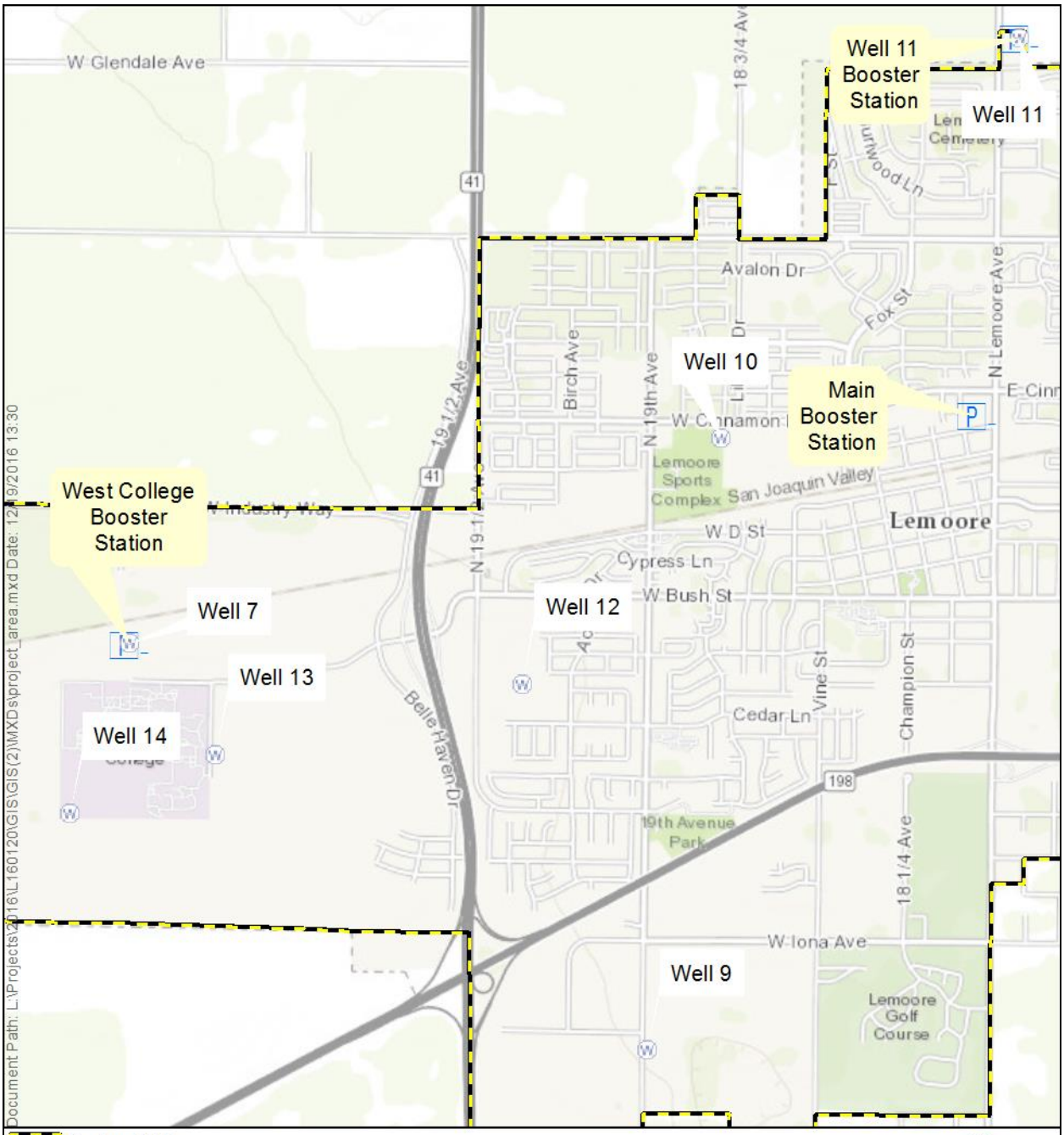

Figure 3-3
Well Locations

extreme cases, this fog may last continuously for two or three weeks. Its depth is usually less than 3,000 feet.

The Valley area is subject to characteristic seasonal air flows. During the summer, air currents from the Pacific Ocean enter the Valley through the San Francisco Bay and Delta region and are forced down the valley. These air movements are primarily to the southeast at velocities of 6 to 10 miles per hour (mph). During the winter, cold air flowing off the surrounding mountains results in currents toward the northwest and velocities ranging from 0 to 5 mph. These airflows result in extensive horizontal mixing of air masses in the Valley. However, vertical dispersion is constrained by temperature inversions, an increase in air temperature in a stable atmospheric layer, which may occur throughout the year.

Climatic data of the Lemoore area is summarized as follows:

2015-2016 Stratford Station Climate Data

Month	Average Evapotranspiration (ETo) (inches)	Average Temperature (Fahrenheit)	Average Total Precipitation (inches)	Average Relative Humidity (%)
January	1.30	49.4	2.43	85
February	2.80	53.5	0.04	75
March	4.37	58.2	0.62	66
April	6.23	64.5	0.69	51
May	7.86	70.6	0.60	48
June	9.67	80.3	0.00	33
July	8.72	82.9	0.03	41
August	8.42	80.6	0.00	40
September	6.57	76.3	0.00	36
October	4.36	69.2	0.40	52
November	2.33	49.1	0.61	67
December	1.47	44.1	1.20	78
2015 Annual	**64.1**	**64.9**	**6.6**	**56**

3.4 - Service Area Population and Demographics

16031(a). Indicate the current population of the service area.

16031(a). Provide population projections for 2020, 2025, 2030, and 2035.

Recognized as a community in 1873 the town was initially called Latache. In 1893 the small settlement was renamed Lemoore, and by the turn of the century, Lemoore reached a population of just less than 1,000 residents. Incorporated in July of 1900, the City prospered as a small agricultural service center.

Lemoore has experienced increases in population in every decade since 1970. Between 1970 and 1980 the population increased 109% reflecting the expansion of the Lemoore Naval Air Station and industrial development in northern Kings County.

Anticipating increased water demand from population growth is an important aspect of an UWMP. Lemoore's 2015 UWMP analyzes the effects of increased demand on water resources arising from sustained population growth, which will be important information for decision makers as they plan for the anticipated growth. Currently, the City Limits contain 1,059 acres of undeveloped land, with 4,371 acres already developed (City of Lemoore, 2012).

Per the California Department of Finance (DOF), the City's population in 2015, was 25,585. Table 3-1 shows the calculated population projection based on the 2030 General Plan's estimated 3.1% annual increase. These projections will be used as a basis for this Plan's analysis. (Continued expansion of Lemoore Naval Air Station, as a principal employer near the community, is assumed.)

Table 3-1 Retail: Population - Current and Projected

Table 3-1 Retail: Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040*(opt)*
	25,585	29,804	34,719	40,445	47,115	54,885
NOTES: Based on California Department of Finance estimates and an annual projected growth rate of 3.1%						

3.5 - Other Demographic Factors

16031(a). Describe other demographic factors affecting the supplier's water management planning.

There are no unique or pertinent community demographic characteristics which will influence future population growth or water usage.

SECTION 4 - SYSTEM WATER USE

A system's water use is determined by the amount of water, conveyed by a distribution system, that is used by a water agency and its customers for any purpose, including non-potable water uses, water losses, and other nonrevenue water. This section describes and quantifies the City's current water use and water use projections by individual land use sector through the year 2040.

4.1 - Water Types

4.1.1 - POTABLE AND RAW WATER

Potable water is water intended for human consumption, which is delivered through a public water system, and regulated by a State or local health agency. Raw water is untreated water that is used in its natural state. The City supplies potable water to residences, commercial, industrial businesses, and institutions and does not supply raw water. *Section 6 – System Supplies* provides a full description of the City's potable supply including the source, quality, and groundwater levels.

4.1.2 - RECYCLED WATER

Recycled water is municipal wastewater that has been treated to a specified quality to enable it to be used again. The City's Public Works Department operates a comprehensive wastewater collection, treatment, and disposal system that serves the residences and businesses within the City Limits. More information regarding the service area's wastewater treatment is included in *Section 6 – System Supplies*. The City currently does not have any plans to utilize recycled water to offset potable water demand.

4.2 - Water Use

16031(e)(1). Quantify past, current, and projected water use, identifying the uses.

The quantifications of past, current, and projected water use include the following land use sectors in five-year increments:

- Single-family residential – lot with a free-standing building containing one dwelling unit;
- Multi-family residential – multiple dwelling units contained within one building or several buildings within one complex;
- Commercial – water users that provide or distribute a product or service;
- Industrial – water users that are primarily the manufacturer or processor of materials as defined by North American Industry Classification System code sectors 31 to 33, or entities that are water users and primarily engage in research and development;
- Institutional and government – water users dedicated to public service, including education, courts, churches, hospitals, government facilities, and nonprofit research institutions; and

- Landscape – water connections that supply water solely for landscape irrigation.

The following sectors are not included in this UWMP because they are not applicable to the City:

- Conjunctive use – the City does not apply a management strategy where surface water is managed in conjunction with an underground aquifer;
- Groundwater recharge – the City does not manage or intentionally replenish natural groundwater supplies using manmade conveyance;
- Saline water intrusion barriers – the City does not inject water into a freshwater aquifer to prevent intrusion of salt water;
- Agricultural – the City does not supply water for commercial agricultural irrigation;
- Surface water augmentation – the City does not place recycled water in a surface water reservoir as a source of domestic drinking water supply; and
- Wetlands or wildlife habitat – the City does not use water for a managed environmental use to improve any environmental conditions.

Past, current, and projected losses within the system were also tabulated.

The following sectors are not included in this UWMP because they are exclusively associated with wholesale demand and, because the Lemoore City Water Department is exclusively a retailer (see Table 2-3), these sectors are not applicable:

- Sales to other agencies - the City does not make water sales to other agencies;
- Exchanges – the City does not exchange water with other agencies; and
- Transfers – the City does not transfer water to other agencies as defined by the CWC as a temporary or long-term change in the point of diversion, place of use, or purpose of use.

4.2.1 - CURRENT WATER USE

This section describes the different types of land use sectors and their 2015 individual water demand within the City. Pursuant to the UWMP Standardized Tables provided by DWR, the City has provided, in Table 4-1, the 2015 water demand volume by land use sector.

As shown in Table 4-1, the City experienced a water demand of 2,076 MG in the year 2015. The City categorizes water use as "Other" and "Industrial." In 2015, The City supplied 883 MG of water for Industrial uses. The "Other" category is all water use by urban land uses such as residential, commercial, and institutional/governmental. The following table provides generalized existing land use acreages by existing land use type.

Lemoore General Plan Generalized Existing Land Use Acreage

Land Use	Acres	Percentage (%)
Single-Family Residential	1,222	54.1
Multi-Family Residential	149	6.6
Commercial	151	6.7
Institutional/Governmental	281	12.5
Landscape	454	20.1
Total	**2,257**	**100**

Source: (City of Lemoore, 2012).

In 2015, the "Other" category accounted for 1,193 MG. Using the percentages shown in the above table, current water use by land use type was estimated in Table 4-1. All water distributed by the City is potable drinking water. The City produces all its water supply through pumping groundwater using City facilities. The City does not purchase water from any other source. There are no current plans to purchase wholesale water in the near future.

Table 4-1 Retail: Demands for Potable and Raw Water - Actual

Table 4-1 Retail: Demands for Potable and Raw Water - Actual			
Use Type *(Add additional rows as needed)*	2015 Actual		
Drop down list *May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool*	Additional Description *(as needed)*	Level of Treatment When Delivered *Drop down list*	Volume
Single Family		Drinking Water	645
Multi-Family		Drinking Water	79
Commercial		Drinking Water	80
Industrial		Drinking Water	883
Institutional/Governmental		Drinking Water	149
Landscape		Drinking Water	240
		TOTAL	2,076

4.2.2 - PROJECTED WATER USE

Pursuant to the UWMP Standardized Tables provided by DWR, the City has provided, in Table 4-2, the projected demands for water by land use and, in Table 4-3, the total projected water demands for the City. Total projected demands for the City do not include the use of any raw or recycled water and only include potable water.

These projections are based on average gallons per capita per day (GPCD) and population projections, and the average industrial consumption percentage over the last few years. Only years that had recorded consumption for all industries were used in determining

percentages. City industrial consumption varies year to year, ranging from 25% of total production up to 43%.

Table 4-2 Retail: Demand for Potable and Raw Water - Projected

Table 4-2 Retail: Demands for Potable and Raw Water - Projected						
Use Type *(Add additional rows as needed)*	Additional Description *(as needed)*	Projected Water Use *Report To the Extent that Records are Available*				
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool		2020	2025	2030	2035	2040-opt
Single Family		743	874	1,104	1,221	1,449
Multi-Family		93	109	123	148	186
Commercial		104	123	150	172	203
Industrial		930	1,098	1,296	1,532	1,812
Institutional/Governmental		174	211	267	301	340
Landscape		280	330	411	456	540
	TOTAL	2,324	2,745	3,351	3,830	4,530
Using an average industrial consumption percentage of 40% against projected totals based on population.						

Table 4-3 Retail: Total Water Demands

Table 4-3 Retail: Total Water Demands						
	2015	2020	2025	2030	2035	2040 *(opt)*
Potable and Raw Water *From Tables 4-1 and 4-2*	2,076	2,324	2,745	3,351	3,830	4,530
Recycled Water Demand* *From Table 6-4*	0	0	0	0	0	0
TOTAL WATER DEMAND	2,076	2,324	2,745	3,351	3,830	4,530
**Recycled water demand fields will be blank until Table 6-4 is complete.*						

4.3 - Distribution System Water Losses

10631(e)(3)(A). Report the distribution system water loss for the most recent 12-month period available.

Distribution system water losses (also known as "real losses") are the physical water losses from the water distribution system and the supplier's storage facilities, up to the point of customer consumption. These losses are reported in Tables 4-1 and 4-4.

It is currently unknown what the water losses are from the City's distribution system and therefore, the volume of water loss is reported as 0 MG.

Table 4-4 Retail: 12 Month Water Loss Audit Reporting

Table 4-4 Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss*
N/A	0
** Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.*	

4.4 - Estimating Future Water Savings

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.

CWC 10631(e)(4)(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.

Water savings from codes, standards, ordinances, or transportation and land use plans are also known as "passive savings." These various factors generally decrease the water use for new and future customers compared to historical customers.

As shown in Table 4-5, this 2015 UWMP does not display or account for future water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans. This does not preclude the City from adopting codes, standards, ordinances, or transportation and land use plans in the future that would result in water savings. If such adoptions occur, they would be reflected in future UWMPs for the City.

4.5 - 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.

As shown in Table 4-5, water use for lower income households has been included in projected demands (see Table 4-2). Using the State's Disadvantaged Communities Mapping

Tool, a large portion of the City is found within two "Disadvantaged Community Block Groups," one of which was considered a "Severely Disadvantaged Community" (Tract ID Number 06031000405) and the other a "Disadvantaged Community" (Tract ID 06031000403) with a median household incomes of $34,386 and $47,050, respectively. Therefore, the clear majority of the single-family and multi-family residential housing in the City is needed for lower income households as defined by Section 50079.5 of the Health and Safety Code and therefore, water use projections in this 2015 UWMP include such households.

Table 4-5 Retail Only: Inclusion in Water Use Projections

Table 4-5 Retail Only: Inclusion in Water Use Projections	
Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) *Drop down list (y/n)*	No
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc... utilized in demand projections are found.	
Are Lower Income Residential Demands Included In Projections? *Drop down list (y/n)*	Yes

SECTION 5 - BASELINES AND TARGETS

On November 10, 2009, California Governor Arnold Schwarzenegger signed into law SB X7-7. SB X7-7 mandates conservation targets for all urban retail water entities supplying potable municipal water to more than 3,000 customers or delivering more than 3,000 acre feet of potable water per year to end users. The conservation targets of 10% by 2015 and 20% by 2020 on a GPCD basis must be complied with to be eligible for State water grants and loans. The City is not subject to agricultural-related provisions of SB X7-7 since it does not supply agricultural water.

CWC 10608.20(e). An urban retail water supplier shall include in its urban water management plan due in 2010 pursuant to Part 2.6 (commencing with Section 10610) 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.

CWC 10608.40. Urban water retail suppliers shall report to the department on their progress in meeting their urban water use targets as part of their urban water management plans submitted pursuant to Section 10631. The data shall be reported using a standardized form developed pursuant to Section 10608.52.

This section includes analysis for the City's baselines and targets to meet SB X7-7 mandates for 2015 and 2020. This analysis reports on the progress of the City in meeting water use targets and is reported using a standardized form provided by DWR.

5.1 - SB X7-7 Verification Form

To demonstrate SB X7-7 compliance, retail water agencies are required to complete the SB X7-7 Verification Form and submit the standardized tables provided by DWR with their 2015 UWMPs. Please note that the tables in the SB X7-7 Verification Form will follow a different numbering format than the rest of this 2015 UWMP, and will begin with "SB X7-7," followed by the table number.

5.1.1 - BASELINE PERIOD

CWC 10608.12(b). "Base daily per capita water use" means any of the following:

(1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years

to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

(3) For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.

Urban retail water suppliers that used less than 10% recycled water in 2008 must utilize a 10-year baseline period for measuring its SB X7-7 compliance that ends no earlier than December 31, 2004 and no later than December 31, 2010. Water use GPCD must be calculated and reported for two baseline periods, the 10- or 15- year baseline (Baseline) and the 5-year baseline (Target Confirmation). The following table provides information about the baseline period ranges for this analysis.

SB X7-7 Table 1: Baseline Period Ranges

SB X7-7 Table-1: Baseline Period Ranges			
Baseline	**Parameter**	**Value**	**Units**
10- to 15-year baseline period	2008 total water deliveries	2,390	Million Gallons
	2008 total volume of delivered recycled water	-	Million Gallons
	2008 recycled water as a percent of total deliveries	0.00%	Percent
	Number of years in baseline period[1, 2]	15	Years
	Year beginning baseline period range	2001	
	Year ending baseline period range[3]	2015	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2006	
	Year ending baseline period range[4]	2010	

[1] If the 2008 recycled water percent is less than 10 percent, then the first baseline period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater, the first baseline period is a continuous 10- to 15-year period.

[2] The Water Code requires that the baseline period is between 10 and 15 years. However, DWR recognizes that some water suppliers may not have the minimum 10 years of baseline data.

[3] The ending year must be between December 31, 2004 and December 31, 2010.

[4] The ending year must be between December 31, 2007 and December 31, 2010.

5.1.2 - SERVICE AREA POPULATION

CWC 10608.20(f). When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.

Several population estimation methodologies are available to retail water agencies. As shown in SB X7-7 Table 2 below, these can include use of DOF data, persons-per-connection based on census year data, the DWR population tool, or a different methodology proposed by the water agency. As shown in SB X7-7 Table 2, this 2015 UWMP uses DOF population estimates.

SB X7-7 Table 2: Method for Population Estimates

SB X7-7 Table 2: Method for Population Estimates	
Method Used to Determine Population (may check more than one)	
☑	**1. Department of Finance** (DOF) DOF Table E-8 (1990 - 2000) and (2000-2010) and DOF Table E-5 (2011 - 2015) when available
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review

Table SB X7-7 Table 3 provides the population estimates for the baseline periods and 2015 calendar year. Year 1 for the 10- to 15-year baseline population is 2001 and Year 1 for the 5-year baseline population is 2011.

SB X7-7 Table 3: Service Area Population

SB X7-7 Table 3: Service Area Population		
Year		Population
10 to 15 Year Baseline Population		
Year 1	2001	20,021
Year 2	2002	20,487
Year 3	2003	20,714
Year 4	2004	21,340
Year 5	2005	21,893
Year 6	2006	22,607
Year 7	2007	23,331
Year 8	2008	23,520
Year 9	2009	23,859
Year 10	2010	24,531
Year 11	2011	24,493
Year 12	2012	24,711
Year 13	2013	25,163
Year 14	2014	25,418
Year 15	2015	25,585
5 Year Baseline Population		
Year 1	2006	22,607
Year 2	2007	23,331
Year 3	2008	23,520
Year 4	2009	23,859
Year 5	2010	24,531
2015 Compliance Year Population		
2015		25,585

5.1.3 - ANNUAL GROSS WATER USE

CWC 10608.12(g). "Gross water use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:

(1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.

(2) The net volume of water that the urban retail water supplier places into long-term storage.

(3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.

(4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.

The City's sole source of water into its distribution system is groundwater. SB X7-7 Table 4 provides the 10- to 15-year baseline, 5-year baseline, and 2015 compliance year water use.

SB X7-7 Table 4: Annual Gross Water Use*

SB X7-7 Table 4: Annual Gross Water Use *								
Baseline Year *Fm SB X7-7 Table 3*		Volume Into Distribution System *This column will remain blank until SB X7-7 Table 4-A is completed.*	Deductions					Annual Gross Water Use
			Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water *This column will remain blank until SB X7-7 Table 4-B is completed.*	Water Delivered for Agricultural Use	Process Water *This column will remain blank until SB X7-7 Table 4-D is completed.*	
10 to 15 Year Baseline - Gross Water Use								
Year 1	2001	1,653			-		584	1,069
Year 2	2002	1,918			-		584	1,334
Year 3	2003	2,295			-		572	1,723
Year 4	2004	2,186			-		566	1,620
Year 5	2005	2,250			-		682	1,568
Year 6	2006	2,301			-		789	1,512
Year 7	2007	2,411			-		866	1,545
Year 8	2008	2,442			-		729	1,713
Year 9	2009	2,390			-		727	1,663
Year 10	2010	2,296			-		809	1,487
Year 11	2011	2,289			-		484	1,805
Year 12	2012	2,471			-		836	1,635
Year 13	2013	2,579			-		822	1,757
Year 14	2014	2,422			-		965	1,457
Year 15	2015	2,076			-		883	1,193
10 - 15 year baseline average gross water use								**1,539**
5 Year Baseline - Gross Water Use								
Year 1	2006	2,301			-		789	1,512
Year 2	2007	2,411			-		866	1,545
Year 3	2008	2,442			-		729	1,713
Year 4	2009	2,390			-		727	1,663
Year 5	2010	2,296			-		809	1,487
5 year baseline average gross water use								**1,584**
2015 Compliance Year - Gross Water Use								
2015		2,076	-		-		883	**1,193**

* NOTE that the units of measure must remain consistent throughout the UWMP, as reported in Table 2-3

The City's uses do not include exported water, indirect recycled water, or water delivered for agricultural use. Therefore, the annual gross water use does not include deductions for these categories. However, the City does supply process water to several industrial customers, and these exclusions are deducted from the annual gross water use amounts in SB X7-7 Table 4.

5.1.4 - Average Daily Per Capita Water Use

In SB X7-7 Table 5, the average daily per capita water use is calculated by dividing the volume of "Annual Gross Water Use" by the service area population.

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Annual Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	2001	20,021	1,069	146
Year 2	2002	20,487	1,334	178
Year 3	2003	20,714	1,723	228
Year 4	2004	21,340	1,620	208
Year 5	2005	21,893	1,568	196
Year 6	2006	22,607	1,512	183
Year 7	2007	23,331	1,545	181
Year 8	2008	23,520	1,713	199
Year 9	2009	23,859	1,663	191
Year 10	2010	24,531	1,487	166
Year 11	2011	24,493	1,805	202
Year 12	2012	24,711	1,635	181
Year 13	2013	25,163	1,757	191
Year 14	2014	25,418	1,457	157
Year 15	2015	25,585	1,193	128
10-15 Year Average Baseline GPCD				**182**
5 Year Baseline GPCD				
Baseline Year *Fm SB X7-7 Table 3*		Service Area Population *Fm SB X7-7 Table 3*	Gross Water Use *Fm SB X7-7 Table 4*	Daily Per Capita Water Use
Year 1	2006	22,607	1,512	183
Year 2	2007	23,331	1,545	181
Year 3	2008	23,520	1,713	199
Year 4	2009	23,859	1,663	191
Year 5	2010	24,531	1,487	166
5 Year Average Baseline GPCD				**184**
2015 Compliance Year GPCD				
2015		25,585	1,193	**128**

The results of SB X7-7 Table 5 are summarized in SB X7-7 Table 6 and shows the following:

- The 10- to 15-year baseline period identified a water usage for the City of 182 GPCD;
- The 5-year baseline identified a water usage for the City of 184 GPCD; and
- For calendar year 2015, the City's water usage was 128 GPCD.

SB X7-7 Table 6: Gallons Per Capita Per Day, Summary From Table SB X7-7 Table 5

SB X7-7 Table 6: Gallons per Capita per Day *Summary From Table SB X7-7 Table 5*	
10-15 Year Baseline GPCD	182
5 Year Baseline GPCD	184
2015 Compliance Year GPCD	128

CWC 10608.20(b). An urban retail water supplier shall adopt one of the following methods for determining its urban water use target pursuant to subdivision (a):

(1) Eighty percent of the urban retail water supplier's baseline per capita daily water use.

(2) The per capita daily water use that is estimated using the sum of the following performance standards:

> *(A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard. Upon completion of the department's 2016 report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the Legislature by statute.*
>
> *(B) For landscape irrigated through dedicated or residential meters or connections, water efficiency equivalent to the standards of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7 (commencing with Section 490) of Division 2 of Title 23 of the California Code of Regulations, as in effect the later of the year of the landscape's installation or 1992. An urban retail water supplier using the approach specified in this subparagraph shall use satellite imagery, site visits, or other best available technology to develop an accurate estimate of landscaped areas.*
>
> *(C) For commercial, industrial, and institutional uses, a 10-percent reduction in water use from the baseline commercial, industrial, and institutional water use by 2020.*

(3) Ninety-five percent of the applicable state hydrologic region target, as set forth in the state's draft 20x2020 Water Conservation Plan (dated April 30, 2009). If the service area of an urban water supplier includes more than one hydrologic region, the supplier shall apportion its service area to each region based on population or area.

(4) A method that shall be identified and developed by the department, through a public process, and reported to the Legislature no later than December 31, 2010.

Of the four methods, the City has chosen the third method (95% of hydrologic regional target) (see SB X7-7 Table 7) and calculated the baseline and target GPCD consistent with CWC Section 10608.20(b)(3) and as set forth in the State's draft 20X2020 Water Conservation Plan.

SB X7-7 Table 7: 2020 Target Method

SB X7-7 Table 7: 2020 Target Method *Select Only One*		
Target Method		Supporting Documentation
☐	Method 1	SB X7-7 Table 7A
☐	Method 2	SB X7-7 Tables 7B, 7C, and 7D *Contact DWR for these tables*
☑	Method 3	SB X7-7 Table 7-E
☐	Method 4	Method 4 Calculator

5.1.5 - TARGET GPCD REDUCTIONS

The City has calculated the 2020 target (95% of hydrologic regional target) at 179 GPCD (see SB X7-7 Table 7-E).

SB X7-7 Table 7-E: Target Method 3

SB X7-7 Table 7-E: Target Method 3				
Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
☐		North Coast	137	130
☐		North Lahontan	173	164
☐		Sacramento River	176	167
☐		San Francisco Bay	131	124
☐		San Joaquin River	174	165
☐		Central Coast	123	117
☑	100%	Tulare Lake	188	179
☐		South Lahontan	170	162
☐		South Coast	149	142
☐		Colorado River	211	200
Target *(If more than one region is selected, this value is calculated.)*				**179**

CWC 10608.22. Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph (3) of subdivision (b) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day.

The 5-year baseline period identified a maximum year 2020 compliance target of 179 GPCD to meet the intent of CWC Section 10608.22. This is the Maximum 2020 Target as shown in SB X7-7 Table 7-F.

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target

SB X7-7 Table 7-F: Confirm Minimum Reduction for 2020 Target			
5 Year Baseline GPCD *From SB X7-7 Table 5*	Maximum 2020 Target[1]	Calculated 2020 Target[2]	**Confirmed 2020 Target**
184	175	N/A	**175**

[1] Maximum 2020 Target is 95% of the 5 Year Baseline GPCD except for suppliers at or below 100 GPCD.

[2] 2020 Target is calculated based on the selected Target Method, see SB X7-7 Table 7 and corresponding tables for agency's calculated target.

CWC Section 10608.16 also mandates that the City achieve a 10% reduction from baseline usage by 2015. The City has calculated the 2015 target (90% of baseline per capita water usage) at 182 GPCD (see SB X7-7 Table 8).

SB X7-7 Table 8: 2015 Interim Target GPCD

SB X7-7 Table 8: 2015 Interim Target GPCD		
Confirmed 2020 Target *Fm SB X7-7 Table 7-F*	10-15 year Baseline GPCD *Fm SB X7-7 Table 5*	**2015 Interim Target GPCD**
175	182	**179**

5.2 - Baselines and Targets Summary

CWC Section10608.16 mandates that the City achieve a 20% reduction from baseline usage by 2020 and an incremental reduction of 10% by 2015. The City has calculated the 2015 target at 179 GPCD, and the 2020 target at 175 GPCD. Table 5-1 summarizes the baseline

periods used by the City and the 2015 and 2020 usage targets that were calculated in Section 5.1.

Table 5-1: Baselines and Target Summary

Table 5-1: Baselines and Targets Summary *Retail Agency or Regional Alliance Only*					
Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	*2001*	*2015*	*182*	*179*	*175*
5 Year	*2006*	*2010*	*184*		
*All values are in Gallons per Capita per Day (GPCD)					

The actual capita daily water usage for the fiscal year ending in 2015 is 128 GPCD, which is well below the 2020 target of 175 GPCD and 2015 interim target of 179 GPCD as shown in Table 5-2.

CWC 10608.24(d)(2). If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40.

The City did not utilize the one or more factors (or "Optional Adjustments") shown in Table 5-2.

Table 5-2: 2015 Compliance

Table 5-2: 2015 Compliance *Retail Agency or Regional Alliance Only*								
Actual 2015 GPCD*	2015 Interim Target GPCD*	Optional Adjustments to 2015 GPCD Enter "0" if no adjustment is made *From Methodology 8*					2015 GPCD* *(Adjusted if applicable)*	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events*	Economic Adjustment*	Weather Normalization*	TOTAL Adjustments*	Adjusted 2015 GPCD*		
128	179	0	0	0	0	128	128	Yes
*All values are in Gallons per Capita per Day (GPCD)								

CWC 10608.24(a). Each urban retail water supplier shall meet its interim urban water use target by December 31, 2015.

As shown in Table 5-2, the City met its 2015 interim targeted reduction in 2015.

SECTION 6 - SYSTEM SUPPLIES

CWC 10631(b). Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a).

This section describes and quantifies sources of water available to the City. As discussed in *Section 4 – System Water Use*, the City of Lemoore produces all its water supply through pumping groundwater using City facilities. The City does not purchase water from any other source. There are no current plans to purchase wholesale water in the near future. Thus, the City does not:

- Purchase or import water;
- Use surface water;
- Reuse stormwater, wastewater, or recycled water;
- Desalinate water; or
- Enter into water exchanges or transfers.

Therefore, the following discussion focuses on groundwater as the City's only existing water supply. This section also discusses future water projects and provides a summary of existing and planned sources of water.

6.1 - Purchased or Imported Water

The City does not purchase or import water from other water suppliers or other entities. There are no plans for the City to purchase or import water as part of its water supply.

6.2 - Groundwater

CWC 10631(b). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For basins that a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

6.2.1 - BASIN DESCRIPTION

The groundwater subbasin underlying the City of Lemoore, and thus the service area, is the Tulare Lake Subbasin (Groundwater Basin No. 5-22.12). The Tulare Lake Subbasin is one of eight subbasins within the Tulare Lake Hydrologic Region that transport, filter, and store water (see Figure 6-1). The major rivers in the Subbasin that provide most of the surface water runoff for the Region is the Kings River.

Of the 5.1 million acres of the San Joaquin Valley Basin, the Tulare Lake Subbasin has a surface area of 524 thousand acres (818 square miles). The Tulare Lake Subbasin is bounded on the south by the Kings-Kern county line, on the west by the California Aqueduct, the eastern boundary of Westside Groundwater Subbasin, and Tertiary marine sediments of the Kettleman Hills. It is bounded on the north by the southern boundary of the Kings Groundwater Subbasin, and on the east by the westerly boundaries of the Kaweah and Tule Groundwater Subbasins. The southern half of the Tulare Lake Subbasin consists of lands in the former Tulare Lake bed in Kings County. (Department of Water Resources, 2006).

Basin Levels and Storage

Per Bulletin 118, the estimated water storage capacity of the Tulare Lake Subbasin is estimated to be 17.1 million acre-feet (AF) to a depth of 300 feet and 82.5 million AF to the base of fresh groundwater. The average subbasin water level was reported to decline nearly 17 feet from 1970 to 2000. The period from 1970 through 1978 showed moderate declines with many fluctuations, totaling about 12 feet. The 10-year period from 1978 to 1988 saw more fluctuations and a general increase of about 24 feet, bringing water levels up to 12 feet above the 1970 water levels. 1988 through 1993 showed steep declines, bottoming out in 1993 at 23 feet below 1970 water levels. Water levels rose from 1993 to 1999 to about 10 feet below the 1970 level. From 1999 to 2000, water levels dropped another 7 feet, bringing the water levels to about 17 feet below 1970 water levels. Fluctuations in water levels have been most exaggerated in the lakebed area of the Subbasin. This area has the steepest decreases in water levels as well as some of the strongest increases in water levels. (Department of Water Resources, 2006).

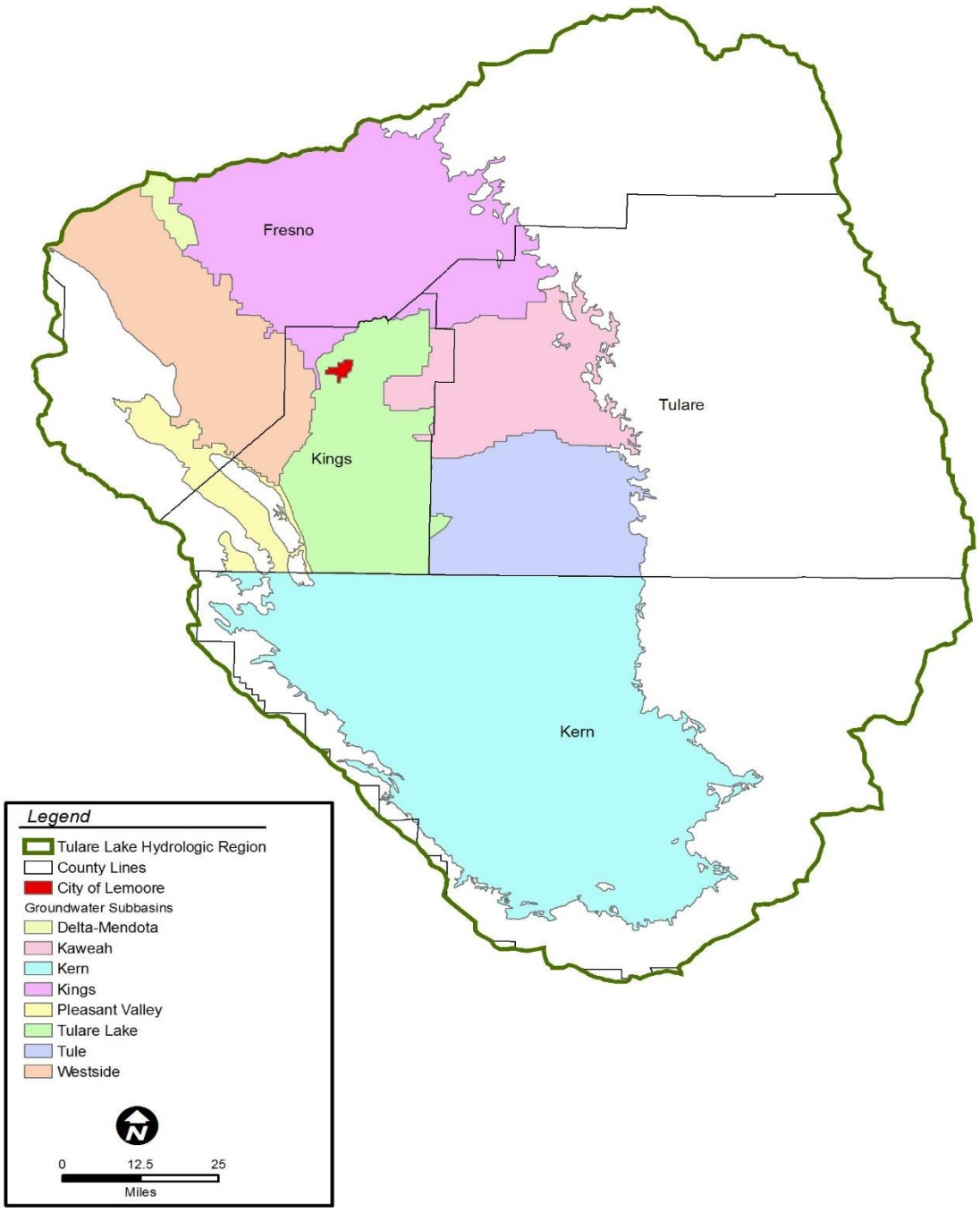

Figure 6-1
Tulare Lake Hydrologic Region

Basin Water Quality

The water in this groundwater subbasin is generally a calcium bicarbonate type in the northern portion. This trends towards sodium bicarbonate as it approaches the Tulare Lakebed. Total dissolved solids (TDS) values typically range from 200 to 600 milligrams per liter (mg/L). TDS values of shallow groundwater in drainage problem areas are as high as 40,000 mg/L. The Department of Health Services, which monitors Title 22 water quality standards, reports TDS values in 36 wells ranging from 150 to 820 mg/L, with an average value of 342 mg/L. The City of Hanford reports electric conductivity values in 14 wells ranging from 210 to 820 micromhos per centimeter (µmhos/cm), with an average value of 554 µmhos/cm. (Department of Water Resources, 2006).

There are areas of shallow, saline groundwater in the southern portion of the Subbasin and localized areas of high arsenic. The City of Hanford reports odors caused by the presence of hydrogen sulfide. (Department of Water Resources, 2006).

6.2.2 - GROUNDWATER MANAGEMENT

An adjudicated groundwater basin refers to when, because of a lawsuit, the court decides who extracts from the basin, how much they extract, and who will manage the basin. The San Joaquin River Groundwater Basin is not adjudicated, as defined by the *California Water Plan Update – Bulletin 160-98*, Figure 3-28 (p. 3-54) and Table 3-16 (p. 3-55) (California Department of Water Resources, 1998). Therefore, there are no limitations placed on groundwater pumpage volumes.

The City has not adopted a groundwater management plan. The *Lower Kings Basin Groundwater Management Plan Update* (GWP Update) has been adopted by the Kings River Conservation District, which includes the area of the groundwater subbasin in which the City underlies (Kings River Conservation District, 2005). The GWP Update includes goals and objectives for groundwater management and financing, governance options, and management and implementation plans.

The overall goal of the GMP Update is:

> To document the local approach to stopping overdraft, sustaining the local economy, and ensuring a sustainable groundwater system through development of specific projects and facilities to capture unallocated floodwater for groundwater storage and conjunctive use, whenever and wherever such water is available consistent with existing agreements, rights, and entitlements.

The objectives were crafted to reflect the District's values and priorities for meeting the GMP Update goal.

- Identify and build near-term groundwater recharge projects within each Water Management Area to capture flood flows; begin to stabilize the basin; and demonstrate project feasibility, benefits, and cost effectiveness;

- Establish rational and attainable Best Management Objectives, both regionally and for specific Water Management Areas, to measure and track progress;
- Formulate long-term regional strategies to take advantage of groundwater storage space in the Lower Kings Basin;
- Maintain local control of the groundwater basin by developing agreements and institutional arrangements that promote the responsible management of groundwater resources by overlying cities, water districts, agencies, companies, and landowners;
- Continue to track progress, and coordinate, GWP Update implementation;
- Research and define financing strategies and program oversight to implement the GWP Update projects and programs;
- Implement monitoring programs that increase the understanding of Lower Kings Basin operations, track progress toward meeting goals, and evaluate and forecast conditions; and
- Prevent degradation of groundwater quality.

The City is under no obligation to effectuate any of the goals, objectives, or plans outlined in the GWP Update.

The City will be involved in the formation and management of a locally-controlled Groundwater Sustainability Agency (GSA) under the Sustainable Groundwater Management Act (SGMA). However, as stated in the *2015 UWMPs Guidebook for Urban Water Suppliers* (California Department of Water Resources, 2016), "new requirements for groundwater management under SGMA will not apply to the 2015 UWMPs." Therefore, these requirements will not be further discussed in this 2015 UWMP.

6.2.3 - OVERDRAFT CONDITIONS

As required by CWC 10631(b)(2), for basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted, an UWMP must include a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

The Tulare Lake Subbasin and greater San Joaquin Valley Groundwater Basin (Groundwater Basin No. 5-22) have been in a state of overdraft for many years. The estimated average overdraft in the San Joaquin Valley Basin was estimated to be 239,000 AF in 1995 (California Department of Water Resources, 1998).

The City is located within an area defined by the Kings River Conservation District as Water Management Area (WMA) C in the GWP Update (see Figure 6-2). Within the WMA C, 20 representative wells show that average groundwater levels have fallen from above 190 feet above mean sea level (msl) to about 120 feet above msl between 1950 and 2005 (Kings River Conservation District, 2005). The following table provides cumulative and average annual overdraft within the WMA C area.

Cumulative and Average Annual Overdraft in the WMA C Area (1950 – 2005)

Area (acres)	Total Overdraft 1950 to 2005 (AF)	Annual Overdraft 1950 to 2005 (AF/yr)	Total Overdraft 1965 to 2005 (AF)	Annual Overdraft 1965 to 2005 (AF/yr)
57,328	501,000	9,000	243,000	6,000

Source: (Kings River Conservation District, 2005).

6.2.4 - GROUNDWATER PUMPING

The City currently utilizes local groundwater as its sole source of municipal water supply. The City's municipal water system extracts its water supply from underground aquifers via six active groundwater wells within the City limits (see Figure 3-3) and two in a wellfield approximately 5 miles north of the City. The City maintains four ground-level storage reservoirs within the distribution system, with a total capacity of 4.4 MG. In addition to the main domestic water supply, the City operates a separate system to supply industrial water to the Olam tomato processing plant. The two water systems can be connected in case of an emergency such as a major fire or natural disaster. A detailed discussion of water quality is contained in *Section 7 – Water Supply Reliability Assessment*.

The amount of groundwater pumped by the City over the last 5 years is shown in Table 6-1. The amount of groundwater projected to be pumped in 5-year increments over the next 20 years is shown in Table 4-2 in *Section 4 – System Water Use*. The projected retail demands for potable and raw water shown in the table are supplied solely by groundwater pumping.

Table 6-1 Retail: Groundwater Volume Pumped

Table 6-1 Retail: Groundwater Volume Pumped						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type *Drop Down List* *May use each category multiple times*	Location or Basin Name	2011	2012	2013	2014	2015
Add additional rows as needed						
Alluvial Basin	Subbasin 5-22.14 of the Tulare Lake Hydraulic Region	2,289	2,471	2,579	2,422	2,076
	TOTAL	2,289	2,471	2,579	2,422	2,076

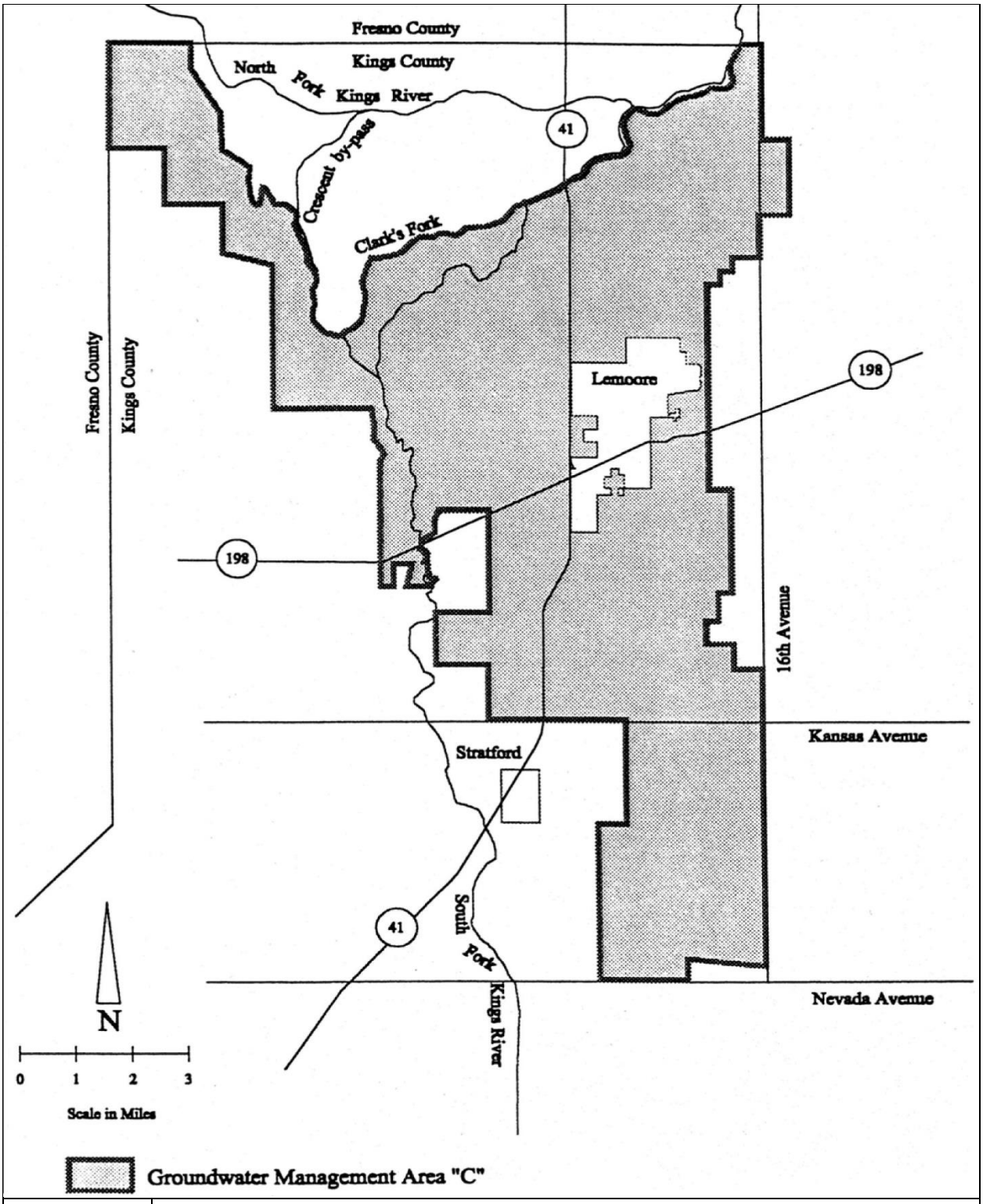

Figure 6-2
Water Management Area C

6.3 - Surface Water

The City does not draw water from streams, lakes or reservoirs for use in its potable water distribution system. There are no plans for the City to use surface water as part of its water supply.

6.4 - Stormwater

The City does not intentionally divert stormwater for beneficial use within its potable water distribution system. There are no plans for the City to use stormwater to offset water supply.

6.5 - Wastewater or Recycled Water

CWC 10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

(f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

The City of Lemoore Public Works Department operates a comprehensive wastewater collection, treatment, and disposal system that serves the City. The City's wastewater collection system is comprised of plastic pipelines and 17 pump stations. The City's wastewater treatment plant (WWTP) and Leprino Food's wastewater facilities are in the southwestern portion of the City. The City's WWTP is a secondary treatment facility with disinfection system that includes a headworks, aerated lagoons, and effluent chlorination. The Leprino Food's wastewater facilities include secondary-treatment level reactors and effluent ponding facilities; the effluent is routed through the City's lagoons and chlorinated prior to discharge with the rest of the City's treated effluent (City of Lemoore, 2007).

Wastewater from the City's WWTP is transported through a 6-mile outfall to a discharge point in the Westlake Canal, which transports water from the Kings River to Westlake Farms for row crop irrigation (City of Lemoore, 2007). Discharge into the canal is allowed by the Central Valley Regional Quality Control Board under Waste Discharge Requirements Order No. 96-050. There are currently no actions being taken to encourage the use of recycled water in the City.

The City is not using and does not plan to use wastewater or recycled water within the planning horizon of the 2015 UWMP and therefore, per the Guidebook, only Tables 6-2, 6-3, and 6-6 need to be completed.

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015						
☐	There is no wastewater collection system. The supplier will not complete the table below.					
	Percentage of 2015 service area covered by wastewater collection system *(optional)*					
	Percentage of 2015 service area population covered by wastewater collection system *(optional)*					
Wastewater Collection			**Recipient of Collected Wastewater**			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? *Drop Down List*	Volume of Wastewater Collected from UWMP Service Area 2015	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? *Drop Down List*	Is WWTP Operation Contracted to a Third Party? *(optional)* *Drop Down List*
Add additional rows as needed						
City of Lemoore Public Workd Department	Metered	689	City of Lemoore	Lemoore WWTP	Yes	No
Total Wastewater Collected from Service Area in 2015:		689				

Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2015

Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2015										
☐	No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.									
							2015 volumes			
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number *(optional)*	Method of Disposal *Drop down list*	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level *Drop down list*	Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
Add additional rows as needed										
Lemoore WWTP	Westlake Canal	Irrigation canal	WDR No. 96-050	River or Creek Outfall	No	Secondary, Disinfected - 2.2	689	1,414	0	0
						Total	689	1,414	0	0
NOTES: Effluent totals include 537 MG from Lemoore WWTP and 877 MG from Leprino Foods wastewater facilities.										

Table 6-6 Retail: Methods to Expand Future Recycled Water Use

Table 6-6 Retail: Methods to Expand Future Recycled Water Use	
☑	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.

6.6 - Desalinated Water Opportunities

CWC 16031(h). Describe desalinated water project opportunities for long-term supply.

The City has no feasible opportunity for the development of a water desalination system as a long-term supply. With no nearby or convenient sources of saline water to desalinate, the cost of providing the water and then treating would outweigh the benefits.

6.7 - Exchange and Transfer Opportunities

CWC 10631(d). Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

The City does not have any planned or potential future water exchanges or transfers.

6.8 - Future Water Projects

CWC 10631(g). Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use, as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

As shown in Table 6-7 below, the City is not expecting future water supply projects or programs. in the future.

Table 6-7 Retail: Expected Future Water Supply Projects or Programs

Table 6-7 Retail: Expected Future Water Supply Projects or Programs	
☑	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below.

6.9 - Summary of Existing and Planned Sources of Water

As discussed above, the sole source of water for the City is through groundwater pumping. Continued groundwater pumping is also the only planned source of water in the future. Since

the Tulare Lake Subbasin is a non-adjudicated basin, there are currently no restrictions on groundwater pumping. The passage of SGMA may change this reality in the future, but the requirements of SGMA do not apply to 2015 UWMPs.

Per Bulletin 118, there are 17.1 million AF to a depth of 300 feet and 82.5 million AF to the base of fresh groundwater within the Tulare Lake Subbasin. However, the City's groundwater wells are located within the boundary of the City and much of the groundwater located in the Subbasin is not accessible to the City. Using the acreage of the existing City and a conservative estimate of 100 vertical feet of groundwater as the volume of groundwater accessible to City wells at various depths, it was calculated that the existing groundwater water supply available to the City is 178,228 MG (see Table 6-8). Please note that safe yield has not been calculated, but it is assumed that a quantification of safe yield will become mandatory during the next UWMP cycle in response to SGMA compliance.

Table 6-8 Retail: Water Supplies – Actual

Table 6-8 Retail: Water Supplies — Actual				
Water Supply		2015		
Drop down list *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool*	Additional Detail on Water Supply	Actual Volume	Water Quality *Drop Down List*	Total Right or Safe Yield *(optional)*
Add additional rows as needed				
Groundwater		178,228	Drinking Water	
	Total	178,228		0

For the same reasons discussed above, it is assumed that the projected groundwater water supply available to the City is also 178,228 MG for each of the projected years (see Table 6-9). Actual projected groundwater water supply may change during the next UWMP cycle in response to the results of Groundwater Sustainability Plans developed in the Tulare Lake Subbasin to comply with SGMA.

Table 6-9 Retail: Water Supplies – Projected

Table 6-9 Retail: Water Supplies — Projected											
Water Supply		Projected Water Supply *Report To the Extent Practicable*									
Drop down list *May use each category multiple times. These are the only water supply categories that will be recognized by the WUEdata online submittal tool*	Additional Detail on Water Supply	**2020**		**2025**		**2030**		**2035**		**2040** *(opt)*	
		Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*	Reasonably Available Volume	Total Right or Safe Yield *(optional)*
Add additional rows as needed											
Groundwater	Tulare Lake Subbasin (5-22.12)	178,228		178,228		178,228		178,228		178,228	
	Total	178,228	0	178,228	0	178,228	0	178,228	0	178,228	0

SECTION 7 - WATER SUPPLY RELIABILITY ASSESSMENT

CWC 10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

All UWMPs must include an assessment of the reliability of their water supplies. The water supply and demand assessment must compare the total projected water use with the projected water supply, in 5-year increments, through the next 20 years. This section presents a comparison of the water demands and supplies within the City's service area, and assesses supply versus demand during normal years, single dry water years, and multiple dry water years. This section describes the long-term reliability of Lemoore's water supply while *Section 8 – Water Shortage Contingency Planning* provides short-term reliability planning that may require immediate action, such as a drought or a catastrophic supply interruption.

7.1 - Constraints on Water Sources

CWC 10631(c)(2). For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

The City obtains 100% of its potable water supply from groundwater pumping. Regardless of climatic conditions, there is approximately 82.5 million AF of water to the base of fresh groundwater within the Tulare Lake Subbasin. Using the acreage of the existing City and a conservative estimate of 100 vertical feet of groundwater as the volume of groundwater accessible to City wells at various depths, it was calculated that the existing groundwater water supply available to the City is 178,228 MG (see Table 6-8). This water supply is available to the City regardless of the climatic conditions related to average, single-dry, and multiple-dry years.

However, because the City relies entirely on groundwater wells, the drawdown will be more severe in drought years and high mean temperature years. Since the entire central San Joaquin Valley has been experiencing severe drought conditions over the last four years, the groundwater drawdown may eventually reach a critical point particularly in depth of wells. Groundwater would still be available to the City over the UWMP planning horizon, but the need to deepen wells may become necessary in the future in the event of prolonged drought. The City has watering regulations in place to ensure water conservation and provide education to all customers. These regulations can be found on the City's website. Additionally, future SGMA regulations will mandate safe yields within the Tulare Lake Subbasin, which will further alleviate the possibility of requiring the deepening of wells in the future. Compliance with SGMA may require the City to come up with alternative sources of water in the future based on the result of the Groundwater Sustainability Plan to be

developed, but now the City can pump as much water as is required to supply the needs of the City.

From a water quality perspective, the City's water system includes six active groundwater wells within the City limits (see Figure 3-3) and two in a wellfield approximately 5 miles north of the City. The City produces an annual water quality report required by the California State Department of Health Services. The report summarizes the water quality sampling results for 2015 for all water customers. The data collected, though representative, is more than one-year-old with data that ranged from 2013 to 2015.

Based on the *2015 City of Lemoore Water Quality Consumer Confidence Report* (City of Lemoore, 2016), the City's water system recently failed a drinking water monitoring requirement. Prior to October 2013, Stage 1 compliance with the total trihalomethane (TTHM) maximum contaminant level (MCL) was based on a running annual average of four sample locations. The MCL for TTHMs is 0.080 mg/L. Testing results prior to Oct. 1, 2013 show that the system exceeded the TTHM MCL. As of October 2013, the Stage 2 Rule went into effect, in which compliance is based on a locational running annual average (LRAA), calculated individually for each sample site. The City is continuing to collect new data to determine compliance with the MCL using the LRAA. The City is currently running pilot testing at well site 7 to determine potential treatment processes that will lower the TTHM level of the water. During the transition period, the City remains in violation of the Stage 1 MCL until a Stage 2 MCL compliance determination can be made.

7.2 - Reliability by Type of Year

CWC 10620(f). An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

CWC 10631(c)(1). Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(A) An average water year.

(B) A single-dry water year.

(C) Multiple-dry water years.

There are two aspects of supply reliability that can be considered. The first relates to immediate service needs and is primarily a function of the availability and adequacy of the supply facilities. The second aspect is climate related, and involves the availability of water during mild or severe drought periods. This section compares water supplies and demands during three water scenarios: average or normal water year, single-dry water year, and multiple-dry water years. These scenarios are defined as follows:

- Average year – a year, or an averaged range of years, that most closely represents the median runoff levels and patterns. The supply quantities for this condition are derived from historical average yields. Within this document the terms "normal" and "average" are used interchangeably;
- Single-dry year – the year with the lowest water supply availability. Generally considered to be the lowest annual runoff for a watershed since the water-year beginning in 1903; and
- Multiple-dry years – the lowest average water supply availability to the agency for a consecutive multiple year period (three years or more). Generally considered to be the lowest average runoff for a consecutive multiple year period (three years or more) for a watershed since 1903.

Drought years for the hydrologic region can be determined by referencing DWR's Chronological Reconstructed Sacramento and San Joaquin Valley Water Year Hydrologic Classification Indices 1995 to 2015 (WSIHIST) (California Department of Water Resources, 2016). The City is currently experiencing a multiple dry year cycle, which started in 2012 and has continued through 2015. Within this multiple dry year period, the City still could meet all its water demands without the need to implement water management tools. Also, the impact of an extreme single dry year such as 2015 did not impact the ability of the City to meet all its water demands. Supply reliability for average water years such as 2010 and multiple and single dry years is shown in Table 7-1. The reliability of water service, which is subject to proper operation and maintenance of the City's water distribution system and its ability to deliver the water, is discussed in *Section 6 – System Supplies*.

Table 7-1 Retail: Basis of Water Year Data

Table 7-1 Retail: Basis of Water Year Data			
Year Type	Base Year *If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 1999-2000, use 2000*	Available Supplies if Year Type Repeats	
		☐ Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____	
		☑ Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available	% of Average Supply
Average Year	2010	N/A	100%
Single-Dry Year	2015	N/A	100%
Multiple-Dry Years 1st Year	2012	N/A	100%
Multiple-Dry Years 2nd Year	2013	N/A	100%
Multiple-Dry Years 3rd Year	2014	N/A	100%
Agency may use multiple versions of Table 7-1 if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If an agency uses multiple versions of Table 7-1, in the "Note" section of each table, state that multiple versions of Table 7-1 are being used and identify the particular water source that is being reported in each table.			

Therefore, the City has a reliable water supply and is not vulnerable to seasonal and climatic shortages. There is no current need for plans to supplement or replace the existing groundwater source available to the City with alternative sources or water demand management measures.

7.3 - Supply and Demand Assessment

10635(a). Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

7.3.1 - Average (or Normal) Year

Normal year supply and demand projections and differences are presented in Table 7-2.

Table 7-2 Retail: Normal Year Supply and Demand Comparison

Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 *(Opt)*
Supply totals *(autofill from Table 6-9)*	178,228	178,228	178,228	178,228	178,228
Demand totals *(autofill from Table 4-3)*	2,324	2,745	3,351	3,830	4,530
Difference	175,904	175,483	174,877	174,398	173,698

As shown in Table 7-2, future water supplies are anticipated to not only meet, but far exceed demands in normal year conditions through year 2040.

7.3.2 - SINGLE DRY YEAR

Projected supplies were compared to the increased demands for a single-dry year and are presented in Table 7-3.

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	178,228	178,228	178,228	178,228	178,228
Demand totals	2,324	2,745	3,351	3,830	4,530
Difference	175,904	175,483	174,877	174,398	173,698

As shown in Table 7-3, anticipated groundwater supplies are sufficient to meet all demands through the year 2040 even under single-year drought conditions.

7.3.3 - MULTIPLE DRY YEARS

Projected supplies were compared to the increased demands for various multiple dry-year scenarios and are presented in Table 7-4.

Table 7-4 Retail: Multiple Dry Yeas Supply and Demand Comparison

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	178,228	178,228	178,228	178,228	178,228
	Demand totals	2,324	2,745	3,351	3,830	4,530
	Difference	175,904	175,483	174,877	174,398	173,698
Second year	Supply totals	178,228	178,228	178,228	178,228	178,228
	Demand totals	2,324	2,745	3,351	3,830	4,530
	Difference	175,904	175,483	174,877	174,398	173,698
Third year	Supply totals	178,228	178,228	178,228	178,228	178,228
	Demand totals	2,324	2,745	3,351	3,830	4,530
	Difference	175,904	175,483	174,877	174,398	173,698
Fourth year *(optional)*	Supply totals	178,228	178,228	178,228	178,228	178,228
	Demand totals	2,324	2,745	3,351	3,830	4,530
	Difference	175,904	175,483	174,877	174,398	173,698
Fifth year *(optional)*	Supply totals	178,228	178,228	178,228	178,228	178,228
	Demand totals	2,324	2,745	3,351	3,830	4,530
	Difference	175,904	175,483	174,877	174,398	173,698
Sixth year *(optional)*	Supply totals	178,228	178,228	178,228	178,228	178,228
	Demand totals	2,324	2,745	3,351	3,830	4,530
	Difference	175,904	175,483	174,877	174,398	173,698

As shown in Table 7-4, anticipated groundwater supplies are sufficient to meet all demands through the year 2040 even under multiple-dry year drought conditions.

SECTION 8 - WATER SHORTAGE CONTINGENCY PLANNING

CWC 10632(a). The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier:

(1) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions that are applicable to each stage.

(2) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.

(3) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

(4) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

(5) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

(6) Penalties or charges for excessive use, where applicable.

(7) An analysis of the impacts of each of the actions and conditions described in paragraphs (1) to (6), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

(8) A draft water shortage contingency resolution or ordinance.

(9) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

CWC 10632(b). Commencing with the urban water management plan update due July 1, 2016, for purposes of developing the water shortage contingency analysis pursuant to subdivision (a), the urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

The Urban Water Management Planning Act of 1983 requires water agencies to incorporate a water shortage contingency plan (WSCP) focusing on the allocation of water supplies and the management of water consumption during periods of shortage due to extended drought or a water emergency. This section describes the City's policies and ordinances to deal with water shortages. The City's water supply comes solely from groundwater pumping. As discussed in *Section 7 – Water Supply Reliability Assessment*, the City has a reliable water supply and is not vulnerable to seasonal and climatic shortages for the normal, dry-year, and multiple dry-year scenarios through year 2040. This reliability conclusion is caveated by the fact that future compliance with SGMA may require the City to come up with alternative sources of water in the future based on the result of the Groundwater Sustainability Plan to be developed. However, the City can now pump as much water as is required to supply its needs.

The City's WSCP illustrates specific water supply conditions that trigger the activation of voluntary and mandatory rationing efforts. It explains what the ability is to meet projected short-term demands during extended dry periods and emphasizes some of the significant proactive measures that enhance the City's ability to respond to interruptions in water supply should a natural or manmade disaster occur. The contingency plan outlines the planned response to failures in the infrastructure of the water system in the event of an earthquake, extensive power outage, or another catastrophic event. Finally, this section provides details about prohibitions and penalties against specific water uses during water shortages, and evaluates potential impacts to the water funds should water sales decrease because of supply shortages.

The City has enacted standard water conservation measures per Title 7 (Public Ways and Property), Chapter 7 (Water and Sewer Regulations), Article E (Water Conservation) of the City's Code. Specifically, Article E of the City's Code states:

7-7E-1: STANDARD WATER CONSERVATION MEASURES:

A. Definitions: Unless the context requires otherwise, the following definitions shall be used in the interpretation and construction of this section:

   DIRECTOR: The director of public works of the city of Lemoore.

   PERSON: Any individual, firm, partnership, association, corporation or political entity.

   WATER: Any water obtained from the water department of the city of Lemoore.

B. Application Of Regulations: The provisions of this section shall apply to all persons using city supplied water, both inside and outside of the city limits.

C. Regulations: In the use of water supplied by the city of Lemoore, the following requirements shall apply:

1. No person shall keep, maintain, operate, or use any water connection, hose, faucet, hydrant, pipe, outlet or plumbing fixture which is not tight and free from leakage, dripping or waste of water.

2. No person shall allow excessive water to run or waste from his property onto streets, highways or adjacent property.

3. No person shall willfully or negligently waste water in any manner.

4. Outdoor watering for those with even numbered addresses will be permitted on Tuesday, Thursday and Saturday, while odd numbered addresses may water on Wednesday, Friday and Sunday. Monday will be a day on which no outdoor watering is allowed.

5. The public works director may grant a thirty (30) day exception for new lawns not yet established.

6. Prohibition of draining of swimming pools with a capacity in excess of five thousand (5,000) gallons more than once every two (2) years, except for structural repairs or to comply with public health standards determined by the county health officer. Residents with private swimming pools shall file a written application for a permit prior to draining their pools with the public works department. The application shall include information as to reason for draining the pool and in case of repairs, the nature and duration of repairs to be made and the date on which the pool will be drained.

7. Washing of exterior asphalt or concrete areas is prohibited except for those businesses that are governed by the food and drug administration or state or county health department requirements that require these areas to be washed for health purposes. Documentation indicating such regulations must be provided to the director.

8. The use of water for washing cars, boats or other vehicles is prohibited without the use of a quick acting positive shutoff nozzle on the hose and the use of buckets for washing with water from the hose used for light rinsing. These regulations apply to residential customers. Car washes for fundraising events are prohibited.

9. Sprinkle, irrigate or otherwise apply water to any yard, ground, premises or vegetation on any day of the week between the hours of ten o'clock (10:00) A.M. and seven o'clock (7:00) P.M. during periods designated as "daylight savings time" (generally occurring between March and November).

10. Operate water fountains or other decorative water fixtures without recirculation pumps.

11. All new construction and remodeling or additions to habitable areas with a valuation in excess of five thousand dollars ($5,000.00) will be required to install

or replace existing faucets and showerheads with low flow devices and toilets with ultra low flow units. (Ord. 2015-06, 7-7-2015)

7-7E-2: WATER EFFICIENT LANDSCAPE ORDINANCE ADOPTED:

This section should be known as "an ordinance of the city of Lemoore adopting the California model water efficient landscape ordinance, California code of regulations, title 23, division 2, chapter 2.7" and any amendments thereto by reference. (Ord. 2015-06, 7-7-2015)

7-7E-3: FINDINGS OF NECESSITY:

It is necessary to minimize the potential for water shortage through the practice of water conservation pursuant to the provisions of California Water Code section 375 et seq. It is further necessary to reduce the potential effect of a water shortage on the residents, businesses and visitors of Lemoore and to adopt provisions that will significantly reduce the inefficient consumption of water, thereby extending the available water resources necessary for the domestic, sanitation, and fire protection of the community to the greatest extent possible. Nothing in this chapter shall prevent the city from also declaring a water emergency pursuant to California Water Code section 350, if circumstances warrant such a declaration. (Ord. 2015-06, 7-7-2015)

7-7E-4: WATER CUSTOMER:

"Water customer", for the purposes of this chapter, shall mean any person, partnership, business, corporation, special district, public agency, or association or legal entity to which the city of Lemoore (city) supplies water or "user" of water supplied by the city. (Ord. 2015-06, 7-7-2015)

7-7E-5: APPLICATION:

This article shall be applicable to all water customers. (Ord. 2015-06, 7-7-2015)

7-7E-6: EXCEPTIONS AND EXEMPTIONS:

A. Exceptions: The city manager or his or her designee shall grant an exception from the requirements of this chapter for any of the following reasons:

1. Water use is necessary to public health and safety or for essential government services; or

2. Recycled water is being used; or

3. Water use is necessary due to the medical needs of the water customer; or

4. An alternative water source/supply is available for use.

B. Exemptions: The city council may grant an exemption to the requirements of this chapter, with or without conditions, if it determines that a water customer would otherwise experience extreme financial hardship that cannot be mitigated. The city council shall review any requests for an exemption from compliance with this chapter. A written request for an exemption must be submitted to the city clerk a minimum of two (2) weeks prior to the regularly scheduled council meeting at which the exemption is to be considered. If appropriate, the city council may require the customer granted an exemption to reduce water use by other appropriate alternative methods. Notwithstanding any other provision of this code, there shall be no right to further administrative review or appeal of the determination of exemption of the city council. The city council may establish an "exemption processing fee" by resolution. (Ord. 2015-06, 7-7-2015)

7-7E-7: AUTHORIZATION:

The city council may declare the conservation stage based on a determination made by the city manager, or based upon any reduction in water supply or delivery that the city council determines in its sole discretion necessitates water conservation pursuant to this chapter. The city council may determine and order water prohibitions and restrictions as outlined herein in the following levels:

Voluntary compliance

Level I conservation measures

Level II conservation measures

Level III conservation measures

(Ord. 2015-06, 7-7-2015)

7-7E-8: VOLUNTARY COMPLIANCE:

At this level of the conservation plan, the goal is to inform the public of the pressing need to conserve water. This can be done through information and education measures, which can directly affect water use habits of the city's customer base. While education alone may not produce sustained water savings like other measures, it can enhance the effectiveness of other measures. Water bill inserts, pamphlets upon request, partnering with local schools to encourage water conservation practices, creating workshops for local plumbers, plumbing fixture suppliers, and builders or landscape and irrigation service providers are all examples of education and information measures the city can implement.

The goal of this measure is to have residents and businesses voluntarily comply with best practice water conservation measures, with the goal of reducing average water consumption by twenty percent (20%). Water tanks and wells will be monitored by the water department.

Additionally, landscape watering for municipal parks will be reduced from six (6) to four (4) days or less per week. (Ord. 2015-06, 7-7-2015)

7-7E-9: LEVEL I CONSERVATION MEASURES:

When pumping water levels drop twenty percent (20%) below the baseline measurement, the following restrictions shall apply in addition to or supersede the standard water conservation measures listed in section 7-7E-1 of this article:

A. Reduce the number of days for landscape watering to two (2) days per week. Even numbered addresses would be allowed to water on Tuesday and Saturday while odd numbered addresses would water on Wednesday and Sunday. No watering would be allowed on Monday, Thursday or Friday. Additionally, landscape watering would only be authorized before ten o'clock (10:00) A.M. and after seven o'clock (7:00) P.M. on designated days.

B. Hotels, restaurants, and bars shall only provide drinking water to customers upon request.

C. No water customer shall permit water to leak on his or her premises. Such leak shall be repaired in a timely manner after written notification by the city, but in no case in excess of seventy two (72) hours after notification.

D. Reduce landscape watering for municipal parks to two (2) days or less per week. (Ord. 2015-06, 7-7-2015)

7-7E-10: LEVEL II CONSERVATION MEASURES:

The following restrictions shall be applicable during a high water conservation alert as declared by the city council and whenever a recommendation has been made by the city manager in conjunction with the chief plant operator of the water treatment plant based upon a significant reduction or interruption in water supply or delivery that necessitates increased water conservation efforts:

A. All prohibitions and restrictions in level I (section 7-7E-9 of this article) shall be in effect.

B. Reduce the number of days for landscape watering to one day per week, depending upon the type of irrigation and the address. The city would be divided into three (3) sections: one section would be all of the area on the east side of Lemoore Avenue, another section would be the area north of Cinnamon Drive from 191/2 Avenue to Lemoore Avenue and the third section would be the area south of Cinnamon Drive to the west city limits. Watering between the hours of ten o'clock (10:00) A.M. and seven o'clock (7:00) P.M. is still prohibited.

C. The washing of personal vehicles is restricted to once per week, only on permitted watering days, and only with the use of the required quick acting positive shutoff nozzle.

D. Hotels are encouraged to implement laundry conservation measures by encouraging patrons to reuse linens and towels.

E. Landscape watering for municipal parks is restricted to one day per week and restrictions shall be implemented on golf course watering. (Ord. 2015-06, 7-7-2015)

7-7E-11: LEVEL III CONSERVATION MEASURES:

In the event of a major earthquake, large scale fire, or other so called "act of nature" which has or could have serious impacts on the city's total available water storage or delivery capacity, whether storage capacities have been reduced or not, or in the case of an unanticipated significant reduction in city water supply, a severe water conservation alert shall be declared by the city council.

A. All previous restrictions noted above in level I and level II shall be in effect.

B. Irrigation of landscapes is prohibited between the hours of eight o'clock (8:00) A.M. and eight o'clock (8:00) P.M.

C. Landscape watering for municipal parks shall be limited to one day per week.

D. Swimming pool refilling or new construction swimming pool filling is not authorized.

E. The city shall discontinue washing city vehicles or equipment except for health, safety or critical maintenance reasons.

F. Restrictions on golf course watering shall be increased. (Ord. 2015-06, 7-7-2015)

8.1 - Stages of Actions

In compliance with CWC 10632(a)(1), all water agencies are required to administer a strategy – an adopted ordinance or terms of service – to outline “stages of action” in response to water supply shortages. For compliance, Article E of the City’s Code outlined above includes stages of action based on conservation measure level, namely:

- Voluntary compliance;
- Level I conservation measures;
- Level II conservation measures; and
- Level III conservation measures.

Table 8-1 provides a summary of the standard water conservation measures and four stages of action that may be enacted by the City Council.

Table 8-1 Retail: Stages of Water Shortage Contingency Plan

Table 8-1 Retail: Stages of Water Shortage Contingency Plan		
Stage	Complete Both	
	Percent Supply Reduction[1] *Numerical value as a percent*	Water Supply Condition (*Narrative description*)
Add additional rows as needed		
Standard Water Conservation Measures	N/A	Fixtures free from leakage; no excessive water; watering days; possible new lawn exemption; swimming pool draining prohibitions; asphalt/concrete washing prohibitions; vehicle washing prohibitions; watering hours; reciculaton pumps requirement; and low-flow requirements for new construction, remodeling, and additions
Voluntary Compliance	up to 20%	Inform public about water conservation need and reduce landscape watering in municipal parks from six to four days or less per week
Level I Conservation Measures	up to 30%	Reduce landscape watering to two days per week (before 10 AM and after 7 PM); hotels, restaurants, and bars provide water only upon request; customers prohibited from allowing water to leak from premises and such leaks shall be repaired after written notice within 72 hours; and reduce landscape watering in municipal parks to two days per week
Level II Conservation Measures	up to 40%	All Level I prohibitions in effect; reduce landscape watering to one day per week (before 10 AM and after 7 PM); personal vehicle washing restricted to one per week on permitted days with shutoff nozzle; laundry conservation measures encouraged at hotels; and reduce landscape watering in municipal parks to one day per week; and implement gof course watering restrictions
Level III Conservation Measures	greater than 40%	All Level I and II prohibitions in effect; landscape watering prohibited between 8 AM and 8 PM; landscape watering in municipal parks limited to one day per week; prohibit swimming pool refilling and new construction of swimming pools; City shall discontinue washing City vehicles or equipment except for health, safety, or critical maintenance reasons; gold course watering restrcition shall be increased
[1] *One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.*		
NOTES: The percent supply reduction are just guesstimates because the reductions are not codified in the City's Code except for Voluntary Compliance.		

Title 7 (Public Ways and Property), Chapter 7 (Water and Sewer Regulations), and Article E (Water Conservation) of the City's Code was implemented in response to Governor Brown's

Executive Order No. B-29-15, directing that the State Water Resources Control Board to develop and impose restrictions on urban water users to achieve a statewide 25% reduction in potable urban water use.

8.2 - Prohibition on End Uses

In compliance with CWC Section 10632(a)(4) and CWC Section 10632(a)(5), prohibitions on end users are defined in Title 7 (Public Ways and Property), Chapter 7 (Water and Sewer Regulations), Article E (Water Conservation) of the City's Code shown above. Table 8-2 summarizes the mandatory restrictions and prohibitions placed on end users.

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users ***Drop down list*** *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*	Penalty, Charge, or Other Enforcement? *Drop Down List*
Add additional rows as needed			
SWCM	Landscape - Restrict or prohibit runoff from landscape irrigation		Yes
SWCM, I, II, III	Landscape - Limit landscape irrigation to specific times		Yes
SWCM, VC, I, II, III	Landscape - Limit landscape irrigation to specific days		Yes
II	CII - Lodging establishment must offer opt out of linen service		Yes
I	CII - Restaurants may only serve water upon request		Yes
SWCM	Water Features - Restrict water use for decorative water features, such as fountains		Yes
SWCM, III	Other water feature or swimming pool restriction		Yes
SWCM, I	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner		Yes
SWCM	Other - Require automatic shut of hoses		Yes
SWCM	Other - Prohibit use of potable water for washing hard surfaces		Yes
SWCM, I, II, III	Other		Yes
NOTES: SWCM = Standard Water Conservation Measures (7-7E-1) and VC = Voluntary Compliance (7-7E-8)			

8.2.1 - LANDSCAPE IRRIGATION

The following summarizes landscape irrigation restrictions by stages:

- Standard Water Conservation Measures – Prohibit excessive runoff from property, prohibit willful and negligent water waste, limit outdoor watering to certain days based on address, limit irrigation to certain times;
- Voluntary Compliance – Reduce municipal park watering from six to four days per week;
- Level I Conservation Measures – Reduce landscape watering to two days per week and increase time of day restrictions and municipal park watering to two days per week;
- Level II Conservation Measures – Reduce landscape watering to one day per week and increase time of day restrictions and municipal park watering to one day per week as well as impose golf course watering restrictions; and
- Level IIII Conservation Measures – Increase time of day restrictions, reduce municipal park watering to one day per week, and increase golf course watering restrictions.

8.2.2 - COMMERCIAL, INDUSTRIAL, AND INSTITUTIONAL (CII)

The following summarizes CII restrictions by stages:

- Standard Water Conservation Measures – None;
- Voluntary Compliance – None;
- Level I Conservation Measures – Hotels, restaurants, and bars will only serve water if requested;
- Level II Conservation Measures – Encourage hotels to implement laundry conservation measures; and
- Level IIII Conservation Measures – None.

8.2.3 - WATER FEATURES AND SWIMMING POOLS

The following summarizes restrictions on water features and swimming pools by stages:

- Standard Water Conservation Measures – Prohibit swimming pool draining greater than 5,000 gallons more than once every two years except for repair or public health reasons and prohibit fountains or other decorative features without recirculating pumps;
- Voluntary Compliance – None;
- Level I Conservation Measures – None;
- Level II Conservation Measures – None; and
- Level IIII Conservation measures – Prohibit swimming pool filling and new construction.

8.2.4 - OTHER RESTRICTIONS

The following summarizes other restrictions by stages:

- Standard Water Conservation Measures – Ensure fixtures, etc. tight and free from leakage, prohibit washing hard surfaces except for public health reasons, prohibit washing vehicles without use of buckets and shutoff nozzles, and require all new construction as well as remodels and additions greater than $5,000 to install or replace faucets and showerheads with low-flow devices and toilets with low-flow units;
- Voluntary Compliance – None;
- Level I Conservation Measures – Prohibit outdoor water from leaving property and leak shall be repaired after written notification within 72 hours;
- Level II Conservation Measures – Restrict personal vehicle washing to once per week with shutoff nozzle; and
- Level IIII Conservation Measures – Prohibit City vehicle washing except certain reasons.

8.3 - Penalties, Charges, Other Enforcement of Prohibitions

In accordance with CWC Section 10632(a)(6), Title 7 (Public Ways and Property), Chapter 7 (Water and Sewer Regulations), Article E (Water Conservation) of the City's Code also includes penalties for violations of the standard water conservation measures and each of the four stages. These penalties are as follows:

7-7E-12: PENALTIES:

A. Use Of Water: No water customer of the city shall knowingly use, or permit the use of, water in a manner contrary to any provisions of this article, or in an amount in excess of that use permitted by the provisions of this article.

B. Violation; Infraction: Unless otherwise provided, any water customer violating any provision of this article shall be guilty of an infraction, and each day or portion thereof such violation is in existence shall be a new and separate offense.

C. Violations: Any water customer determined to be guilty of a first time violation shall be given a written reminder for compliance. Second and subsequent violations shall be punishable as follows:

    1. Standard Conservation Measures And Level I Conservation Measures: A written notice of such a violation shall be given and a charge shall be added to the water bill of such person as a onetime penalty as follows:

        a. Second violation: Twenty five dollars ($25.00).
        b. Third violation: Fifty dollars ($50.00).
        c. Fourth violation: One hundred dollars ($100.00).

d. Fifth violation: A written notice will be given of a fifth violation and the consumer shall have a flow restrictor placed in their service until such time that they can assure the public works director that no more waste will occur. All costs, including overhead, for this installation shall be billed to the customer.

2. Level II Conservation Measures: A written notice of such a violation shall be given and a penalty shall be added to the water bill of such person as a onetime penalty as follows:

   a. Second violation: Forty dollars ($40.00).
   b. Third violation: Seventy five dollars ($75.00).
   c. Fourth violation: One hundred fifty dollars ($150.00).
   d. Fifth violation: A written notice will be given of a fifth violation and the consumer shall have a flow restrictor placed in their service until such time that they can assure the public works director that no more waste will occur. All costs, including overhead, for this installation shall be billed to the customer.

3. Level III Conservation Measures: A written notice of such a violation shall be given and a penalty shall be added to the water bill of such a person as a onetime penalty as follows:

   a. Second violation: Fifty five dollars ($55.00).
   b. Third violation: One hundred dollars ($100.00).
   c. Fourth violation: Two hundred dollars ($200.00).
   d. Fifth violation: A written notice will be given of a fifth violation and the consumer shall have a flow restrictor placed in their service until such time that they can assure the public works director that no more waste will occur. All costs, including overhead, for this installation shall be billed to the customer.

D. Determination Of Number Of Offenses: To determine whether a violation is other than a first offense, only notices issued within one year after the date of the first notice will be considered.

E. Enforcement Of Penalties: In addition to the above remedies, the city manager or his or her designee is empowered to enforce any or all of the following penalties:

   1. Place a flow restricting device upon the water service;
   2. Lock off of a water meter;
   3. Remove a water meter;
   4. Shut off the service connection.

F. Costs Borne By Customer: All costs or expenses incurred by the city for enforcement of this section shall be borne by the water customer. No water service shall be limited

or discontinued until the city manager or his or her designee provides a written notice of intent to so limit or discontinue such service and the reasons for such decision, and further, provides such water customer notice of the right to request an administrative review and hearing pursuant to the procedures set forth in title 1, chapter 10 of this code. (Ord. 2015-06, 7-7-2015)

7-7E-13: COMPLIANCE:

The city manager or his or her designee shall enforce the provisions of this article. (Ord. 2015-06, 7-7-2015)

7-7E-14: WAIVER:

To apply for a full or partial waiver of the mandatory water conservation requirements to accommodate your disability, you must submit a letter explaining your need for additional water use based on your disability. Send your letter requesting a waiver of the mandatory water conservation requirements to the city manager.

The city will consider each application for a full or partial waiver of the water restrictions on an individual basis. The city may request that you provide medical information to support your need for an exemption to the current water restrictions. Responses to waiver requests will be provided in thirty (30) days. All waiver requests that have been granted are subject to review and cancellation. If any waivers are obtained based on inaccurate information, applications may be subject to fines and additional charges. (Ord. 2015-06, 7-7-2015)

8.4 - Consumption Reduction Methods

In compliance with CWC Section 10632(a)(5), consumption reduction methods are actions that are taken by the City to reduce water demand within the service area whereas the prohibitions (see Section 8.2) limit specific uses of water. DWR allows water agencies, such as the City, to make their own determinations as to which methods and which stages for employing the methods are most appropriate for a service area.

8.4.1 - CONSUMPTION REDUCTION GOALS

The consumption reduction goals for the various stages are:

- Standard Water Conservation Measures – Not applicable;
- Voluntary Compliance – up to 20% reduction;
- Level I Conservation Measures – up to 30% reduction;
- Level II Conservation Measures – up to 40% reduction; and
- Level IIII Conservation Measures – greater than 40% reduction.

8.4.2 - Categories of Consumption Reduction Methods

The following consumption reduction methods listed in the Guidelines have been implemented by the City:

- Expand Public Information Campaign – Examples include enlarge media campaign; create bill inserts with conservation information; articles submitted to local newspapers; conduct water efficiency workshops for different customer sectors; and
- Other – any other method that does not fall in to the categories listed in the Guidelines.

Table 8-3 provides a summary of the consumption reduction methods currently employed by the City.

Table 8-3 Retail Only: Stages of Water Shortage Contingency Plan – Consumption Reduction Methods

Table 8-3 Retail Only: Stages of Water Shortage Contingency Plan - Consumption Reduction Methods		
Stage	Consumption Reduction Methods by Water Supplier *Drop down list* *These are the only categories that will be accepted by the WUEdata online submittal tool*	Additional Explanation or Reference *(optional)*
Add additional rows as needed		
VC	Expand Public Information Campaign	7-7E-8 (Voluntary Compliance)
N/A	Other	7-7E-2 (Water Efficient Landscape Ordinance Adopted)
NOTES: VC = Voluntary Compliance		

Expand Public Information Campaign

In accordance with 7-7E-8 of the City's Code, the primary goal of Voluntary Compliance is to inform the public of the pressing need to conserve water. This can be done through information and education measures, which can directly affect water use habits of the City's customer base. While education alone may not produce sustained water savings like other measures, it can enhance the effectiveness of other measures. Water bill inserts, pamphlets upon request, partnering with local schools to encourage water conservation practices, creating workshops for local plumbers, plumbing fixture suppliers, and builders or landscape and irrigation service providers are all examples of education and information measures the city can implement.

Other

CALIFORNIA MODEL WATER EFFICIENT LANDSCAPE ORDINANCE ADOPTION

In accordance with 7-7E-2 of the City's Code, the City adopted the California Model Water Efficient Landscape Ordinance (23 CCR Division 2, Chapter 2.7 and any amendments) (see Appendix B).

WATER CONSERVATION WEBSITE

The City will be making public a website dedicated to water conservation. This website will include tips on how to conserve water, provide information on rebates and other opportunities to incentivize customers to save water, and provide useful contact information and links.

PUBLIC OUTREACH

The City Water Department recently adopted a water conservation mascot named "AquaBob" that will be performing public outreach to school-age children at events throughout the school year. AquaBob will educate and inform the children about the need for water conservation and provide simple steps to implement water conservation strategies at home and school.

8.5 - Determining Water Shortage Reductions

The following discussion is provided to comply with CWC Section 10632(a)(9). The City's water system is supplied by groundwater wells. Each well has a flow meter that records the amount of water entering the City's distribution system. The City use these meters to monitor actual reductions in water use within the service area. The City is using the SWRCB emergency regulation method to measure and determine actual water savings made from implementing the WSCP. The SWRCB uses 2013 water production data and requires water agencies to report monthly water production as compared to 2013. The City has maintained more than a 19% reduction as compared to 2013.

8.6 - Revenue and Expenditure Impacts

The following discussion is provided to comply with CWC Section 10632(a)(7). Most operating costs for most water agencies are fixed rather than a function of the amount of water sold. Thus, when conservation programs are undertaken, it is frequently necessary to raise water rates because the revenue generated is based on lower total consumption while the costs, and resulting revenue required, are basically fixed. Typically, water rates need to be increased by the percentages listed in Table 8-1 when the indicated stages are implemented. However, reductions in water demands, especially peak demands, can delay the need to develop costly new water sources in growing communities. The City currently charges water customers a flat fee based on meter size plus a volumetric charge for water use.

Currently, the City does not have an emergency fund but will consider establishing such a fund to mitigate the impacts of a water shortage. The fund would then be used to stabilize water rates during periods of water shortage. Excess water revenues collected because of rate adjustments would be used to enhance the emergency fund.

8.7 - Resolution or Ordinance

In compliance with CWC Section 10632(a)(8), Title 7 (Public Ways and Property), Chapter 7 (Water and Sewer Regulations), Article E (Water Conservation) of the City's Code is discussed above. This adopted City Code provides a water shortage contingency solution.

8.8 - Catastrophic Supply Interruption

The following discussion is provided to comply with CWC Section 10632(a)(3). The Act refers to catastrophic interruptions as regional power outages, natural disasters, and other disasters that stop the water supply. The Level III Conservation Measures have been developed in the event of a "major earthquake, large scale fire, or other so called 'act of nature' which has or could have serious impacts on the city's total available water storage or delivery capacity, whether storage capacities have been reduced or not, or in the case of an unanticipated significant reduction in city water supply." If such an act of nature occurs, "a severe water conservation alert shall be declared by the city council." Additionally, during a catastrophic interruption, the City will activate a water shortage response team. The response team will coordinate with applicable City departments and emergency services. Other actions and procedures to be followed during catastrophic events will be developed.

8.9 - Minimum Supply Next Three Years

As required by CWC Section 10632(a)(2), an UWMP must include an estimate of the minimum water supply available to the City during each of the next three years. The District's water supply is derived completely from groundwater wells. Table 8-4 provides an estimate of the minimum water supply available during the next three years.

Table 8-4 Retail: Minimum Supply Next Three Years

Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply	178,228	178,228	178,228

SECTION 9 - DEMAND MANAGEMENT MEASURES

CWC 10631(f). Provide a description of the supplier's water demand management measures. This description shall include all of the following:

CWC 10631(f)(1)(A). For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

CWC 10631(f)(1)(B). The narrative pursuant to this paragraph shall include descriptions of the following water demand management measures:

(i) Water waste prevention ordinances.

(ii) Metering.

(iii) Conservation pricing.

(iv) Public education and outreach.

(v) Programs to assess and manage distribution system real loss.

(vi) Water conservation program coordination and staffing support.

(vii) Other demand management measures that have a significant impact on water use as measured in gallons per capita per day, including innovative measures, if implemented.

This section provides a comprehensive description of the water conservation programs that the City has implemented, is currently implementing, and plans to implement to meet urban water reduction targets. The City is not a signatory to the Memorandum of Understanding regarding Urban Water Conservation in California and therefore, is not a member of the California Urban Water Conservation Council. For responding to the Act, the City will address the six Demand Management Measures (DMMs) described in CWC Section 10631(f)(1)(B). Descriptions of the City's DMMs are provided below.

9.1 - Water Waste Prevention Ordinances

As further described in *Section 8 – Water Shortage Contingency Planning*, the City has developed Title 7 (Public Ways and Property), Chapter 7 (Water and Sewer Regulations), Article E (Water Conservation) of the City's Code. This portion of the City's Code enacts water conservation measures for the City. The City Council may determine and order water prohibitions and restrictions commensurate with each level described in the Code.

9.2 - Metering

Ninety-nine percent of all City connections are metered, with unmetered facilities principally consisting of downtown, low-usage, commercial service connections. These connections are 67 in number. With respect to such connections, however, the City will comply with the Urban Water Management Planning Act, Water Code Section 325, which requires water meters and billings based thereon for all service connections by 2025.

9.3 - Conservation Pricing

Conservation pricing promotes water conservation through retail water rate structures that send a signal to customers regarding their water use. An example is enacting penalties for a higher water rate for users who go over a predetermined water budget.

The City has recently updated the water rates. After January 1, 2017 the rate for residential single family will be a fixed rate of $13.00 with a cost of $0.87 per hundred cubic foot of water.

9.4 - Public Education and Outreach

The following describes the public education and outreach efforts by the City to promote water conservation and other water-related topics.

As discussed in *Section 8 – Water Shortage Contingency Planning*, 7-7E-8 of the City's Code states:

> At this level of the conservation plan, the goal is to inform the public of the pressing need to conserve water. This can be done through information and education measures, which can directly affect water use habits of the city's customer base. While education alone may not produce sustained water savings like other measures, it can enhance the effectiveness of other measures. Water bill inserts, pamphlets upon request, partnering with local schools to encourage water conservation practices, creating workshops for local plumbers, plumbing fixture suppliers, and builders or landscape and irrigation service providers are all examples of education and information measures the city can implement.
>
> The goal of this measure is to have residents and businesses voluntarily comply with best practice water conservation measures, with the goal of reducing average water consumption by twenty percent (20%).

The annual Consumer Confidence Report are mailed each year. The City takes advantage of these mailings when necessary to provide customer's additional information on water conservation and other demand management measures. Display cases and bulletin boards at City facilities augment the mailings by providing a permanent posting of the most current City mailings.

The City monthly water bill distributed to all water service customers is another vehicle used by the City for public education purposes. The bill presents information regarding comparable previous year water usage so that the public can self-monitor their water demand. The bill also contains a space for public service announcements that are used to remind citizens of conservation and demand management measures.

9.5 - Programs to Assess and Manage Distribution System Real Loss

Because of engineering analyses, the City spends $50,000 per year replacing outdated, undersized, and leaking water mains in the distribution system. The City's capital improvement program provides funding for major water main replacement. (A water audit is a process of accounting for water use throughout a water system to quantify unaccounted-for water. Unaccounted-for water is the difference between metered production and metered usage on a system wide basis). However, water losses due to pipe leakage are minimal as most the City's water system is less than 35 years old. The high (4 to 6 feet) perched water table under the City permits essentially immediate cognizance of pipe leakage through surface indications; a formal leak protection program is not required.

The City will initiate a program for comparison of metered well production and metered usage, utilizing that program as guidance for system analysis and any needed repairs or replacement. Comparisons of succeeding-year figures will permit evaluation of program effectiveness.

9.6 - Water Conservation Program and Staffing Support

The following provides a description of the City’s water conservation program and staffing support.

The City Manager has appointed a conservation coordinator, the Public Works Director. The conservation coordinator is responsible for coordinating and expanding the City's water conservation program and providing residents with useful water conservation information. The Water Conservation Coordinator's responsibilities include:

- Coordination with internal City departments and the community at large to promote the principles of responsible water resource stewardship;
- Monitoring the practice and application of DMMs; and
- Planning and participating in community water conservation education projects.

The contact information for the Water Conservation Coordinator is provided below:

Nathan Olson
559-924-6737
nolson@lemoore.com

9.7 - Other Demand Management Measures That Impact GPCD

The following is a list of other DMMs the City is currently employing that affect GPCD.

9.7.1 - WATER SURVEY PROGRAMS

This program consists of offering water audits to residential customers. Audit components include reviewing water usage history with the customer, identifying leaks inside and outside, and recommending improvements.

The City will, in 2015, initiate a program offering such audits. The City will target the top one percent of single-family residential users. A similar program for multi-family residential users will be developed for 2017 implementation. Water bills will be reviewed pre- and post-audit to evaluate program effectiveness.

9.7.2 - RESIDENTIAL PLUMBING RETROFIT

This program consists of installing physical devices to reduce the amount of water used or to limit the amount of water, which can be served to the customer. In accordance with State law, low flow fixtures have been required on all new construction since 1978. In addition, State legislation enacted in 1990 required all new buildings after January 1, 1992 to install ultra-low flush toilets. 7-7E-1(C)(11) of the City's Code requires:

> All new construction and remodeling or additions to habitable areas with a valuation in excess of five thousand dollars ($5,000.00) will be required to install or replace existing faucets and showerheads with low flow devices and toilets with ultra low flow units.

Several studies suggest that savings resulting from miscellaneous interior retrofit fixtures can range between 25 and 65 gallons per day (gpd) per housing unit. The studies also suggest that installation of retrofit fixtures in older single-family homes tends to produce more savings, while such installation in newer multifamily homes tend to produce fewer savings per housing unit.

Since 1986, the City has participated in an informal booth at the Kings District Fair. Water saver kits have been distributed that contain low-flow plumbing fixtures, toilet dam, dye tablets, and water-saving tips. The City is a member of the KCWEC. Representatives of the KCWEC go to public schools and make presentations on water safety and water conservation. Information is published in the local newspaper reminding people to conserve water. Book covers that provide water conservation and water safety information are purchased and distributed to local schools.

9.8 - Planned Implementation to Achieve Water Use Targets

As required by CWC Section 10631(f)(1)(A), the City must describe the DMMs that it plans to implement to achieve its water use targets (see Table 5-1). The City plans to use all DMMs described above, if needed, to achieve its water use targets.

9.9 - Members of the California Urban Water Conservation Council

CWC 10631(i). For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivision (f) by complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California," dated December 10, 2008, as it may be amended, and by submitting the annual reports required by Section 6.2 of that memorandum.

The City is not a member of the California Urban Water Conservation Council and therefore, does not have to comply with this section of the CWC.

SECTION 10 - PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

CWC 10621(b). Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

CWC 10621(d). Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.

CWC 10608.26(a). In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following:

(1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.

(2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.

(3) Adopt a method, pursuant to subdivision (b) of Section 10608.20, for determining its urban water use target.

CWC 10635(b). The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

CWC 10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

CWC 10644(a)(1). An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

CWC 10644(a)(2). The plan, or amendments to the plan, submitted to the department pursuant to paragraph (1) shall be submitted electronically and shall include any standardized forms, tables, or displays specified by the department.

CWC 10645. Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

The City has notified all entities that have land use jurisdiction within its service area that it is reviewing and considering amendments to its 2015 UWMP. The City has served 60-day notice to these agencies on August 17, 2017 that its 2015 UWMP is under review and may be revised in concurrence with updated land use information, demand projections, and new legislations. This 60-day notice also stated that a public hearing would be held on October 17, 2017 at 7:30 pm at 429 C Street, Lemoore, CA 93245 to receive comments, questions, and suggestions regarding City's 2015 UWMP, and to address water supply reliability and management by the City for at least the next 20 years. Copies of the 60-day notices are included in Appendix C. A notice of public hearing was published in the local newspaper, notifying interested parties that the 2015 UWMP was available at the City for review; at the same time copies of the draft 2015 UWMP were forwarded to the DWR for review. Upon the completion of that review, and corrections based thereon, the City Council will adopt the UWMP.

Table 10-1 provides the cities and counties that received notice. Since this UWMP is for areas completely within the City of Lemoore land use jurisdiction, no other cities were notified of the release of the draft 2015 UWMP.

Table 10-1 Retail: Notification to Cities and Counties

Table 10-1 Retail: Notification to Cities and Counties		
County Name *Drop Down List*	☑ 60 Day Notice	Notice ☑ Public Hearing
Add additional rows as needed		
Kings County	☑	☑

In accordance with CWC Section 10635(b), urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan. Since the City is the urban water supplier for itself, this requirement does not apply.

The City held the public hearing at its regularly-scheduled City Council meeting on October 17, 2017 in which the following was accomplished:

- Community input was taken regarding the 2015 UWMP;
- The economic impacts of the 2015 UWMP were considered;
- Information was provided on the City's baseline values, water use targets, and implementation plan required per Senate Bill X7-7; and
- The City Council adopted Method 3 (95% of hydrologic regional target) for determining its urban water use target per SB X7-7.

A copy of the signed resolution by the City Council adopting the 2015 UWMP is included in Appendix D. This UWMP includes all information necessary to meet the requirements of California Water Code Division 6, Part 2.6 (Urban Water Management Planning).

The City's 2015 UWMP will be provided to DWR per CWC Section 10621 both in hardcopy and electronically. In addition, the City's 2015 UWMP will be provided to the California State Library and the agencies listed in Table 10-1 that have land use jurisdiction within its service area per CWC Section 10644 no later than 30 days following its adoption. Copies of these letters of transmittal are included in Appendix E.

No later than 30 days after filing a copy of the 2015 UWMP with DWR, the City will make a hardcopy of its 2015 UWMP available for public review at the City during normal business hours. The final 2015 UWMP will also be made available on the City's website.

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APPENDIX A
URBAN WATER MANAGEMENT PLANNING ACT OF 1983

CALIFORNIA WATER CODE DIVISION 6
PART 2.6. URBAN WATER MANAGEMENT PLANNING

All California Codes have been updated to include the 2010 Statutes.

WATER CODE
SECTION 10610-10610.4

10610. This part shall be known and may be cited as the "Urban Water Management Planning Act."

10610.2. (a) The Legislature finds and declares all of the following:

(1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.

(2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.

(3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.

(4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.

(5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.

(6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.

(7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.

(8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.

(9) The quality of source supplies can have a significant impact

on water management strategies and supply reliability.
(b) This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.

10610.4. The Legislature finds and declares that it is the policy of the state as follows:
(a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.
(b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.
(c) Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.

WATER CODE
SECTION 10611-10617

10611. Unless the context otherwise requires, the definitions of this chapter govern the construction of this part.

10611.5. "Demand management" means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

10612. "Customer" means a purchaser of water from a water supplier who uses the water for municipal purposes, including residential, commercial, governmental, and industrial uses.

10613. "Efficient use" means those management measures that result in the most effective use of water so as to prevent its waste or unreasonable use or unreasonable method of use.

10614. "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of such an entity.

10615. "Plan" means an urban water management plan prepared pursuant to this part. A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities. The components of the plan may vary according to an individual community or area's characteristics and its capabilities to efficiently use and conserve water. The plan shall address measures for residential, commercial, governmental, and industrial water demand management as set forth in Article 2 (commencing with Section 10630) of Chapter 3. In addition, a strategy and time schedule for implementation shall be included in the plan.

10616. "Public agency" means any board, commission, county, city

and county, city, regional agency, district, or other public entity.

10616.5. "Recycled water" means the reclamation and reuse of wastewater for beneficial use.

10617. "Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems subject to Chapter 4 (commencing with Section 116275) of Part 12 of Division 104 of the Health and Safety Code.

WATER CODE
SECTION 10620-10621

10620. (a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).

(b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.

(c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.

(d) (1) An urban water supplier may satisfy the requirements of this part by participation in areawide, regional, watershed, or basinwide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

(2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

(e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.

(f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.

10621. (a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero.

(b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days prior to the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water

supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.

(c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).

WATER CODE
SECTION 10630-10634

10630. It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.

10631. A plan shall be adopted in accordance with this chapter that shall do all of the following:

(a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a). If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information shall be included in the plan:

(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

(3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

(c) (1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:

(A) An average water year.

(B) A single dry water year.

(C) Multiple dry water years.

(2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

(d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.

(e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, 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.

(2) The water use projections shall be in the same five-year increments described in subdivision (a).

(f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:

(1) A description of each water demand management measure that is currently being implemented, or scheduled for implementation, including the steps necessary to implement any proposed measures, including, but not limited to, all of the following:

(A) Water survey programs for single-family residential and multifamily residential customers.

(B) Residential plumbing retrofit.

(C) System water audits, leak detection, and repair.

(D) Metering with commodity rates for all new connections and retrofit of existing connections.

(E) Large landscape conservation programs and incentives.

(F) High-efficiency washing machine rebate programs.

(G) Public information programs.

(H) School education programs.

(I) Conservation programs for commercial, industrial, and institutional accounts.

(J) Wholesale agency programs.
(K) Conservation pricing.
(L) Water conservation coordinator.
(M) Water waste prohibition.
(N) Residential ultra-low-flush toilet replacement programs.
(2) A schedule of implementation for all water demand management measures proposed or described in the plan.
(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.
(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.
(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:
(1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.
(2) Include a cost-benefit analysis, identifying total benefits and total costs.
(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.
(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.
(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.
(i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.
(j) For purposes of this part, urban water suppliers that are members of the California Urban Water Conservation Council shall be deemed in compliance with the requirements of subdivisions (f) and (g) by complying with all the provisions of the "Memorandum of Understanding Regarding Urban Water Conservation in California,"

dated December 10, 2008, as it may be amended, and by submitting the annual reports required by Section 6.2 of that memorandum.

(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. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

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.

(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.

10631.5. (a) (1) Beginning January 1, 2009, the terms of, and eligibility for, a water management grant or loan made to an urban water supplier and awarded or administered by the department, state board, or California Bay-Delta Authority or its successor agency shall be conditioned on the implementation of the water demand management measures described in Section 10631, as determined by the department pursuant to subdivision (b).

(2) For the purposes of this section, water management grants and loans include funding for programs and projects for surface water or groundwater storage, recycling, desalination, water conservation, water supply reliability, and water supply augmentation. This section does not apply to water management projects funded by the federal American Recovery and Reinvestment Act of 2009 (Public Law 111-5).

(3) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if the urban water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the water demand management measures. The supplier may request grant or loan funds to implement the water demand management measures to the extent the request is consistent with the eligibility requirements applicable to the water management funds.

(4) (A) Notwithstanding paragraph (1), the department shall

determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if an urban water supplier submits to the department for approval documentation demonstrating that a water demand management measure is not locally cost effective. If the department determines that the documentation submitted by the urban water supplier fails to demonstrate that a water demand management measure is not locally cost effective, the department shall notify the urban water supplier and the agency administering the grant or loan program within 120 days that the documentation does not satisfy the requirements for an exemption, and include in that notification a detailed statement to support the determination.

(B) For purposes of this paragraph, "not locally cost effective" means that the present value of the local benefits of implementing a water demand management measure is less than the present value of the local costs of implementing that measure.

(b) (1) The department, in consultation with the state board and the California Bay-Delta Authority or its successor agency, and after soliciting public comment regarding eligibility requirements, shall develop eligibility requirements to implement the requirement of paragraph (1) of subdivision (a). In establishing these eligibility requirements, the department shall do both of the following:

(A) Consider the conservation measures described in the Memorandum of Understanding Regarding Urban Water Conservation in California, and alternative conservation approaches that provide equal or greater water savings.

(B) Recognize the different legal, technical, fiscal, and practical roles and responsibilities of wholesale water suppliers and retail water suppliers.

(2) (A) For the purposes of this section, the department shall determine whether an urban water supplier is implementing all of the water demand management measures described in Section 10631 based on either, or a combination, of the following:

(i) Compliance on an individual basis.

(ii) Compliance on a regional basis. Regional compliance shall require participation in a regional conservation program consisting of two or more urban water suppliers that achieves the level of conservation or water efficiency savings equivalent to the amount of conservation or savings achieved if each of the participating urban water suppliers implemented the water demand management measures. The urban water supplier administering the regional program shall provide participating urban water suppliers and the department with data to demonstrate that the regional program is consistent with this clause. The department shall review the data to determine whether the urban water suppliers in the regional program are meeting the eligibility requirements.

(B) The department may require additional information for any determination pursuant to this section.

(3) The department shall not deny eligibility to an urban water supplier in compliance with the requirements of this section that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of

the agencies participating in the project or plan is not implementing all of the water demand management measures described in Section 10631.

(c) In establishing guidelines pursuant to the specific funding authorization for any water management grant or loan program subject to this section, the agency administering the grant or loan program shall include in the guidelines the eligibility requirements developed by the department pursuant to subdivision (b).

(d) Upon receipt of a water management grant or loan application by an agency administering a grant and loan program subject to this section, the agency shall request an eligibility determination from the department with respect to the requirements of this section. The department shall respond to the request within 60 days of the request.

(e) The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities. In addition, for urban water suppliers that are signatories to the Memorandum of Understanding Regarding Urban Water Conservation in California and submit biennial reports to the California Urban Water Conservation Council in accordance with the memorandum, the department may use these reports to assist in tracking the implementation of water demand management measures.

(f) This section shall remain in effect only until July 1, 2016, and as of that date is repealed, unless a later enacted statute, that is enacted before July 1, 2016, deletes or extends that date.

10631.7. The department, in consultation with the California Urban Water Conservation Council, shall convene an independent technical panel to provide information and recommendations to the department and the Legislature on new demand management measures, technologies, and approaches. The panel shall consist of no more than seven members, who shall be selected by the department to reflect a balanced representation of experts. The panel shall have at least one, but no more than two, representatives from each of the following: retail water suppliers, environmental organizations, the business community, wholesale water suppliers, and academia. The panel shall be convened by January 1, 2009, and shall report to the Legislature no later than January 1, 2010, and every five years thereafter. The department shall review the panel report and include in the final report to the Legislature the department's recommendations and comments regarding the panel process and the panel's recommendations.

10632. (a) The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier:

(1) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions that are applicable to each stage.

(2) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic

sequence for the agency's water supply.

(3) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.

(4) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

(5) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

(6) Penalties or charges for excessive use, where applicable.

(7) An analysis of the impacts of each of the actions and conditions described in paragraphs (1) to (6), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

(8) A draft water shortage contingency resolution or ordinance.

(9) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

(b) Commencing with the urban water management plan update due December 31, 2015, for purposes of developing the water shortage contingency analysis pursuant to subdivision (a), the urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

(a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

(b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.

(c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.

(d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

(e) The projected use of recycled water within the supplier's

service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

(f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

WATER CODE SECTION 10635

10635. (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

(b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.

(c) Nothing in this article is intended to create a right or entitlement to water service or any specific level of water service.

(d) Nothing in this article is intended to change existing law concerning an urban water supplier's obligation to provide water service to its existing customers or to any potential future customers.

WATER CODE
SECTION 10640-10645

10640. Every urban water supplier required to prepare a plan pursuant to this part shall prepare its plan pursuant to Article 2 (commencing with Section 10630).

The supplier shall likewise periodically review the plan as required by Section 10621, and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

10641. An urban water supplier required to prepare a plan may consult with, and obtain comments from, any public agency or state agency or any person who has special expertise with respect to water demand management methods and techniques.

10642. Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan. Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection and shall hold a public hearing thereon. Prior to the hearing, notice of the time and place of hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code. The urban water supplier shall provide notice of the time and place of hearing to any city or county within which the supplier provides water supplies. A privately owned water supplier shall provide an equivalent notice within its service area. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

10643. An urban water supplier shall implement its plan adopted pursuant to this chapter in accordance with the schedule set forth in its plan.

10644. (a) An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

(b) The department shall prepare and submit to the Legislature, on or before December 31, in the years ending in six and one, a report summarizing the status of the plans adopted pursuant to this part. The report prepared by the department shall identify the exemplary elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.

(c) (1) For the purpose of identifying the exemplary elements of the individual plans, the department shall identify in the report those water demand management measures adopted and implemented by specific urban water suppliers, and identified pursuant to Section

10631, that achieve water savings significantly above the levels established by the department to meet the requirements of Section 10631.5.

(2) The department shall distribute to the panel convened pursuant to Section 10631.7 the results achieved by the implementation of those water demand management measures described in paragraph (1).

(3) The department shall make available to the public the standard the department will use to identify exemplary water demand management measures.

10645. Not later than 30 days after filing a copy of its plan with the department, the urban water supplier and the department shall make the plan available for public review during normal business hours.

WATER CODE
SECTION 10650-10656

10650. Any actions or proceedings to attack, review, set aside, void, or annul the acts or decisions of an urban water supplier on the grounds of noncompliance with this part shall be commenced as follows:

(a) An action or proceeding alleging failure to adopt a plan shall be commenced within 18 months after that adoption is required by this part.

(b) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 90 days after filing of the plan or amendment thereto pursuant to Section 10644 or the taking of that action.

10651. In any action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an urban water supplier on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the supplier has not proceeded in a manner required by law or if the action by the water supplier is not supported by substantial evidence.

10652. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part or to the implementation of actions taken pursuant to Section 10632. Nothing in this part shall be interpreted as exempting from the California Environmental Quality Act any project that would significantly affect water supplies for fish and wildlife, or any project for implementation of the plan, other than projects implementing Section 10632, or any project for expanded or additional water supplies.

10653. The adoption of a plan shall satisfy any requirements of state law, regulation, or order, including those of the State Water Resources Control Board and the Public Utilities Commission, for the preparation of water management plans or conservation plans; provided, that if the State Water Resources Control Board or the Public Utilities Commission requires additional information concerning water conservation to implement its existing authority, nothing in this part shall be deemed to limit the board or the commission in obtaining that information. The requirements of this part shall be satisfied by any urban water demand management plan prepared to meet federal laws or regulations after the effective date of this part, and which substantially meets the requirements of this part, or by any existing urban water management plan which includes the contents of a plan required under this part.

10654. An urban water supplier may recover in its rates the costs incurred in preparing its plan and implementing the reasonable water conservation measures included in the plan. Any best water management practice that is included in the plan that is identified in the

"Memorandum of Understanding Regarding Urban Water Conservation in California" is deemed to be reasonable for the purposes of this section.

10655. If any provision of this part or the application thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or applications of this part which can be given effect without the invalid provision or application thereof, and to this end the provisions of this part are severable.

10656. An urban water supplier that does not prepare, adopt, and submit its urban water management plan to the department in accordance with this part, is ineligible to receive funding pursuant to Division 24 (commencing with Section 78500) or Division 26 (commencing with Section 79000), or receive drought assistance from the state until the urban water management plan is submitted pursuant to this article.

APPENDIX B
CALIFORNIA MODEL WATER EFFICIENT LANDSCAPE ORDINANCE

Model Water Efficient Landscape Ordinance

California Code of Regulations
Title 23. Waters
Division 2. Department of Water Resources
Chapter 2.7. Model Water Efficient Landscape Ordinance

§ 490. Purpose.

(a) The State Legislature has found:

(1) that the waters of the state are of limited supply and are subject to ever increasing demands;

(2) that the continuation of California's economic prosperity is dependent on the availability of adequate supplies of water for future uses;

(3) that it is the policy of the State to promote the conservation and efficient use of water and to prevent the waste of this valuable resource;

(4) that landscapes are essential to the quality of life in California by providing areas for active and passive recreation and as an enhancement to the environment by cleaning air and water, preventing erosion, offering fire protection, and replacing ecosystems lost to development; and

(5) that landscape design, installation, maintenance and management can and should be water efficient; and

(6) that Section 2 of Article X of the California Constitution specifies that the right to use water is limited to the amount reasonably required for the beneficial use to be served and the right does not and shall not extend to waste or unreasonable method of use.

(b) Consistent with these legislative findings, the purpose of this model ordinance is to:

(1) promote the values and benefits of landscapes while recognizing the need to invest water and other resources as efficiently as possible;

(2) establish a structure for planning, designing, installing, maintaining and managing water efficient landscapes in new construction and rehabilitated projects;

(3) establish provisions for water management practices and water waste prevention for existing landscapes;

(4) use water efficiently without waste by setting a Maximum Applied Water Allowance as an upper limit for water use and reduce water use to the lowest practical amount;

(5) promote the benefits of consistent landscape ordinances with neighboring local and regional agencies;

(6) encourage local agencies and water purveyors to use economic incentives that promote the efficient use of water, such as implementing a tiered-rate structure; and

(7) encourage local agencies to designate the necessary authority that implements and enforces the provisions of the Model Water Efficient Landscape Ordinance or its local landscape ordinance.

Note: Authority cited: Section 65593, Government Code. Reference: Sections 65591, 65593, 65596, Government Code.

§ 490.1 Applicability

(a) After January 1, 2010, this ordinance shall apply to all of the following landscape projects:

(1) new construction and rehabilitated landscapes for public agency projects and private development projects with a landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check or design review;

(2) new construction and rehabilitated landscapes which are developer-installed in single-family and multi-family projects with a landscape area equal to or greater than 2,500 square feet requiring a building or landscape permit, plan check, or design review;

(3) new construction landscapes which are homeowner-provided and/or homeowner-hired in single-family and multi-family residential projects with a total project landscape area equal to or greater than 5,000 square feet requiring a building or landscape permit, plan check or design review;

(4) existing landscapes limited to Sections 493, 493.1 and 493.2; and
(5) cemeteries. Recognizing the special landscape management needs of cemeteries, new and rehabilitated cemeteries are limited to Sections 492.4, 492.11 and 492.12; and existing cemeteries are limited to Sections 493, 493.1 and 493.2.
(b) This ordinance does not apply to:
(1) registered local, state or federal historical sites;
(2) ecological restoration projects that do not require a permanent irrigation system;
(3) mined-land reclamation projects that do not require a permanent irrigation system; or
(4) plant collections, as part of botanical gardens and arboretums open to the public.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

§ 491. Definitions.

The terms used in this ordinance have the meaning set forth below:
(a) "applied water" means the portion of water supplied by the irrigation system to the landscape.
(b) "automatic irrigation controller" means an automatic timing device used to remotely control valves that operate an irrigation system. Automatic irrigation controllers schedule irrigation events using either evapotranspiration (weather-based) or soil moisture data.
(c) "backflow prevention device" means a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.
(d) "Certificate of Completion" means the document required under Section 492.9.
(e) "certified irrigation designer" means a person certified to design irrigation systems by an accredited academic institution a professional trade organization or other program such as the US Environmental Protection Agency's WaterSense irrigation designer certification program and Irrigation Association's Certified Irrigation Designer program.
(f) "certified landscape irrigation auditor" means a person certified to perform landscape irrigation audits by an accredited academic institution, a professional trade organization or other program such as the US Environmental Protection Agency's WaterSense irrigation auditor certification program and Irrigation Association's Certified Landscape Irrigation Auditor program.
(g) "check valve" or "anti-drain valve" means a valve located under a sprinkler head, or other location in the irrigation system, to hold water in the system to prevent drainage from sprinkler heads when the sprinkler is off.
(h) "common interest developments" means community apartment projects, condominium projects, planned developments, and stock cooperatives per Civil Code Section 1351.
(i) "conversion factor (0.62)" means the number that converts acre-inches per acre per year to gallons per square foot per year
(j) "drip irrigation" means any non-spray low volume irrigation system utilizing emission devices with a flow rate measured in gallons per hour. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.
(k) "ecological restoration project" means a project where the site is intentionally altered to establish a defined, indigenous, historic ecosystem.
(l)"effective precipitation" or "usable rainfall" (Eppt) means the portion of total precipitation which becomes available for plant growth.
(m) "emitter" means a drip irrigation emission device that delivers water slowly from the system to the soil.
(n) "established landscape" means the point at which plants in the landscape have developed significant root growth into the soil. Typically, most plants are established after one or two years of growth.
(o) "establishment period of the plants" means the first year after installing the plant in the landscape or the first two years if irrigation will be terminated after establishment. Typically, most plants are established after one or two years of growth.

(p) “Estimated Total Water Use” (ETWU) means the total water used for the landscape as described in Section 492.4.
(q) “ET adjustment factor” (ETAF) means a factor of 0.7, that, when applied to reference evapotranspiration, adjusts for plant factors and irrigation efficiency, two major influences upon the amount of water that needs to be applied to the landscape.
A combined plant mix with a site-wide average of 0.5 is the basis of the plant factor portion of this calculation. For purposes of the ETAF, the average irrigation efficiency is 0.71. Therefore, the ET Adjustment Factor is (0.7)=(0.5/0.71). ETAF for a Special Landscape Area shall not exceed 1.0. ETAF for existing non-rehabilitated landscapes is 0.8.
(r) “evapotranspiration rate” means the quantity of water evaporated from adjacent soil and other surfaces and transpired by plants during a specified time.
(s) “flow rate” means the rate at which water flows through pipes, valves and emission devices, measured in gallons per minute, gallons per hour, or cubic feet per second.
(t) “hardscapes” means any durable material (pervious and non-pervious).
(u) “homeowner-provided landscaping” means any landscaping either installed by a private individual for a single family residence or installed by a licensed contractor hired by a homeowner. A homeowner, for purposes of this ordinance, is a person who occupies the dwelling he or she owns. This excludes speculative homes, which are not owner-occupied dwellings.
(v) “hydrozone” means a portion of the landscaped area having plants with similar water needs. A hydrozone may be irrigated or non-irrigated.
(w) “infiltration rate” means the rate of water entry into the soil expressed as a depth of water per unit of time (e.g., inches per hour).
(x)“invasive plant species” means species of plants not historically found in California that spread outside cultivated areas and can damage environmental or economic resources. Invasive species may be regulated by county agricultural agencies as noxious species. “Noxious weeds” means any weed designated by the Weed Control Regulations in the Weed Control Act and identified on a Regional District noxious weed control list. Lists of invasive plants are maintained at the California Invasive Plant Inventory and USDA invasive and noxious weeds database.
(y) “irrigation audit” means an in-depth evaluation of the performance of an irrigation system conducted by a Certified Landscape Irrigation Auditor. An irrigation audit includes, but is not limited to: inspection, system tune-up, system test with distribution uniformity or emission uniformity, reporting overspray or runoff that causes overland flow, and preparation of an irrigation schedule.
(z) “irrigation efficiency” (IE) means the measurement of the amount of water beneficially used divided by the amount of water applied. Irrigation efficiency is derived from measurements and estimates of irrigation system characteristics and management practices. The minimum average irrigation efficiency for purposes of this ordinance is 0.71. Greater irrigation efficiency can be expected from well designed and maintained systems.
(aa) “irrigation survey” means an evaluation of an irrigation system that is less detailed than an irrigation audit. An irrigation survey includes, but is not limited to: inspection, system test, and written recommendations to improve performance of the irrigation system.
(bb) “irrigation water use analysis” means an analysis of water use data based on meter readings and billing data.
(cc) “landscape architect” means a person who holds a license to practice landscape architecture in the state of California Business and Professions Code, Section 5615.
(dd) “landscape area” means all the planting areas, turf areas, and water features in a landscape design plan subject to the Maximum Applied Water Allowance calculation. The landscape area does not include footprints of buildings or structures, sidewalks, driveways, parking lots, decks, patios, gravel or stone walks, other pervious or non-pervious hardscapes, and other non-irrigated areas designated for non-development (e.g., open spaces and existing native vegetation).

(ee) “landscape contractor” means a person licensed by the state of California to construct, maintain, repair, install, or subcontract the development of landscape systems.
(ff) “Landscape Documentation Package” means the documents required under Section 492.3.
(gg) “landscape project” means total area of landscape in a project as defined in “landscape area” for the purposes of this ordinance, meeting requirements under Section 490.1.
(hh) “lateral line” means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.
(ii) “local agency” means a city or county, including a charter city or charter county, that is responsible for adopting and implementing the ordinance. The local agency is also responsible for the enforcement of this ordinance, including but not limited to, approval of a permit and plan check or design review of a project.
(jj) “local water purveyor” means any entity, including a public agency, city, county, or private water company that provides retail water service.
(kk) “low volume irrigation” means the application of irrigation water at low pressure through a system of tubing or lateral lines and low-volume emitters such as drip, drip lines, and bubblers. Low volume irrigation systems are specifically designed to apply small volumes of water slowly at or near the root zone of plants.
(ll) “main line” means the pressurized pipeline that delivers water from the water source to the valve or outlet.
(mm) “Maximum Applied Water Allowance” (MAWA) means the upper limit of annual applied water for the established landscaped area as specified in Section 492.4. It is based upon the area’s reference evapotranspiration, the ET Adjustment Factor, and the size of the landscape area. The Estimated Total Water Use shall not exceed the Maximum Applied Water Allowance. Special Landscape Areas, including recreation areas, areas permanently and solely dedicated to edible plants such as orchards and vegetable gardens, and areas irrigated with recycled water are subject to the MAWA with an ETAF not to exceed 1.0.
(nn) “microclimate” means the climate of a small, specific area that may contrast with the climate of the overall landscape area due to factors such as wind, sun exposure, plant density, or proximity to reflective surfaces.
(oo) “mined-land reclamation projects” means any surface mining operation with a reclamation plan approved in accordance with the Surface Mining and Reclamation Act of 1975.
(pp) “mulch” means any organic material such as leaves, bark, straw, compost, or inorganic mineral materials such as rocks, gravel, and decomposed granite left loose and applied to the soil surface for the beneficial purposes of reducing evaporation, suppressing weeds, moderating soil temperature, and preventing soil erosion.
(qq) “new construction” means, for the purposes of this ordinance, a new building with a landscape or other new landscape, such as a park, playground, or greenbelt without an associated building.
(rr) “operating pressure” means the pressure at which the parts of an irrigation system are designed by the manufacturer to operate.
(ss) “overhead sprinkler irrigation systems” means systems that deliver water through the air (e.g., spray heads and rotors).
(tt) “overspray” means the irrigation water which is delivered beyond the target area.
(uu) “permit” means an authorizing document issued by local agencies for new construction or rehabilitated landscapes.
(vv) “pervious” means any surface or material that allows the passage of water through the material and into the underlying soil.
(ww) “plant factor” or “plant water use factor” is a factor , when multiplied by ETo, estimates the amount of water needed by plants. For purposes of this ordinance, the plant factor range for low water use plants is 0 to 0.3, the plant factor range for moderate water use plants is 0.4 to 0.6, and the plant

factor range for high water use plants is 0.7 to 1.0. Plant factors cited in this ordinance are derived from the Department of Water Resources 2000 publication "Water Use Classification of Landscape Species".
(xx) "precipitation rate" means the rate of application of water measured in inches per hour.
(yy) "project applicant" means the individual or entity submitting a Landscape Documentation Package required under Section 492.3, to request a permit, plan check, or design review from the local agency. A project applicant may be the property owner or his or her designee.
(zz) "rain sensor" or "rain sensing shutoff device" means a component which automatically suspends an irrigation event when it rains.
(aaa) "record drawing" or "as-builts" means a set of reproducible drawings which show significant changes in the work made during construction and which are usually based on drawings marked up in the field and other data furnished by the contractor.
(bbb) "recreational area" means areas dedicated to active play such as parks, sports fields, and golf courses where turf provides a playing surface.
(ccc) "recycled water", "reclaimed water", or "treated sewage effluent water" means treated or recycled waste water of a quality suitable for non-potable uses such as landscape irrigation and water features. This water is not intended for human consumption.
(ddd) "reference evapotranspiration" or "ETo" means a standard measurement of environmental parameters which affect the water use of plants. ETo is expressed in inches per day, month, or year as represented in Section 495.1, and is an estimate of the evapotranspiration of a large field of four- to seven-inch tall, cool-season grass that is well watered. Reference evapotranspiration is used as the basis of determining the Maximum Applied Water Allowance so that regional differences in climate can be accommodated.
(eee) "rehabilitated landscape" means any re-landscaping project that requires a permit , plan check, or design review, meets the requirements of Section 490.1, and the modified landscape area is equal to or greater than 2,500 square feet, is 50% of the total landscape area, and the modifications are completed within one year.
(fff) "runoff" means water which is not absorbed by the soil or landscape to which it is applied and flows from the landscape area. For example, runoff may result from water that is applied at too great a rate (application rate exceeds infiltration rate) or when there is a slope.
(ggg) "soil moisture sensing device" or "soil moisture sensor" means a device that measures the amount of water in the soil. The device may also suspend or initiate an irrigation event.
(hhh) "soil texture" means the classification of soil based on its percentage of sand, silt, and clay.
(iii)"Special Landscape Area" (SLA) means an area of the landscape dedicated solely to edible plants, areas irrigated with recycled water, water features using recycled water and areas dedicated to active play such as parks, sports fields, golf courses, and where turf provides a playing surface.
(jjj) "sprinkler head" means a device which delivers water through a nozzle.
(kkk) "static water pressure" means the pipeline or municipal water supply pressure when water is not flowing.
(lll) "station" means an area served by one valve or by a set of valves that operate simultaneously.
(mmm) "swing joint" means an irrigation component that provides a flexible, leak-free connection between the emission device and lateral pipeline to allow movement in any direction and to prevent equipment damage.
(nnn) "turf" means a ground cover surface of mowed grass. Annual bluegrass, Kentucky bluegrass, Perennial ryegrass, Red fescue, and Tall fescue are cool-season grasses. Bermudagrass, Kikuyugrass, Seashore Paspalum, St. Augustinegrass, Zoysiagrass, and Buffalo grass are warm-season grasses.
(ooo) "valve" means a device used to control the flow of water in the irrigation system.
(ppp) "water conserving plant species" means a plant species identified as having a low plant factor.
(qqq) "water feature" means a design element where open water performs an aesthetic or recreational function. Water features include ponds, lakes, waterfalls, fountains, artificial streams, spas, and swimming pools (where water is artificially supplied). The surface area of water features is included in

the high water use hydrozone of the landscape area. Constructed wetlands used for on-site wastewater treatment or stormwater best management practices that are not irrigated and used solely for water treatment or stormwater retention are not water features and, therefore, are not subject to the water budget calculation.
(rrr) "watering window" means the time of day irrigation is allowed.
(sss) "WUCOLS" means the Water Use Classification of Landscape Species published by the University of California Cooperative Extension, the Department of Water Resources and the Bureau of Reclamation, 2000.

Note: Authority Cited: Section 65595, Government Code. Reference: Sections 65592, 65596, Government Code.

§ 492. Provisions for New Construction or Rehabilitated Landscapes.
(a) A local agency may designate another agency, such as a water purveyor, to implement some or all of the requirements contained in this ordinance. Local agencies may collaborate with water purveyors to define each entity's specific responsibilities relating to this ordinance.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

§ 492.1 Compliance with Landscape Documentation Package.
(a) Prior to construction, the local agency shall:
(1) provide the project applicant with the ordinance and procedures for permits, plan checks, or design reviews;
(2) review the Landscape Documentation Package submitted by the project applicant;
(3) approve or deny the Landscape Documentation Package;
(4) issue a permit or approve the plan check or design review for the project applicant; and
(5) upon approval of the Landscape Documentation Package, submit a copy of the Water Efficient Landscape Worksheet to the local water purveyor.
(b) Prior to construction, the project applicant shall:
(1) submit a Landscape Documentation Package to the local agency.
(c) Upon approval of the Landscape Documentation Package by the local agency, the project applicant shall:
(1) receive a permit or approval of the plan check or design review and record the date of the permit in the Certificate of Completion;
(2) submit a copy of the approved Landscape Documentation Package along with the record drawings, and any other information to the property owner or his/her designee; and
(3) submit a copy of the Water Efficient Landscape Worksheet to the local water purveyor.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

§ 492.2 Penalties.
(a) A local agency may establish and administer penalties to the project applicant for non-compliance with the ordinance to the extent permitted by law.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

§ 492.3 Elements of the Landscape Documentation Package.

(a) The Landscape Documentation Package shall include the following six (6) elements:

(1) project information;

(A) date

(B) project applicant

(C) project address (if available, parcel and/or lot number(s))

(D) total landscape area (square feet)

(E) project type (e.g., new, rehabilitated, public, private, cemetery, homeowner-installed)

(F) water supply type (e.g., potable, recycled, well) and identify the local retail water purveyor if the applicant is not served by a private well

(G) checklist of all documents in Landscape Documentation Package

(H) project contacts to include contact information for the project applicant and property owner

(I) applicant signature and date with statement, "I agree to comply with the requirements of the water efficient landscape ordinance and submit a complete Landscape Documentation Package".

(2) Water Efficient Landscape Worksheet;

(A) hydrozone information table

(B) water budget calculations

1. Maximum Applied Water Allowance (MAWA)

2. Estimated Total Water Use (ETWU)

(3) soil management report;

(4) landscape design plan;

(5) irrigation design plan; and

(6) grading design plan.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

§ 492.4 Water Efficient Landscape Worksheet.

(a) A project applicant shall complete the Water Efficient Landscape Worksheet which contains two sections (see sample worksheet in Appendix B):

(1) a hydrozone information table (see Appendix B, Section A) for the landscape project; and

(2) a water budget calculation (see Appendix B, Section B) for the landscape project. For the calculation of the Maximum Applied Water Allowance and Estimated Total Water Use, a project applicant shall use the ETo values from the Reference Evapotranspiration Table in Appendix A. For geographic areas not covered in Appendix A, use data from other cities located nearby in the same reference evapotranspiration zone, as found in the CIMIS Reference Evapotranspiration Zones Map, Department of Water Resources, 1999.

(b) Water budget calculations shall adhere to the following requirements:

(1) The plant factor used shall be from WUCOLS. The plant factor ranges from 0 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants.

(2) All water features shall be included in the high water use hydrozone and temporarily irrigated areas shall be included in the low water use hydrozone.

(3) All Special Landscape Areas shall be identified and their water use calculated as described below.

(4) ETAF for Special Landscape Areas shall not exceed 1.0.

(c) Maximum Applied Water Allowance

The Maximum Applied Water Allowance shall be calculated using the equation:

$$MAWA = (ETo)\ (0.62)\ [(0.7 \times LA) + (0.3 \times SLA)]$$

The example calculations below are hypothetical to demonstrate proper use of the equations and do not represent an existing and/or planned landscape project. The ETo values used in these calculations are from the Reference Evapotranspiration Table in Appendix A, for planning purposes only. For actual irrigation scheduling, automatic irrigation controllers are required and shall use current reference evapotranspiration data, such as from the California Irrigation Management Information System (CIMIS), other equivalent data, or soil moisture sensor data.

(1) Example MAWA calculation: a hypothetical landscape project in Fresno, CA with an irrigated landscape area of 50,000 square feet without any Special Landscape Area (SLA= 0, no edible plants, recreational areas, or use of recycled water). To calculate MAWA, the annual reference evapotranspiration value for Fresno is 51.1 inches as listed in the Reference Evapotranspiration Table in Appendix A.

MAWA = (ETo) (0.62) [(0.7 x LA) + (0.3 x SLA)]
MAWA = Maximum Applied Water Allowance (gallons per year)
ETo = Reference Evapotranspiration (inches per year)
0.62 = Conversion Factor (to gallons)
0.7 = ET Adjustment Factor (ETAF)
LA = Landscape Area including SLA (square feet)
0.3 = Additional Water Allowance for SLA
SLA = Special Landscape Area (square feet)
MAWA = (51.1 inches) (0.62) [(0.7 x 50,000 square feet) + (0.3 x 0)]
= 1,108,870 gallons per year
To convert from gallons per year to hundred-cubic-feet per year:
= 1,108,870/748 = 1,482 hundred-cubic-feet per year
(100 cubic feet = 748 gallons)

(2) In this next hypothetical example, the landscape project in Fresno, CA has the same ETo value of 51.1 inches and a total landscape area of 50,000 square feet. Within the 50,000 square foot project, there is now a 2,000 square foot area planted with edible plants. This 2,000 square foot area is considered to be a Special Landscape Area.

MAWA = (ETo) (0.62) [(0.7 x LA) + (0.3 x SLA)]
MAWA = (51.1 inches) (0.62) [(0.7 x 50,000 square feet) + (0.3 x 2,000 square feet)]
= 31.68 x [35,000 + 600] gallons per year
= 31.68 x 35,600 gallons per year
=1,127,808 gallons per year or 1,508 hundred-cubic-feet per year

(d) Estimated Total Water Use.

The Estimated Total Water Use shall be calculated using the equation below. The sum of the Estimated Total Water Use calculated for all hydrozones shall not exceed MAWA.

$$ETWU = (ETo)(0.62)\left(\frac{PF\ x\ HA}{IE} + SLA\right)$$

Where:

ETWU = Estimated Total Water Use per year (gallons)
ETo = Reference Evapotranspiration (inches)
PF = Plant Factor from WUCOLS (see Section 491)
HA = Hydrozone Area [high, medium, and low water use areas] (square feet)
SLA = Special Landscape Area (square feet)
0.62 = Conversion Factor
IE = Irrigation Efficiency (minimum 0.71)

(1) Example ETWU calculation: landscape area is 50,000 square feet; plant water use type, plant factor, and hydrozone area are shown in the table below. The ETo value is 51.1 inches per year. There are no Special Landscape Areas (recreational area, area permanently and solely dedicated to edible plants, and area irrigated with recycled water) in this example.

Hydrozone	Plant Water Use Type(s)	Plant Factor (PF)*	Hydrozone Area (HA) (square feet)	PF x HA (square feet)
1	High	0.8	7,000	5,600
2	High	0.7	10,000	7,000
3	Medium	0.5	16,000	8,000
4	Low	0.3	7,000	2,100
5	Low	0.2	10,000	2,000
			Sum	24,700

*Plant Factor from WUCOLS

$$ETWU = (51.1)(0.62)\left(\frac{24{,}700}{0.71} + 0\right)$$

= 1,102,116 gallons per year

Compare ETWU with MAWA: For this example MAWA = (51.1) (0.62) [(0.7 x 50,000) + (0.3 x 0)] = 1,108,870 gallons per year. The ETWU (1,102,116 gallons per year) is less than MAWA (1,108,870 gallons per year). In this example, the water budget complies with the MAWA.

(2) Example ETWU calculation: total landscape area is 50,000 square feet, 2,000 square feet of which is planted with edible plants. The edible plant area is considered a Special Landscape Area (SLA). The reference evapotranspiration value is 51.1 inches per year. The plant type, plant factor, and hydrozone area are shown in the table below.

Hydrozone	Plant Water Use Type(s)	Plant Factor (PF)*	Hydrozone Area (HA) (square feet)	PF x HA (square feet)
1	High	0.8	7,000	5,600
2	High	0.7	9,000	6,300
3	Medium	0.5	15,000	7,500
4	Low	0.3	7,000	2,100
5	Low	0.2	10,000	2,000
			Sum	23,500
6	SLA	1.0	2,000	2,000

*Plant Factor from WUCOLS

$$ETWU = (51.1)(0.62)\left(\frac{23{,}500}{0.71} + 2{,}000\right)$$

= (31.68) (33,099 + 2,000)

= 1,111,936 gallons per year

Compare ETWU with MAWA. For this example:
MAWA = (51.1) (0.62) [(0.7 x 50,000) + (0.3 x 2,000)]
= 31.68 x [35,000 + 600]
= 31.68 x 35,600
=1,127,808 gallons per year

The ETWU (1,111,936 gallons per year) is less than MAWA (1,127,808 gallons per year). For this example, the water budget complies with the MAWA.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

§ 492.5 Soil Management Report.

(a) In order to reduce runoff and encourage healthy plant growth, a soil management report shall be completed by the project applicant, or his/her designee, as follows:
(1) Submit soil samples to a laboratory for analysis and recommendations.
(A) Soil sampling shall be conducted in accordance with laboratory protocol, including protocols regarding adequate sampling depth for the intended plants.
(B) The soil analysis may include:
1. soil texture;
2. infiltration rate determined by laboratory test or soil texture infiltration rate table;
3. pH;
4. total soluble salts;
5. sodium;
6. percent organic matter; and
7. recommendations.
(2) The project applicant, or his/her designee, shall comply with one of the following:
(A) If significant mass grading is not planned, the soil analysis report shall be submitted to the local agency as part of the Landscape Documentation Package; or
(B) If significant mass grading is planned, the soil analysis report shall be submitted to the local agency as part of the Certificate of Completion.
(3) The soil analysis report shall be made available, in a timely manner, to the professionals preparing the landscape design plans and irrigation design plans to make any necessary adjustments to the design plans.
(4) The project applicant, or his/her designee, shall submit documentation verifying implementation of soil analysis report recommendations to the local agency with Certificate of Completion.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

§ 492.6 Landscape Design Plan.

(a) For the efficient use of water, a landscape shall be carefully designed and planned for the intended function of the project. A landscape design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.
(1) Plant Material
(A) Any plant may be selected for the landscape, providing the Estimated Total Water Use in the landscape area does not exceed the Maximum Applied Water Allowance. To encourage the efficient use of water, the following is highly recommended:
1. protection and preservation of native species and natural vegetation;
2. selection of water-conserving plant and turf species;

3. selection of plants based on disease and pest resistance;
4. selection of trees based on applicable local tree ordinances or tree shading guidelines; and
5. selection of plants from local and regional landscape program plant lists.
(B) Each hydrozone shall have plant materials with similar water use, with the exception of hydrozones with plants of mixed water use, as specified in Section 492.7(a)(2)(D).
(C) Plants shall be selected and planted appropriately based upon their adaptability to the climatic, geologic, and topographical conditions of the project site. To encourage the efficient use of water, the following is highly recommended:
1. use the Sunset Western Climate Zone System which takes into account temperature, humidity, elevation, terrain, latitude, and varying degrees of continental and marine influence on local climate;
2. recognize the horticultural attributes of plants (i.e., mature plant size, invasive surface roots) to minimize damage to property or infrastructure [e.g., buildings, sidewalks, power lines]; and
3. consider the solar orientation for plant placement to maximize summer shade and winter solar gain.
(D) Turf is not allowed on slopes greater than 25% where the toe of the slope is adjacent to an impermeable hardscape and where 25% means 1 foot of vertical elevation change for every 4 feet of horizontal length (rise divided by run x 100 = slope percent).
(E) A landscape design plan for projects in fire-prone areas shall address fire safety and prevention. A defensible space or zone around a building or structure is required per Public Resources Code Section 4291(a) and (b). Avoid fire-prone plant materials and highly flammable mulches.
(F) The use of invasive and/or noxious plant species is strongly discouraged.
(G) The architectural guidelines of a common interest development, which include community apartment projects, condominiums, planned developments, and stock cooperatives, shall not prohibit or include conditions that have the effect of prohibiting the use of low-water use plants as a group.
(2) Water Features
(A) Recirculating water systems shall be used for water features.
(B) Where available, recycled water shall be used as a source for decorative water features.
(C) Surface area of a water feature shall be included in the high water use hydrozone area of the water budget calculation.
(D) Pool and spa covers are highly recommended.
(3) Mulch and Amendments
(A) A minimum two inch (2″) layer of mulch shall be applied on all exposed soil surfaces of planting areas except in turf areas, creeping or rooting groundcovers, or direct seeding applications where mulch is contraindicated.
(B) Stabilizing mulching products shall be used on slopes.
(C) The mulching portion of the seed/mulch slurry in hydro-seeded applications shall meet the mulching requirement.
(D) Soil amendments shall be incorporated according to recommendations of the soil report and what is appropriate for the plants selected (see Section 492.5).
(b) The landscape design plan, at a minimum, shall:
(1) delineate and label each hydrozone by number, letter, or other method;
(2) identify each hydrozone as low, moderate, high water, or mixed water use. Temporarily irrigated areas of the landscape shall be included in the low water use hydrozone for the water budget calculation;
(3) identify recreational areas;
(4) identify areas permanently and solely dedicated to edible plants;
(5) identify areas irrigated with recycled water;
(6) identify type of mulch and application depth;
(7) identify soil amendments, type, and quantity;
(8) identify type and surface area of water features;
(9) identify hardscapes (pervious and non-pervious);

(10) identify location and installation details of any applicable stormwater best management practices that encourage on-site retention and infiltration of stormwater. Stormwater best management practices are encouraged in the landscape design plan and examples include, but are not limited to:
(A) infiltration beds, swales, and basins that allow water to collect and soak into the ground;
(B) constructed wetlands and retention ponds that retain water, handle excess flow, and filter pollutants; and
(C) pervious or porous surfaces (e.g., permeable pavers or blocks, pervious or porous concrete, etc.) that minimize runoff.
(11) identify any applicable rain harvesting or catchment technologies (e.g., rain gardens, cisterns, etc.);
(12) contain the following statement: "I have complied with the criteria of the ordinance and applied them for the efficient use of water in the landscape design plan"; and
(13) bear the signature of a licensed landscape architect, licensed landscape contractor, or any other person authorized to design a landscape. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and Professions Code, Section 832.27 of Title16 of the California Code of Regulations, and Section 6721 of the Food and Agriculture Code.)

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code and Section 1351, Civil Code.

§ 492.7 Irrigation Design Plan.
(a) For the efficient use of water, an irrigation system shall meet all the requirements listed in this section and the manufacturers' recommendations. The irrigation system and its related components shall be planned and designed to allow for proper installation, management, and maintenance. An irrigation design plan meeting the following design criteria shall be submitted as part of the Landscape Documentation Package.
(1) System
(A) Dedicated landscape water meters are highly recommended on landscape areas smaller than 5,000 square feet to facilitate water management.
(B) Automatic irrigation controllers utilizing either evapotranspiration or soil moisture sensor data shall be required for irrigation scheduling in all irrigation systems.
(C) The irrigation system shall be designed to ensure that the dynamic pressure at each emission device is within the manufacturer's recommended pressure range for optimal performance.
1. If the static pressure is above or below the required dynamic pressure of the irrigation system, pressure-regulating devices such as inline pressure regulators, booster pumps, or other devices shall be installed to meet the required dynamic pressure of the irrigation system.
2. Static water pressure, dynamic or operating pressure. and flow reading of the water supply shall be measured at the point of connection. These pressure and flow measurements shall be conducted at the design stage. If the measurements are not available at the design stage, the measurements shall be conducted at installation.
(D) Sensors (rain, freeze, wind, etc.), either integral or auxiliary, that suspend or alter irrigation operation during unfavorable weather conditions shall be required on all irrigation systems, as appropriate for local climatic conditions. Irrigation should be avoided during windy or freezing weather or during rain.
(E) Manual shut-off valves (such as a gate valve, ball valve, or butterfly valve) shall be required, as close as possible to the point of connection of the water supply, to minimize water loss in case of an emergency (such as a main line break) or routine repair.

(F) Backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system. A project applicant shall refer to the applicable local agency code (i.e., public health) for additional backflow prevention requirements.
(G) High flow sensors that detect and report high flow conditions created by system damage or malfunction are recommended.
(H) The irrigation system shall be designed to prevent runoff, low head drainage, overspray, or other similar conditions where irrigation water flows onto non-targeted areas, such as adjacent property, non-irrigated areas, hardscapes, roadways, or structures.
(I) Relevant information from the soil management plan, such as soil type and infiltration rate, shall be utilized when designing irrigation systems.
(J) The design of the irrigation system shall conform to the hydrozones of the landscape design plan.
(K) The irrigation system must be designed and installed to meet, at a minimum, the irrigation efficiency criteria as described in Section 492.4 regarding the Maximum Applied Water Allowance.
(L) It is highly recommended that the project applicant or local agency inquire with the local water purveyor about peak water operating demands (on the water supply system) or water restrictions that may impact the effectiveness of the irrigation system.
(M) In mulched planting areas, the use of low volume irrigation is required to maximize water infiltration into the root zone.
(N) Sprinkler heads and other emission devices shall have matched precipitation rates, unless otherwise directed by the manufacturer's recommendations.
(O) Head to head coverage is recommended. However, sprinkler spacing shall be designed to achieve the highest possible distribution uniformity using the manufacturer's recommendations.
(P) Swing joints or other riser-protection components are required on all risers subject to damage that are adjacent to high traffic areas.
(Q) Check valves or anti-drain valves are required for all irrigation systems.
(R) Narrow or irregularly shaped areas, including turf, less than eight (8) feet in width in any direction shall be irrigated with subsurface irrigation or low volume irrigation system.
(S) Overhead irrigation shall not be permitted within 24 inches of any non-permeable surface. Allowable irrigation within the setback from non-permeable surfaces may include drip, drip line, or other low flow non-spray technology. The setback area may be planted or unplanted. The surfacing of the setback may be mulch, gravel, or other porous material. These restrictions may be modified if:
1. the landscape area is adjacent to permeable surfacing and no runoff occurs; or
2. the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping; or
3. the irrigation designer specifies an alternative design or technology, as part of the Landscape Documentation Package and clearly demonstrates strict adherence to irrigation system design criteria in Section 492.7 (a)(1)(H). Prevention of overspray and runoff must be confirmed during the irrigation audit.
(T) Slopes greater than 25% shall not be irrigated with an irrigation system with a precipitation rate exceeding 0.75 inches per hour. This restriction may be modified if the landscape designer specifies an alternative design or technology, as part of the Landscape Documentation Package, and clearly demonstrates no runoff or erosion will occur. Prevention of runoff and erosion must be confirmed during the irrigation audit.
(2) Hydrozone
(A) Each valve shall irrigate a hydrozone with similar site, slope, sun exposure, soil conditions, and plant materials with similar water use.
(B) Sprinkler heads and other emission devices shall be selected based on what is appropriate for the plant type within that hydrozone.
(C) Where feasible, trees shall be placed on separate valves from shrubs, groundcovers, and turf.
(D) Individual hydrozones that mix plants of moderate and low water use, or moderate and high water use, may be allowed if:

1. plant factor calculation is based on the proportions of the respective plant water uses and their plant factor; or
2. the plant factor of the higher water using plant is used for calculations.
(E) Individual hydrozones that mix high and low water use plants shall not be permitted.
(F) On the landscape design plan and irrigation design plan, hydrozone areas shall be designated by number, letter, or other designation. On the irrigation design plan, designate the areas irrigated by each valve, and assign a number to each valve. Use this valve number in the Hydrozone Information Table (see Appendix B Section A). This table can also assist with the irrigation audit and programming the controller.
(b) The irrigation design plan, at a minimum, shall contain:
(1) location and size of separate water meters for landscape;
(2) location, type and size of all components of the irrigation system, including controllers, main and lateral lines, valves, sprinkler heads, moisture sensing devices, rain switches, quick couplers, pressure regulators, and backflow prevention devices;
(3) static water pressure at the point of connection to the public water supply;
(4) flow rate (gallons per minute), application rate (inches per hour), and design operating pressure (pressure per square inch) for each station;
(5) recycled water irrigation systems as specified in Section 492.14;
(6) the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the irrigation design plan"; and
(7) the signature of a licensed landscape architect, certified irrigation designer, licensed landscape contractor, or any other person authorized to design an irrigation system. (See Sections 5500.1, 5615, 5641, 5641.1, 5641.2, 5641.3, 5641.4, 5641.5, 5641.6, 6701, 7027.5 of the Business and Professions Code, Section 832.27 of Title 16 of the California Code of Regulations, and Section 6721 of the Food and Agricultural Code.)

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

§ 492.8 Grading Design Plan.
(a) For the efficient use of water, grading of a project site shall be designed to minimize soil erosion, runoff, and water waste. A grading plan shall be submitted as part of the Landscape Documentation Package. A comprehensive grading plan prepared by a civil engineer for other local agency permits satisfies this requirement.
(1) The project applicant shall submit a landscape grading plan that indicates finished configurations and elevations of the landscape area including:
(A) height of graded slopes;
(B) drainage patterns;
(C) pad elevations;
(D) finish grade; and
(E) stormwater retention improvements, if applicable.
(2) To prevent excessive erosion and runoff, it is highly recommended that project applicants:
(A) grade so that all irrigation and normal rainfall remains within property lines and does not drain on to non-permeable hardscapes;
(B) avoid disruption of natural drainage patterns and undisturbed soil; and
(C) avoid soil compaction in landscape areas.
(3) The grading design plan shall contain the following statement: "I have complied with the criteria of the ordinance and applied them accordingly for the efficient use of water in the grading design plan" and shall bear the signature of a licensed professional as authorized by law.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

§ 492.9 Certificate of Completion.

(a) The Certificate of Completion (see Appendix C for a sample certificate) shall include the following six (6) elements:

(1) project information sheet that contains:

(A) date;

(B) project name;

(C) project applicant name, telephone, and mailing address;

(D) project address and location; and

(E) property owner name, telephone, and mailing address;

(2) certification by either the signer of the landscape design plan, the signer of the irrigation design plan, or the licensed landscape contractor that the landscape project has been installed per the approved Landscape Documentation Package;

(A) where there have been significant changes made in the field during construction, these "as-built" or record drawings shall be included with the certification;

(3) irrigation scheduling parameters used to set the controller (see Section 492.10);

(4) landscape and irrigation maintenance schedule (see Section 492.11);

(5) irrigation audit report (see Section 492.12); and

(6) soil analysis report, if not submitted with Landscape Documentation Package, and documentation verifying implementation of soil report recommendations (see Section 492.5).

(b) The project applicant shall:

(1) submit the signed Certificate of Completion to the local agency for review;

(2) ensure that copies of the approved Certificate of Completion are submitted to the local water purveyor and property owner or his or her designee.

(c) The local agency shall:

(1) receive the signed Certificate of Completion from the project applicant;

(2) approve or deny the Certificate of Completion. If the Certificate of Completion is denied, the local agency shall provide information to the project applicant regarding reapplication, appeal, or other assistance.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

§ 492.10 Irrigation Scheduling.

(a) For the efficient use of water, all irrigation schedules shall be developed, managed, and evaluated to utilize the minimum amount of water required to maintain plant health. Irrigation schedules shall meet the following criteria:

(1) Irrigation scheduling shall be regulated by automatic irrigation controllers.

(2) Overhead irrigation shall be scheduled between 8:00 p.m. and 10:00 a.m. unless weather conditions prevent it. If allowable hours of irrigation differ from the local water purveyor, the stricter of the two shall apply. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.

(3) For implementation of the irrigation schedule, particular attention must be paid to irrigation run times, emission device, flow rate, and current reference evapotranspiration, so that applied water meets the Estimated Total Water Use. Total annual applied water shall be less than or equal to Maximum Applied Water Allowance (MAWA). Actual irrigation schedules shall be regulated by automatic irrigation controllers using current reference evapotranspiration data (e.g., CIMIS) or soil moisture sensor data.

(4) Parameters used to set the automatic controller shall be developed and submitted for each of the following:

(A) the plant establishment period;

(B) the established landscape; and
(C) temporarily irrigated areas.
(5) Each irrigation schedule shall consider for each station all of the following that apply:
(A) irrigation interval (days between irrigation);
(B) irrigation run times (hours or minutes per irrigation event to avoid runoff);
(C) number of cycle starts required for each irrigation event to avoid runoff;
(D) amount of applied water scheduled to be applied on a monthly basis;
(E) application rate setting;
(F) root depth setting;
(G) plant type setting;
(H) soil type;
(I) slope factor setting;
(J) shade factor setting; and
(K) irrigation uniformity or efficiency setting.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

§ 492.11 Landscape and Irrigation Maintenance Schedule.
(a) Landscapes shall be maintained to ensure water use efficiency. A regular maintenance schedule shall be submitted with the Certificate of Completion.
(b) A regular maintenance schedule shall include, but not be limited to, routine inspection; adjustment and repair of the irrigation system and its components; aerating and dethatching turf areas; replenishing mulch; fertilizing; pruning; weeding in all landscape areas, and removing and obstruction to emission devices. Operation of the irrigation system outside the normal watering window is allowed for auditing and system maintenance.
(c) Repair of all irrigation equipment shall be done with the originally installed components or their equivalents.
(d) A project applicant is encouraged to implement sustainable or environmentally-friendly practices for overall landscape maintenance.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

§ 492.12 Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis.
(a) All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.
(b) For new construction and rehabilitated landscape projects installed after January 1, 2010, as described in Section 490.1:
(1) the project applicant shall submit an irrigation audit report with the Certificate of Completion to the local agency that may include, but is not limited to: inspection, system tune-up, system test with distribution uniformity, reporting overspray or run off that causes overland flow, and preparation of an irrigation schedule;
(2) the local agency shall administer programs that may include, but not be limited to, irrigation water use analysis, irrigation audits, and irrigation surveys for compliance with the Maximum Applied Water Allowance.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

§ 492.13 Irrigation Efficiency.
(a) For the purpose of determining Maximum Applied Water Allowance, average irrigation efficiency is assumed to be 0.71. Irrigation systems shall be designed, maintained, and managed to meet or exceed an average landscape irrigation efficiency of 0.71.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

§ 492.14 Recycled Water.
(a) The installation of recycled water irrigation systems shall allow for the current and future use of recycled water, unless a written exemption has been granted as described in Section 492.14(b).
(b) Irrigation systems and decorative water features shall use recycled water unless a written exemption has been granted by the local water purveyor stating that recycled water meeting all public health codes and standards is not available and will not be available for the foreseeable future.
(c) All recycled water irrigation systems shall be designed and operated in accordance with all applicable local and State laws.
(d) Landscapes using recycled water are considered Special Landscape Areas. The ET Adjustment Factor for Special Landscape Areas shall not exceed 1.0.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

§ 492.15 Stormwater Management.
(a) Stormwater management practices minimize runoff and increase infiltration which recharges groundwater and improves water quality. Implementing stormwater best management practices into the landscape and grading design plans to minimize runoff and to increase on-site retention and infiltration are encouraged.
(b) Project applicants shall refer to the local agency or Regional Water Quality Control Board for information on any applicable stormwater ordinances and stormwater management plans.
(c) Rain gardens, cisterns, and other landscapes features and practices that increase rainwater capture and create opportunities for infiltration and/or onsite storage are recommended.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

§ 492.16 Public Education.
(a) Publications. Education is a critical component to promote the efficient use of water in landscapes. The use of appropriate principles of design, installation, management and maintenance that save water is encouraged in the community.
(1) A local agency shall provide information to owners of new, single-family residential homes regarding the design, installation, management, and maintenance of water efficient landscapes.
(b) Model Homes. All model homes that are landscaped shall use signs and written information to demonstrate the principles of water efficient landscapes described in this ordinance.
(1) Signs shall be used to identify the model as an example of a water efficient landscape featuring elements such as hydrozones, irrigation equipment, and others that contribute to the overall water efficient theme.
(2) Information shall be provided about designing, installing, managing, and maintaining water efficient landscapes.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

§ 492.17 Environmental Review.
(a) The local agency must comply with the California Environmental Quality Act (CEQA), as appropriate.

Note: Authority cited: Section 21082, Public Resources Code. Reference: Sections 21080, 21082, Public Resources Code.

§ 493. Provisions for Existing Landscapes.
(a) A local agency may designate another agency, such as a water purveyor, to implement some or all of the requirements contained in this ordinance. Local agencies may collaborate with water purveyors to define each entity's specific responsibilities relating to this ordinance.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

§ 493.1 Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis.
(a) This section, 493.1, shall apply to all existing landscapes that were installed before January 1, 2010 and are over one acre in size.
(1) For all landscapes in 493.1(a) that have a water meter, the local agency shall administer programs that may include, but not be limited to, irrigation water use analyses, irrigation surveys, and irrigation audits to evaluate water use and provide recommendations as necessary to reduce landscape water use to a level that does not exceed the Maximum Applied Water Allowance for existing landscapes. The Maximum Applied Water Allowance for existing landscapes shall be calculated as: MAWA = (0.8) (ETo)(LA)(0.62).
(2) For all landscapes in 493.1(a), that do not have a meter, the local agency shall administer programs that may include, but not be limited to, irrigation surveys and irrigation audits to evaluate water use and provide recommendations as necessary in order to prevent water waste.
(b) All landscape irrigation audits shall be conducted by a certified landscape irrigation auditor.

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

§ 493.2 Water Waste Prevention.
(a) Local agencies shall prevent water waste resulting from inefficient landscape irrigation by prohibiting runoff from leaving the target landscape due to low head drainage, overspray, or other similar conditions where water flows onto adjacent property, non-irrigated areas, walks, roadways, parking lots, or structures. Penalties for violation of these prohibitions shall be established locally.
(b) Restrictions regarding overspray and runoff may be modified if:
(1) the landscape area is adjacent to permeable surfacing and no runoff occurs; or
(2) the adjacent non-permeable surfaces are designed and constructed to drain entirely to landscaping.

Note: Authority cited: Section 65594, Government Code. Reference: Section 65596, Government Code.

§ 494. Effective Precipitation.
(a) A local agency may consider Effective Precipitation (25% of annual precipitation) in tracking water use and may use the following equation to calculate Maximum Applied Water Allowance:
MAWA= (ETo - Eppt) (0.62) [(0.7 x LA) + (0.3 x SLA)].

Note: Authority Cited: Section 65595, Government Code. Reference: Section 65596, Government Code.

Appendices.

Appendix A. Reference Evapotranspiration (ETo) Table.

Appendix A - Reference Evapotranspiration (ETo) Table*													
County and City	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual ETo**
ALAMEDA													
Fremont	1.5	1.9	3.4	4.7	5.4	6.3	6.7	6.0	4.5	3.4	1.8	1.5	47.0
Livermore	1.2	1.5	2.9	4.4	5.9	6.6	7.4	6.4	5.3	3.2	1.5	0.9	47.2
Oakland	1.5	1.5	2.8	3.9	5.1	5.3	6.0	5.5	4.8	3.1	1.4	0.9	41.8
Oakland Foothills	1.1	1.4	2.7	3.7	5.1	6.4	5.8	4.9	3.6	2.6	1.4	1.0	39.6
Pleasanton	0.8	1.5	2.9	4.4	5.6	6.7	7.4	6.4	4.7	3.3	1.5	1.0	46.2
Union City	1.4	1.8	3.1	4.2	5.4	5.9	6.4	5.7	4.4	3.1	1.5	1.2	44.2
ALPINE													
Markleeville	0.7	0.9	2.0	3.5	5.0	6.1	7.3	6.4	4.4	2.6	1.2	0.5	40.6
AMADOR													
Jackson	1.2	1.5	2.8	4.4	6.0	7.2	7.9	7.2	5.3	3.2	1.4	0.9	48.9
Shanandoah Valley	1.0	1.7	2.9	4.4	5.6	6.8	7.9	7.1	5.2	3.6	1.7	1.0	48.8
BUTTE													
Chico	1.2	1.8	2.9	4.7	6.1	7.4	8.5	7.3	5.4	3.7	1.7	1.0	51.7
Durham	1.1	1.8	3.2	5.0	6.5	7.4	7.8	6.9	5.3	3.6	1.7	1.0	51.1
Gridley	1.2	1.8	3.0	4.7	6.1	7.7	8.5	7.1	5.4	3.7	1.7	1.0	51.9
Oroville	1.2	1.7	2.8	4.7	6.1	7.6	8.5	7.3	5.3	3.7	1.7	1.0	51.5
CALAVERAS													
San Andreas	1.2	1.5	2.8	4.4	6.0	7.3	7.9	7.0	5.3	3.2	1.4	0.7	48.8
COLUSA													
Colusa	1.0	1.7	3.4	5.0	6.4	7.6	8.3	7.2	5.4	3.8	1.8	1.1	52.8
Williams	1.2	1.7	2.9	4.5	6.1	7.2	8.5	7.3	5.3	3.4	1.6	1.0	50.8
CONTRA COSTA													
Benicia	1.3	1.4	2.7	3.8	4.9	5.0	6.4	5.5	4.4	2.9	1.2	0.7	40.3
Brentwood	1.0	1.5	2.9	4.5	6.1	7.1	7.9	6.7	5.2	3.2	1.4	0.7	48.3
Concord	1.1	1.4	2.4	4.0	5.5	5.9	7.0	6.0	4.8	3.2	1.3	0.7	43.4
Courtland	0.9	1.5	2.9	4.4	6.1	6.9	7.9	6.7	5.3	3.2	1.4	0.7	48.0
Martinez	1.2	1.4	2.4	3.9	5.3	5.6	6.7	5.6	4.7	3.1	1.2	0.7	41.8
Moraga	1.2	1.5	3.4	4.2	5.5	6.1	6.7	5.9	4.6	3.2	1.6	1.0	44.9
Pittsburg	1.0	1.5	2.8	4.1	5.6	6.4	7.4	6.4	5.0	3.2	1.3	0.7	45.4
Walnut Creek	0.8	1.5	2.9	4.4	5.6	6.7	7.4	6.4	4.7	3.3	1.5	1.0	46.2
DEL NORTE													
Crescent City	0.5	0.9	2.0	3.0	3.7	3.5	4.3	3.7	3.0	2.0	0.9	0.5	27.7
EL DORADO													
Camino	0.9	1.7	2.5	3.9	5.9	7.2	7.8	6.8	5.1	3.1	1.5	0.9	47.3
FRESNO													
Clovis	1.0	1.5	3.2	4.8	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.4
Coalinga	1.2	1.7	3.1	4.6	6.2	7.2	8.5	7.3	5.3	3.4	1.6	0.7	50.9
Firebaugh	1.0	1.8	3.7	5.7	7.3	8.1	8.2	7.2	5.5	3.9	2.0	1.1	55.4
FivePoints	1.3	2.0	4.0	6.1	7.7	8.5	8.7	8.0	6.2	4.5	2.4	1.2	60.4
FRESNO													
Fresno	0.9	1.7	3.3	4.8	6.7	7.8	8.4	7.1	5.2	3.2	1.4	0.6	51.1
Fresno State	0.9	1.6	3.2	5.2	7.0	8.0	8.7	7.6	5.4	3.6	1.7	0.9	53.7
Friant	1.2	1.5	3.1	4.7	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.3
Kerman	0.9	1.5	3.2	4.8	6.6	7.7	8.4	7.2	5.3	3.4	1.4	0.7	51.2
Kingsburg	1.0	1.5	3.4	4.8	6.6	7.7	8.4	7.2	5.3	3.4	1.4	0.7	51.6
Mendota	1.5	2.5	4.6	6.2	7.9	8.6	8.8	7.5	5.9	4.5	2.4	1.5	61.7
Orange Cove	1.2	1.9	3.5	4.7	7.4	8.5	8.9	7.9	5.9	3.7	1.8	1.2	56.7
Panoche	1.1	2.0	4.0	5.6	7.8	8.5	8.3	7.3	5.6	3.9	1.8	1.2	57.2
Parlier	1.0	1.9	3.6	5.2	6.8	7.6	8.1	7.0	5.1	3.4	1.7	0.9	52.0
Reedley	1.1	1.5	3.2	4.7	6.4	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.3
Westlands	0.9	1.7	3.8	6.3	8.0	8.6	8.6	7.8	5.9	4.3	2.1	1.1	58.8

Appendix A - Reference Evapotranspiration (ETo) Table*													
County and City	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual ETo**
GLENN													
Orland	1.1	1.8	3.4	5.0	6.4	7.5	7.9	6.7	5.3	3.9	1.8	1.4	52.1
Willows	1.2	1.7	2.9	4.7	6.1	7.2	8.5	7.3	5.3	3.6	1.7	1.0	51.3
HUMBOLDT													
Eureka	0.5	1.1	2.0	3.0	3.7	3.7	3.7	3.7	3.0	2.0	0.9	0.5	27.5
Ferndale	0.5	1.1	2.0	3.0	3.7	3.7	3.7	3.7	3.0	2.0	0.9	0.5	27.5
Garberville	0.6	1.2	2.2	3.1	4.5	5.0	5.5	4.9	3.8	2.4	1.0	0.7	34.9
Hoopa	0.5	1.1	2.1	3.0	4.4	5.4	6.1	5.1	3.8	2.4	0.9	0.7	35.6
IMPERIAL													
Brawley	2.8	3.8	5.9	8.0	10.4	11.5	11.7	10.0	8.4	6.2	3.5	2.1	84.2
Calipatria/Mulberry	2.4	3.2	5.1	6.8	8.6	9.2	9.2	8.6	7.0	5.2	3.1	2.3	70.7
El Centro	2.7	3.5	5.6	7.9	10.1	11.1	11.6	9.5	8.3	6.1	3.3	2.0	81.7
Holtville	2.8	3.8	5.9	7.9	10.4	11.6	12.0	10.0	8.6	6.2	3.5	2.1	84.7
Meloland	2.5	3.2	5.5	7.5	8.9	9.2	9.0	8.5	6.8	5.3	3.1	2.2	71.6
Palo Verde II	2.5	3.3	5.7	6.9	8.5	8.9	8.6	7.9	6.2	4.5	2.9	2.3	68.2
Seeley	2.7	3.5	5.9	7.7	9.7	10.1	9.3	8.3	6.9	5.5	3.4	2.2	75.4
Westmoreland	2.4	3.3	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.4
Yuma	2.5	3.4	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.6
INYO													
Bishop	1.7	2.7	4.8	6.7	8.2	10.9	7.4	9.6	7.4	4.8	2.5	1.6	68.3
Death Valley Jct	2.2	3.3	5.4	7.7	9.8	11.1	11.4	10.1	8.3	5.4	2.9	1.7	79.1
Independence	1.7	2.7	3.4	6.6	8.5	9.5	9.8	8.5	7.1	3.9	2.0	1.5	65.2
Lower Haiwee Res.	1.8	2.7	4.4	7.1	8.5	9.5	9.8	8.5	7.1	4.2	2.6	1.5	67.6
Oasis	2.7	2.8	5.9	8.0	10.4	11.7	11.6	10.0	8.4	6.2	3.4	2.1	83.1
KERN													
Arvin	1.2	1.8	3.5	4.7	6.6	7.4	8.1	7.3	5.3	3.4	1.7	1.0	51.9
Bakersfield	1.0	1.8	3.5	4.7	6.6	7.7	8.5	7.3	5.3	3.5	1.6	0.9	52.4
Bakersfield/Bonanza	1.2	2.2	3.7	5.7	7.4	8.2	8.7	7.8	5.7	4.0	2.1	1.2	57.9
Bakersfield/Greenlee	1.2	2.2	3.7	5.7	7.4	8.2	8.7	7.8	5.7	4.0	2.1	1.2	57.9
KERN													
Belridge	1.4	2.2	4.1	5.5	7.7	8.5	8.6	7.8	6.0	3.8	2.0	1.5	59.2
Blackwells Corner	1.4	2.1	3.8	5.4	7.0	7.8	8.5	7.7	5.8	3.9	1.9	1.2	56.6
Buttonwillow	1.0	1.8	3.2	4.7	6.6	7.7	8.5	7.3	5.4	3.4	1.5	0.9	52.0
China Lake	2.1	3.2	5.3	7.7	9.2	10.0	11.0	9.8	7.3	4.9	2.7	1.7	74.8
Delano	0.9	1.8	3.4	4.7	6.6	7.7	8.5	7.3	5.4	3.4	1.4	0.7	52.0
Famoso	1.3	1.9	3.5	4.8	6.7	7.6	8.0	7.3	5.5	3.5	1.7	1.3	53.1
Grapevine	1.3	1.8	3.1	4.4	5.6	6.8	7.6	6.8	5.9	3.4	1.9	1.0	49.5
Inyokern	2.0	3.1	4.9	7.3	8.5	9.7	11.0	9.4	7.1	5.1	2.6	1.7	72.4
Isabella Dam	1.2	1.4	2.8	4.4	5.8	7.3	7.9	7.0	5.0	3.2	1.7	0.9	48.4
Lamont	1.3	2.4	4.4	4.6	6.5	7.0	8.8	7.6	5.7	3.7	1.6	0.8	54.4
Lost Hills	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
McFarland/Kern	1.2	2.1	3.7	5.6	7.3	8.0	8.3	7.4	5.6	4.1	2.0	1.2	56.5
Shafter	1.0	1.7	3.4	5.0	6.6	7.7	8.3	7.3	5.4	3.4	1.5	0.9	52.1
Taft	1.3	1.8	3.1	4.3	6.2	7.3	8.5	7.3	5.4	3.4	1.7	1.0	51.2
Tehachapi	1.4	1.8	3.2	5.0	6.1	7.7	7.9	7.3	5.9	3.4	2.1	1.2	52.9
KINGS													
Caruthers	1.6	2.5	4.0	5.7	7.8	8.7	9.3	8.4	6.3	4.4	2.4	1.6	62.7
Corcoran	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
Hanford	0.9	1.5	3.4	5.0	6.6	7.7	8.3	7.2	5.4	3.4	1.4	0.7	51.5
Kettleman	1.1	2.0	4.0	6.0	7.5	8.5	9.1	8.2	6.1	4.5	2.2	1.1	60.2
Lemoore	0.9	1.5	3.4	5.0	6.6	7.7	8.3	7.3	5.4	3.4	1.4	0.7	51.7
Stratford	0.9	1.9	3.9	6.1	7.8	8.6	8.8	7.7	5.9	4.1	2.1	1.0	58.7

Appendix A - Reference Evapotranspiration (ETo) Table*													
County and City	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual ETo**
LAKE													
Lakeport	1.1	1.3	2.6	3.5	5.1	6.0	7.3	6.1	4.7	2.9	1.2	0.9	42.8
Lower Lake	1.2	1.4	2.7	4.5	5.3	6.3	7.4	6.4	5.0	3.1	1.3	0.9	45.4
LASSEN													
Buntingville	1.0	1.7	3.5	4.9	6.2	7.3	8.4	7.5	5.4	3.4	1.5	0.9	51.8
Ravendale	0.6	1.1	2.3	4.1	5.6	6.7	7.9	7.3	4.7	2.8	1.2	0.5	44.9
Susanville	0.7	1.0	2.2	4.1	5.6	6.5	7.8	7.0	4.6	2.8	1.2	0.5	44.0
LOS ANGELES													
Burbank	2.1	2.8	3.7	4.7	5.1	6.0	6.6	6.7	5.4	4.0	2.6	2.0	51.7
Claremont	2.0	2.3	3.4	4.6	5.0	6.0	7.0	7.0	5.3	4.0	2.7	2.1	51.3
El Dorado	1.7	2.2	3.6	4.8	5.1	5.7	5.9	5.9	4.4	3.2	2.2	1.7	46.3
Glendale	2.0	2.2	3.3	3.8	4.7	4.8	5.7	5.6	4.3	3.3	2.2	1.8	43.7
Glendora	2.0	2.5	3.6	4.9	5.4	6.1	7.3	6.8	5.7	4.2	2.6	2.0	53.1
Gorman	1.6	2.2	3.4	4.6	5.5	7.4	7.7	7.1	5.9	3.6	2.4	1.1	52.4
Hollywood Hills	2.1	2.2	3.8	5.4	6.0	6.5	6.7	6.4	5.2	3.7	2.8	2.1	52.8
Lancaster	2.1	3.0	4.6	5.9	8.5	9.7	11.0	9.8	7.3	4.6	2.8	1.7	71.1
Long Beach	1.8	2.1	3.3	3.9	4.5	4.3	5.3	4.7	3.7	2.8	1.8	1.5	39.7
Los Angeles	2.2	2.7	3.7	4.7	5.5	5.8	6.2	5.9	5.0	3.9	2.6	1.9	50.1
LOS ANGELES													
Monrovia	2.2	2.3	3.8	4.3	5.5	5.9	6.9	6.4	5.1	3.2	2.5	2.0	50.2
Palmdale	2.0	2.6	4.6	6.2	7.3	8.9	9.8	9.0	6.5	4.7	2.7	2.1	66.2
Pasadena	2.1	2.7	3.7	4.7	5.1	6.0	7.1	6.7	5.6	4.2	2.6	2.0	52.3
Pearblossom	1.7	2.4	3.7	4.7	7.3	7.7	9.9	7.9	6.4	4.0	2.6	1.6	59.9
Pomona	1.7	2.0	3.4	4.5	5.0	5.8	6.5	6.4	4.7	3.5	2.3	1.7	47.5
Redondo Beach	2.2	2.4	3.3	3.8	4.5	4.7	5.4	4.8	4.4	2.8	2.4	2.0	42.6
San Fernando	2.0	2.7	3.5	4.6	5.5	5.9	7.3	6.7	5.3	3.9	2.6	2.0	52.0
Santa Clarita	2.8	2.8	4.1	5.6	6.0	6.8	7.6	7.8	5.8	5.2	3.7	3.2	61.5
Santa Monica	1.8	2.1	3.3	4.5	4.7	5.0	5.4	5.4	3.9	3.4	2.4	2.2	44.2
MADERA													
Chowchilla	1.0	1.4	3.2	4.7	6.6	7.8	8.5	7.3	5.3	3.4	1.4	0.7	51.4
Madera	0.9	1.4	3.2	4.8	6.6	7.8	8.5	7.3	5.3	3.4	1.4	0.7	51.5
Raymond	1.2	1.5	3.0	4.6	6.1	7.6	8.4	7.3	5.2	3.4	1.4	0.7	50.5
MARIN													
Black Point	1.1	1.7	3.0	4.2	5.2	6.2	6.6	5.8	4.3	2.8	1.3	0.9	43.0
Novato	1.3	1.5	2.4	3.5	4.4	6.0	5.9	5.4	4.4	2.8	1.4	0.7	39.8
Point San Pedro	1.1	1.7	3.0	4.2	5.2	6.2	6.6	5.8	4.3	2.8	1.3	0.9	43.0
San Rafael	1.2	1.3	2.4	3.3	4.0	4.8	4.8	4.9	4.3	2.7	1.3	0.7	35.8
MARIPOSA													
Coulterville	1.1	1.5	2.8	4.4	5.9	7.3	8.1	7.0	5.3	3.4	1.4	0.7	48.8
Mariposa	1.1	1.5	2.8	4.4	5.9	7.4	8.2	7.1	5.0	3.4	1.4	0.7	49.0
Yosemite Village	0.7	1.0	2.3	3.7	5.1	6.5	7.1	6.1	4.4	2.9	1.1	0.6	41.4
MENDOCINO													
Fort Bragg	0.9	1.3	2.2	3.0	3.7	3.5	3.7	3.7	3.0	2.3	1.2	0.7	29.0
Hopland	1.1	1.3	2.6	3.4	5.0	5.9	6.5	5.7	4.5	2.8	1.3	0.7	40.9
Point Arena	1.0	1.3	2.3	3.0	3.7	3.9	3.7	3.7	3.0	2.3	1.2	0.7	29.6
Sanel Valley	1.0	1.6	3.0	4.6	6.0	7.0	8.0	7.0	5.2	3.4	1.4	0.9	49.1
Ukiah	1.0	1.3	2.6	3.3	5.0	5.8	6.7	5.9	4.5	2.8	1.3	0.7	40.9
MERCED													
Kesterson	0.9	1.7	3.4	5.5	7.3	8.2	8.6	7.4	5.5	3.8	1.8	0.9	55.1
Los Banos	1.0	1.5	3.2	4.7	6.1	7.4	8.2	7.0	5.3	3.4	1.4	0.7	50.0
Merced	1.0	1.5	3.2	4.7	6.6	7.9	8.5	7.2	5.3	3.4	1.4	0.7	51.5

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County and City	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual ETo**
MODOC													
Modoc/Alturas	0.9	1.4	2.8	3.7	5.1	6.2	7.5	6.6	4.6	2.8	1.2	0.7	43.2
MONO													
Bridgeport	0.7	0.9	2.2	3.8	5.5	6.6	7.4	6.7	4.7	2.7	1.2	0.5	43.0
MONTEREY													
Arroyo Seco	1.5	2.0	3.7	5.4	6.3	7.3	7.2	6.7	5.0	3.9	2.0	1.6	52.6
Castroville	1.4	1.7	3.0	4.2	4.6	4.8	4.0	3.8	3.0	2.6	1.6	1.4	36.2
Gonzales	1.3	1.7	3.4	4.7	5.4	6.3	6.3	5.9	4.4	3.4	1.9	1.3	45.7
MONTEREY													
Greenfield	1.8	2.2	3.4	4.8	5.6	6.3	6.5	6.2	4.8	3.7	2.4	1.8	49.5
King City	1.7	2.0	3.4	4.4	4.4	5.6	6.1	6.7	6.5	5.2	2.2	1.3	49.6
King City-Oasis Rd.	1.4	1.9	3.6	5.3	6.5	7.3	7.4	6.8	5.1	4.0	2.0	1.5	52.7
Long Valley	1.5	1.9	3.2	4.1	5.8	6.5	7.3	6.7	5.3	3.6	2.0	1.2	49.1
Monterey	1.7	1.8	2.7	3.5	4.0	4.1	4.3	4.2	3.5	2.8	1.9	1.5	36.0
Pajaro	1.8	2.2	3.7	4.8	5.3	5.7	5.6	5.3	4.3	3.4	2.4	1.8	46.1
Salinas	1.6	1.9	2.7	3.8	4.8	4.7	5.0	4.5	4.0	2.9	1.9	1.3	39.1
Salinas North	1.2	1.5	2.9	4.1	4.6	5.2	4.5	4.3	3.2	2.8	1.5	1.2	36.9
San Ardo	1.0	1.7	3.1	4.5	5.9	7.2	8.1	7.1	5.1	3.1	1.5	1.0	49.0
San Juan	1.8	2.1	3.4	4.6	5.3	5.7	5.5	4.9	3.8	3.2	2.2	1.9	44.2
Soledad	1.7	2.0	3.4	4.4	5.5	5.4	6.5	6.2	5.2	3.7	2.2	1.5	47.7
NAPA													
Angwin	1.8	1.9	3.2	4.7	5.8	7.3	8.1	7.1	5.5	4.5	2.9	2.1	54.9
Carneros	0.8	1.5	3.1	4.6	5.5	6.6	6.9	6.2	4.7	3.5	1.4	1.0	45.8
Oakville	1.0	1.5	2.9	4.7	5.8	6.9	7.2	6.4	4.9	3.5	1.6	1.2	47.7
St Helena	1.2	1.5	2.8	3.9	5.1	6.1	7.0	6.2	4.8	3.1	1.4	0.9	44.1
Yountville	1.3	1.7	2.8	3.9	5.1	6.0	7.1	6.1	4.8	3.1	1.5	0.9	44.3
NEVADA													
Grass Valley	1.1	1.5	2.6	4.0	5.7	7.1	7.9	7.1	5.3	3.2	1.5	0.9	48.0
Nevada City	1.1	1.5	2.6	3.9	5.8	6.9	7.9	7.0	5.3	3.2	1.4	0.9	47.4
ORANGE													
Irvine	2.2	2.5	3.7	4.7	5.2	5.9	6.3	6.2	4.6	3.7	2.6	2.3	49.6
Laguna Beach	2.2	2.7	3.4	3.8	4.6	4.6	4.9	4.9	4.4	3.4	2.4	2.0	43.2
Santa Ana	2.2	2.7	3.7	4.5	4.6	5.4	6.2	6.1	4.7	3.7	2.5	2.0	48.2
PLACER													
Auburn	1.2	1.7	2.8	4.4	6.1	7.4	8.3	7.3	5.4	3.4	1.6	1.0	50.6
Blue Canyon	0.7	1.1	2.1	3.4	4.8	6.0	7.2	6.1	4.6	2.9	0.9	0.6	40.5
Colfax	1.1	1.5	2.6	4.0	5.8	7.1	7.9	7.0	5.3	3.2	1.4	0.9	47.9
Roseville	1.1	1.7	3.1	4.7	6.2	7.7	8.5	7.3	5.6	3.7	1.7	1.0	52.2
Soda Springs	0.7	0.7	1.8	3.0	4.3	5.3	6.2	5.5	4.1	2.5	0.7	0.7	35.4
Tahoe City	0.7	0.7	1.7	3.0	4.3	5.4	6.1	5.6	4.1	2.4	0.8	0.6	35.5
Truckee	0.7	0.7	1.7	3.2	4.4	5.4	6.4	5.7	4.1	2.4	0.8	0.6	36.2
PLUMAS													
Portola	0.7	0.9	1.9	3.5	4.9	5.9	7.3	5.9	4.3	2.7	0.9	0.5	39.4
Quincy	0.7	0.9	2.2	3.5	4.9	5.9	7.3	5.9	4.4	2.8	1.2	0.5	40.2
RIVERSIDE													
Beaumont	2.0	2.3	3.4	4.4	6.1	7.1	7.6	7.9	6.0	3.9	2.6	1.7	55.0
Blythe	2.4	3.3	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.4
Cathedral City	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
Coachella	2.9	4.4	6.2	8.4	10.5	11.9	12.3	10.1	8.9	6.2	3.8	2.4	88.1

Appendix A - Reference Evapotranspiration (ETo) Table*													
County and City	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual ETo**
RIVERSIDE													
Desert Center	2.9	4.1	6.4	8.5	11.0	12.1	12.2	11.1	9.0	6.4	3.9	2.6	90.0
Elsinore	2.1	2.8	3.9	4.4	5.9	7.1	7.6	7.0	5.8	3.9	2.6	1.9	55.0
Indio	**3.1**	3.6	6.5	8.3	10.5	11.0	10.8	9.7	8.3	5.9	3.7	2.7	83.9
La Quinta	2.4	2.8	5.2	6.5	8.3	8.7	8.5	7.9	6.5	4.5	2.7	2.2	66.2
Mecca	2.6	3.3	5.7	7.2	8.6	9.0	8.8	8.2	6.8	5.0	3.2	2.4	70.8
Oasis	2.9	3.3	5.3	6.1	8.5	8.9	8.7	7.9	6.9	4.8	2.9	2.3	68.4
Palm Deser	2.5	3.4	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.6
Palm Springs	2.0	2.9	4.9	7.2	8.3	8.5	11.6	8.3	7.2	5.9	2.7	1.7	71.1
Rancho California	1.8	2.2	3.4	4.8	5.6	6.3	6.5	6.2	4.8	3.7	2.4	1.8	49.5
Rancho Mirage	2.4	3.3	5.3	6.9	8.7	9.6	9.6	8.7	6.9	5.0	3.0	2.2	71.4
Ripley	2.7	3.3	5.6	7.2	8.7	8.7	8.4	7.6	6.2	4.6	2.8	2.2	67.8
Salton Sea North	2.5	3.3	5.5	7.2	8.8	9.3	9.2	8.5	6.8	5.2	3.1	2.3	71.7
Temecula East II	2.3	2.4	4.1	4.9	6.4	7.0	7.8	7.4	5.7	4.1	2.6	2.2	56.7
Thermal	2.4	3.3	5.5	7.6	9.1	9.6	9.3	8.6	7.1	5.2	3.1	2.1	72.8
Riverside UC	2.5	2.9	4.2	5.3	5.9	6.6	7.2	6.9	5.4	4.1	2.9	2.6	56.4
Winchester	2.3	2.4	4.1	4.9	6.4	6.9	7.7	7.5	6.0	3.9	2.6	2.1	56.8
SACRAMENTO													
Fair Oaks	1.0	1.6	3.4	4.1	6.5	7.5	8.1	7.1	5.2	3.4	1.5	1.0	50.5
Sacramento	1.0	1.8	3.2	4.7	6.4	7.7	8.4	7.2	5.4	3.7	1.7	0.9	51.9
Twitchell Island	1.2	1.8	3.9	5.3	7.4	8.8	9.1	7.8	5.9	3.8	1.7	1.2	57.9
SAN BENITO													
Hollister	1.5	1.8	3.1	4.3	5.5	5.7	6.4	5.9	5.0	3.5	1.7	1.1	45.1
San Benito	1.2	1.6	3.1	4.6	5.6	6.4	6.9	6.5	4.8	3.7	1.7	1.2	47.2
San Juan Valley	1.4	1.8	3.4	4.5	6.0	6.7	7.1	6.4	5.0	3.5	1.8	1.4	49.1
SAN BERNARDINO													
Baker	2.7	3.9	6.1	8.3	10.4	11.8	12.2	11.0	8.9	6.1	3.3	2.1	86.6
Barstow NE	2.2	2.9	5.3	6.9	9.0	10.1	9.9	8.9	6.8	4.8	2.7	2.1	71.7
Big Bear Lake	1.8	2.6	4.6	6.0	7.0	7.6	8.1	7.4	5.4	4.1	2.4	1.8	58.6
Chino	2.1	2.9	3.9	4.5	5.7	6.5	7.3	7.1	5.9	4.2	2.6	2.0	54.6
Crestline	1.5	1.9	3.3	4.4	5.5	6.6	7.8	7.1	5.4	3.5	2.2	1.6	50.8
Lake Arrowhead	1.8	2.6	4.6	6.0	7.0	7.6	8.1	7.4	5.4	4.1	2.4	1.8	58.6
Lucerne Valley	2.2	2.9	5.1	6.5	9.1	11.0	11.4	9.9	7.4	5.0	3.0	1.8	75.3
Needles	3.2	4.2	6.6	8.9	11.0	12.4	12.8	11.0	8.9	6.6	4.0	2.7	92.1
Newberry Springs	2.1	2.9	5.3	8.4	9.8	10.9	11.1	9.9	7.6	5.2	3.1	2.0	78.2
San Bernardino	2.0	2.7	3.8	4.6	5.7	6.9	7.9	7.4	5.9	4.2	2.6	2.0	55.6
Twentynine Palms	2.6	3.6	5.9	7.9	10.1	11.2	11.2	10.3	8.6	5.9	3.4	2.2	82.9
Victorville	2.0	2.6	4.6	6.2	7.3	8.9	9.8	9.0	6.5	4.7	2.7	2.1	66.2
SAN DIEGO													
Chula Vista	2.2	2.7	3.4	3.8	4.9	4.7	5.5	4.9	4.5	3.4	2.4	2.0	44.2
Escondido SPV	2.4	2.6	3.9	4.7	5.9	6.5	7.1	6.7	5.3	3.9	2.8	2.3	54.2
SAN DIEGO													
Miramar	2.3	2.5	3.7	4.1	5.1	5.4	6.1	5.8	4.5	3.3	2.4	2.1	47.1
Oceanside	2.2	2.7	3.4	3.7	4.9	4.6	4.6	5.1	4.1	3.3	2.4	2.0	42.9
Otay Lake	2.3	2.7	3.9	4.6	5.6	5.9	6.2	6.1	4.8	3.7	2.6	2.2	50.4
Pine Valley	1.5	2.4	3.8	5.1	6.0	7.0	7.8	7.3	6.0	4.0	2.2	1.7	54.8
Ramona	2.1	2.1	3.4	4.6	5.2	6.3	6.7	6.8	5.3	4.1	2.8	2.1	51.6
San Diego	2.1	2.4	3.4	4.6	5.1	5.3	5.7	5.6	4.3	3.6	2.4	2.0	46.5
Santee	2.1	2.7	3.7	4.5	5.5	6.1	6.6	6.2	5.4	3.8	2.6	2.0	51.1
Torrey Pines	2.2	2.3	3.4	3.9	4.0	4.1	4.6	4.7	3.8	2.8	2.0	2.0	39.8
Warner Springs	1.6	2.7	3.7	4.7	5.7	7.6	8.3	7.7	6.3	4.0	2.5	1.3	56.0

Appendix A - Reference Evapotranspiration (ETo) Table*													
County and City	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual ETo**
SAN FRANCISCO													
San Francisco	1.5	1.3	2.4	3.0	3.7	4.6	4.9	4.8	4.1	2.8	1.3	0.7	35.1
SAN JOAQUIN													
Farmington	1.5	1.5	2.9	4.7	6.2	7.6	8.1	6.8	5.3	3.3	1.4	0.7	50.0
Lodi West	1.0	1.6	3.3	4.3	6.3	6.9	7.3	6.4	4.5	3.0	1.4	0.8	46.7
Manteca	0.9	1.7	3.4	5.0	6.5	7.5	8.0	7.1	5.2	3.3	1.6	0.9	51.2
Stockton	0.8	1.5	2.9	4.7	6.2	7.4	8.1	6.8	5.3	3.2	1.4	0.6	49.1
Tracy	1.0	1.5	2.9	4.5	6.1	7.3	7.9	6.7	5.3	3.2	1.3	0.7	48.5
SAN LUIS OBISPO													
Arroyo Grande	2.0	2.2	3.2	3.8	4.3	4.7	4.3	4.6	3.8	3.2	2.4	1.7	40.0
Atascadero	1.2	1.5	2.8	3.9	4.5	6.0	6.7	6.2	5.0	3.2	1.7	1.0	43.7
Morro Bay	2.0	2.2	3.1	3.5	4.3	4.5	4.6	4.6	3.8	3.5	2.1	1.7	39.9
Nipomo	2.2	2.5	3.8	5.1	5.7	6.2	6.4	6.1	4.9	4.1	2.9	2.3	52.1
Paso Robles	1.6	2.0	3.2	4.3	5.5	6.3	7.3	6.7	5.1	3.7	2.1	1.4	49.0
San Luis Obispo	2.0	2.2	3.2	4.1	4.9	5.3	4.6	5.5	4.4	3.5	2.4	1.7	43.8
San Miguel	1.6	2.0	3.2	4.3	5.0	6.4	7.4	6.8	5.1	3.7	2.1	1.4	49.0
San Simeon	2.0	2.0	2.9	3.5	4.2	4.4	4.6	4.3	3.5	3.1	2.0	1.7	38.1
SAN MATEO													
Hal Moon Bay	1.5	1.7	2.4	3.0	3.9	4.3	4.3	4.2	3.5	2.8	1.3	1.0	33.7
Redwood City	1.5	1.8	2.9	3.8	5.2	5.3	6.2	5.6	4.8	3.1	1.7	1.0	42.8
Woodside	1.8	2.2	3.4	4.8	5.6	6.3	6.5	6.2	4.8	3.7	2.4	1.8	49.5
SANTA BARBARA													
Betteravia	2.1	2.6	4.0	5.2	6.0	5.9	5.8	5.4	4.1	3.3	2.7	2.1	49.1
Carpenteria	2.0	2.4	3.2	3.9	4.8	5.2	5.5	5.7	4.5	3.4	2.4	2.0	44.9
Cuyama	2.1	2.4	3.8	5.4	6.9	7.9	8.5	7.7	5.9	4.5	2.6	2.0	59.7
Goleta	2.1	2.5	3.9	5.1	5.7	5.7	5.4	5.4	4.2	3.2	2.8	2.2	48.1
Goleta Foothills	2.3	2.6	3.7	5.4	5.3	5.6	5.5	5.7	4.5	3.9	2.8	2.3	49.6
Guadalupe	2.0	2.2	3.2	3.7	4.9	4.6	4.5	4.6	4.1	3.3	2.4	1.7	41.1
Lompoc	2.0	2.2	3.2	3.7	4.8	4.6	4.9	4.8	3.9	3.2	2.4	1.7	41.1
Los Alamos	1.8	2.0	3.2	4.1	4.9	5.3	5.7	5.5	4.4	3.7	2.4	1.6	44.6
Santa Barbara	2.0	2.5	3.2	3.8	4.6	5.1	5.5	4.5	3.4	2.4	1.8	1.8	40.6
SANTA BARBARA													
Santa Maria	1.8	2.3	3.7	5.1	5.7	5.8	5.6	5.3	4.2	3.5	2.4	1.9	47.4
Santa Ynez	1.7	2.2	3.5	5.0	5.8	6.2	6.4	6.0	4.5	3.6	2.2	1.7	48.7
Sisquoc	2.1	2.5	3.8	4.1	6.1	6.3	6.4	5.8	4.7	3.4	2.3	1.8	49.2
Solvang	2.0	2.0	3.3	4.3	5.0	5.6	6.1	5.6	4.4	3.7	2.2	1.6	45.6
SANTA CLARA													
Gilroy	1.3	1.8	3.1	4.1	5.3	5.6	6.1	5.5	4.7	3.4	1.7	1.1	43.6
Los Gatos	1.5	1.8	2.8	3.9	5.0	5.6	6.2	5.5	4.7	3.2	1.7	1.1	42.9
Morgan Hill	1.5	1.8	3.4	4.2	6.3	7.0	7.1	6.0	5.1	3.7	1.9	1.4	49.5
Palo Alto	1.5	1.8	2.8	3.8	5.2	5.3	6.2	5.6	5.0	3.2	1.7	1.0	43.0
San Jose	1.5	1.8	3.1	4.1	5.5	5.8	6.5	5.9	5.2	3.3	1.8	1.0	45.3
SANTA CRUZ													
De Laveaga	1.4	1.9	3.3	4.7	4.9	5.3	5.0	4.8	3.6	3.0	1.6	1.3	40.8
Green Valley Rd	1.2	1.8	3.2	4.5	4.6	5.4	5.2	5.0	3.7	3.1	1.6	1.3	40.6
Santa Cruz	1.5	1.8	2.6	3.5	4.3	4.4	4.8	4.4	3.8	2.8	1.7	1.2	36.6
Watsonville	1.5	1.8	2.7	3.7	4.6	4.5	4.9	4.2	4.0	2.9	1.8	1.2	37.7
Webb	1.8	2.2	3.7	4.8	5.3	5.7	5.6	5.3	4.3	3.4	2.4	1.8	46.2

Appendix A - Reference Evapotranspiration (ETo) Table*													
County and City	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual ETo**
SHASTA													
Burney	0.7	1.0	2.1	3.5	4.9	5.9	7.4	6.4	4.4	2.9	0.9	0.6	40.9
Fall River Mills	0.6	1.0	2.1	3.7	5.0	6.1	7.8	6.7	4.6	2.8	0.9	0.5	41.8
Glenburn	0.6	1.0	2.1	3.7	5.0	6.3	7.8	6.7	4.7	2.8	0.9	0.6	42.1
McArthur	0.7	1.4	2.9	4.2	5.6	6.9	8.2	7.2	5.0	3.0	1.1	0.6	46.8
Redding	1.2	1.4	2.6	4.1	5.6	7.1	8.5	7.3	5.3	3.2	1.4	0.9	48.8
SIERRA													
Downieville	0.7	1.0	2.3	3.5	5.0	6.0	7.4	6.2	4.7	2.8	0.9	0.6	41.3
Sierraville	0.7	1.1	2.2	3.2	4.5	5.9	7.3	6.4	4.3	2.6	0.9	0.5	39.6
SISKIYOU													
Happy Camp	0.5	0.9	2.0	3.0	4.3	5.2	6.1	5.3	4.1	2.4	0.9	0.5	35.1
MacDoel	1.0	1.7	3.1	4.5	5.9	7.2	8.1	7.1	5.1	3.1	1.5	1.0	49.0
Mt Shasta	0.5	0.9	2.0	3.0	4.5	5.3	6.7	5.7	4.0	2.2	0.7	0.5	36.0
Tule lake FS	0.7	1.3	2.7	4.0	5.4	6.3	7.1	6.4	4.7	2.8	1.0	0.6	42.9
Weed	0.5	0.9	2.0	2.5	4.5	5.3	6.7	5.5	3.7	2.0	0.9	0.5	34.9
Yreka	0.6	0.9	2.1	3.0	4.9	5.8	7.3	6.5	4.3	2.5	0.9	0.5	39.2
SOLANO													
Dixon	0.7	1.4	3.2	5.2	6.3	7.6	8.2	7.2	5.5	4.3	1.6	1.1	52.1
Fairfield	1.1	1.7	2.8	4.0	5.5	6.1	7.8	6.0	4.8	3.1	1.4	0.9	45.2
Hastings Tract	1.6	2.2	3.7	5.1	6.8	7.8	8.7	7.8	5.7	4.0	2.1	1.6	57.1
Putah Creek	1.0	1.6	3.2	4.9	6.1	7.3	7.9	7.0	5.3	3.8	1.8	1.2	51.0
Rio Vista	0.9	1.7	2.8	4.4	5.9	6.7	7.9	6.5	5.1	3.2	1.3	0.7	47.0
Suisun Valley	0.6	1.3	3.0	4.7	5.8	7.0	7.7	6.8	5.3	3.8	1.4	0.9	48.3
Winters	0.9	1.7	3.3	5.0	6.4	7.5	7.9	7.0	5.2	3.5	1.6	1.0	51.0
SONOMA													
Bennett Valley	1.1	1.7	3.2	4.1	5.5	6.5	6.6	5.7	4.5	3.1	1.5	0.9	44.4
Cloverdale	1.1	1.4	2.6	3.4	5.0	5.9	6.2	5.6	4.5	2.8	1.4	0.7	40.7
Fort Ross	1.2	1.4	2.2	3.0	3.7	4.5	4.2	4.3	3.4	2.4	1.2	0.5	31.9
Healdsburg	1.2	1.5	2.4	3.5	5.0	5.9	6.1	5.6	4.5	2.8	1.4	0.7	40.8
Lincoln	1.2	1.7	2.8	4.7	6.1	7.4	8.4	7.3	5.4	3.7	1.9	1.2	51.9
Petaluma	1.2	1.5	2.8	3.7	4.6	5.6	4.6	5.7	4.5	2.9	1.4	0.9	39.6
Santa Rosa	1.2	1.7	2.8	3.7	5.0	6.0	6.1	5.9	4.5	2.9	1.5	0.7	42.0
Valley of the Moon	1.0	1.6	3.0	4.5	5.6	6.6	7.1	6.3	4.7	3.3	1.5	1.0	46.1
Windsor	0.9	1.6	3.0	4.5	5.5	6.5	6.5	5.9	4.4	3.2	1.4	1.0	44.2
Denair	1.0	1.9	3.6	4.7	7.0	7.9	8.0	6.1	5.3	3.4	1.5	1.0	51.4
La Grange	1.2	1.5	3.1	4.7	6.2	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.2
Modesto	0.9	1.4	3.2	4.7	6.4	7.7	8.1	6.8	5.0	3.4	1.4	0.7	49.7
Newman	1.0	1.5	3.2	4.6	6.2	7.4	8.1	6.7	5.0	3.4	1.4	0.7	49.3
STANISLAUS													
Oakdale	1.2	1.5	3.2	4.7	6.2	7.7	8.1	7.1	5.1	3.4	1.4	0.7	50.3
Patterson	1.3	2.1	4.2	5.4	7.9	8.6	8.2	6.6	5.8	4.0	1.9	1.3	57.3
Turlock	0.9	1.5	3.2	4.7	6.5	7.7	8.2	7.0	5.1	3.4	1.4	0.7	50.2
SUTTER													
Nicolaus	0.9	1.6	3.2	4.9	6.3	7.5	8.0	6.9	5.2	3.4	1.5	0.9	50.2
Yuba City	1.3	2.1	2.8	4.4	5.7	7.2	7.1	6.1	4.7	3.2	1.2	0.9	46.7
TEHAMA													
Corning	1.2	1.8	2.9	4.5	6.1	7.3	8.1	7.2	5.3	3.7	1.7	1.1	50.7
Gerber	1.0	1.8	3.5	5.0	6.6	7.9	8.7	7.4	5.8	4.1	1.8	1.1	54.7
Gerber Dryland	0.9	1.6	3.2	4.7	6.7	8.4	9.0	7.9	6.0	4.2	2.0	1.0	55.5
Red Bluff	1.2	1.8	2.9	4.4	5.9	7.4	8.5	7.3	5.4	3.5	1.7	1.0	51.1

Appendix A - Reference Evapotranspiration (ETo) Table*													
County and City	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Annual ETo**
TRINITY													
Hay Fork	0.5	1.1	2.3	3.5	4.9	5.9	7.0	6.0	4.5	2.8	0.9	0.7	40.1
Weaverville	0.6	1.1	2.2	3.3	4.9	5.9	7.3	6.0	4.4	2.7	0.9	0.7	40.0
TULARE													
Alpaugh	0.9	1.7	3.4	4.8	6.6	7.7	8.2	7.3	5.4	3.4	1.4	0.7	51.6
Badger	1.0	1.3	2.7	4.1	6.0	7.3	7.7	7.0	4.8	3.3	1.4	0.7	47.3
Delano	1.1	1.9	4.0	4.9	7.2	7.9	8.1	7.3	5.4	3.2	1.5	1.2	53.6
Dinuba	1.1	1.5	3.2	4.7	6.2	7.7	8.5	7.3	5.3	3.4	1.4	0.7	51.2
Lindcove	0.9	1.6	3.0	4.8	6.5	7.6	8.1	7.2	5.2	3.4	1.6	0.9	50.6
Porterville	1.2	1.8	3.4	4.7	6.6	7.7	8.5	7.3	5.3	3.4	1.4	0.7	52.1
Visalia	0.9	1.7	3.3	5.1	6.8	7.7	7.9	6.9	4.9	3.2	1.5	0.8	50.7
TUOLUMNE													
Groveland	1.1	1.5	2.8	4.1	5.7	7.2	7.9	6.6	5.1	3.3	1.4	0.7	47.5
Sonora	1.1	1.5	2.8	4.1	5.8	7.2	7.9	6.7	5.1	3.2	1.4	0.7	47.6
VENTURA													
Camarillo	2.2	2.5	3.7	4.3	5.0	5.2	5.9	5.4	4.2	3.0	2.5	2.1	46.1
Oxnard	2.2	2.5	3.2	3.7	4.4	4.6	5.4	4.8	4.0	3.3	2.4	2.0	42.3
Piru	2.8	2.8	4.1	5.6	6.0	6.8	7.6	7.8	5.8	5.2	3.7	3.2	61.5
Port Hueneme	2.0	2.3	3.3	4.6	4.9	4.9	4.9	5.0	3.7	3.2	2.5	2.2	43.5
Thousand Oaks	2.2	2.6	3.4	4.5	5.4	5.9	6.7	6.4	5.4	3.9	2.6	2.0	51.0
Ventura	2.2	2.6	3.2	3.8	4.6	4.7	5.5	4.9	4.1	3.4	2.5	2.0	43.5
YOLO													
Bryte	0.9	1.7	3.3	5.0	6.4	7.5	7.9	7.0	5.2	3.5	1.6	1.0	51.0
Davis	1.0	1.9	3.3	5.0	6.4	7.6	8.2	7.1	5.4	4.0	1.8	1.0	52.5
Esparto	1.0	1.7	3.4	5.5	6.9	8.1	8.5	7.5	5.8	4.2	2.0	1.2	55.8
Winters	1.7	1.7	2.9	4.4	5.8	7.1	7.9	6.7	5.3	3.3	1.6	1.0	49.4
Woodland	1.0	1.8	3.2	4.7	6.1	7.7	8.2	7.2	5.4	3.7	1.7	1.0	51.6
Zamora	1.1	1.9	3.5	5.2	6.4	7.4	7.8	7.0	5.5	4.0	1.9	1.2	52.8
YUBA													
Browns Valley	1.0	1.7	3.1	4.7	6.1	7.5	8.5	7.6	5.7	4.1	2.0	1.1	52.9
Brownsville	1.1	1.4	2.6	4.0	5.7	6.8	7.9	6.8	5.3	3.4	1.5	0.9	47.4
* The values in this table were derived from:													
1) California Irrigation Management Information System (CIMIS);													
2) Reference EvapoTranspiration Zones Map, UC Dept. of Land, Air & Water Resources and													
California Dept of Water Resources 1999; and													
3) Reference Evapotranspiration for California, University of California, Department of Agriculture													
and Natural Resources (1987) Bulletin 1922 4) Determining Daily Reference Evapotranspiration,													
Cooperative Extension UC Division of Agriculture and Natural Resources (1987),													
Publication Leaflet 21426													

Appendix B – Sample Water Efficient Landscape Worksheet.

WATER EFFICIENT LANDSCAPE WORKSHEET

This worksheet is filled out by the project applicant and it is a required element of the Landscape Documentation Package.
Please complete all sections (A and B) of the worksheet.

SECTION A. HYDROZONE INFORMATION TABLE

Please complete the hydrozone table(s) for each hydrozone. Use as many tables as necessary to provide the square footage of landscape area per hydrozone.

Hydrozone*	Zone or Valve	Irrigation Method**	Area (Sq. Ft.)	% of Landscape Area
	Total			**100%**

**** Hydrozone***
HW = High Water Use Plants
MW = Moderate Water Use Plants
LW = Low Water Use Plants

*****Irrigation Method***
MS = Micro-spray
S = Spray
R = Rotor
B= Bubbler
D= Drip
O = Other

SECTION B. WATER BUDGET CALCULATIONS

Section B1. Maximum Applied Water Allowance (MAWA)

The project's Maximum Applied Water Allowance shall be calculated using this equation:

MAWA = (ETo) (0.62) [(0.7 x LA) + (0.3 x SLA)]

where:

MAWA = Maximum Applied Water Allowance (gallons per year)
ETo = Reference Evapotranspiration from Appendix A (inches per year)
0.7 = ET Adjustment Factor (ETAF)
LA = Landscaped Area includes Special Landscape Area (square feet)
0.62 = Conversion factor (to gallons per square foot)
SLA = Portion of the landscape area identified as Special Landscape Area (square feet)
0.3 = the additional ET Adjustment Factor for Special Landscape Area (1.0 - 0.7 = 0.3)

Maximum Applied Water Allowance = _____**gallons per year**

Show calculations.

Effective Precipitation (Eppt)

If considering Effective Precipitation, use 25% of annual precipitation. Use the following equation to calculate Maximum Applied Water Allowance:

MAWA= (ETo – Eppt) (0.62) [(0.7 x LA) + (0.3 x SLA)]

Maximum Applied Water Allowance = _____**gallons per year**

Show calculations.

Section B2. Estimated Total Water Use (ETWU)

The project's Estimated Total Water Use is calculated using the following formula:

$$ETWU = (ETo)(0.62)\left(\frac{PF\,x\,HA}{IE} + SLA\right)$$

where:

ETWU = Estimated total water use per year (gallons per year)
ETo = Reference Evapotranspiration (inches per year)
PF = Plant Factor from WUCOLS (see Definitions)
HA = Hydrozone Area [high, medium, and low water use areas] (square feet)
SLA = Special Landscape Area (square feet)
0.62 = Conversion Factor (to gallons per square foot)
IE = Irrigation Efficiency (minimum 0.71)

Hydrozone Table for Calculating ETWU

Please complete the hydrozone table(s). Use as many tables as necessary.

Hydrozone	Plant Water Use Type(s)	Plant Factor (PF)	Area (HA) (square feet)	PF x HA (square feet)
			Sum	
	SLA			

Estimated Total Water Use = _____**gallons**

Show calculations.

Appendix C – Sample Certificate of Completion.

CERTIFICATE OF COMPLETION

This certificate is filled out by the project applicant upon completion of the landscape project.

PART 1. PROJECT INFORMATION SHEET

Date		
Project Name		
Name of Project Applicant	Telephone No.	
	Fax No.	
Title	Email Address	
Company	Street Address	
City	State	Zip Code

Project Address and Location:

Street Address		Parcel, tract or lot number, if available.
City		Latitude/Longitude (optional)
State	Zip Code	

Property Owner or his/her designee:

Name	Telephone No.	
	Fax No.	
Title	Email Address	
Company	Street Address	
City	State	Zip Code

Property Owner

"I/we certify that I/we have received copies of all the documents within the Landscape Documentation Package and the Certificate of Completion and that it is our responsibility to see that the project is maintained in accordance with the Landscape and Irrigation Maintenance Schedule."

_____

Property Owner Signature Date

Please answer the questions below:

1. Date the Landscape Documentation Package was submitted to the local agency_____
2. Date the Landscape Documentation Package was approved by the local agency_____
3. Date that a copy of the Water Efficient Landscape Worksheet (including the Water Budget Calculation) was submitted to the local water purveyor_____

PART 2. CERTIFICATION OF INSTALLATION ACCORDING TO THE LANDSCAPE DOCUMENTATION PACKAGE

"I/we certify that based upon periodic site observations, the work has been substantially completed in accordance with the ordinance and that the landscape planting and irrigation installation conform with the criteria and specifications of the approved Landscape Documentation Package."

Signature*	Date	
Name (print)	Telephone No.	
	Fax No.	
Title	Email Address	
License No. or Certification No.		
Company	Street Address	
City	State	Zip Code

*Signer of the landscape design plan, signer of the irrigation plan, or a licensed landscape contractor.

PART 3. IRRIGATION SCHEDULING

Attach parameters for setting the irrigation schedule on controller per ordinance Section 492.10.

PART 4. SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE

Attach schedule of Landscape and Irrigation Maintenance per ordinance Section 492.11.

PART 5. LANDSCAPE IRRIGATION AUDIT REPORT

Attach Landscape Irrigation Audit Report per ordinance Section 492.12.

PART 6. SOIL MANAGEMENT REPORT

Attach soil analysis report, if not previously submitted with the Landscape Documentation Package per ordinance Section 492.5.

Attach documentation verifying implementation of recommendations from soil analysis report per ordinance Section 492.5.

APPENDIX C
60-DAY NOTICE

For additional questions about the public meeting, please contact Isela Medina, Semitropic Water Storage District at 661-758-5113 or via email at imedina@semitropic.com. The Notice of Availability (NOA) and DEIR will be available for review at www.semitropic.com.

Publish: August 17, 18, 19, 22, 23, 24, 25, 2017

Public Notices | Public Notices

Ad#74574

City of Lemoore
2015 Urban Water Management Plan
Notice of Public Hearing

The City of Lemoore is currently in the process of reviewing, updating and preparing its 2015 Urban Water Management Plan (UWMP) in accordance with the requirements of the California Water Code.

The City of Lemoore is required to update its UWMP every five years. Among other information and analyses, the UWMP will evaluate current and projected water supplies and demands within the City of Lemoore's service area during normal, single-dry, and multiple-dry year periods over the next 2—year planning horizon and beyond. The 2015 UWMP will also include information regarding water conservation efforts and water shortage contingency planning.

The City of Lemoore is providing this notice pursuant to Water Code Section 16021(b). The City of Lemoore encourages local agencies, the public, and other interested parties to participate in the development of the 2015 UWMP.

A copy of the draft 2015 UWMP will be available for public review and comment by Thursday, August 17, 2017, at the offices of the City Clerk, 119 Fox Street, Lemoore, CA 93245; online at www.lemoore.com; or the office of the City Engineer, QK, 901 E. Main Street, Visalia, CA 93292.

Public comments may be submitted in writing to:
Nathan Olson, Interim City Manager
City of Lemoore
119 Fox Street
Lemoore, CA 93245

The public commenting period will conclude with a Public Hearing at the City of Lemoore's regular Council Meeting on October 17, 2017 at 7:30 PM, 429 C Street, Lemoore, CA 93245. At the conclusion of the Public Hearing, the City of Lemoore will be considering the proposed plan for adoption.

Public input and coordination with local agencies is encouraged and will be considered during the process of preparing and completing the 2015 UWMP.

/s/
Mary J. Venegas
City Clerk

Date of Request: August 14, 2017

Publish in Hanford Sentinel: August 17, 2017

state or a fictitious business name in violation of the rights of another under federal, state, of common law (See Section

knows to be false is guilty of a crime.)
/s/ARMONDO LUNA CRUZ-OWNER

Call (559)313-9999

APPENDIX D
ADOPTED RESOLUTION

RESOLUTION NO. 2017-27

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LEMOORE ADOPTING AN URBAN WATER MANAGEMENT PLAN

WHEREAS, pursuant to Assembly Bill 797, Water Code Section 10610 et. seq., the City of Lemoore has prepared an Urban Water Management Plan; and

WHEREAS, the City Council scheduled a public hearing for October 17, 2017 to accept testimony regarding the Urban Water Management Plan; and

WHEREAS, the public hearing has been held as scheduled and any and all testimony has been received and considered regarding the Plan, and said Plan has been submitted in draft format to the Department of Water Resources, and minimally modified in accord with comments therefrom.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Lemoore approves and adopts the Urban Water Management Plan, incorporating therein the appointment of the Public Works Director as the City's Program Manager for water shortage activities and authorizing the City Manager to declare a water shortage should one occur and to implement or recommend thereafter, if necessary, the water storage measures described in Chapter Eight of said Plan.

PASSED and ADOPTED by the City Council of the City of Lemoore at a regular meeting held on the 17th day of October 2017 by the following vote:

AYES:	Chedester, Brown, Blair, Neal, Madrigal
NOES:	None
ABSENT:	None
ABSTAINING:	None

ATTEST:

Mary J. Venegas, City Clerk

APPROVED:

Ray Madrigal, Mayor

APPENDIX E
LETTER OF TRANSMITTAL

City of
LEMOORE
CALIFORNIA

711 W. Cinnamon Drive • Lemoore, California 93245 • (559) 924-6735 • Fax (559) 924-6708
Public Works Department

October 30, 2017

California State Library
Government Publications Section
Attn: Coordinator, Urban Water Management Plans
PO Box 942837
Sacramento, CA 94237-0001

Subject: Submittal of the City of Lemoore 2015 Urban Water Management Plan

To Whom It May Concern,

Enclosed is a copy of the City of Lemoore 2015 Urban Water Management Plan. In compliance with California Water Code Sections 10644(a)(1), this 2015 UWMP has been submitted to the California State Library no more than 30 days after its adoption by the City Council, which occurred on October 17, 2017.

Please feel free to contact me at 559-924-6731 or frivera@lemoore.com if you have questions or comments regarding the 2015 UWMP.

Thank you for your time and attention.

Sincerely,

Frank Rivera
Acting Public Works Director

Enclosure

City of
LEMOORE
CALIFORNIA

711 W. Cinnamon Drive • Lemoore, California 93245 • (559) 924-6735 • Fax (559) 924-6708
Public Works Department

October 30, 2017

County of Kings
Planning Department
Attn: Chuck Kinney, Planner
1400 W Lacey Boulevard
Hanford, CA 93230

Subject: Submittal of the City of Lemoore 2015 Urban Water Management Plan

Dear Mr. Kinney,

Enclosed is a copy of the City of Lemoore 2015 Urban Water Management Plan. In compliance with California Water Code Sections 10644(a)(1) and 10635(b), this 2015 UWMP has been submitted to the California State Library no more than 30 days after its adoption by the City Council, which occurred on October 17, 2017.

Please feel free to contact me at 559-924-6731 or frivera@lemoore.com if you have questions or comments regarding the 2015 UWMP.

Thank you for your time and attention.

Sincerely,

Frank Rivera
Acting Public Works Director

Enclosure

APPENDIX F
CHECKLIST ARRANGED BY SUBJECT

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location *(Optional Column for Agency Use)*
10620(b)	Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.	Plan Preparation	Section 2.1	Section 2.1; Appendix E
10620(d)(2)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan Preparation	Section 2.5.2	Section 2.5; Section 10; Appendix D
10642	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	Plan Preparation	Section 2.5.2	Section 2.5; Section 10; Appendix D
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	Section 3.1
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	Section 3.3
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	Section 3.4
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	Section 3.5
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	Section 3.4
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	Section 4.2
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	Section 4.3
10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the supplier.	System Water Use	Section 4.5	Section 4.5
10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	Section 5
10608.20(e)	Retail suppliers shall 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	Baselines and Targets	Chapter 5 and App E	Section 5

	estimates, including references to supporting data.			
10608.22	Retail suppliers' per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use of the 5 year baseline. This does not apply if the suppliers base GPCD is at or below 100.	Baselines and Targets	Section 5.7.2	Section 5
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	Section 5
10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2	Section 5
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1	N/A
10608.40	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	Section 5
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	Section 6
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	Section 6.2
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2	Section 6.2.2
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	Section 6.2.1
10631(b)(2)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2	Section 6.2.3
10631(b)(2)	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	Section 6.2.3
10631(b)(3)	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	System Supplies	Section 6.2.4	Section 6.2.4

10631(b)(4)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9	Section 4.2.2
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	Section 6.7
10631(g)	Describe the expected future water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years.	System Supplies	Section 6.8	Section 6.8
10631(h)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	Section 6.6
10631(j)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use projections from that source.	System Supplies	Section 2.5.1	N/A
10631(j)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1	N/A
10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	Section 6.5
10633(a)	Describe the wastewater collection and treatment systems in the supplier's service area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	System Supplies (Recycled Water)	Section 6.5.2	Section 6.5
10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System Supplies (Recycled Water)	Section 6.5.2.2	Section 6.5
10633(c)	Describe the recycled water currently being used in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.3 and 6.5.4	N/A
10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System Supplies (Recycled Water)	Section 6.5.4	N/A
10633(e)	Describe the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	System Supplies (Recycled Water)	Section 6.5.4	N/A

10633(f)	Describe the actions which may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System Supplies (Recycled Water)	Section 6.5.5	Section 6.5
10633(g)	Provide a plan for optimizing the use of recycled water in the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.5	Section 6.5
10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	Section 7
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	Section 7.2
10631(c)(1)	Provide data for an average water year, a single dry water year, and multiple dry water years	Water Supply Reliability Assessment	Section 7.2	Section 7.2; Section 7.3
10631(c)(2)	For any water source that may not be available at a consistent level of use, describe plans to supplement or replace that source.	Water Supply Reliability Assessment	Section 7.1	Section 7.1
10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and supply reliability	Water Supply Reliability Assessment	Section 7.1	Section 7
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	Section 7.2
10632(a) and 10632(a)(1)	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	Section 8
10632(a)(2)	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency.	Water Shortage Contingency Planning	Section 8.9	Section 8.9
10632(a)(3)	Identify actions to be undertaken by the urban water supplier in case of a catastrophic interruption of water supplies.	Water Shortage Contingency Planning	Section 8.8	Section 8.8
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	Section 8.2
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage	Section 8.4	Section 8.4

		Contingency Planning		
10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	Section 8.3
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	Section 8
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	Section 8
10632(a)(9)	Indicate a mechanism for determining actual reductions in water use pursuant to the water shortage contingency analysis.	Water Shortage Contingency Planning	Section 8.5	Section 8
10631(f)(1)	Retail suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand Management Measures	Sections 9.2 and 9.3	Section 9
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3	N/A
10631(i)	CUWCC members may submit their 2013-2014 CUWCC BMP annual reports in lieu of, or in addition to, describing the DMM implementation in their UWMPs. This option is only allowable if the supplier has been found to be in full compliance with the CUWCC MOU.	Demand Management Measures	Section 9.5	Section 9.9
10608.26(a)	Retail suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets.	Plan Adoption, Submittal, and Implementation	Section 10.3	Section 10;
10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.	Plan Adoption, Submittal, and Implementation	Section 10.2.1	Section 10; Appendix D
10621(d)	Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.	Plan Adoption, Submittal, and Implementation	Sections 10.3.1 and 10.4	Section 10

10635(b)	Provide supporting documentation that Water Shortage Contingency Plan has been, or will be, provided to any city or county within which it provides water, no later than 60 days after the submission of the plan to DWR.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	Section 10
10642	Provide supporting documentation that the urban water supplier made the plan available for public inspection, published notice of the public hearing, and held a public hearing about the plan.	Plan Adoption, Submittal, and Implementation	Sections 10.2.2, 10.3, and 10.5	Section 10
10642	The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water.	Plan Adoption, Submittal, and Implementation	Sections 10.2.1	Section 10
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	Section 10; Appendix E
10644(a)	Provide supporting documentation that the urban water supplier has submitted this UWMP to the California State Library.	Plan Adoption, Submittal, and Implementation	Section 10.4.3	Section 10; Appendix F
10644(a)(1)	Provide supporting documentation that the urban water supplier has submitted this UWMP to any city or county within which the supplier provides water no later than 30 days after adoption.	Plan Adoption, Submittal, and Implementation	Section 10.4.4	Section 10; Appendix F
10644(a)(2)	The plan, or amendments to the plan, submitted to the department shall be submitted electronically.	Plan Adoption, Submittal, and Implementation	Sections 10.4.1 and 10.4.2	Section 10
10645	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the supplier has or will make the plan available for public review during normal business hours.	Plan Adoption, Submittal, and Implementation	Section 10.5	Section 10