

City of Los Banos Urban Water Management Plan 2015 Update



July 2016

Prepared by:



Prepared for:



City of
Los Banos
At the Crossroads of California

URBAN WATER MANAGEMENT PLAN 2015 UPDATE

City of Los Banos
July 2016
Adopted July 2016



Signed 01/26/18

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City of
Los Banos
At the Crossroads of California

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Abbreviations

AB.....	State Assembly Bill
AF	acre-feet
AFY	acre-feet per year
bgs.....	below ground surface
BMP	Best Management Practice
CASGEM	California Statewide Groundwater Elevation Monitoring Program

2015 Urban Water Management Plan

CII	Commercial, Industrial, Institutional, water use sectors
CIMIS	California Irrigation Management Information System
CUWCC	California Urban Water Conservation Council
CWC	California Water Code
DMM	Demand Management Measures
DOF	Department of Finance
DWR	Department of Water Resources
eARDWP	electronic Annual Reports to the Drinking Water Program (SWRCB)
ETo.....	Reference Evapotranspiration
ft	feet
GIS	Geographic Information System
gpcd.....	gallons per capita per day
gpd	gallons per day
IRWM	Integrated Regional Water Management
mgd	million gallons per day
NPDES	National Pollutant Discharge Elimination System
psi.....	pounds per square inch
PWS	Public Water System
RUWMP	Regional Urban Water Management Plan
RWQCB.....	Regional Water Quality Control Board
SB.....	State Senate Bill
SGMA	Sustainable Groundwater Management Act
SWRCB	State Water Resources Control Board
UWMP	Urban Water Management Plan
UWMPA	Urban Water Management Plan Act
WDR	Waste Discharge Requirement
WRR	Water Recycling Requirement
WSCP.....	Water Shortage Contingency Plan
WUE	Water Use Efficiency

Executive Summary

This 2015 Urban Water Management Plan (UWMP) has been prepared for the City of Los Banos (City) by Provost & Pritchard Consulting Group as an individual UWMP. The UWMP describes current and future water use, reliability of water sources, and existing and planned conservation measures, for the years 2016-2020 and supersedes the City's 2010 UWMP.

This UWMP complies with the Urban Water Management Planning Act (UWMPA). This planning act was established by Assembly Bill 797 (AB797), September 21, 1983. UWMPs must be prepared by any water supplier that provides water either directly or indirectly for 3,000 or more customers or more than 3,000 acre-feet per year (AFY). UWMPs must be updated every five years.

The UWMPA has been changed in the last five years to include increased requirements for sections on recycled water use and water shortage contingency planning. The contingency planning has decreased requirements for demand management measures and therefore requires less quantitative and more qualitative analysis. Additionally, due to inconsistencies in recycled water definitions in the 2010 UWMPs, the Department of Water Resources (DWR) clarified recycled water and usages.

The 2015 UWMP conforms with the interim requirements for the Water Conservation Act of 2009 Senate Bill X7-7 (SBX7-7). SBX7-7 requires statewide per capita water use reduction of 20 percent by the year 2020. The interim and final 2020 targets for SBX7-7 were determined in the 2010 UWMP. The 2015 UWMP is the last opportunity to adjust the baseline consumption in gallons per capita per day (gpcd) and thereby adjust the target gpcd.

This document is a comprehensive overview of the City of Los Banos Public Water System. It should not only serve to comply with the UWMPA and SB X7-7, but also as a short and long range planning document for water supply, a data source for the development of a regional water supply plan, a document for preparing and updating General Plans, and a key component of an Integrated Regional Water Management Plan.

The City of Los Banos Public Water System (PWS) is a retail agency, providing water directly to customers. They currently serve 11,445 homes, businesses, and other facilities within the City. Of the 37,145 residents of the City of Los Banos, the majority rely on the City PWS with a few outlying properties possessing private wells. The 10-year baseline per capita water use for the Los Banos PWS is 210 gpcd, with goals of 188 gpcd for interim year 2015 and 165 gpcd for final target year 2020. The actual per capita consumption for 2015 was 160 gpcd putting the City of Los Banos well below their 2015 interim goal and 2020 final goal.

Prior to the water conservation acts mentioned above, the City had taken initiative in developing and implementing water conservation practices and policies. Demand management measures and consumption reduction methods have developed over time to address declining groundwater levels and prevention of water quality degradation. The City has mechanisms in place to enforce conservation in the event of drought or other supply issues. They are also prepared to respond to supply interruption in the event of an emergency.

1 Introduction and Overview

1.1 Background and Purpose

The Urban Water Management Plan (UWMP) is a requirement of the Urban Water Management Planning Act (UWMPA) (Division 6, Part 2.6 of the California Water Code (CWC) §10610-10656). The UWMPs must be filed every five years and submitted to the Department of Water Resources (DWR). The submittal is required to meet the requirements of the UWMPA, including the most current amendments that have been made. The UWMPA applies to urban water suppliers with 3,000 or more connections being served or supplying more than 3,000 acre-feet (AF) of water annually.

UWMPs are required of the state's urban water suppliers in an effort to assist their resource planning and to ensure adequate water supplies are available for future use. A secondary purpose of the UWMP is to provide for a plan or series of plans during water drought situations. This report was prepared according to the requirements of the CWC, UWMPA and the 2015 UWMP Guidebook for Urban Water Suppliers (Guidebook), for the City of Los Banos.

Texts printed in italics at the beginnings of sections are definitions or background provided by DWR in the UWMP Guidelines Template.

This UWMP covers the calendar years from 2016 to 2020.

1.2 Urban Water Management Planning and the California Water Code

To ensure that all CWC requirements and applicable laws have been met, the sections below are summarized.

1.2.1 Urban Water Management Planning Act of 1983

In 1983, SB797 altered Division 6 of the CWC by producing the UWMPA. Since 1983, several amendments to the original document have increased the requirements of the UWMPs submitted today. One such amendment required projections for water use to extend 20 years at 5-year intervals. Recently, this has been increased to a 25-year projection providing for a minimum 20-year projection up until the next UWMP is completed.

1.2.2 Applicable Changes to the Water Code since 2010 UWMPs

Various other amendments have increased requirements to include sections on recycled water use, demand management measures (DMMs), and water shortage contingency plans. Recycled water use sections were added to assist in evaluation of alternate water supplies for future use when projects exceed the current water supplies. Demand management measures must be clearly described including which measures are being implemented and which are scheduled for implementation in the future. Water contingency plans are to be prepared and coordinated with other water suppliers in the area for use during times of drought. Pertinent bills that have passed are as follows.

<i>Bill</i>	<i>Requirements</i>
<i>SB610 and AB901</i>	<i>Consideration of water availability when reviewing new large developments</i>
<i>SB318</i>	<i>Investigate possibilities of developing desalinated water</i>
<i>AB105</i>	<i>Submit UWMP to State Library</i>
<i>Water Conservation Bill (2009)</i>	<i>Urban water suppliers to reduce the statewide average per capita daily water consumption by 20% by December 31, 2020</i>
<i>AB 2067</i>	<i>Revises requirements on Demand Management Measures</i>
<i>SB 1420</i>	<i>Requires electronic submittal, standard forms and tables, and a report on distribution system losses</i>
<i>SB 1036</i>	<i>Urban suppliers to include energy-related information (optional) and analyze and define artificial water features</i>

The City has previously prepared an UWMP in 2010, which was approved and adopted by the City Council on June 1, 2011. Following adoption, the 2010 UWMP was submitted to and approved by DWR. A copy of this UWMP resides in the State Library.

This 2015 UWMP serves as an update to the 2010 UWMP and complies with all new requirements and regulations as noted above.

1.2.3 Water Conservation Act of 2009 (SB X7-7)

As of 2016, all retailers are required to comply with their SB X7-7 water conservation requirements to be qualified for State water grants or loans. In a move to assist the State in meeting its 20 percent reduction goal by 2020, the targets set by the City of Los Banos will be tracked to help verify the daily per capita urban water use decrease.

1.3 Urban Water Management Plans in Relation to Other Planning Efforts

This document was written with information provided by the City of Los Banos.

1.4 UWMP Organization

As recommended by DWR, this updated Plan was prepared according to the organization provided in *The Guidebook for Urban Water Suppliers* (Guidebook) for the City of Los Banos. The Plan's format includes all of the required sections and tables in the order found in the Guidebook; therefore, there are sections in this Plan where the tables are not presented in numeric order. The general organization is presented by topic, and supporting documents are included in the appendices of this Plan.

1.5 UWMPs and Grant or Loan Eligibility

1.5.1 Funding Eligibility for Retail and Wholesale Suppliers

In order for the City of Los Banos to be eligible for any water grant or loan administered by DWR, this Updated UWMP addresses all the requirements set by the CWC.

1.5.2 Funding Eligibility for Retail Suppliers Only

Legal Requirements:

CWC 10608.56 (a) On and after July 1, 2016, an urban retail water supplier is not eligible for a water grant or loan awarded or administer by the state unless the supplier complies with this part.

CWC 10608.56 (c)

Notwithstanding subdivision (a), the department shall determine that and urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail 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 achieving the per capita reductions. The supplier may request grant or loan funds to achieve the per capita reductions to the extent the request is consistent with the eligibility requirements applicable to the water funds.

CWC 10608.56 (e)

Notwithstanding subdivision (a), the department shall determine that an urban retail water supplier is eligible for a water grant or loan even though the supplier has not met the per capita reductions required pursuant to Section 10608.24, if the urban retail water supplier has submitted to the department for approval documentation demonstrating that its entire service area qualifies as a disadvantage community.

CWC 10608.56 (f)

The department shall not deny eligibility to an urban retail water supplier or agricultural water supplier in compliance with the requirements of this part and Part 2.8 (commencing with Section 10800), 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 requirements oat this part or Part 2.8 (commencing with Section 10800).

Legal Requirements:

CCR Section 596.1

(b)(2) "disadvantaged community" means a community with an annual median household income less than 80 percent of the statewide annual median household income.

Regional water suppliers must be compliant to the water conservation requirements established by the Water Conservation Act of 2009 in order to be eligible to receive funding from the State. The City of Los Banos must meet the 2015 Interim Urban Water Use Target set in Section 5, or submit a schedule, financing plan, and budget for achieving the per capita reductions. If an area qualifies as a disadvantaged community, the City may also submit documentation for approval demonstrating that its entire service area qualifies as a disadvantaged community.

2 Plan Preparation

2.1 Basis for Preparing a Plan

Legal Requirements:

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...

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 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, except as provided in subdivision (d).

CWC 10621(d)

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

The California Urban Water Planning Act (Act) requires urban water suppliers that have 3,000 or more service connections or supply 3,000 or more acre-feet (AF) of water per year to develop an Urban Water Management Plan (UWMP or Plan), which is submitted to the California Department of Water Resources (DWR) every five years. The Plan is required to describe and evaluate water deliveries and uses, sources of supply, reasonable and practical efficient water uses, demand management activities and water shortage contingency planning. Since 2005, legislation has been implemented that interrelates with the Act. SBX7-7 (Water Conservation Bill of 2009) requires urban water suppliers to develop baseline daily per capita water use and urban water use targets with the goal of reducing statewide per capita water use by 20 percent by 2020. Also, urban water suppliers must include projected water demands for lower income households in their future water use projections.

In accordance with California Water Code §10631.5(a), submittal of an UWMP that includes discussion of the status of the water supplier’s implementation of the demand management measures (DMMs), as defined in §10631, is required in order for an urban water supplier to be eligible for a water management grant or loan administered by the DWR, State Water Resources Control Board, or the Delta Stewardship Council.

The City of Los Banos produced approximately 6,660 AF during the 2015 calendar year and therefore, per the Act, the City is required to update their 2010 Plan.

2.1.1 Public Water Systems

Legal Requirements:

CWC 10644 (a)(2)

The plan, or amendments to the plan, submitted to the department ... shall include any standardized forms, tables, or displays specified by the department.

CWC 10608.52 (a)

The department, in consultation with the board, the California Bay-Delta Authority or its successor agency, the State Department of Public Health, and the Public Utilities Commission, shall develop a single standardized water use reporting form to meet the water use information needs of each agency, including the needs of urban water suppliers that elect to determine and report progress toward achieving targets on a regional basis as provided in subdivision of Section 10608.28.

CWC 10608.52 (b)

At a minimum, the form shall be developed to accommodate information sufficient to assess an urban water supplier's compliance with conservation targets pursuant to Section 10608.24... The form shall accommodate reporting by urban water suppliers on an individual or regional basis as provided in subdivision (a) of Section 10608.28.

California Health and Safety Code 116275 (h)

"Public Water System" means 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.

Public Water Systems (PWSs) are those systems that make drinking water available for human consumption. PWSs are regulated by the State Water Resource Control Board (Board) and data is used by the Board to conclude if a retail supplier meets the UWMP reporting threshold. The City is only served by one PWS, for its own service area.

2.1.2 Agencies Serving Multiple Service Areas/Public Water Systems

The City of Los Banos exceeds the UWMP size threshold of 3,000 AF, as shown on Table 2-1. The City will only provide an individual plan for its water distribution system because it supplies its own water and does not distribute to neighboring cities or counties.

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
CA2410005	City of Los Banos	11,495	6,657
TOTAL		11,495	6,657
NOTES: Units of volume in acre-feet. All standard UWMP tables are included in Appendix I at the back of this report.			

2.2 Regional Planning

The City of Los Banos is not a part of regional planning.

2.3 Individual or Regional Planning and Compliance

This Plan update only represents the City's own service area as indicated by "Individual Reporting" in the Guidebook.

2.3.1 Regional UWMP

Legal Requirements:

CWC 10620 (d)(1)

An urban water supplier may satisfy the requirements of this part by participation in area wide, regional, watershed, or basin wide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.

The City is not involved with other agencies to establish a Regional UWMP (RUWMP or Regional Plan).

2.3.2 Regional Alliance

Legal Requirements:

CWC 10608.20 (a)(1)

...Urban retail water suppliers may elect to determine and report progress toward achieving these targets on an individual or regional basis as provided in subdivision (a) of Section 10608.28...

CWC10608.28 (a)

An urban retail water supplier may meet its urban water use target within its retail service area, or through mutual agreement by any of the following:

- (1) Through an urban wholesale water supplier.*
- (2) Through a regional agency authorized to plan and implement water conservation, including, but not limited to, an agency established under the Bay Area Water Supply and Conservation Agency Act (Division 31 (commencing with Section 81300)).*
- (3) Through a regional water management group as defined in Section 10537.*
- (4) By an integrated regional water management funding area.*
- (5) By hydrologic region.*
- (6) Through other appropriate geographic scales for which computation methods have been developed by the department.*

CWC10608.28 (b)

A regional water management group, with the written consent of its member agencies, may undertake any or all planning, reporting, and implementation functions under this chapter for the member agencies that consent to those activities. Any data or reports shall provide information both for the regional water management group and separately for each consenting urban retail water supplier and urban wholesale water supplier.

The City is not collaborating with other agencies to establish a Regional Alliance for the completion of the SB X7-7 requirements in determining its 2020 Urban Water Use Targets. See Table 2-2, Plan Identification below.

Table 2-2: Plan Identification

Table 2-2: Plan Identification			
Select Only One	Type of Plan		Name of RUWMP or Regional Alliance <i>if applicable</i>
<input checked="" type="checkbox"/>	Individual UWMP		
	<input type="checkbox"/>	Water Supplier is also a member of a RUWMP	
	<input type="checkbox"/>	Water Supplier is also a member of a Regional Alliance	
	<input type="checkbox"/>	Regional Urban Water Management Plan (RUWMP)	
NOTES: Los Banos is not a part of any Regional Alliance.			

2.4 Fiscal or Calendar Year and Units of Measure

Legal Requirements:

CWC 1608.20 (a)(1)
Urban retail water suppliers...may determine the targets on a fiscal year or calendar year basis.

2.4.1 Fiscal or Calendar Year

As preferred by DWR, reporting is on a calendar year bases for the update to Los Banos UWMP.

2.4.2 Reporting Complete 2015 Data

Total water usage for the City for the 2015 calendar year was approximately 6,660 AF.

2.4.3 Units of Measure

This report will provide all volumes in AF; these units will remain consistent throughout this 2015 UWMP. Table 2-3 below, Agency Identification, identifies the type of agency, reporting period and units of measure as required by the guidelines.

Table 2-3: Agency Identification

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
<input type="checkbox"/>	Agency is a wholesaler
<input checked="" type="checkbox"/>	Agency is a retailer
Fiscal or Calendar Year (select one)	
<input checked="" type="checkbox"/>	UWMP Tables Are in Calendar Years
<input type="checkbox"/>	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	AF
NOTES: All volumes reported in acre-feet.	

2.5 Coordination and Outreach

Legal Requirements:

CWC 10631 (j)

An urban water supplier that relies 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).

2.5.1 Wholesale and Retail Coordination

When a retailer is dependent on a wholesaler for its water supply, both suppliers must provide information to each other about projected water supply and demand. However, the City of Los Banos is independent of any wholesaler and generates its own water supply. No information is exchanged with a wholesaler or retailer. Table 2-4 below, Water Supplier Information Exchange, notes the relationship between the City and any Wholesale suppliers as required by the guidelines.

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 <i>(Add additional rows as needed)</i>
N/A*
NOTES: *The City of Los Banos supplies all their own water.

2.5.2 Coordination with Other Agencies and the Community

Legal Requirements:

<p><i>CWC 10620 (d)(2)</i> <i>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. Urban retail water suppliers...may determine the targets on a fiscal year or calendar year basis.</i></p> <p><i>CWC 10642</i> <i>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...</i></p>

The City of Los Banos, Public Works Department staff, coordinated with several internal departments, neighboring agencies and school districts to solicit participation and data during the preparation of this Plan. Copies of the UWMP draft were made available to department managers for comment and revision prior to adoption.

The City of Los Banos produces its own water supply solely from groundwater and does not currently share its water sources with other agencies.

Agencies coordinated with for the development of this Plan therefore include, but are not limited to, local government, private, and agricultural interests:

- *Central California Irrigation District*
- *County of Merced*
- *Merced County Farm Bureau*
- *Los Banos Chamber of Commerce*
- *Los Banos Unified School District*
- *General Public*

2.5.3 Notice to Cities and Counties

Legal Requirements:

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.

Los Banos provided letters of notification to all its coordinating agencies sixty days prior to a public hearing, held on July 20, 2016. The notice contained the time and place of the hearing published pursuant to Section 10642 of the Government Code. Copies of the public notice are included in Appendix A.

Prior to the public hearing and adoption of the Plan, the City made the draft Plan available for public inspection by publishing it on the City website and at the City of Public Works Department offices.

3 System Description

3.1 General Description

Legal Requirements:

CWC Section 10631

Describe the service area of the supplier.

Los Banos is located on the west side of Merced County and is the county's second largest city. The City is conveniently located in the center of California and is about two hours from the cities of San Francisco, Oakland and Sacramento, as well as Yosemite National Park. California's Monterey Peninsula and the Pacific Ocean are accessible in one and a half hours, as well as the Valley's major cities of Stockton and Fresno. The Silicon Valley is just more than an hour's drive away. A regional map, Figure 3-1, notes the location of Los Banos as described above.

Los Banos has a generally flat topography and lies within the San Joaquin Valley, which is about 225 miles long and averages 50 miles wide. About 50 miles east of Los Banos, the terrain slopes upward with the foothills of the Sierra Nevada mountain range; 10 miles west of the City are the foothills of the Coastal Mountain Range. Los Banos is also centrally located along the western edge of nearly 160,000 acres of the remaining seasonal wetlands and grasslands that at one time covered much of the San Joaquin Valley. This area is very important in that it represents the largest remaining area of wetlands and grasslands in the Central Valley which is critical habitat for migrating and wintering waterfowl on the Pacific Flyway.

Los Banos is a public entity which has grown from an agricultural center to a mixture of agriculture, retail, public, commercial and residential neighborhoods. Land use for the City varies greatly; single family residential makes up the majority of land use at approximately 31 percent at 1,675 acres. Commercial, agricultural, and open space trail by 27, 16, and 16 percent respectively totaling approximately 3,183 acres combined. Los Banos extracts its water supply from groundwater aquifers via a series of wells. The City's existing system facilities include 13 active wells with a total pumping capacity of 14,875 gallons per minute (gpm), a distribution system with line sizes ranging from 4 to 30 inches in diameter, an elevated storage tank with a capacity of 100,000 gallons, and a 5-million-gallon surface mounted storage tank equipped with 4 booster pumps with a total pumping capacity of 10,500 gpm.

The City has plans to construct additional wells in the future as demands continue to increase. All current wells are completed in a semi-confined aquifer above a regional clay layer. This clay layer serves to separate the water the City is pumping from a deeper aquifer. The City plans to construct a test well below the regional clay layer some time before 2020. If the test is successful and higher-quality is available in substantial quantities, future production wells may be completed in the deeper aquifer to help avoid the need for water treatment.

The City of Los Banos, incorporated in 1907, is governed by the elected City Council. The council is made up of the Mayor and four council members. The City Clerk and Treasurer are also elected positions. Figure 3-1 provides an organizational chart of the City government structure.

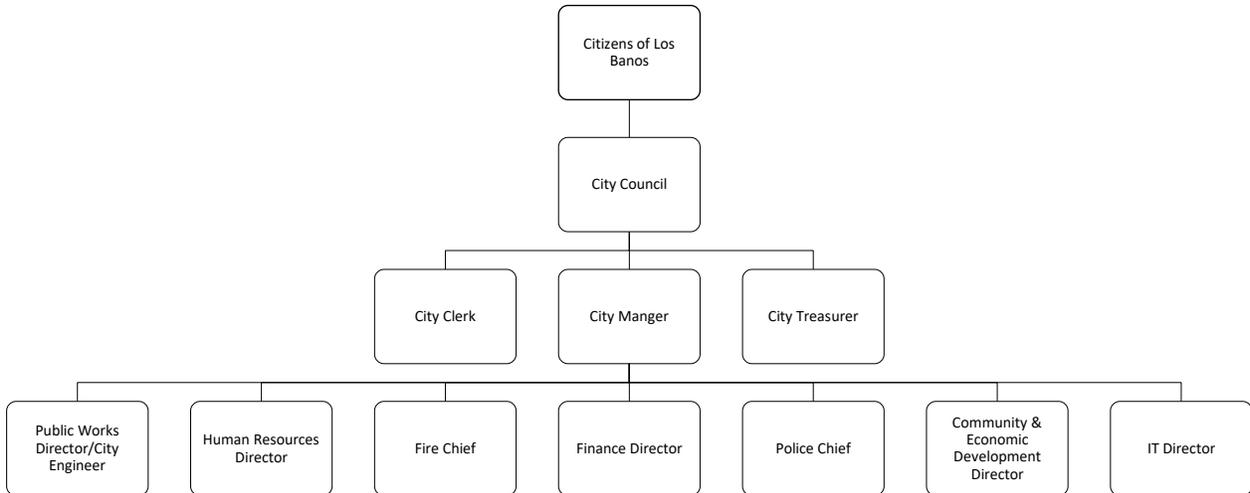


Figure 3-1: City of Los Banos Organizational Chart

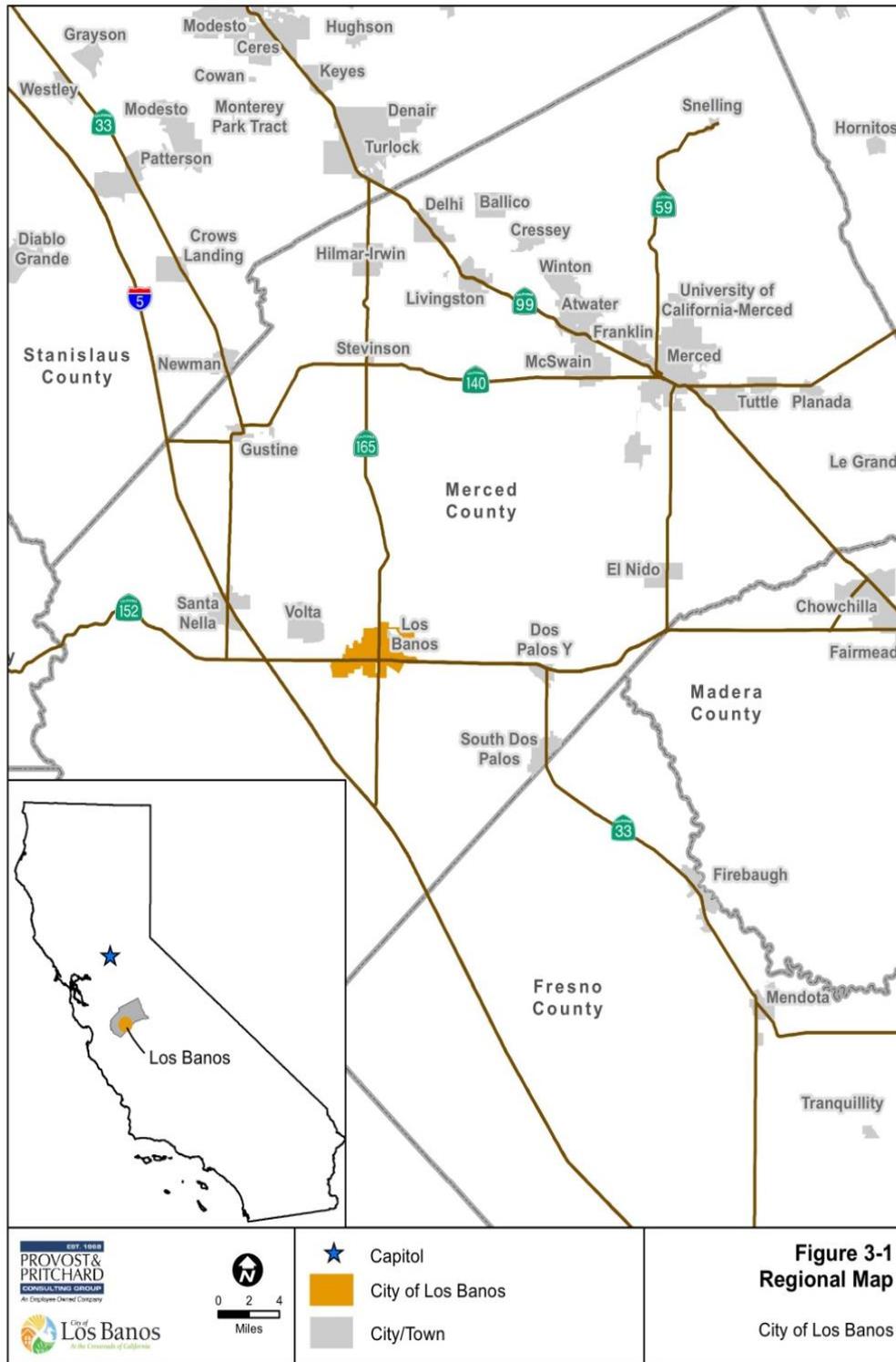


Figure 3-2: Regional Map

3.2 Service Area Boundary Map

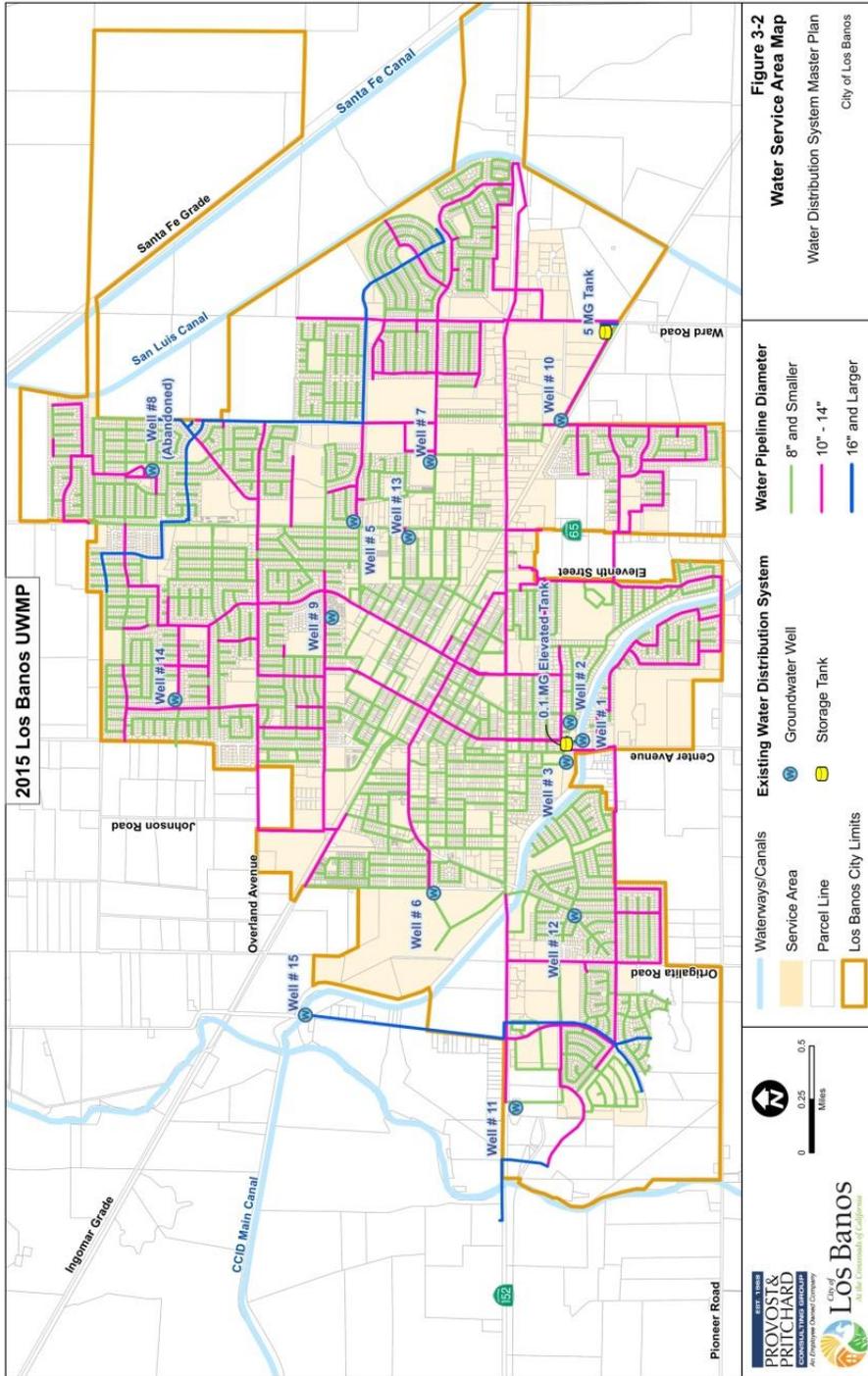


Figure 3-3: Water Service Area Map

3.3 Service Area Climate

Legal Requirements:

CWC Section 10631

Describe the service area of the supplier, including... climate...

The climate of Los Banos is dry and mild in winter and hot in the summer. Nearly nine-tenths of the annual precipitation falls during the period of November through April. Rainfall during the summer is rare and very light. Snow is also a rare occurrence. Los Banos enjoys a very high percentage of sunshine, receiving more than 80 percent of the possible amount during all but the four months of November, December, January, and February. Reduction of sunshine during these months is caused by fog and short periods of stormy weather.

Due to clear skies during the summer and the protection of the San Joaquin Valley from marine effects, the normal daily maximum temperature reaches the high 90s during July and August. The daily maximum temperature during the warmest month has ranged from 76°F to 115°F. Relative humidity readings of 15 percent are common on summer afternoons, and readings as low as 8 percent have been recorded. In contrast to this, humidity readings average 90 percent during the morning hours of December and January.

Winter temperatures are usually mild with infrequent cold spells dropping the readings below freezing. Heavy frost occurs almost every year, and the first frost usually occurs during the last week of November. The last frost in spring is usually in early March; however, one year in five will have the last frost after the first of April.

Winds flow with the major axis of the San Joaquin Valley, generally from the northwest. This feature is especially beneficial since during the warmest months, the northwest winds increase during the evenings. These refreshing breezes and the normally large temperature variation of about 35 degrees between the highest and lowest readings generally result in comfortable evening and night temperatures. Average monthly and annual climate data for Los Banos is presented in the Climate Characteristics Table 3-1 on the following page.

Table 3-1: Climate Characteristics

Month	Standard Monthly Average ETo ¹ (inches)	Monthly Average Rainfall ² (inches)	Monthly Average Temperature ² (°F)	
			Min.	Max.
January	0.97	1.88	36.3	55.1
February	1.93	1.66	39.8	62.2
March	4.16	1.42	42.8	68.1
April	5.75	0.71	46.3	74.8
May	6.66	0.34	51.8	82.5
June	7.76	0.06	56.8	89.8
July	7.50	0.02	60.5	96.5
August	6.87	0.02	59.3	95.1
September	5.14	0.17	56.2	90.4
October	3.56	0.48	49.3	80.2
November	1.85	0.97	41.1	66.5
December	1.33	1.45	36.3	55.9
Annual Total/Average	4.46	9.19	48.0	76.4
	Source: ¹ California Irrigation Management Information System (CIMIS) data for Station 56 – Los Banos. Period of record: January 2015- December 2015 ² Western Regional Climate Center monthly summary data for Los Banos, CA (Station 045118). Period of record: 03/01/1906 – 01-20-2015.			

3.3.1 Climate Change (Optional)

City of Los Banos elected not to complete this optional section for the 2015 Plan update.

3.4 Service Area Population and Demographics

Legal Requirements:

CWC Section 10631
 Describe the service area of the supplier, including current and projected population . . . 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.

The City of Los Banos had very little population growth from 2011 to 2015. Prior to 2011, Los Banos experienced steady population growth in which future projections anticipated further growth at the same or greater than the current rate at that time. Agricultural services, retail trade, and government are presently the largest segments contributing to the City’s labor force. A growing new enterprise segment is also creating additional demand on water resources. Anticipating increased demand from population growth and new enterprise are important aspects of the City’s UWMP. The City’s UWMP anticipates the affects of increased demand on water resources arising from anticipated population growth. The City of Los Banos’ Planning Department calculated the 2015 population of 37,145. The City’s current General Plan, adopted in 2009, assumes an average annual population growth rate of 4.1 percent.

Table 3-1 shows the estimated population total for the City in 2015, with projections to 2040 based on an assumed annual growth rate of 4.1 percent.

Table 3-2: Retail: Population – Current and Projected

Table 3-1 Retail: Population - Current and Projected						
Population Served	2015	2020	2025	2030	2035	2040 <i>(opt)</i>
	37,145	45,410	55,515	67,867	82,969	101,431
NOTES: All projections assume uniform population growth rate of 4.1%						

3.4.1 Other Demographic Factors

Legal Requirements:

CWC 10631 Describe the service area of the supplier, including . . . other demographic factors affecting the supplier's water management planning.

The City has a small migrant camp in the northern region along State Highway 165, where non-residential population increases due to seasonal agriculture.

4 System Water Use

4.1 Recycled versus Potable and Raw Water Demand

Recycled water is addressed in Section 6.5 and raw water is address below.

4.2 Water Use by Sector

Legal Requirements:

CWC 10631(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).

Projected water demands are based on the population estimates shown in Section 3.4 and assume that water use targets developed in Section 5 will be achieved in both 2020 and 2025. The number of accounts in each water use sector is assumed to grow at the same rate as the population (4.1% annually) over the planning period. The water delivery projections are based on 2010 census data adjusted by the assumed 4.1% growth rate through 2020. When unaccounted for water (system losses) are included, this yields a per capita water use of 0.18 AF in 2020.

The amount of water delivered in 2015, based on customer readings is presented in Table 4-1. Table 4-2 presents the projected amounts to be delivered over the next 25 years, in five-year increments.

4.2.1 Demand Sectors Listed in Water Code

Definitions used by DWR for each of the water sectors listed in the CWC are as follows:

4.2.1.1 Single-family residential

A single-family dwelling unit. A lot with a free-standing building containing one dwelling unit that may include a detached secondary dwelling. This is a retail demand.

4.2.1.2 Multi-family

Multiple dwelling units contained within one building or several buildings within one complex. This is a retail demand.

4.2.1.3 Commercial

A water user that provides or distributes a product or service. CWC 10608.12 (d). This is a retail demand.

4.2.1.4 Industrial

A water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System (NAICS) code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development. CWC 10608.12 (h). The following link is to the NAICS website: <http://www.census.gov/cgi-bin/sssd/naics/naicsrch>. This is a retail demand.

4.2.1.5 Institutional (and governmental)

A water user dedicated to public service. This type of user includes, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions. CWC 10608.12 (i). This is a retail demand.

4.2.1.6 Landscape

Water connections supplying water solely for landscape irrigation. Such landscapes may be associated with multi-family, commercial, industrial, or institutional/governmental sites, but are considered a separate water use sector if the connection is solely for landscape irrigation. This is a retail demand.

4.2.1.7 Distribution System Losses

Reporting of system losses is required by the CWC in the 2015 UWMPs. See Section 4.3 and Appendix L for details on the required methodology for calculating system losses. The CWC requires reporting losses for the most recent 12 months for which data is available, which can be taken to mean the calendar year or fiscal year used for data reporting throughout the rest of the UWMP. Report the losses for the most recent 12 months available in Table 4-1 and Table 4-4. If the reported water losses are for a 12 month period that is different from the calendar or fiscal year used for data reporting throughout the rest of the UWMP, the water supplier will state this in the UWMP. This is both a wholesale and a retail demand.

4.2.2 Demand Sectors in Addition to Those Listed in Water Code

4.2.2.1 Exchanges

The agency will make a determination as to whether water sent to another agency is a sale, transfer, or exchange. This is a wholesale demand.

Water exchanges are typically water delivered by one water user to another water user, with the receiving water user returning the water at a specified time or when the condition of the parties' agreement are met. Water exchanges can be strictly a return of water on a basis agreed upon by the participants or can include payment and the return of water. The water returned may or may not be an "even" exchange. Water can be returned on a one-for-one basis or by another arrangement (e.g., for each acre-foot 9(AF) of water received, 2 AF are returned).

Some retail agencies provide exchange water to other agencies. This is considered a wholesale demand.

4.2.2.2 Surface Water/ Augmentation

The planned placement of recycled water into a surface water reservoir that is used as a source of domestic drinking water supply. (Used in Chapter 6, Section 6.5 Wastewater and Recycled Water).

4.2.2.3 Transfers

The agency will make a determination as to whether water sent to another agency is a sale, transfer, or exchange. This is a wholesale demand.

The CWC defines a water transfer as a temporary or long-term change in the point of diversion, place of use, or purpose of use due to a transfer, sale, lease, or exchange of water or water rights.

Transfers can be between water districts that are neighboring or across the State, provided there is a means to convey or store the water. A water transfer can be a temporary or permanent sale of water or a water right by the water right holder, a lease of the right to use water from the water right holder, or a sale or lease of a contractual right to water supply. Water transfers can also take the form of long-term contracts for the purpose of improving long-term supply reliability.

Some retail agencies transfer water to other agencies. This is considered a wholesale demand.

4.2.2.4 Other

Any water demand that is not adequately described by the water sectors defined above.

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

Table 4-1 Retail: Demands for Potable and Raw Water - Actual			
Use Type <i>(Add additional rows as needed)</i>	2015 Actual		
	Additional Description <i>(as needed)</i>	Level of Treatment When Delivered	Volume
Single Family		Drinking Water	3,989
Multi-Family		Drinking Water	324
Commercial		Drinking Water	1,225
Landscape		Drinking Water	354
Losses		Drinking Water	695
TOTAL			6,587
NOTES: Units of volume in acre-feet. Losses for 2015 were calculated at 11.5% per pumpage and metered usage records.			

Section Four: System Water Use 2015 Urban Water Management Plan

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

Table 4-2 Retail: Demands for Potable and Raw Water - Projected						
Use Type	Additional Description	Projected water use Report To the Extent that Records are Available				
		2020	2025	2030	2035	2040-opt
Single Family		4,877	5,962	7,288	8,910	10,893
Multi-Family		396	484	592	724	885
Commercial		1,498	1,831	2,238	2,736	3,345
Landscape		433	529	647	791	967
Losses		939	1,148	1,403	1,715	2,097
TOTAL		8,143	9,954	12,168	14,876	18,187

NOTES: Units of volume in acre-feet. Commercial use includes Institutional/Governmental. All projections assume a uniform annual population growth rate of 4.1% based upon the 2009 City of Los Banos General Plan Update . This is a conservitave estimate based upon recent trends.

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 <i>From Tables 4-1 and 4-2</i>	6,587	8,143	9,954	12,168	14,876	18,187
Recycled Water Demand <i>From Table 6-4</i>	149	820	1,010	1,230	1,500	0
TOTAL WATER DEMAND	6,736	8,963	10,964	13,398	16,376	18,187

NOTES: Units of volume in acre-feet.
All projections assume uniform population growth rate of 4.1%.

4.3 Distribution System Water Losses

Legal Requirements:

CWC 10631 (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: ...

(J) Distribution system water loss

CWC 10631 (3)

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

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

Distribution system water losses are those that occur from the storage facilities to the point of consumption. The City of Los Banos considers its system losses of delivered volumes of water that are unaccounted for from the City wells to the points of consumption.

The volumes of water produced by the City wells are measured at the wellhead which is greater than the delivered volume due to unaccounted for water (system losses). The total water use numbers include the delivered volume, as measured at the customer's meters plus the system loss volume and are equal to the total of the pumpage volumes measured at the wellheads.

The projected volume of water losses from 2015 through 2035 are reported in Table 4-2. Losses for the calendar year of 2015 are reported in Tables 4-1 and 4-4.

System water losses were calculated using AWWA Free Water Audit Software. The software uses inputs from volume of water supplied, volume of water delivered, metering error percentage, and metering confidence levels to calculate apparent, unauthorized, and real losses.

The AWWA software assumes an additional 1.25% of the total volume supplied is used for authorized, unmetered activities such as line flushing for mains and hydrants and firefighting. This authorized, unmetered consumption is assumed to be 83.3 AF/year.

The difference between volume supplied and volume delivered plus the unmetered consumption is the calculated loss. This value is then broken into apparent loss, caused by metering errors and data handling inaccuracies, and real loss, leakage and unauthorized, unmetered water consumption. Table 4-4 below shows total water loss calculated by AWWA software. A copy of this spreadsheet is presented in Appendix B.

Table 4-4: Retail: 12 Month Water Loss Audit Reporting (as calculated by AWWA spreadsheet)

Table 4-4 Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date	Volume of Water Loss*
01/2015	695 AF/YR
* Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.	
NOTES:	

4.4 Estimating Future Water Savings

Legal Requirements:

CWC 10631 (e)(4)

(A) If available and applicable to an urban water supplier, water use projections may display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following: (i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections. (ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.

The City of Los Banos has adopted ordinances to reduce water waste. These ordinances and policies are better described in Chapters 8 and 9. Since the State’s mandate to reduce water waste and conserve water use has been implemented, the City is experiencing a 24% reduction in water use from the 2013 consumption totals. The State’s mandate has been in affect since June 2015.

4.5 Water Use for Lower Income Households

Legal Requirements:

CWC 10631.1(a)

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

California Health and Safety Code 50079.5 (a)

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

Urban water suppliers are required to identify water demand for lower income housing in its water use projections. Lower income households are those defined as households whose earnings fall below 80 percent of area average. Table 4-5 indicates that this demand has been included in the projections.

Based upon the City of Los Banos *2009 – 2014 Housing Element (Los Banos Housing Element)*; there are several levels of “Lower Income Housing”.

The Los Banos Housing Element estimated 525 “very low” income housing units and 403 “low” income units, totaling a need for 928 lower income housing units by 2015. Of the 525 “very low” income housing units needed, 352 of those units are needed for “extremely low” income families. The extremely low income families are those who require rental assistance and units are assumed as multi-family residential (MFR) units. The number of low income single-family residential (SFR) units is assumed to be the remaining 576 units.

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)	Yes
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.	Section 9
Are Lower Income Residential Demands Included In Projections?	No
NOTES:	

4.6 Climate Change

City of Los Banos elected not to complete this optional section for the 2015 Plan update.

5 SB X7-7 Baseline and Targets

5.1 Guidance for Wholesale Agencies

Not applicable, the City of Banos is a retail supplier.

5.2 Updated Calculations from 2010 UWMP

Legal Requirements:

CWC 10608.20

(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).

Methodologies DWR 2010, Methodology 2 Service Area Population

Page 27 - Water suppliers may revise population estimates for baseline years between 2000 and 2010 when 2010 census information becomes available. DWR will examine discrepancy between the actual population estimate and DOF's projections for 2010; if significant discrepancies are discovered, DWR may require some or all suppliers to update their baseline population estimates.

As part of the 20x2020 Water Conservation Plan, a directive was issued to reduce statewide per capita urban water use by 20 percent by the year 2020. The Water Conservation Bill of 2009 is one of the policy bills that provides the regulatory framework to support the statewide reduction. With the incorporation of the Water Conservation Bill of 2009 into the California Water Code it is now necessary for urban water suppliers to develop baseline daily per capita water use and urban water use targets and to track their progress toward achieving those targets.

DWR adopted the Water Conservation Act of 2009, also referred to as SB X7-7, and it was utilized in developing a baseline and compliance for the City. DWR developed the “Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use” Report (Methodologies Report) to provide methodologies to develop baseline and compliance numbers. The development process outlined in Figure D-2 of the Methodologies Report was used to develop the City’s baseline and target numbers.

5.2.1 Update of Target Method

The 2015 City of Los Banos UWMP continued to use “Method 1” in preparing this update of the 2010 UWMP. This 2015 report relies upon State of California Department of Finance (DOF) Tables E-8 and E-5 to determine historical populations.

5.2.2 Required Use of 2010 U.S. Census Data

Updated data from the DOF shows a discrepancy of less than 1% in the reported population figures from the 2010 reports and those available today. This discrepancy is considered insignificant for the purposes of this analysis. Therefore, the current DOF estimates have been used in preparing this 2015 UWMP and no attempt to make any adjustments to the previous population figures or the results predicated upon their accuracy.

5.2.3 SB X7-7 Verification Form (Appendix C)

The following information refers to SB X7-7 verification tables, which assist water agencies in determining their target daily per capita water demands and compliance with 2015 water reduction targets determined in the 2010 UWMP. All SB X7-7 Verification Tables are located in Appendix C.

5.3 Baseline Periods

Legal Requirements:

<p><i>CWC 10608.20</i></p> <p><i>(e) An urban retail water supplier shall include in its urban water management plan due in 2010. . .the baseline daily per capita water use...along with the bases for determining those estimates, including references to supporting data.</i></p> <p><i>(g) An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan required pursuant to Part 2.6 (commencing with Section 10610).</i></p>
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The baseline periods for the 2015 UWMP are as follows; the 10-year baseline ranges 2001 to 2010 and the 5-year baseline ranges from 2006 to 2010. However, population data was changed to reflect DOF data and a new baseline gpcd was calculated for each year. SB X7-7 Table 1 Baseline Period Ranges are presented below as Table 5-1.

Table 5-1: 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	9,200	Acre Feet
	2008 total volume of delivered recycled water	0	Acre Feet
	2008 recycled water as a percent of total deliveries	0.00%	Percent
	Number of years in baseline period ^{1, 2}	10	Years
	Year beginning baseline period range	2001	
	Year ending baseline period range ³	2010	
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.			

Reference SB X7-7 Table 1 – Baseline Period Ranges Appendix C

5.3.1 Determination of 10-15 Year Baseline Period (Baseline GPCD)

Legal Requirements:

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.

The 10-year base line baseline period has been revised since the 2010 UWMP. The 10-year baseline period is now 2001 to 2010. All water deliveries are reported in acre-feet.

Reference SB X7-7 Table 1 – Baseline Period Ranges Appendix C

5.3.2 Determination of 5-Year Baseline Period (Target Confirmation)

Legal Requirements:

CWC 10608.12 (b)

(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.

The 5-year base line baseline period has also been revised to years 2006 to 2010. This was done in part to take advantage of more accurate water production and usage data. All water deliveries are reported in acre-feet.

Reference SB X7-7 Table 1 – Baseline Period Ranges, Appendix C

5.4 Service Area Population

Legal Requirements:

CWC 10608.20 (e)

An urban retail water supplier shall include in its urban water management plan due in 2010...the baseline daily per capita water use,...along with the bases for determining those estimates, including references to supporting data.

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.

CWC 10644 (a) (2)

The plan... shall include any standardized forms, tables, or displays specified by the department.

Service area population has been based upon State of California Department of Finance (DOF) estimates. This data was also used for the 2010 UWMP. The service area populations for the 10 and 5-year baseline periods are listed on the following page in Table 5-2.

Table 5-2: 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	27,321
Year 2	2002	28,307
Year 3	2003	29,225
Year 4	2004	30,627
Year 5	2005	32,031
Year 6	2006	33,591
Year 7	2007	34,599
Year 8	2008	35,267
Year 9	2009	35,654
Year 10	2010	35,918
5 Year Baseline Population		
Year 1	2006	33,591
Year 2	2007	34,599
Year 3	2008	35,267
Year 4	2009	35,654
Year 5	2010	35,918
2015 Compliance Year Population		
2015		37,145
NOTES: Population estimates from California Department of Finance Tables E-5 & E-8		

5.4.1 Population Methodologies

Service area populations are based upon State of California Department of Finance (DOF) estimates. This is consistent with the use of “Method 1” as outlined in SB X7-7 Table 2

Reference SB X7-7 Table 2 – Method for Population Estimates, Appendix C

5.5 Gross Water Use

Legal Requirements:

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.

California Code of Regulations Title 23 Division 2 Chapter 5.1 Article

Section 596 (a) An urban retail water supplier that has a substantial percentage of industrial water use in its service area is eligible to exclude the process water use of existing industrial water customers from the calculation of its gross water use to avoid a disproportionate burden on another customer sector.

5.5.1 Gross Water Tables

Gross water use is determined for both the 10-year baseline and 5-year baseline periods. These tables illustrate the relationship between the volume of water supplied to the distribution system and deductions for exported water, change in distribution system storage, indirect recycled water, and water delivered for agricultural use. Since the City has none of these deductions, the annual gross water use is the volume of water that is actually read at the meter of the end users for any given year. The 10-year baseline average gross water use for the years 2001 through 2010 was 7,604 AF. The 5-year baseline average gross water use for the years 2006 through 2010 was 8,384 AF. This data is summarized on the following page in Table 5-3, SB X7-7 Table 4 – Gross Water Use.

Section Five: Baseline and Targets 2015 Urban Water Management Plan

Table 5-3: SB X7-7 Table-4: Gross Water Use

SB X7-7 Table 4: Annual Gross Water Use *								
Baseline Year <i>Fm SB X7-7 Table 3</i>	Volume Into Distribution System (acre- feet)	Deductions					Annual Gross Water Use (acre-feet)	
		Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water	Water Delivered for Agricultural Use	Process Water		
10 to 15 Year Baseline - Gross Water Use								
Year 1	2001	5,463	0	0	0	0	0	5,463
Year 2	2002	6,923	0	0	0	0	0	6,923
Year 3	2003	6,803	0	0	0	0	0	6,803
Year 4	2004	7,332	0	0	0	0	0	7,332
Year 5	2005	7,598	0	0	0	0	0	7,598
Year 6	2006	8,107	0	0	0	0	0	8,107
Year 7	2007	9,119	0	0	0	0	0	9,119
Year 8	2008	8,849	0	0	0	0	0	8,849
Year 9	2009	8,254	0	0	0	0	0	8,254
Year 10	2010	7,590	0	0	0	0	0	7,590
10 - 15 year baseline average gross water use								7,604
5 Year Baseline - Gross Water Use								
Year 1	2006	8,107	0	0	0	0	0	8,107
Year 2	2007	9,119	0	0	0	0	0	9,119
Year 3	2008	8,849	0	0	0	0	0	8,849
Year 4	2009	8,254	0	0	0	0	0	8,254
Year 5	2010	7,590	0	0	0	0	0	7,590
5 year baseline average gross water use								8,384
2015 Compliance Year - Gross Water Use								
2015		6,587	0	0	0	0	0	6,587
* NOTE that the units of measure must remain consistent throughout the UWMP, as reported in								Table 2-3
NOTES:								

Reference SB X7-7 Table 4 – Gross Water Use, Appendix C

5.6 Baseline Daily Per Capita Water Use

Baseline daily per capita use is determined for both the 10-year baseline and 5-year baseline periods. These tables illustrate the relationship between the population, the volume of water that is actually read at the meter of the end users and the daily per capita demand (DPCD) for any given year. The 10-year baseline DPCD for the years 2001 through 2010 was 210 gallons per capita per day. The 5-year baseline DPCD for the years 2006 through 2010 was 214 gallons per capita per day. This data is summarized below in Table 5-4, SB X7-7 Table 5 – Gallons Per Capita Per Day.

Table 5-4: SB X7-7 Table-5: Gallons Per Capita Per Day

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD)				
Baseline Year <i>Fm SB X7-7 Table 3</i>		Service Area Population <i>Fm SB X7-7 Table 3</i>	Annual Gross Water Use <i>Fm SB X7-7 Table 4</i>	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	2001	27,321	5,463	179
Year 2	2002	28,307	6,923	218
Year 3	2003	29,225	6,803	208
Year 4	2004	30,627	7,332	214
Year 5	2005	32,031	7,598	212
Year 6	2006	33,591	8,107	215
Year 7	2007	34,599	9,119	235
Year 8	2008	35,267	8,849	224
Year 9	2009	35,654	8,254	207
Year 10	2010	35,918	7,590	189
10-15 Year Average Baseline GPCD				210
5 Year Baseline GPCD				
Baseline Year <i>Fm SB X7-7 Table 3</i>		Service Area Population <i>Fm SB X7-7 Table 3</i>	Gross Water Use <i>Fm SB X7-7 Table 4</i>	Daily Per Capita Water Use
Year 1	2006	33,591	8,107	215
Year 2	2007	34,599	9,119	235
Year 3	2008	35,267	8,849	224
Year 4	2009	35,654	8,254	207
Year 5	2010	35,918	7,590	189
5 Year Average Baseline GPCD				214
2015 Compliance Year GPCD				
2015		37,145	6,657	160
NOTES:				

Reference SB X7-7 Table 5 Gallons per Capita Per Day, Appendix C

5.7 2015 and 2020 Targets

Legal Requirements:

CWC 10608.20 (e)

An urban retail water supplier shall include in its urban water management plan due in 2010. . . urban water use target, interim urban water use target, ...along with the bases for determining those estimates, including references to supporting data (10608.20(e)).

CWC 10608.20 (g)

An urban retail water supplier may update its 2020 urban water use target in its 2015 urban water management plan...

5.7.1 Select and Apply a Target Method

Target method 3 – Hydrological Regional Target Method was used to determine the 2020 gpcd goal. Because of the City’s self-imposed conservation in prior years, consumption was already well below the regional average daily per capita use. The City has had water conservation ordinances in place and continues to be proactive in water management. The entire water system is metered and customers are charged by volume of water used to encourage conservation.

The regional target method is based upon conservation targets that were established for the state as a whole to reach the 20% water use reduction mandated in the 20x2020 program. The State was broken into 10 distinct hydrological regions. The interim year (2015) and final year (2020) conservation targets were defined for the State, and then adjusted for each region based on the regional baseline values. The statewide water reduction goal by 2020 is 154 gpcd. The City of Los Banos lies in the San Joaquin River hydrologic region. The Method 3 Regional 2020 target is 165 gpcd.

Reference Table SB X7-7 – Table 7-E Target Method 3, Appendix C

5.7.2 5-Year Baseline – 2020 Target Confirmation

Legal Requirements:

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 purpose of the 5-year baseline target confirmation is to assure that the calculated 2020 target is less than or equal to 95% of the 5-year baseline per-capita use. 95% of 214 gpcd, which is well above the actual Method 3 2020 Regional target of 165 gpcd. Therefore, the calculated target is valid.

Reference SB X7-7 Table 7-F Confirm Minimum Reduction for 2020 Target, Appendix C

5.7.3 Calculate the 2015 Interim Urban Water Use Target

Largely due to water restrictions put into place during the last few drought years, the City of Los Banos has met and gotten under their previously calculated 2015 interim water use target of 210 gpcd as well as the current interim target of 188 gpcd . Current use is already below the Method 3 2020 Regional target of 165 gpcd.

Reference SB X7-7 Table 8 2015 Interim Target GPCD, Appendix C

5.7.4 Baselines and Targets Summary

Table 5-5: Baselines and Targets Summary

Table 5-1 Baselines and Targets Summary					
<i>Retail Agency or Regional Alliance Only</i>					
Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	2001	2010	210	188	165
5 Year	2006	2010	214		
*All values are in Gallons per Capita per Day (GPCD)					
NOTES:					

5.8 2015 Compliance Daily per Capita Water Use

Legal Requirements:

CWC 10608.12 (e)
 “Compliance daily per-capita water use” means the gross water use during the final year of the reporting period...
CWC 10608.24 (a)
 Each urban retail water supplier shall meet its interim urban water use target by December 31, 2015.
CWC 10608.20(e)
 An urban retail water supplier shall include in its urban water management plan due in 2010 . . . compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

5.8.1 Meeting the 2015 Target

The City of Los Banos met and far surpassed the goal for 2015 water use. The 2015 target was recalculated to be 188 gpcd. The actual 2015 daily per-capita use is 160 gpcd. This is five gallons per day-per capita less than the 2020 goal of 165 gpcd. This dramatic decrease in consumption from 2010 is likely due to mandatory water reductions ordered by the Governor during the most recent drought. And a result of City water use restriction ordinances.

Reference SB X7-7 Table 8 2015 Interim Target GPCD, Appendix C

5.8.2 2015 Adjustments to 2015 Gross Water Use

Legal Requirements:

CWC 10608.24 (d) (1)

When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:

(A) Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.

(B) Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.

(C) Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.

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.

Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use, Methodology 4

This section discusses adjustments to compliance-year GPCD because of changes in distribution area caused by mergers, annexation, and other scenarios that occur between the baseline and compliance years.

No adjustments were made to the daily per capita water use.

5.9 Regional Alliance

The City of Los Banos is not a member of a Regional Alliance.

6 System Supplies

6.1 Purchased or Imported Water

Los Banos gets all of its water supply from groundwater aquifers via a series of wells. The City's existing system facilities include 13 active wells with a total pumping capacity of 14,875 gallons per minute (gpm), a distribution system with line sizes ranging from 4 to 30 inches in diameter, an elevated storage tank with a capacity of 100,000 gallons, and a five million gallon surface mounted storage tank equipped with four booster pumps with a total pumping capacity of 10,500 gpm. Well No. 8 is out of service and Well No. 15 became inactive in 2010 due to arsenic but became active again in 2012.

Volumes of purchased water are presented in Tables 6-8 and 6-9 in Section 6.9 of this Plan.

6.2 Groundwater

The City does not obtain water from a wholesaler nor does it wholesale water to other suppliers or users. Los Banos obtains its entire water supply from the underlying groundwater basin. The volume of groundwater pumped in 2015 and projected estimates of groundwater volumes required to meet demands through 2035, in five-year increments, are shown in Tables 6-8 and 6-9. Currently the City is undergoing an Unregulated Contaminant Monitoring Rule (UCMR4) testing and Title 22 every four years on the PWS. Changes to the Primary MCLs in 2015 have meant that the City is in violation for Hexavalent Chromium 6 in all of its wells. The City believes that with new treatment and wells implementing specific zone production, the problem will be resolved based on a State approved 10 year corrective action plan.

6.2.1 Basin Description

Legal Requirements:

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:

(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater.

The City of Los Banos is located in the San Joaquin River Hydrologic Region (groundwater basin) and extracts its groundwater from the Delta-Mendota Subbasin (Subbasin). The groundwater Subbasin Number is 5-22.04 and encompasses 747,000 acres made up of the Tulare Formation, terrace deposits, alluvium and floored-basin deposits. DWR Bulletin 118 – Update 2006, “California’s Groundwater” contains a detailed description of the Delta-Mendota Subbasin and its characteristics and conditions.

6.2.2 Groundwater Management

Legal Requirements:

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...or any other specific authorization for groundwater management.

(2) ...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.

The City of Los Banos has not prepared a Groundwater Management Plan and at this time the San Joaquin River Groundwater Basin is not adjudicated. However, the City works closely with the other local water suppliers to monitor and manage groundwater within the area. The City and DWR monitor water levels in the area wells monthly. During the 2011-2015 droughts, groundwater levels have remained stable. Wells are known to be 150 to 300 feet in depth. The City did not report a drop in the water table from 2010 to 2015. Water quality monitoring is also conducted by the City and is reported annually to its citizens and the State Department of Health Services.

6.2.3 Overdraft Conditions

Legal Requirements:

CWC 10631 (b)

(2) For basins that have not been adjudicated, (provide) 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.

The San Joaquin River Groundwater Basin is not adjudicated. Therefore, there are no limitations placed on groundwater pumpage volumes but the groundwater must be beneficially used. While portions of the San Joaquin River Groundwater Basin have been in a state of overdraft for many years, Delta-Mendota Subbasin water levels have remained relatively stable and actually rose during the 1970 to 2000 period (DWR Bulletin 118). The California Water Plan Update – Bulletin 160-98 estimated the average overdraft in the San Joaquin River Groundwater Basin to be 239,000 AF in 1995. However, the Delta-Mendota Subbasin average water level increased by 2.2 feet from 1970 to 2000. The period from 1970 to 1985 showed a general increase, topping out at 7.5 feet above the 1970 water level. The 9-year period from 1985 to 1994 saw general declines in water levels to the 1970 groundwater level in 1994. Groundwater levels rose in 1995 to about 2.2 feet above the 1970 groundwater level. Water levels fluctuated around this value until 2000. Subbasin water levels have shown the ability to recover from periods of reduced rainfall and reduced surface water deliveries. The City of Los Banos reported no significant changes to the water levels in any of their municipal wells for 2015.

6.2.4 Historical Groundwater Pumping

Legal Requirements:

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:

(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.

A report that investigated groundwater conditions in the Los Banos area was recently prepared for the Central California Irrigation District, City of Los Banos and the United States Bureau of Reclamation. The report, “Update of Groundwater Conditions in the Vicinity of the City of Los Banos” (Kenneth D. Schmidt and Associates, May 2010), concludes that the groundwater in the Los Banos study area has been approximately in balance from 1989 to 2009. The report also concludes that although the Los Banos urban area is not in a long-term state of groundwater overdraft, much of the recharge to groundwater beneath the City is not from City activities. Seepage from canals, deep percolation from irrigated lands, and seepage from Los Banos Creek have been the most important sources of groundwater recharge in the area. The report states “About 3,600 AFY of canal water (surface water) would need to be used or recharged by the City to have a self-sufficient groundwater supply at present. Use or recharge of about 5,400 AFY of surface water would be necessary for full development within the City’s Urban Growth Boundary as planned.”

Table 6-1: Retail: Groundwater Volume Pumped

Table 6-1 Retail: Groundwater Volume Pumped						
Groundwater Type	Location or Basin Name	2011	2012	2013	2014	2015
Alluvial Basin	San Joaquin Valley, Delta Mentoda Subbasin	7776	8399	8486	7894	6657
	TOTAL	7,776	8,399	8,486	7,894	6,657
NOTES: Units of volume in acre-feet						

6.3 Surface Water

The City of Los Banos currently does not utilize surface water but may utilize it as a future alternative. The City 2008 Water Master Plan acknowledges that due to increased demand of their wells, surface water may be a viable water source in the future for the City. The Water Master Plan recommends treated surface water to be used as usable groundwater becomes scarce. This recommendation was made on the basis that the cost of procurement and treatment of surface water was more economical than treatment of groundwater and has less environmental consequences. However, there continues to be advancements in technology that continues to reduce the cost of the treatment processes.

6.4 Stormwater

The City does not have any immediate plans to utilize storm water recharge as a means to meet their water supply demands. However local irrigation districts are implementing plans to make use of storm water runoff to recharge groundwater supplies in the vicinity.

6.5 Wastewater and Recycled Water

6.5.1 Recycled Water Coordination

Legal Requirements:

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.

Wide-scale systematic direct use of recycled water in the City is technically feasible yet economically unworkable. The City would have to install a tertiary treatment system for all or a portion of its wastewater, and would have to construct a “purple pipe” recycled water distribution system after identifying and securing receivers for the recycled water.

6.5.2 Wastewater Collection, Treatment, and Disposal

Legal Requirements:

CWC 10633 (a)

(Describe) 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.

CWC 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.

6.5.2.1 Wastewater Collected Within Service Area

Sewage is collected throughout the City via a network of sanitary sewer collection pipelines ranging from 4 to 30 inches in diameter. With the aid of 13 sewer lift stations, the influent is gravity-fed to the wastewater treatment plant (WWTP) in the northeast part of the City.

The WWTP was originally constructed in 1961 and last expanded in 1997. Currently, treatment of wastewater at the WWTP is accomplished in seven facultative ponds (four treatment and three storage), totaling approximately 509 acres without additional (mechanical) aeration. Disposal of treated wastewater (effluent reuse) is accomplished by irrigation of pastureland, in addition to the percolation and evaporation that occurs in the ponds. Wastewater flows to the WWTP average about 2.91 million gallons per day (mgd). The current Waste Discharge Requirements limit discharge to 4.0 mgd with current infrastructure and increases to 4.9 mgd with scheduled improvements.

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

Table 6-2 Retail: Wastewater Collected Within Service Area in 2015						
100	Percentage of 2015 service area covered by wastewater collection system <i>(optional)</i>					
100	Percentage of 2015 service area population covered by wastewater collection system					
Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	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?	Is WWTP Operation Contracted to a Third Party? <i>(optional)</i>
City of Los Banos	Estimated	3,250	City of Los Banos	City Of Los Banos WWTP	Yes	No
Total Wastewater Collected from Service		3,250	Volume is reported in Acre-Feet			

NOTES: Estimated based upon 2010 City of Los Banos Master Plan for Wastewater Collection System and total 2015 residential and commercial metered water usage.

6.5.2.2 Wastewater Treatment and Discharge Within Service Area

The city of Los Banos currently operates a Primary wastewater treatment plant, consisting of 310 acres of biological oxidation ponds, 202 acres of storage ponds, and approximately 417 acres of irrigated pasture for non-milking animals.

Although well under the permitted flow capacity of the WWTP, the City is planning to expand the plant because the plant's capacity to reduce the biochemical oxygen demand (BOD₅) of the wastewater is being reached because of large increases in organic waste from industrial dischargers and also to meet the increasing domestic discharges from the growing City. The City is currently evaluating alternative treatment methods and expansion alternatives.

The average daily volume of wastewater collected and treated in 2015 was estimated to be approximately 2.91 mgd, yielding a yearly total of approximately 1,060 million gallons, or about 3,250 AF. For this Plan, it is assumed that the vast majority of water conservation programs and measures implemented will be related to outdoor water use and therefore the volumes of wastewater projected to be collected, treated and reused by the City are representative of future volumes. In addition, the City has essentially met its Urban Water Use Target and therefore little reduction in wastewater flows on a per capita basis is expected in the future.

While no wastewater is discharged within the service area, approximately 180 acres of pasture land within the City limits and another 237 acres of pasture land outside of the City limits are irrigated with WWTP effluent. Figure 3-2 notes that the service area boundaries do not occupy the entire area of the city limits. The areas outside of the service area are comprised of open farm land and large individual lots which have been annexed by the City but are not serviced by the current distribution system.

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										
<input type="checkbox"/> No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.										
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number (optional)	Method of Disposal	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level	2015 volumes			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
City of Los Banos Wastewater Treatment Plant	17963 W. Henry Miller Rd. Los Banos CA.	WWTP Permanent Pasture	NA	Land disposal	No	Secondary, Undisinfected	3,250	149	0	0
Total							3,250	149	0	0
NOTES: As stated in the report, the quality of effluent reused on pastureland does not meet the standards for recycled water. Secondary Undisinfected was chosen from the drop down list since Primary Treatment is not included.										

6.5.3 Recycled Water Systems

Legal Requirements:

CWC 10633(c)

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

The City does not currently treat any wastewater to recycled water standards to allow it to be used as a component of its water supply. A portion of the effluent from the City's WWTP is reused through the irrigation of approximately 417 acres of pastureland to the north and east of the ponds. Future expansion of the WWTP currently includes planned expansion of the effluent reuse area to approximately 720 acres according to the Wastewater Master Plan. Projected volumes are based on an annual growth rate of 4.1% and assume that the City will develop the additional acreage as required for continued effluent disposal through reuse on pastureland. This reuse of effluent also reduces the demand on the other water supplies available to the area (primarily groundwater) and provides additional groundwater recharge through deep percolation of a portion of the applied effluent.

6.5.4 Recycled Water Beneficial Uses

Legal Requirements:

CWC 10633(d)

(Describe and quantify) 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 .

CWC 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 pursuant to this subdivision.

6.5.4.1 Current and Planned Uses of Recycled Water

The current method of reuse reduces the demand on the groundwater by directly reducing agricultural pumping and provides basin recharge. Other options include treatment and exchange of recycled water whereby the City would receive good quality surface water and the recycled water would be used more regionally for a broad range of agricultural uses. The potential for exchange of recycled water for a surface water supply will be investigated as part of the City's effort to acquire a surface water supply as previously discussed.

Treatment for use in landscape and park irrigation within the community is also an option currently not economical since this reuse opportunity is limited and presently the WWTP is not capable of producing recycled water meeting the standards required for urban water uses and no recycled water distribution facilities have been constructed. Potential recycled water program alternatives are expected to be evaluated as part of the proposed WWTP expansion project. In addition, non-potable groundwater can be developed for irrigation use on these areas. Another option within the City for the use of recycled water is increasing the recycling of industrial wastewater. Some recycling is being accomplished so the opportunities are limited for industry to install equipment for treating and recirculating process water rather than releasing it to the sanitary sewer. The potential for increasing recycled industrial wastewater has not been studied, and no estimates of its potential water supply benefit are available.

The City will continue to use treated wastewater to irrigate pasture lands as previously stated in Section 6.5.2.2 Wastewater Treatment and Discharge Within the Service Area. Again, this effluent does not meet recycled water standards.

Table 6-4: Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area

Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area								
<input type="checkbox"/> Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.								
Name of Agency Producing (Treating) the Recycled Water:			City of Los Banos Wastewater Treatment Plant					
Name of Agency Operating the Recycled Water Distribution			City of Los Banos Wastewater Treatment Plant					
Supplemental Water Added in 2015			0					
Source of 2015 Supplemental Water			NA					
Beneficial Use Type	General Description of 2015 Uses	Level of Treatment	2015	2020	2025	2030	2035	2040 (opt)
Agricultural irrigation	Pasture Land Irrigation	Secondary, Undisinfected	149	820	1,010	1,230	1,500	
Total:			149	820	1,010	1,230	1,500	0
<i>*IPR - Indirect Potable Reuse</i>								
NOTES: The Los Banos WWTP only treats this effluent to a Primary Level. Secondary Undisinfected was chosen from the drop down list since Primary Treatment is not included. As stated in the report, the quality of effluent reused on pastureland does not meet the standards for recycled water.								

6.5.4.2 Planned Versus Actual Use of Recycled Water

Legal Requirements:

CWC 10633(e)
(Provide) a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.

The current WWTP is located near the northeast limit of the City and no recycled water distribution infrastructure exists between the City and the WWTP. To develop distribution piping from the WWTP to areas throughout the City is presently cost prohibitive. Additionally, there are no large-scale users that would benefit in proportion to the cost of installing separate distribution systems. Currently, the City only utilizes recycled water for crops.

Section Six: System Supplies
2015 Urban Water Management Plan

Table 6-5: Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual

Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual		
<input type="checkbox"/>	Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.	
Use Type	2010 Projection for 2015	2015 Actual Use
Agricultural irrigation	670	149
Total	670	149
NOTES: As stated in the report, the quality of effluent reused on pasture land does not meet the standards for recycled water.		

6.5.5 Actions to Encourage and Optimize Future Recycled Water Use

Legal Requirements:

CWC 10633(f)
(Describe the) 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.

CWC 10633(g)
(Provide 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.

Although the City does not currently service the area with Title 22 quality unrestricted use recycled water, it has encouraged recycled water use with its own unique way. All new car wash facilities permitted in the City since 2005 have been required to employ a closed loop water recycling system for delivering wash water. New industrial facilities that include condensers requiring cooling water are also encouraged to employ a closed loop system. The City will assist industrial and commercial customers in designing recycling projects conducive to City operations. As part of the educational efforts of the City, recycling and conservation issues are included in school and public education forums. There have been no studies on the potential volumes that may be recycled as a result of the City policies and education efforts.

The City’s Public Works Department provides assistance to industrial and commercial customers in facilitating on-site recycled water use. Additional opportunities for increased reuse of effluent for irrigation of pastureland will be evaluated as part of the planned expansion of the WWTP. Opportunities for reuse of effluent meeting recycled water standards will also be explored as part of the proposed WWTP expansion project and as part of the investigation of the potential for acquisition of a surface water supply.

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

Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
<input checked="" type="checkbox"/>	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
Total			0
NOTES: This table does not apply to the Los Banos UWMP.			

6.6 Desalinated Water Opportunities

Legal Requirements:

CWC 10631(h)

Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

The groundwater that the City relies on is not brackish or in need of desalination. If this were to change in the future, the City would consider this option. Without marked changes in the Subbasin water supply and demand balance, the groundwater supply should be sufficient to meet the City needs through 2035.

The City lies inland and therefore desalination of ocean water is not practical.

6.7 Exchanges or Transfers

Legal Requirements:

CWC 10631(d)

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

The municipal water well system that supplies the City's water has historically been a consistent, reliable source of water and therefore the City has not had to exchange or transfer water to meet its demands. In the event that untreated groundwater can no longer provide a consistent potable water source, new wells, well head treatment and a treated surface water supply will be used as needed to avoid a supply shortfall. The purchase and delivery of any surface water supplies to the City may first be used for groundwater recharge or for non-potable uses since the City presently does not have a surface water treatment plant (SWTP). It would not be practical to use surface water on a short-term or emergency basis. These water source options are being evaluated for their use in meeting future water demands, and the City is exploring the procurement of a surface water supply through various arrangements. However, at this time there are no plans for transferring or exchanging water.

6.7.1 Exchanges

The City has not exchanged water to meet demands.

6.7.2 Transfers

The City has not transferred water to meet demands.

6.7.3 Emergency Interties

No other water systems are within an economically feasible distance to make a connection therefore the City has no interties to other systems at this time.

6.8 Future Water Projects

Legal Requirements:

CWC 10631(g)
...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

The City of Los Banos currently relies solely on groundwater for its water supply. In addition to the need for future distribution pipelines, the Water Master Plan identified the need for five additional wells to meet projected demands through 2015 and two new 2.0 million gallon storage tanks with booster pumps by 2015 to meet operational and fire storage requirements. However, the Water Master Plan does not account for the water use reductions that have occurred the last two years and that are required by the Water Conservation Bill of 2009 and are identified in this Plan. In addition, population growth and development activity in the City has slowed considerably over the last few years so the build out of facilities identified in the Water Master Plan will likely occur over a longer period of time. As of the date of adoption of this Plan, the City has identified water supply projects that would provide a quantifiable increase to the agency’s water supply as shown in Table 6-7. Projects that the City intends to complete before 2020 are the incorporation of a new well for increased water quantity. A new test well is also expected to be in place to capture new water supply. Also, a pilot study to evaluate a proprietary process for removal of Hexavalent Chromium 6 began in 2016.

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

Table 6-7 Retail: Expected Future Water Supply Projects or Programs						
<input type="checkbox"/>	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.					
<input checked="" type="checkbox"/>	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.					
Page 47	Provide page location of narrative in the UWMP					
Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Agency
New Well				2019		3,228
NOTES: Units in acre-feet per year.						

6.9 Summary of Existing and Planned Sources of Water

Legal Requirements

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 10631(a).

(4) (Provide 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.

Los Banos obtains its entire water supply from the underlying groundwater basin. The volume of groundwater pumped in 2015 and estimates of groundwater volumes required to meet demands through 2035, in five-year increments, are shown in Tables 6-8 and 6-9. The City does not obtain any water from a wholesaler nor does it wholesale water to other suppliers or users.

Groundwater pumpage estimates also assume that the City will continue to rely solely on groundwater for its supply since it currently has no surface water supplies or entitlements, although this may change as the City is investigating acquisition of a surface water supply due to the limited availability of groundwater meeting Domestic Water Quality Standards. This pursuit is in its infancy hence there is not yet a projection available as to when the conversion to or supplementation with surface water may occur. Therefore, use of groundwater is assumed throughout the period of projections.

Table 6-8: Retail: Water Supplies – Actual

Table 6-8 Retail: Water Supplies — Actual				
Water Supply	Additional Detail on Water Supply	2015		
		Actual Volume	Water Quality	Total Right or Safe Yield (optional)
Groundwater	Delta-Mendota bbasin	6,657	Drinking Water	
Total		6,657		0

NOTES: Units of volume in acre-feet

Table 6-9: Retail: Water Supplies — Projected

Table 6-9 Retail: Water Supplies — Projected											
Water Supply	Additional Detail on Water Supply	Projected Water Supply <i>Report To the Extent Practicable</i>									
		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)
<i>Add additional rows as needed</i>											
Groundwater	Delta-Mendota Subbasin	8,138		9,949		12,163		14,869		18,178	
	Total	8,138	0	9,949	0	12,163	0	14,869	0	18,178	0

NOTES: Units of volume in acre-feet

6.10 Climate Change Impacts to Supply (Optional)

City of Los Banos elected not to complete this section for the 2015 Plan update.

7 Water Supply Reliability Assessment

7.1 Constraints on Water Sources

Legal Requirements

CWC 10631 (c) (2)

For any water source that may 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 source or water demand management measures, to the extent practicable.

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.

Los Banos obtains its entire water supply from the underlying groundwater basin. The volume of groundwater pumped in 2015 and estimates of groundwater volumes required to meet demands through 2035, in five-year increments, are shown in Table 6-9. The City does not obtain any water from a wholesaler nor does it wholesale water to other suppliers or users.

With careful siting of wells and selection of aquifer production zones, groundwater meeting the Domestic Water Quality Standards (drinking water standards) has been successfully developed to meet the needs of the City. As required by State regulations, all wells are equipped with chlorine injection systems. Well No. 8 was removed from service in 2000 when the MCL for uranium, a primary drinking water standard, was exceeded. Two of the twelve wells exceed the recommended limits but are less than the upper limits of the secondary standards for electrical conductivity (EC) and total dissolved solids (TDS). Exceeding any secondary standards does not constitute a health issue. Secondary standard MCLs are set based on consumer acceptance of the supply, as the secondary constituents above upper limits may adversely affect taste, odor or appearance of the drinking water. Nitrates and Hexavalent Chromium 6 have also been found in all well water and use of that well water could be impacted by future changes in drinking water standards. The quality of the groundwater in the Delta-Mendota Subbasin is further discussed in Appendix D.

As the City's need for groundwater grows, it will be increasingly difficult to find groundwater that meets all primary and secondary water quality standards without treatment. This report assumes that additional groundwater will be produced, whether or not treatment is required. The City does not have surface water under contract. There is no presumption that it will become available in the future, although increasing groundwater treatment costs will make surface water acquisition and treatment more cost-competitive in the future. Should surface water become available to the City in the future, the expectation would be that surface water would become a portion of the base supply, usable year-round, and that groundwater resources would continue to be used for peaking supplies in high-demand days and months. So long as the City is willing to invest in necessary groundwater treatment, an adequate supply of water is available to meet the City's needs through 2035 and beyond.

7.2 Reliability by Type of Year

Legal Requirements:

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.

The climatic conditions of the central San Joaquin Valley demand careful water management practices because of the typically low amount of rainfall and short rainy season and because of the high temperatures that frequently occur in the summer months. The average annual precipitation for the Los Banos area is 9.24 inches. The rainy season runs from November through April, but 80 percent of the rainfall occurs between the beginning of November and the end of March. Drought conditions are not uncommon and can last for multiple years. Summer water consumption is driven by outdoor irrigation needs and varies directly with daily temperature maximums. The Los Banos region experiences on average over 100 days a year with maximum daily temperatures over 90 degrees.

The reliability and vulnerability of the City's water supply to seasonal or climatic changes can be easily demonstrated, but reliability and vulnerability are difficult to quantify. Because the City relies entirely on groundwater using multiple extraction wells, the intermittent overdraft will obviously be more severe during drought periods. To date, water levels in the Subbasin have shown the ability to recover from periods of reduced rainfall (drought). As growth in the area continues and increased demands are placed on the groundwater resources of the area, a condition of sustained overdraft may be reached but this condition is not expected to occur for many years. Recharge, conservation, and seeking new primary and backup water sources, such as surface water, will all reduce vulnerability and increase reliability.

The primary factor affecting the reliability of the City's supply is the limited quantity of groundwater meeting drinking water standards as opposed to a limit in the availability of groundwater. There are other groundwater constituents such as salinity, radiological, Hexavalent Chromium 6 and nitrates that have the potential to reduce the desirability and affordability of using groundwater. This may encourage the City to explore surface water supply alternatives. There are no factors that currently result in an inconsistency in the City's water supply. Groundwater has and will continue to provide drought protection for the City.

Based on the resiliency of the groundwater basin and as long as potable groundwater can be extracted by the City wells, it is not anticipated that a single or multiple dry year period will reduce the availability of water supply to the City, as shown in Table 7-1. The reliability of water service is subject to proper operation and maintenance of the City's water distribution system and its ability to deliver the water. The City of Los Banos water distribution system historically has provided a very reliable level of service. A looped distribution system with isolation valves limits and minimizes service disruption. The frequency of system outages is very small due to an ambitious maintenance and replacement program. City Improvement Standards are in place and meet or exceed American Water Works Standards. As the system is expanded the Water Master Plan is followed. As a result, system reliability does not diminish as it is expanded into new service areas. Funds to maintain and expand the system to meet the continued growth in water demand are collected through water rates and development fees.

7.2.1 Type of Years

7.2.1.1 Average Year

Table 7-2 presents the projected “normal or average” supply and demand conditions representative of the average water supply available to Los Banos. The average year selected was in 2005.

7.2.1.2 Single-dry year

Table 7-3 presents the projected lowest water supply and demand conditions representative of water supply available to Los Banos. The single driest year of recent record was in 1977.

7.2.1.3 Multiple-dry Year Period

Table 7-4 presents the projected lowest water supply available to Los Banos for a multiple dry year period and its demand conditions. The years of 1989-1992 were used to represent a multiple dry year series.

7.2.2 Agencies with Multiple Sources of Water

The City of Los Banos only uses groundwater as a source of water.

Section Seven: Water Supply Reliability Assessment 2015 Urban Water Management Plan

Table 7-1: Retail: Basis of Water Year Data

Table 7-1 Retail: Basis of Water Year Data			
Year Type	Base Year <i>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</i>	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	2005	See note	100%
Single-Dry Year	1977		100%
Multiple-Dry Years 1st Year	1989		100%
Multiple-Dry Years 2nd Year	1990		100%
Multiple-Dry Years 3rd Year	1991		100%
Multiple-Dry Years 4th Year <i>Optional</i>	1992		100%
Multiple-Dry Years 5th Year <i>Optional</i>			
Multiple-Dry Years 6th Year <i>Optional</i>			
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.			
NOTES: No more exhaustive data are available, but in all year types the City has been able to meet demands with use of groundwater.			

7.3 Supply and Demand Assessment

Legal Requirements:

CWC 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.

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

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2015 Urban Water Management Plan

Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	8,138	9,949	12,163	14,869	18,178
Demand totals	8,963	10,964	13,398	16,376	18,187
Difference	(825)	(1,015)	(1,235)	(1,507)	(9)
NOTES: Units of volume in acre-feet. The difference is residual and likely due to meter tolerances and other minor cumulative reporting practices.					

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	8,138	9,949	12,163	14,869	18,178
Demand totals	8,138	9,949	12,163	14,869	18,178
Difference	0	0	0	0	0
NOTES: Units of volume in acre-feet					

Section Seven: Water Supply Reliability Assessment
2015 Urban Water Management Plan

Table 7-4: Retail: Multiple Dry Years 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	8,138	9,949	12,163	14,869	18,178
	Demand totals	8,138	9,949	12,163	14,869	18,178
	Difference	0	0	0	0	0
Second year	Supply totals	8,138	9,949	12,163	14,869	18,178
	Demand totals	8,138	9,949	12,163	14,869	18,178
	Difference	0	0	0	0	0
Third year	Supply totals	8,138	9,949	12,163	14,869	18,178
	Demand totals	8,138	9,949	12,163	14,869	18,178
	Difference	0	0	0	0	0
Fourth year <i>(optional)</i>	Supply totals	8,138	9,949	12,163	14,869	18,178
	Demand totals	8,138	9,949	12,163	14,869	18,178
	Difference	0	0	0	0	0
Fifth year <i>(optional)</i>	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Sixth year <i>(optional)</i>	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
NOTES: Units of volume in acre-feet						

7.4 Regional Supply Reliability

Legal Requirements

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.

The City of Los Banos does not import its water supply. All water supplied is obtained from City-owned groundwater wells distributed throughout the City, producing water from the Delta-Mendota Subbasin. The City's objective in supplying water to its users is to maximize its groundwater resources utilization through water-conserving measures. The City extracts its water from the Delta-Mendota Subbasin via 13 active wells.

Although the City does not have a Groundwater Management Plan, it is actively managing its water system and water use in an attempt to maximize the resource and minimize the need to import surface water supplies. The Subbasin is not currently in a state of overdraft although portions of the larger San Joaquin River Groundwater Basin are, as identified by DWR. This does not mean that the City is not concerned about protecting its water resources, both in terms of availability and quality. Water levels in City wells have remained stable throughout the drought years during 2011-2015.

8 Water Shortage Contingency Planning

Legal Requirements

CWC 10620 (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.

8.1 Stages of Action

Legal Requirements:

CWC 10632 (a)(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 which are applicable to each stage.

The Urban Water Management Planning Act requires that a water shortage contingency analysis be prepared to address methods to react to a water shortage situation, which reduces supply available to the City by up to 50 percent. Because of the City's reliance on groundwater, a water shortage of this magnitude would be due to a catastrophic interruption of water supply caused by a regional power outage, an earthquake, or other disaster. Conservation measures encouraged or required during a water shortage are temporary measures intended to last only for the duration of the shortage. This Water Shortage Contingency Plan presents the City's planned action associated with different stages of water supply shortage up to a 50 percent shortage of supply.

The City of Los Banos has three trigger levels which correspond to three water shortage stages. The rationing plan includes voluntary and mandatory rationing, depending on the causes, severity, and anticipated duration of the water supply shortage. The water shortage stages have reduction in consumption goals varying from 10% to 50%. Stage 1, with a target of between 10% and 15% reduction, is effective when available water production is 10% to 15% less than the estimated monthly peak hourly demand. Stage 2, with a target of between 15% and 30% reduction, is effective whenever the available water production is 15% to 30% less than the estimated monthly peak hourly demand. Stage 3, with a target of between 30% and 50% reduction, is effective whenever the available water production is 30% to 50% less than the estimated monthly peak hourly demand. The shortage stages, the initiating conditions and the reduction goals are presented in Table 8-1.

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 <i>Numerical value as a percent</i>	Water Supply Condition ² <i>(Narrative description)</i>
<i>Add additional rows as needed</i>		
1 (Mandatory)	15%	Available water production is 10% to 15% less than the estimated monthly peak hour demands
2 (Mandatory)	30%	Available water production is 15% to 30% less than the estimated monthly peak hour demand
3 (Mandatory)	50%	Available water production is 30% to 50% less than the estimated monthly peak hour demand
¹ One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.		
² These stages may also apply to mandatory conservation efforts as set by City Council.		
NOTES:		

8.2 Prohibitions on End Users

Legal Requirement

CWC 10632 (a)
(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.

The first step in a demand reduction program is to prohibit wasteful practices and provide enforcement methods. The current City ordinance regulates waste of water and provides penalties for waste and failure to comply with any water conservation program the City enacts, such as scheduled days for outdoor watering. The penalties range from a first time warning to progressively more severe administrative fines.

In a water shortage situation, additional mandatory prohibitions, consumption reduction methods, and associated penalties and charges will apply as presented in Table 8-2. The City will notify its customers of the implementation of a declared water shortage stage or an increase in the level of the water shortage stage. Any customer violating the regulations and restrictions on water use set forth in the emergency water shortage resolution adopted by the City Council shall receive a written warning for the first such violation. Upon subsequent violations, the customer shall receive an administrative citation. At the option

Section Eight: Water Shortage Contingency Planning 2015 Urban Water Management Plan

of the City Council, additional restrictions can be implemented. Restrictions and prohibitions are accumulative by stage.

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

Table 8-2 Retail Only: Restrictions and Prohibitions on End Uses			
Stage	Restrictions and Prohibitions on End Users	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
1	Landscape - Restrict or prohibit runoff from landscape irrigation		Yes
1	Landscape - Limit landscape irrigation to specific times	Irrigation prohibited between 11:00 am and 7:00 pm.	Yes
1	Landscape - Limit landscape irrigation to specific days	Per Council direction	Yes
1	Other - Require automatic shut of hoses	Wash cars only with automatic shutoff on hoses.	Yes
1	Other - Prohibit use of potable water for washing hard surfaces	Use broom to clean driveways and sidewalks.	Yes
1	CII - Restaurants may only serve water upon request		Yes
1	CII - Lodging establishment must offer opt out of linen service		Yes
2	Other	Prohibit cleaning hardscapes with water	Yes
2	Landscape - Prohibit certain types of landscape irrigation	Mandatory irrigation conservation program.	Yes
3	Other	Prohibit vehicle washing except commercial carwashes	Yes
3	Other	No new service connections	No
3	Other water feature or swimming pool restriction	Prohibit filling of swimming pools and water features	Yes
NOTES: Customer will receive a warning for first offense. Penalties shown are for second offense . Penalties for subsequent offenses will be 150% of the previous penalty. Actual water conservation restrictions and prohibitions to be based on City Council adopted ordinances.			

The City of Los Banos enforces local conservation measures ordinances as well as all the State Drought Emergency Water Conservation measures for landscape irrigation regulations. The City's current Urgency Ordinance (Ordinance) was adopted in August 6, 2014 and is currently still enforced. This Ordinance limits landscape irrigation to two days a week. Properties with even numbered addresses are restricted to outdoor irrigation on Wednesdays and Sundays, while properties with odd numbered addresses are restricted to outdoor irrigation on Tuesdays and Saturdays. The City restricts the use of watering Mondays, Thursdays and Fridays. Irrigation of lawns and landscaping is prohibited between the hours of 11:00 am and 7:00 pm on any day of the week. All restrictions are scheduled year round. Further measures include water saving shut off nozzles; using a direct broom to clean concrete surfaces, fixing leaks and drips promptly.

Further state regulations include ensuring runoff water does not flow into non-irrigated or non permeable areas.

8.2.1 Commercial, Industrial, and Institutional (CII)

Per the State Drought Emergency Water Conservation measures public establishments may only serve drinking water upon request and hotels and motels must provide the option of not selecting to have linens and towels laundered.

8.2.2 Water Features

Prohibition of potable water use on fountains and other decorative water features is prohibited under the State Drought Emergency Conservation.

8.2.3 Defining Water Features

Legal Requirements:

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.

Health and Safety Code Section 115921

As used in this article the following terms have the following meanings:

(a) "Swimming pool" or "pool" means any structure intended for swimming or recreational bathing that contains water over 18 inches deep. "Swimming pool" includes-ground and aboveground structures and includes, but is not limited to, hot tubs, spas, portable spas, and non-portable wading pools.

8.2.4 Other

Other measures include but are not limited to prohibiting vehicle washing, washing City streets, and prohibiting new service connections.

8.3 Penalties, Charges, Other Enforcement of Prohibitions

Legal Requirements:

CWC 10632 (a)
(6) Penalties or charges for excessive use, where applicable.

Customers will receive a warning for any first offense. Penalties are billed separately upon a second offense. If a City employee notices water waste occurring, the customer will be cited a \$15 fine payable to the City of Los Banos. The fine will increase to \$30 for a second citation and \$75 for a third citation. Penalties for subsequent offenses will be 150 percent of the previous penalty.

8.4 Consumption Reduction Methods

Legal Requirements:

CWC 10632 (a)
(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.

Consumption reduction methods are as follows: Mandatory rationing takes effect in Stage 1, with a projected reduction of 10 to 15 percent. Mandatory irrigation conservation program includes both Stage 1 and Stage 2, with a projected reduction of 15 to 30 percent reduction. No new connections, no refilling of existing pools, and customer allotment and possible rate changes are requirements of Stage 3. All requirements are accumulative.

8.4.1 Categories of Consumption Reduction Methods

Table 8-3: Retail Only: Stages of WSCP - Consumption Reduction Methods

Table 8-3 Retail Only: Stages of Water Shortage Contingency Plan - Consumption Reduction Methods		
Stage	Consumption Reduction Methods by Water Supplier	Additional Explanation or Reference <i>(optional)</i>
1-3	Expand Public Information Campaign	Community event booths, community center banners, city website, Facebook website, newspaper articles, door hanger packets, etc.
1-3	Improve Customer Billing	Bills include bar-graph illustrated users water usage history and savings
1-3	Increase Frequency of Meter Reading	All connections are metered
1-3	Increase Water Waste Patrols	Daily patrols; City vehicles have "WATER PATROL" signs appended
1-3	Offer Water Use Surveys	City offers assistance setting sprinkler timers and water audits on services.
NOTES:		

8.5 Determining Water Shortage Reductions

Legal Requirements:

CWC 10632 (a)(9)

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

Under normal water supply conditions, potable water production figures are recorded daily. During a Stage 1 water shortage, weekly production figures shall be reported to the City Manager. The City Manager shall compare the weekly production to the target weekly production to verify that the reduction goal is being met. Monthly reports shall be sent to the City Council. If reduction goals are not met, the City Manager will notify the City Council so that corrective action can be taken. During a Stage 2 or Stage 3 water shortage, the procedure listed above will be followed, with the addition of a daily production report to the City Manager. Daily reports shall also be provided to the City Council.

8.6 Revenue and Expenditure Impacts

Legal Requirements:

CWC 10632 (a)(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.

8.6.1 Drought Rate Structures and Surcharges

The City of Los Banos has a flat rate component in its current rate structure for its residential customers that are billed on a volume basis by means of a water meter. The residential flat rate component is currently \$21.25 per month which includes up to 1,500 cubic feet (cf) of water. Water use in excess of 1,500 cf per month is charged at the rate of \$1.26 per hundred cubic feet (hcf). The flat rate component of the water rate is designed to cover basic operation and maintenance costs and helps mitigate the financial impacts of a water shortage on the City. Therefore, reduced water sales on a temporary basis will not prevent the continued operation of the water system. In addition, the City currently has approximately \$100,000 in a water system emergency fund.

8.7 Resolution or Ordinance

Legal Requirements:

CWC 10632 (a)(8)

A draft water shortage contingency resolution or ordinance.

Water use prohibitions and enforcement mechanisms must be approved by City Council resolution. A Draft Water Shortage Emergency Resolution is included in Appendix E. The resolution can be modified depending on the severity of the drought and can be approved quickly, should an emergency arise. It is not currently adopted, as specific conditions of each emergency will likely be added as each emergency arises.

8.8 Catastrophic Supply Interruption

Legal Requirements:

CWC 10632(a)(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.

The City relies solely on groundwater for its source of water supply and is therefore not subject to reduction in its water supply like communities that rely on surface water to meet all or a portion of their water demands. As discussed in Section 6, the Delta-Mendota Subbasin water levels are very stable and in fact have risen since 1970 and Groundwater in the Los Banos area specifically has been approximately in balance through 2015. If and when drinking water standards are exceeded at a particular well, the City will develop the required groundwater treatment facilities or construct a replacement well if needed. A treated surface water supply component may be added to the system in the future as previously discussed.

As discussed in Section 6, because of large volumes of available groundwater and the fact that water levels are very stable in the Subbasin and the Los Banos area it is anticipated that groundwater will be able to meet all the water supply needs of the City for the next 20 years and beyond, even in drought periods such as the severe one year drought experienced in 1977 and the prolonged drought of 1987 to 1992.

In the event of a catastrophic water supply interruption immediate measures need to be planned that will allow the City to provide a minimum amount of water to customers. Possible catastrophes include a regional power outage, terrorism event at selected locations or a natural disaster which affects selected facilities.

Preparation Actions for a Catastrophe

Possible Catastrophe	Summary of Actions
Regional power outage	Activate emergency backup power and provide public notice through broadcasts of emergency and ask customers to reduce consumption to essential uses
Earthquake	Utilize emergency backup power if utility provided power is interrupted. Immediately implement Stage 2 or Stage 3 demand reduction program
Terrorism event	Make use of alternate production facilities as available

8.9 Minimum Supply Next Three Years

Legal Requirements:

CWC 10632 (a)(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.

Based on NOAA weather data the driest three year stretch on record was from 1947-1949 with 1947 being the driest year with only 4.61 inches of rain. The next driest three year period was from 2013-2015. 2013 was the driest recorded year with only 2.56 inches of rain. During the most recent three year drought water needs were met using groundwater. Groundwater would be able to meet water demands should another three year drought occur beginning 2016.

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Table 8-4: Minimum Supply Next Three Years

Table 8-4 Retail: Minimum Supply Next Three Years			
	2016	2017	2018
Available Water Supply AF	6,929	7,214	7,509
NOTES: Units in acre-feet. Assumed average annual growth rate of 4.1% with 100% demand met.			

9 Demand Management Measures (DMM)

Legal Requirements:

CWC 10631 (f)

(A) ...A narrative shall describe the water demand management measure that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

(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.

CWC 10631

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

(1) (A) ... a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years.

9.1 Demand Management Measures for Wholesale Agencies

The City of Los Banos is not a wholesale agency, nor does it purchase water from a wholesaler.

9.2 Demand Management Measures for Retail Agencies

9.2.1 Water Waste Prevention Ordinance

Large landscape water users are subject to higher base water rates depending on the meter size. The City tracks high consumption accounts and performs periodic audits of the systems as requested or as the accounts are flagged during the billing process due to high consumption. In addition, the City's Water Patrol is charged with monitoring users for violation of City watering regulations.

A copy of the City's Water Efficient Landscape Ordinance adopted in February 2010 is included in Appendix F. This ordinance applies to new construction and rehabilitation projects involving installation of new and renovation of existing large landscaped areas as defined in the ordinance. The ordinance is intended to promote water conservation and water use efficiency through the establishment of provisions for water management practices and water waste prevention for landscaping.

9.2.2 Metering

The Metering DMM entails installing water meters on all new connections and implementing a plan to retrofit all existing unmetered connections. Beginning in 2010, the City has been requiring meters on all

new connections, including public uses. At this time 100 percent of all connections are metered. The City has removed and replaced older existing meters with new electronic meters.

9.2.3 Conservation Pricing

The City meters all of its water accounts and encourages water conservation through its water and sewer service rate structure. The Los Banos City Council approved water and sewer service rates effective July 1, 2015 are included in Appendix G.

All connections to the City's PWS have a flat monthly rate of \$21.25, a five dollar increase from 2011 for residential households. An additional \$7.56 charge is added per unit for multi-family unites greater than three and an additional overage charge of \$1.64 per 100 cubic feet. Commercial rates vary per meter size.

9.2.4 Public Education and Outreach

The Public Information DMM involves dissemination of information to the public through brochures, press releases, educational flyers, commercials, water conservation flyers and conservation kits, to name a few. The City currently provides water conservation information through education at schools, mailing letters to landowners, door to door information packages, door hangers, radio and TV commercials, educational handouts, materials on City website and further information can be found at the front counter of the City. This program does not provide a quantifiable water savings, however it goes a long way towards promoting conservation efforts.

However, with the current drought, the response efforts to push water conservation beyond normal are at its highest. Response efforts include: classroom presentations and take home educational handouts, community event booths, banners, crew training on watering schedules and water conservation practices by the Water Quality Specialist, promoting a free irrigation timer programming as well as mailing the City's Consumer Confidence Report. Water Conservation pushed beyond TV and the City website by posting on Facebook and electronic signs throughout different locations within the City. Free leak audits are offered upon request or reports of high consumption. The City also educates its staff by attending classes about drought which were prepared by the California Rural Water Association and the State Department of Water Resources.

Appendix H contains examples of various public notification and outreach programs, notices and measures that the City of Los Banos has implemented or provided in order to comply with the current regulations..

9.2.5 Programs to Assess and Manage Distribution System Real Loss

The City utilizes specialized equipment for leak detection as needed and has an ongoing program for detection and repair of its distribution system pipelines. The City's Supervisory Control and Data Acquisition (SCADA) system for the water production and distribution facilities provides significantly enhanced capabilities for accurately determining water production quantities. This information is invaluable in performing precise distribution system water audits. A comparison of the volume of water produced from the City wells and the volume of water sold in 2011 and 2015 are 7.77 AF and 7.87 AF respectively. This unaccounted for water can be attributed to leaks in the system, meter inaccuracies and unauthorized water use.

The City does not track the number of miles of distribution system pipelines surveyed each year; the Public Works Department surveys and repairs pipelines on an as-needed basis. Expenditures for this work are not tracked separately within the Department's budget. The City's unaccounted for water as a percent of total water pumped averages about 11 percent, which is typical for systems of similar size, type and age. Review of the volume produced versus the volume of water sold on a monthly basis assists the City in identifying problems, such as leaks and meter problems. The City also implements an annual fire hydrant and water main flushing program which accounts for a portion of the unaccounted for water.

9.2.6 Water Conservation Program Coordination and Staffing Support

The City's Public Works Director is the designated Water Conservation Coordinator. In addition, staff supports the coordinator and the water conservation activities of the City and its customers. The Water Conservation Coordinator's responsibilities include coordinating with internal City departments and the community at large to promote the principles of responsible water resource stewardship. Further responsibilities include monitoring the practice and application of DMMs, supervising the activities of the Water Patrol, as well as planning and participating in community water conservation education projects. The Water Conservation Coordinator has authorized use of City funds to support water conservation efforts. The water conservation activities are part of the full-time Public Works Director position, and the City does not track expenditures or time spent associated with water conservation activities separately within the budget for the position.

Water Conservation Coordinator:
Mark Fachin, P.E.
(209) 827-7056
Mark.fachin@losbanos.org

411 Madison Avenue
Los Banos, CA 93635

9.2.7 Other Demand Management Measures

Water Survey Programs for Single-Family and Multi-Family Residential Customers

Upon request, City personnel will perform an interior and exterior inspection (audit) for SFR or MFR customers in order to ascertain potential sources of water waste or water conservation opportunities. City personnel will check for water leaks and non-mandatory control measures will be suggested, and education materials regarding the importance of water conservation will be provided. If available, the City will provide customers with a water-conservation kit consisting of educational materials, faucet and shower aerators, toilet tank volume displacer, and leak detection tablets.

In addition, the City offers water audits to all water customers, including customers with large landscaped areas and landscape accounts, which may include irrigation scheduling assistance and information. The City also offers assistance with programming of irrigation timers to its customers. During these visits with the customers the City staff reviews and offers assistance with irrigation scheduling and efficiency and provides the customers with educational materials to assist with these functions and to promote water conservation.

The City does not maintain separate records for the number of large landscape audits conducted. The number of large landscape audits is included in the total number of commercial audits. As previously stated, the City does not track expenditures for water audits separately within the Public Works

Department budget. The effectiveness of the water survey program cannot be directly measured but it is an important component of the City's overall water conservation efforts aimed at managing its limited resource.

The City also offers to program customer irrigation timers as part of the City's Water Conservation Program. The City also uses this opportunity to discuss water conservation measures with the customer and give them conservation materials as applicable.

The implementation of the City's Water Conservation Patrol (Water Patrol) occurs year-round. A large portion of the Water Patrol effort is dedicated to educating water customers on exterior water conservation measures. The education effort helps provide an incentive by informing the public on how to avoid fines and other social consequences of poor water resource stewardship.

Conservation Programs for Commercial, Industrial, and Institutional (CII) Accounts

As previously stated, trained City staff is available to conduct water audits for these customers, including review of all interior and exterior water use. Also, high consumption users are flagged for further review and possible audit.

The Water Patrol has the responsibility to educate CII users that overuse water for irrigation purposes. The Water Patrol can provide a variety of resources to help a CII customer conserve, including staff expertise and written materials. The City's wastewater treatment plant staff monitors effluent water volume and constituents for treatment purposes but also views this interaction as an opportunity to promote conservation on the discharge side, thereby indirectly promoting conservation on the consumption side.

All City-maintained median strips and traffic islands that require plantings are landscaped with drought-tolerant plants. The City maintains a list of approved plantings for public right-of-way. Criteria for inclusion on the list include low water consumption and drought tolerance.

As part of the normal City plan check process, project plans and specifications are reviewed for conformance with sound water conservation practices and compliance with all codes. Enforceable corrections or modifications are noted and returned with the plans and specifications. The Public Works Department staff member with appropriate expertise communicates non-enforceable recommendations directly to the responsible professional for the project. The project developer is also provided with a copy of the City's list of approved plantings for public right-of-way and a copy of the City's Water Efficient Landscape Ordinance.

9.3 Implementation over the Past Five Years

In 2014, the State of California, Office of Administrative Law issued a notice of approval of an emergency regulatory action which set future goals and restrictions on the State's drought emergency 20 percent water conservation goal. Efforts to conserve 20 percent water use for the City had not been met prior and therefore, the City adopted an Urgency Ordinance on August 6, 2014, which limited landscape irrigation to twice a week, on certain days and hours. With the exception of new planting, such as new lawns, ground covering or bedding plants may be watered every day at a specified time. Previous measures including using water saving shut off nozzles, broom cleaning of concrete surfaces, fixing leaks and drips promptly, and restricting indoor water use were strictly enforced with water wasting warnings and fines.

9.4 Planned Implementation to Achieve Water Use Targets

Legal Requirements

CWC 10631

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

(1) (A) ...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.

The City has plans to prepare a new landscape ordinance in the next five years which addresses and fully incorporates the Model Water Efficient Landscape Ordinance adopted by DWR in 2015.

9.5 Members of the California Urban Water Conservation Council

Legal Requirement

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 signatory to the Memorandum of Understanding regarding Urban Water Conservation in California and is therefore not a member of the California Urban Water Conservation Council. For the purpose of responding to the Urban Water Management Planning Act, the City will address the 5 DMMs. It should be noted that nothing in this UWMP is intended to limit the City's available options in implementing the DMMs or to respond to a future water or budget shortage.

10 Plan Adoption, Submittal, and Implementation

10.1 Inclusion of All 2015 Data

This 2015 City of Los Banos UWMP includes water use and planning data for the entire calendar year 2015.

10.2 Notice of Public Hearing

Water suppliers must hold a public hearing prior to adopting the Plan. The public hearing provides an opportunity for the public to provide input to the plan before it is adopted. The governing body shall consider all public input.

Notice of public hearing held on July 20, 2016 was published on May 20, 2016.

10.2.1 Notice to Cities and Counties

Legal Requirement

CWC 10621 (b)

Every urban water supplier required to prepare a plan shall... at least 60 days prior to the public hearing on the plan ... notify any city or county within which the supplier provides waters supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.

CWC 10642

...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...

10.2.1.1 60 Day Notification

The City published notice in the Los Banos Enterprise on May 20, 2016

The City sent letters of notification to Merced County Farm Bureau, Merced County Public Works, CCID, School District, and Chamber of Commerce on May 23, 2016

10.2.1.2 Notice of Public Hearing

The water supplier shall provide notice of the time and place of the public hearing to any city or county within which the supplier provides water. This applies to both public and private water suppliers.

The City published notice in the Los Banos Enterprise on May 20, 2016. A copy of the publication is included in Appendix A.

Table 10-1: Retail: Notification to Cities and Counties

Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
NA		
County Name	60 Day Notice	Notice of Public Hearing
Merced County	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Note, The City of Los Banos does not supply water to any other cities or utilities.		

10.2.2 Notice to the Public

Legal Requirement

CWC 10642

...Prior to adopting a plan, the urban water supplier shall make the plan available for public inspection...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...

Government Code 6066

Publication of notice pursuant to this section shall be once a week for two successive weeks. Two publications in a newspaper published once a week or oftener, with at least five days intervening between the respective publication dates not counting such publication dates, are sufficient. The period of notice commences upon the first day of publication and terminates at the end of the fourteenth day, including therein the first day.

10.3 Public Hearing and Adoption

Legal Requirement

CWC 10642

...Prior to adopting a plan, the urban water supplier shall hold a public hearing thereon.

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.*

The City held a public hearing and adopted the 2015 UWMP on July 20 2016. A copy of Resolution No. 5775 accepting the 2015 Urban Water Management Plan is included in Appendix A. Prior to the public hearing, a notice was published notifying the public of the pending hearing.

10.3.1 Adoption

Legal Requirement

CWC 10642

...After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

Water agencies shall include the adoption resolution in the UWMP. This may be included as an attachment to the UWMP or as a web address indicating where the adoption resolution can be found online. A copy of the adopting resolution is included in Appendix A.

10.4 Plan Submittal

Legal Requirement

CWC 10621 (d)

An urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.

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.

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.

Once the UWMP has been adopted, a copy of the UWMP and amendments will be submitted to DWR, the State Library and necessary counties/cities who receive water from the City.

10.4.1 Submitting a UWMP to DWR

2015 UWMPs must be submitted to DWR within 30 days of adoption and by July 1, 2016. UWMP submittal will be done electronically through WUE data, an online submittal tool that will be available in adequate time for UWMP submittal.

After the UWMP has been submitted, DWR will review the plan utilizing the provided checklist (Chapter 11) and make a determination as to whether or not the UWMP addresses the requirements of the CWC. The DWR reviewer will contact the water supplier as needed during the review process. Upon completion of the Plan review, DWR will issue a letter to the agency with the results of the review.

10.4.2 Electronic Data Submittal

DWR is in the process of developing an online submittal tool, WUE data, which will be used for the 2015 UWMPs. The tool will accept complete UWMPs, as well as tabular data from all the data tables. The WUE data online submittal tool is online at <https://wuedata.water.ca.gov.secure/>.

10.4.3 Submitting a UWMP to the California State Library

No later than 30 days after adoption, the water agency shall submit a CD or hardcopy of the adopted 2015 UWMP to the California State Library at:

California State Library
Government Publications Section
P.O. Box 942837
Sacramento, CA 94237-0001
Attention: Coordinator, Urban Water Management Plans

10.4.4 Submitting a UWMP to Cities and Counties

No later than 30 days after adoption, the water agency shall submit a copy of the adopted 2015 UWMP to any city or county to which the supplier provides water. This copy may be in an electronic format. This will also satisfy Water Code Section 10635(b).

10.5 Public Availability

The adopted plan will be made available for public review on the City's website and during normal business hours at the City's Public Works Department within 30 days after adoption.

10.6 Amending and Adopted UWMP

Legal Requirement

<p><i>CWC 10621 (c)</i> <i>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)</i></p> <p><i>CWC 10644 (a) (1)</i> <i>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.</i></p>

In the occasion that City of Los Banos amends the adopted 2015 UWMP, it will follow the listed steps found in the guidebook to process the document.

Amending an Adopted UWMP: The City of Los Banos is committed to the implementation of its 2015 Plan in accordance with Section 10643 of the Act. The City continues to be dedicated to the concept of good water management practices and intends to expand its water conservation program as budgets and staffing allow. The City's conservation program will periodically be re-evaluated and modified as needs arise. The City reviewed implementation of its 2010 plan and incorporated changes to the 2015 Plan.

11 Completed 2015 UWMP Checklist

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	Pages 5-6
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	Page 10
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	Page 10
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	Page 12
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	Pages 16-17
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	Pages 17-18
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	Page 17-18
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	Pages 17-18 Pages 28-29
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	Pages 19-22
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	Page 23

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2015 Urban Water Management Plan

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	Pages 24-25
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 C	Pages 33-34 & Appendix C
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 estimates, including references to supporting data.	Baselines and Targets	Chapter 5 and App C	Pages 26-35 & Appendix C
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	Page 33
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App C	Page 34-35 & Appendix C
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	Page 35
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	Page 26
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 C	Pages 34-35 & Appendix C
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	Pages 36-49
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	Pages 36-38
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other specific authorization	System Supplies	Section 6.2.2	Page 36-37

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2015 Urban Water Management Plan

	for groundwater management. Include a copy of the plan or authorization.			
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	Page 36
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	Page 39-37
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	Page 37
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	Pages 37-38
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	Pages 36-38 & Pages 48-49
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	Page 46
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	Page 47
10631(h)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	Page 46
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	Page 9
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	NA, Los Banos is not a Wholesale supplier

Section Eleven: UWMP Checklist
2015 Urban Water Management Plan

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	Page 39
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	Pages 39-41
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	Pages 40-41
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	Page 42 & Pages 42-44
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	Pages 41-44
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	41-44
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	Page 45
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	Page 45
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	Page 56
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7	Pages 50-56
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	Pages 51-53

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2015 Urban Water Management Plan

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	Page 50
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	Page 50
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 7.2	Pages 51-53
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	Pages 57-56
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	Pages 64-65
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	Page 64
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	Pages 58-60
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	Pages 61-62
10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	Page 61
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	Page 63
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	Page 63 & Appendix E

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2015 Urban Water Management Plan

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	Page 63
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	Pages 66-69
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	NA, Los Banos is not a Wholesale supplier
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	NA, Los Banos is not a CUWCC Member
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	Pages 72-74
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	Pages 71-72
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	Page 73-74
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	Page 74
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	Pages 72-74

Section Eleven: UWMP Checklist
2015 Urban Water Management Plan

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	Pages 71-72
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	Page 73
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	Page 74
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	Page 74
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	Page 73
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	Page 74

12 Bibliography/References

California Department of Water Resources, 2015 Urban Water Management Plans - Guidebook for Urban Water Suppliers, 2015.

State of California, *20x2020 Water Conservation Plan*, February 2010

The Future Is Now: An Update on Climate Change Science Impacts and Response Options for California, May 2009, California Energy Commission, Public Interest Energy Research Program

California Irrigation Management Information System (CIMIS) data for Station 56 – Los Banos. Period of record: January 2015- December 2015

Western Regional Climate Center monthly summary data for Los Banos, CA (Station 045118). Period of record: 03/01/1906 – 01-20-2015.

APPENDIX A

Public Notice

RESOLUTION NO. 5775

**A RESOLUTION OF THE CITY COUNCIL OF THE
CITY OF LOS BANOS ACCEPTING THE 2015
URBAN WATER MANAGEMENT PLAN**

WHEREAS, the City of Los Banos held a Public Hearing on July 20, 2016 to receive comment regarding the 2015 Urban Water Management Plan; and

WHEREAS, the City Council of the City of Los Banos has considered public comment and closed the Public Hearing; and

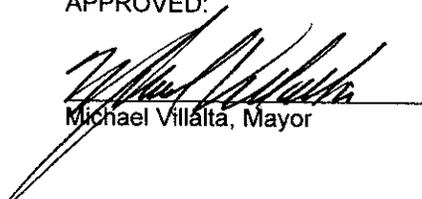
WHEREAS, the City Council of the City of Los Banos has reviewed and examined the 2015 Urban Water Management Plan.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Los Banos does hereby approve and accept the 2015 Urban Water Management Plan as presented.

The foregoing Resolution was introduced at a regular meeting of the City Council of the City of Los Banos held on the 20th day of July 2016, by Council Member Faria who moved its adoption, which motion was duly seconded by Council Member Lewis and the Resolution adopted by the following vote:

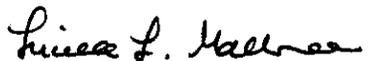
AYES: Council Members Faria, Lewis, Silveira, Mayor Villalta
NOES: None
ABSENT: Council Member Stonegrove

APPROVED:



Michael Villalta, Mayor

ATTEST:



Lucille L. Mallonee, City Clerk

APPENDIX B

AWWA Audit Tables



AWWA Free Water Audit Software: Reporting Worksheet

WAS v5.0
American Water Works Association.
Copyright © 2014. All Rights Reserved.

? Click to access definition
+ Click to add a comment

Water Audit Report for: Los Banos (CA2410005)
Reporting Year: 2015 1/2015 - 12/2015

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: ACRE-FEET PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

----- Enter grading in column 'E' and 'J' ----->

Volume from own sources:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="9"/>	<input type="text" value="6,667.000"/>	acre-ft/yr
Water imported:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	acre-ft/yr
Water exported:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	acre-ft/yr

Master Meter and Supply Error Adjustments

Pcnt:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="8"/>	<input checked="" type="radio" value=""/>	<input type="radio" value=""/>	<input type="text" value=""/>	acre-ft/yr
Value:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value=""/>	<input checked="" type="radio" value=""/>	<input type="radio" value=""/>	<input type="text" value=""/>	acre-ft/yr
Pcnt:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value=""/>	<input checked="" type="radio" value=""/>	<input type="radio" value=""/>	<input type="text" value=""/>	acre-ft/yr

Enter negative % or value for under-registration
Enter positive % or value for over-registration

WATER SUPPLIED: 6,667.000 acre-ft/yr

AUTHORIZED CONSUMPTION

Billed metered:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="10"/>	<input type="text" value="5,889.000"/>	acre-ft/yr
Billed unmetered:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	acre-ft/yr
Unbilled metered:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value="n/a"/>	<input type="text" value="0.000"/>	acre-ft/yr
Unbilled unmetered:	<input type="button" value="+"/>	<input type="button" value="?"/>	<input type="text" value=""/>	<input type="text" value="83.338"/>	acre-ft/yr

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

AUTHORIZED CONSUMPTION: 5,972.338 acre-ft/yr

Click here:
for help using option buttons below

Pcnt: Value: acre-ft/yr

Use buttons to select percentage of water supplied OR value

Pcnt: Value: acre-ft/yr

acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption)

694.663 acre-ft/yr

Apparent Losses

Unauthorized consumption: 16.668 acre-ft/yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies: 0.000 acre-ft/yr
 Systematic data handling errors: 14.723 acre-ft/yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 31.390 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 663.273 acre-ft/yr

WATER LOSSES: 694.663 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: 778.000 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains: 174.0 miles
 Number of active AND inactive service connections: 11,495
 Service connection density: 66 conn./mile main

Are customer meters typically located at the curbstop or property line? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line: **Average length of customer service line has been set to zero and a data grading score of 10 has been applied**

Average operating pressure: 60.0 psi

COST DATA

Total annual cost of operating water system: \$3,500,000 \$/Year
 Customer retail unit cost (applied to Apparent Losses): \$1.64 \$/100 cubic feet (ccf)
 Variable production cost (applied to Real Losses): \$/acre-ft Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 82 out of 100 ***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

- 1: Volume from own sources
- 2: Unauthorized consumption
- 3: Systematic data handling errors

AWWA Free Water Audit Software: System Attributes and Performance Indicators

American Water Works Association
Copyright © 2014, All Rights Reserved

Water Audit Report for: **Los Banos (CA2410005)**
 Reporting Year: **2015** **1/2015 - 12/2015**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 82 out of 100 *****

Notes:

	Apparent Losses:	31.390	acre-ft/yr
+	Real Losses:	663.273	acre-ft/yr
=	Water Losses:	694.663	acre-ft/yr

? Unavoidable Annual Real Losses (UARL): 179.15 acre-ft/yr

Annual cost of Apparent Losses: \$22,425

Annual cost of Real Losses:

Valued at **Customer Retail Unit**
Return to Reporting Worksheet to change this value

Indicators:

Financial: { Non-revenue water as percent by volume of Water Supplied: 11.7%
 Non-revenue water as percent by cost of operating system: 15.9% Real Losses valued at Customer Retail Unit

Operational Efficiency: { Apparent Losses per service connection per day: 2.44 gallons/connection/day
 Real Losses per service connection per day: 51.51 gallons/connection/day
 Real Losses per length of main per day*: N/A
 Real Losses per service connection per day per psi pressure: 0.86 gallons/connection/day/psi

From Above, Real Losses = Current Annual Real Losses (CARL): 663.27 acre-feet/year

? Infrastructure Leakage Index (ILI) [CARL/UARL]: 3.70

Performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline

AWWA Free Water Audit Software: Water Balance

American Water

Water Audit Report for:	Los Banos (CA2410005)	
Reporting Year:	2015	1/2015 - 12/2015
Data Validity Score:	82	

	System Input	Water Exported	Authorized Consumption	Billed Water Exported	Billed Metered Consumption (water exported is removed)	Non-
	6,667.000	0.000	5,972.338	5,889.000	5,889.000	Re
					0.000	
				83.338	0.000	Non-
					83.338	
				31.390	16.668	
					0.000	
					14.723	
			694.663	663.273	Not broken down	
					Not broken down	
					Not broken down	

APPENDIX C

SB X7-7 Verification Forms

SB X7-7 Table 0: Units of Measure Used in UWMP*

(select one from the drop down list)

Acre Feet

**The unit of measure must be consistent with Table 2-3*

NOTES:

SB X7-7 Table-1: Baseline Period Ranges

Baseline	Parameter	Value	Units
10- to 15-year baseline period	2008 total water deliveries	9,200	Acre Feet
	2008 total volume of delivered recycled water	0	Acre Feet
	2008 recycled water as a percent of total deliveries	0.00%	Percent
	Number of years in baseline period ^{1,2}	10	Years
	Year beginning baseline period range	2001	
	Year ending baseline period range ³	2010	
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	
<p>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.</p>			
<p>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.</p>			
<p>³ The ending year must be between December 31, 2004 and December 31, 2010.</p>			
<p>⁴ The ending year must be between December 31, 2007 and December 31, 2010.</p>			
NOTES:			

SB X7-7 Table 2: Method for Population Estimates

Method Used to Determine Population (may check more than one)	
<input checked="" type="checkbox"/>	1. Department of Finance (DOF) DOF Table E-8 (1990 - 2000) and (2000-2010) and DOF Table E-5 (2011 - 2015) when available
<input type="checkbox"/>	2. Persons-per-Connection Method
<input type="checkbox"/>	3. DWR Population Tool
<input type="checkbox"/>	4. Other DWR recommends pre-review
NOTES:	

SB X7-7 Table 3: Service Area Population

Year		Population
10 to 15 Year Baseline Population		
Year 1	2001	27,321
Year 2	2002	28,307
Year 3	2003	29,225
Year 4	2004	30,627
Year 5	2005	32,031
Year 6	2006	33,591
Year 7	2007	34,599
Year 8	2008	35,267
Year 9	2009	35,654
Year 10	2010	35,918
5 Year Baseline Population		
Year 1	2006	33,591
Year 2	2007	34,599
Year 3	2008	35,267
Year 4	2009	35,654
Year 5	2010	35,918
2015 Compliance Year Population		
2015		37,145
NOTES: Population estimates from California Department of Finance Tables E-5 & E-8		

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

Baseline Year <i>Fm SB X7-7 Table 3</i>	Volume Into Distribution System (acre-feet)	Deductions					Annual Gross Water Use (acre-feet)	
		Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water	Water Delivered for Agricultural Use	Process Water		
10 to 15 Year Baseline - Gross Water Use								
Year 1	2001	5,463	0	0	0	0	0	5,463
Year 2	2002	6,923	0	0	0	0	0	6,923
Year 3	2003	6,803	0	0	0	0	0	6,803
Year 4	2004	7,332	0	0	0	0	0	7,332
Year 5	2005	7,598	0	0	0	0	0	7,598
Year 6	2006	8,107	0	0	0	0	0	8,107
Year 7	2007	9,119	0	0	0	0	0	9,119
Year 8	2008	8,849	0	0	0	0	0	8,849
Year 9	2009	8,254	0	0	0	0	0	8,254
Year 10	2010	7,590	0	0	0	0	0	7,590
10 - 15 year baseline average gross water use							7,604	
5 Year Baseline - Gross Water Use								
Year 1	2006	8,107	0	0	0	0	0	8,107
Year 2	2007	9,119	0	0	0	0	0	9,119
Year 3	2008	8,849	0	0	0	0	0	8,849
Year 4	2009	8,254	0	0	0	0	0	8,254
Year 5	2010	7,590	0	0	0	0	0	7,590
5 year baseline average gross water use							8,384	
2015 Compliance Year - Gross Water Use								
	2015	6,587	0	0	0	0	0	6,587
* NOTE that the units of measure must remain consistent throughout the UWMP, as reported in Table 2-3								
NOTES:								

SB X7-7 Table 4-A: Volume Entering the Distribution System(s)

Name of Source		<i>Source 1</i>		
This water source is:				
<input checked="" type="checkbox"/>	The supplier's own water source			
<input type="checkbox"/>	A purchased or imported source			
Baseline Year <i>Fm SB X7-7 Table 3</i>	Volume Entering Distribution System	Meter Error Adjustment* <i>Optional (+/-)</i>	Corrected Volume Entering Distribution System	
10 to 15 Year Baseline - Water into Distribution System				
Year 1	2001	5463		5,463
Year 2	2002	6923		6,923
Year 3	2003	6803		6,803
Year 4	2004	7332		7,332
Year 5	2005	7598		7,598
Year 6	2006	8107		8,107
Year 7	2007	9119		9,119
Year 8	2008	8849		8,849
Year 9	2009	8254		8,254
Year 10	2010	7590		7,590
5 Year Baseline - Water into Distribution System				
Year 1	2006	8107		8,107
Year 2	2007	9119		9,119
Year 3	2008	8849		8,849
Year 4	2009	8254		8,254
Year 5	2010	7590		7,590
2015 Compliance Year - Water into Distribution System				
2015		6,587		6,587
<i>* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document</i>				
NOTES:				

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

Baseline Year <i>Fm SB X7-7 Table 3</i>		Service Area Population <i>Fm SB X7-7 Table 3</i>	Annual Gross Water Use <i>Fm SB X7-7 Table 4</i>	Daily Per Capita Water Use (GPCD)
10 to 15 Year Baseline GPCD				
Year 1	2001	27,321	5,463	179
Year 2	2002	28,307	6,923	218
Year 3	2003	29,225	6,803	208
Year 4	2004	30,627	7,332	214
Year 5	2005	32,031	7,598	212
Year 6	2006	33,591	8,107	215
Year 7	2007	34,599	9,119	235
Year 8	2008	35,267	8,849	224
Year 9	2009	35,654	8,254	207
Year 10	2010	35,918	7,590	189
10-15 Year Average Baseline GPCD				210
5 Year Baseline GPCD				
Baseline Year <i>Fm SB X7-7 Table 3</i>		Service Area Population <i>Fm SB X7-7 Table 3</i>	Gross Water Use <i>Fm SB X7-7 Table 4</i>	Daily Per Capita Water Use
Year 1	2006	33,591	8,107	215
Year 2	2007	34,599	9,119	235
Year 3	2008	35,267	8,849	224
Year 4	2009	35,654	8,254	207
Year 5	2010	35,918	7,590	189
5 Year Average Baseline GPCD				214
2015 Compliance Year GPCD				
2015		37,145	6,587	158
NOTES:				

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

10-15 Year Baseline GPCD	210
5 Year Baseline GPCD	214
2015 Compliance Year GPCD	158
NOTES:	

SB X7-7 Table 7: 2020 Target Method*Select Only One*

Target Method		Supporting Documentation
<input type="checkbox"/>	Method 1	SB X7-7 Table 7A
<input type="checkbox"/>	Method 2	SB X7-7 Tables 7B, 7C, and 7D <i>Contact DWR for these tables</i>
<input checked="" type="checkbox"/>	Method 3	SB X7-7 Table 7-E
<input type="checkbox"/>	Method 4	Method 4 Calculator

NOTES:

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%)
<input type="checkbox"/>		North Coast	137	130
<input type="checkbox"/>		North Lahontan	173	164
<input type="checkbox"/>		Sacramento River	176	167
<input type="checkbox"/>		San Francisco Bay	131	124
<input checked="" type="checkbox"/>	100.00%	San Joaquin River	174	165
<input type="checkbox"/>		Central Coast	123	117
<input type="checkbox"/>		Tulare Lake	188	179
<input type="checkbox"/>		South Lahontan	170	162
<input type="checkbox"/>		South Coast	149	142
<input type="checkbox"/>		Colorado River	211	200
<p align="center">Target <i>(If more than one region is selected, this value is calculated.)</i></p>				165
NOTES:				

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

5 Year Baseline GPCD <i>From SB X7-7 Table 5</i>	Maximum 2020 Target ¹	Calculated 2020 Target*	Confirmed 2020 Target
214	203	165	165

* ¹ Maximum 2020 Target is 95% of the 5 Year Baseline 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.

NOTES:

SB X7-7 Table 8: 2015 Interim Target GPCD

Confirmed 2020 Target <i>Fm SB X7-7 Table 7-F</i>	10-15 year Baseline GPCD <i>Fm SB X7-7 Table 5</i>	2015 Interim Target GPCD
165	210	188

NOTES:

SB X7-7 Table 9: 2015 Compliance

Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments <i>(in GPCD)</i>					Adjusted 2015 GPCD (Adjusted if applicable)	Did Supplier Achieve Targeted Reduction for 2015?
		Enter "0" if No Adjustment			TOTAL Adjustments	Adjusted 2015 GPCD		
		Extraordinary Events	Weather Normalization	Economic Adjustment				
158	188	0	0	0	0	158	158	YES
NOTES:								

APPENDIX D

Groundwater Report

San Joaquin Valley Groundwater Basin Delta-Mendota Subbasin

- Groundwater Subbasin Number: 5-22.07
- County: Stanislaus, Merced, Madera, Fresno
- Surface Area: 747,000 acres (1,170 square miles)

Basin Boundaries and Hydrology

The San Joaquin Valley is surrounded on the west by the Coast Ranges, on the south by the San Emigdio and Tehachapi Mountains, on the east by the Sierra Nevada and on the north by the Sacramento-San Joaquin Delta and Sacramento Valley. The northern portion of the San Joaquin Valley drains toward the Delta by the San Joaquin River and its tributaries, the Fresno, Merced, Tuolumne, and Stanislaus Rivers. The southern portion of the valley is internally drained by the Kings, Kaweah, Tule, and Kern Rivers that flow into the Tulare drainage basin including the beds of the former Tulare, Buena Vista, and Kern Lakes.

The Delta-Mendota subbasin is bounded on the west by the Tertiary and older marine sediments of the Coast Ranges, and on the north by the Stanislaus/San Joaquin county line. The eastern boundary follows the San Joaquin River to Township 11 S, where it jogs eastward and follows the eastern boundary of Columbia Canal company to the San Joaquin River, then follows the Chowchilla Bypass and the eastern border of Farmer's Water District. It then trends southerly through Township 14S Range 15E on the eastern side of Fresno Slough, then follows the Tranquility ID boundary to its southern extremity. Heading northward, it follows the eastern, northern, and northwestern boundary of San Joaquin Valley – Westside Groundwater Subbasin (corresponding with Westlands Water District boundaries). Average annual precipitation is nine to 11 inches, increasing northwards.

Hydrogeologic Information

The San Joaquin Valley represents the southern portion of the Great Central Valley of California. The San Joaquin Valley is a structural trough up to 200 miles long and 70 miles wide filled with up to 32,000 feet of marine and continental sediments deposited during periodic inundation by the Pacific Ocean and by erosion of the surrounding mountains, respectively. Continental deposits shed from the surrounding mountains form an alluvial wedge that thickens from the valley margins toward the axis of the structural trough. This depositional axis is below to slightly west of the series of rivers, lakes, sloughs, and marshes, which mark the current and historic axis of surface drainage in the San Joaquin Valley.

Water Bearing Formations

The geologic units that comprise the ground water reservoir in the Delta-Mendota subbasin consist of the Tulare Formation, terrace deposits, alluvium, and flood-basin deposits. The Tulare Formation is composed of beds, lenses, and tongues of clay, sand, and gravel that have been alternately deposited in oxidizing and reducing environments (Hotchkiss 1971). The Corcoran Clay Member of the formation underlies the basin at depths ranging about 100 to 500 feet and acts as a confining bed (DWR 1981).

Terrace deposits of Pleistocene age lie up to several feet higher than present streambeds. They are composed of yellow, tan, and light-to-dark brown silt, sand, and gravel with a matrix that varies from sand to clay (Hotchkiss 1971). The water table generally lies below the bottom of the terrace deposits. However, the relatively large grain size of the terrace deposits suggests their value as possible recharge sites.

Alluvium is composed of interbedded, poorly to well-sorted clay, silt, sand, and gravel and is divided based on its degree of dissection and soil formation. The flood-basin deposits are generally composed of light-to-dark brown and gray clay, silt, sand, and organic materials with locally high concentrations of salts and alkali. Stream channel deposits of coarse sand and gravel are also included.

Groundwater in the Delta-Mendota subbasin occurs in three water-bearing zones. These include the lower zone, which contains confined fresh water in the lower section of the Tulare Formation, an upper zone which contains confined, semi-confined, and unconfined water in the upper section of the Tulare Formation and younger deposits, and a shallow zone which contains unconfined water within about 25 feet of the land surface (Davis 1959).

The estimated specific yield of this subbasin is 11.8 percent (based on DWR San Joaquin District internal data and Davis 1959). Land subsidence up to about 16 feet has occurred in the southern portion of the basin due to artesian head decline (Ireland 1964).

Restrictive Structures

Groundwater flow was historically northwestward parallel to the San Joaquin River (Hotchkiss 1971). Recent data (DWR 2000) show flow to the north and eastward, toward the San Joaquin River. Based on current and historical groundwater elevation maps, groundwater barriers do not appear to exist in the subbasin.

Groundwater Level Trends

Changes in groundwater levels are based on annual water level measurements by DWR and cooperators. Water level changes were evaluated by quarter township and computed through a custom DWR computer program using geostatistics (kriging). On average, the subbasin water level has increased by 2.2 feet from 1970 through 2000. The period from 1970 through 1985 showed a general increase, topping out in 1985 at 7.5 feet above the 1970 water level. The nine-year period from 1985 to 1994 saw general declines in groundwater levels, reaching back down to the 1970 groundwater level in 1994. Groundwater levels rose in 1995 to about 2.2 feet above the 1970 groundwater level. Water levels fluctuated around this value until 2000.

Groundwater Storage

Estimations of the total storage capacity of the subbasin and the amount of water in storage as of 1995 were calculated using an estimated specific yield of 11.8 percent and water levels collected by DWR and cooperators.

According to these calculations, the total storage capacity of this subbasin is estimated to be 30,400,000 af to a depth of 300 feet and 81,800,000 af to the base of fresh groundwater. These same calculations give an estimate of 26,600,000 af of groundwater to a depth of 300 feet stored in this subbasin as of 1995 (DWR 1995). According to published literature, the amount of stored groundwater in this subbasin as of 1961 is 51,000,000 af to a depth of \leq 1,000 feet (Williamson 1989).

Groundwater Budget (Type B)

Although a detailed budget was not available for this subbasin, an estimate of groundwater demand was calculated based on the 1990 normalized year and data on land and water use. A subsequent analysis was done by a DWR water budget spreadsheet to estimate overall applied water demands, agricultural groundwater pumpage, urban pumping demand and other extraction data.

Natural recharge is estimated to be 8,000 af. Artificial recharge and subsurface inflow are not determined. Applied water recharge is approximately 74,000 af. Annual urban and agricultural extractions estimated to be 17,000 af and 491,000 af, respectively. Other extractions are approximately 3,000 af, and subsurface outflow is not determined.

Groundwater Quality

Characterization. The groundwater in this subbasin is characterized by mixed sulfate to bicarbonate types in the northern and central portion with areas of sodium chloride and sodium sulfate waters in the central and southern portion. TDS values range from 400 to 1,600 mg/L in the northern portion of the subbasin and from 730 to 6,000 mg/L in the southern portion of the subbasin (Hotchkiss 1971). The Department of Health Services (DHS), which monitors Title 22 water quality standards, reports TDS values in 44 public supply wells to range from 210 to 1,750 mg/L, with an average value of 770 mg/L. A typical range of water quality in wells is 700-1,000 mg/L.

Impairments. Shallow, saline groundwater occurs within about 10 feet of the ground surface over a large portion of the subbasin. There are also localized areas of high iron, fluoride, nitrate, and boron in the subbasin (Hotchkiss 1971).

Water Quality in Public Supply Wells

Constituent Group¹	Number of wells sampled²	Number of wells with a concentration above an MCL³
Inorganics – Primary	47	2
Radiological	47	1
Nitrates	51	4
Pesticides	47	1
VOCs and SVOCs	45	0
Inorganics – Secondary	47	18

¹ A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).

² Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.

³ Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

Well Characteristics

Well yields (gal/min)		
Municipal/Irrigation	Range: 20 – 5,000	Average: 800-2,000
Total depths (ft)		
Domestic		
Municipal/Irrigation	Range: 50 - 800	Average: 400-600

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
DWR (incl. Cooperators)	Groundwater levels	816 Semi-annually
DWR (incl. Cooperators) Department of Health Services (incl. Cooperators)	Mineral, nutrient, & minor element. Title 22 water quality	120 Varies

Basin Management

Groundwater management: Panoche Water District is approximately 11 months into the AB3030 process and will be doing a joint plan with other districts and the county. [San Luis and Delta-Mendota Water Authority North](#) adopted an AB 3030 plan on December 5, 1997.

Water agencies

Public	Merced County, Fresno County, Broadview WD, Centinella WD, Central California ID, Davis WD, Del Puerto WD, Eagle Field WD, El Solyo WD, Farmers WD, Firebaugh Canal WD, Foothill WD, Fresno Slough WD, Grasslands WD, Hospital WD, Kern Canon WD, Laguna WD, Mercy Springs WD, Mustang WD, Oak Flat WD, Orestimba WD, Oro Loma WD, Pacheco WD, Panoche WD, Patterson WD, Romero WD, Salado WD, San Luis Canal Company, San Luis WD, Santa Nella C.WD, Sunflower WD, Tranquility ID, West Stanislaus ID, Widren WD, Quinto WD
Private	None.

References Cited

- California Department of Water Resources (DWR). San Joaquin District. 995. Internal computer spreadsheet for 1990 normal computation of net water demand used in preparation of DWR Bulletin 160-93.
- _____. 1981. Depth to Top of Corcoran Clay. 1:253,440 scale map.
- _____. 2000. *Spring 1999, Lines of Equal Elevation of Water in Wells, Unconfined Aquifer*. 1:253,440 scale map sheet.
- Davis, GH, Green, JH, Olmstead, SH, and Brown, DW. 1959. *Ground Water Conditions and Storage Capacity in the San Joaquin Valley, California*. US Geological Survey Water Supply Paper No. 1469. 287p.
- Hotchkiss, WR, and Balding, GO. 1971. *Geology, Hydrology, and Water Quality of the Tracy-Dos Palos Area, San Joaquin Valley, California*. USGS Open-File Report.
- Ireland, RL, Poland, JF, and Riley FS. 1984. *Land Subsidence in the San Joaquin Valley, California as of 1980*. USGS Professional Paper 437-I.
- Williamson, Alex K, Prudic, David E, and Swain, Lindsay A. 989. *Groundwater flow in the Central Valley, California*. US Geological Survey Professional Paper 1401-D. 127 p.

Additional References

- California Department of Water Resources (DWR). 1994. Bulletin 160-93. *California Water Plan Update, Volume 1*.
- _____. 1980. Bulletin 118-80. *Ground Water Basins in California*.

Errata

Updated groundwater management information and added hotlinks to applicable websites.
(1/20/06)

APPENDIX E

Draft Emergency Resolution

Draft Resolution to Declare a Water Shortage Emergency

DRAFT RESOLUTION NO. _____

**RESOLUTION OF THE CITY COUNCIL OF THE CITY OF LOS BANOS
TO DECLARE A WATER SHORTAGE EMERGENCY**

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF LOS BANOS AS FOLLOWS:

WHEREAS, PURSUANT to California Water Code Section 350 et seq., the Council has conducted duly noticed public hearings to establish the criteria under which a water shortage emergency may be declared.

WHEREAS, the Council finds, determines and declares as follows:

- (a) The City is the water purveyor for the property owners and inhabitants of Los Banos;
- (b) The demand for water service is not expected to lessen.
- (c) When the combined total amount of water supply available to the City from all sources falls at or below the Stage 2 triggering levels described in the Water Shortage Contingency Plan in the current Urban Water Management Plan, the City will declare a water shortage emergency. The water supply would not be adequate to meet the ordinary demands and requirements of water consumers without depleting the City's water supply to the extent that there may be insufficient water for human consumption, sanitation, fire protection, and environmental requirements. This condition is likely to exist until additional water supply facilities can be constructed or until water system damage resulting from a disaster are repaired and normal water service is restored.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Los Banos hereby directs the City Manager to find, determine, declare and conclude that a water shortage emergency condition exists that threatens the adequacy of water supply, until the City's water supply is deemed adequate. After the declaration of a water shortage emergency, the City Manager is directed to determine the appropriate Water Shortage Stage and implement the City's Water Shortage Contingency Plan.

FURTHERMORE, the Council shall periodically conduct proceedings to determine additional restrictions and regulations and modifications to the Water Shortage Contingency Plan which may be necessary to safeguard the adequacy of the water supply for domestic, sanitation, fire protection, and environmental requirements.

PASSED AND ADOPTED, by the City Council of the City of Los Banos, County of Merced, State of California on _____

Name , Mayor

ATTEST:

Name , City Clerk

_____, City Clerk of the City Council of the City of Los Banos, do hereby certify that the foregoing resolution was duly adopted by the City Council of said City at a regular meeting held on _____ and that it was so adopted by the following vote:

AYES:
NOES:
ABSTAIN:
ABSENT:

Name , City Clerk

APPENDIX F

Ordinances

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Los Banos Public Works li

ORDINANCE NO. 1090

**AN ORDINANCE OF THE CITY OF LOS BANOS
AMENDING TITLE 10, CHAPTER 2 OF THE LOS
BANOS MUNICIPAL CODE TO "CITY OF LOS BANOS
WATER EFFICIENT LANDSCAPE ORDINANCE IN ITS
ENTIRETY**

The City Council of the City of Los Banos does hereby ordain as follows:

Section 1. The City Council of the City of Los Banos does hereby amend Title 10, Chapter 2 of the Los Banos Municipal Code in its entirety to read as follows:

CITY OF LOS BANOS WATER EFFICIENT LANDSCAPE ORDINANCE

Sections:

10-2.01	Title and Purpose
10-2.01.01	Applicability
10-2.02	Definitions
10-2.03	Provisions for New Construction or Rehabilitated Landscapes
10-2.03.01	Compliance with Landscape Documentation Package
10-2.03.02	Penalties
10-2.03.03	Elements of the Landscape Documentation Package
10-2.03.04	Water Efficient Landscape Worksheet
10-2.03.05	Soil Management Report
10-2.03.06	Landscape Design Plan
10-2.03.07	Irrigation Design Plan
10-2.03.08	Grading Design Plan
10-2.03.09	Certificate of Completion
10-2.03.10	Irrigation Scheduling
10-2.03.11	Landscape and Irrigation Maintenance Schedule
10-2.03.12	Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis
10-2.03.13	Irrigation Efficiency
10-2.03.14	Recycled Water
10-2.03.15	Stormwater Management
10-2.03.16	Public Education
10-2.03.17	Environmental Review
10-2.04	Provisions for Existing Landscapes
10-2.04.01	Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis
10-2.04.02	Water Waste Prevention
10-2.05	Effective Precipitation
10-2.06	Reference Evapotranspiration (ETo) Table
10-2.07	Efficient Landscape Worksheet
10-2.08	Certificate of Completion Package
10-2.09	Fees
10-2.10	Inspections

§ 10-2.01. Title and Purpose.

(a) This chapter shall be known as the "Los Banos Water Efficient Landscape Ordinance."

(b) Purpose. 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.
- (c) Consistent with these legislative findings, the purpose of this 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 the use of economic incentives that promote the efficient use of water;
 - (7) encourage cooperation between the City of Los Banos and other local agencies to implement and enforce this ordinance.

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

§ 10-2.01.01 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 10-2.04, 10-2.04.01 and 10-2.04.02; and
 - (5) cemeteries. Recognizing the special landscape management needs of cemeteries, new and rehabilitated cemeteries are limited to Sections 10-2.03.04, 10-2.03.11, and 10-2.03.12; and existing cemeteries are limited to Sections 10-2.04, 10-2.04.01, and 10-2.04.02.
- (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.

§ 10-2.02. 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 10-2.03.09.
- (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 Water Sense 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 Water Sense 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 10-2.03.04.
- (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 $(0.7) \times (0.5 \times 0.71)$. 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" {1E} 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 10-2.03.03.
- (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 10-2.01.01.
- (hh) "Lateral Line" means the water delivery pipeline that supplies water to the emitters or sprinklers from the valve.
- (ii) Deleted
- (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 10-2.03.04. 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 10-2.03.03, to request a permit, plan check, or design review from the City of Los Banos. 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 10-2.06 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 10-2.01.01, 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.
- (jii) "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.

§ 10-2.03. Provisions for New Construction or Rehabilitated Landscapes.

- (a) The City of Los Banos may designate another agency 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.

§ 10-2.03.01 Compliance with Landscape Documentation Package.

- (a) Prior to construction, the City of Los Banos 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 City of Los Banos.
- (c) Upon approval of the Landscape Documentation Package by the City of Los Banos , 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 City of Los Banos.

Note: Authority Cited: Section 65595, Government Code, Reference: Section 65596, Government Code. **§ 10-2.03.02 Penalties.**

(a) Title 1, Chapter 2, of this code established the administrative enforcement of remedies for violations of this Code and applicable State Codes. The general remedies include administrative abatement, summary abatement, civil penalties, administrative citations, recordation of notices of violation and mediation. The City of Los Banos may pursue any of these administrative remedies for violations of this chapter.

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

Government Code. § 10-2.03.03 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. **§ 10-2.03.04 Water Efficient Landscape Worksheet.**

(a) A project applicant shall complete the Water Efficient Landscape Worksheet which contains two sections (see sample worksheet in Section 10-2.07):

- (1) a hydrozone information table (see 10-2.07, Part A) for the landscape project; and
- (2) a water budget calculation (see Section 10-2.07, Part 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 Section 10-2.06. For geographic areas not covered in Section 10-2.06, 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:

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

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 Section 10-2.06, 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 Los Banos 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 Los Banos is 50.0 inches as listed in the Reference Evapotranspiration Table in Section 10-2.06.

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

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)

$$\text{MAWA} = (50.0 \text{ inches}) (0.62) [(0.7 \times 50,000 \text{ square feet}) + (0.3 \times 0)]$$

$$= 1,085,000 \text{ gallons per year}$$

To convert from gallons per year to hundred-cubic-feet per year:

$$= 1,085,000/748 = 1,451 \text{ hundred-cubic-feet per year (100 cubic feet = 748 gallons)}$$

- (2) In this next hypothetical example, the landscape project in Los Banos has the same ETo value of 50.0 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.

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

$$MAWA = (50.0 \text{ inches}) (0.62) [(0.7 \times 50,000 \text{ square feet}) + (0.3 \times 2,000 \text{ square feet})]$$

$$= 31 \times [35,000 + 600] \text{ gallons per year}$$

$$= 31 \times 35,600 \text{ gallons per year}$$

$$= 1,103,600 \text{ gallons per year or } 1,475 \text{ hundred-cubic-feet per year}$$

(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.

$$ETWU = (ET_o)(0.62)(P \quad A \quad + \frac{E \times H}{SEA}) \text{ Where:}$$

$$\frac{1E}{ETWU} = \text{Estimated Total Water Use per year}$$

(gallons)

- ET_o = Reference Evapotranspiration (inches)
- PF = Plant Factor from WUCOLS (see Section 10-2.02)
- 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 ET_o value is 50.0 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

$$ETWU = (50.0)(0.62) \left(\frac{24,700}{0.71} + 0 \right)$$

$$= 1,078,459 \text{ gallons per year}$$

Compare ETWU with MAWA: For this example MAWA = (50.0) (0.62) [(0.7 x 50,000) + (0.3 x 0)] = 1,085,000 gallons per year. The ETWU (1,078,459 gallons per year) is less than MAWA (1,085,000 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 50.0 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

$$ETWU = (50.0)(0.62)\left(\frac{23,500}{0.71} + 2,000\right)$$

$$= (31)(33,099 + 2,000)$$

$$= 1,088,069 \text{ gallons per year}$$

Compare ETWU with MAWA. For this example:

$$MAWA = (50.0)(0.62)[(0.7 \times 50,000) + (0.3 \times 2,000)]$$

$$= 31 \times [35,000 + 600]$$

$$= 31 \times 35,600$$

$$= 1,103,600 \text{ gallons per year}$$

The ETWU (1,088,069 gallons per year) is less than MAWA (1,103,600 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. § 10-2.03.05 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 City of Los Banos as part of the Landscape Documentation Package; or

(B) If significant mass grading is planned, the soil analysis report shall be submitted to the City of Los Banos 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 City of Los Banos with Certificate of Completion.

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

Government Code. § 10-2.03.06 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 approved local tree and tree shading guidelines as specified in the City of Los Banos Standards and Specifications; and

5. selection of plants from approved local and regional landscape program plant lists as specified in the City of Los Banos Standards and Specifications.
 - (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 10-2.03.07(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 10-2.03.05)
- (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 Title 6 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.

§ 10-2.03.07 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), 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) Approved backflow prevention devices shall be required to protect the water supply from contamination by the irrigation system. A project applicant shall refer to the City of Los Banos Standards and Specifications 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 10-2.03.04 regarding the Maximum Applied Water Allowance.
 - (L) It is highly recommended that the project applicant inquire with the Public Works Department about peak water operating demands (on the water supply system) and 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.
 - (5) 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 or City approved 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 10-2.03.07(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 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 (10-2.07 Part A). This table can also assist with The City of Los Banos 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 10-2.03.14;
- (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. § 10-2.03.08 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. § 10-2.03.09 Certificate of Completion.

- (a) The Certificate of Completion (Section 10-2.08 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 10-2.03.10);
 - (4) landscape and irrigation maintenance schedule (see Section 10-2.03.11);
 - (5) irrigation audit report (see Section 10-2.03.12); and
 - (6) soil analysis report, if not submitted with Landscape Documentation Package, and documentation verifying implementation of soil report recommendations (see Section 10-2.03.05).

- (b) The project applicant shall:
 - (1) submit the signed Certificate of Completion to the City of Los Banos for review;
 - (2) ensure that copies of the approved Certificate of Completion are submitted to the Public Works Department and property owner or his or her designee.
- (c) The City of Los Banos 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 City of Los Banos 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. **§ 10-2.03.10 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) Irrigation shall be restricted to certain days and times. It shall be unlawful for any person to use City supplied water for irrigation of lawn, landscaping, et cetera, between the hours of 11:00 A.M. and 7:00 P.M. on any day of the week, beginning May 1, through September 30. Usage of water for the aforesaid purposes during allowable shall be restricted to Sundays, Wednesdays, and Fridays of each week on the even numbered side of any street; and Tuesdays, Thursdays, and Saturdays of each week on the odd numbered side of any street. Watering shall be prohibited on Mondays. "Even-numbered side of any street" shall mean that side of this street on which the house numbers end in even figures. "Odd-numbered side of any street" shall mean that side of the street on which the house numbers end in odd figures. New plantings, such as new lawns, ground coverings, or bedding plants may be watered every day providing the following conditions are met:
 - (A) New lawns, ground coverings, or bedding plants shall not include reseeded of existing lawns or replacement of existing ground cover, or bedding plants, and
 - (B) New lawns, ground coverings, or bedding plants shall be considered new for a period of one (1) year from planting date.
 - (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. **§ 10-2.03.11 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.

§ 10-2.03.12 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 10-2.01.01:
 - (1) the project applicant shall submit an irrigation audit report with the Certificate of Completion to the City of Los Banos 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 City of Los Banos 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. **§ 10-2.03.13 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. **§ 10-2.03.14 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 10-2.03.14(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. **§ 10-2.03.15 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 City of Los Banos Public Works Department 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. **§ 10-2.03.16 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) The City of Los Banos 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 **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. **§ 10-2.03.17 Environmental Review.**

- (a) The City of Los Banos 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.

§ 10-2.04 Provisions for Existing Landscapes.

- (a) The City of Los Banos 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. **§ 10-2.04.01 Irrigation Audit, Irrigation Survey, and Irrigation Water Use Analysis.**

- (a) This section, 10-2.04.01, 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 10-2.09.01(a) that have a water meter, the City of Los Banos 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 10-2.04.01(a), that do not have a meter, the City of Los Banos 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. **§ 10-4.02.02 Water Waste Prevention.**

- (a) The City of Los Banos 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. No person shall allow water to run or waste from one's property onto a City street or right-of-way to such an extent that water shall flow in the street/gutter excessively beyond the frontage of the property occupied by such person; nor to flow excessively off the occupied property into the street/gutter; nor to continuously fall upon a public right of way or adjoining property such as to significantly contribute to gutter flow; nor to excessively flow onto or continuously upon adjoining properties or an alley.

Penalties for violation of these prohibitions are set forth Los Banos Municipal Code Title 4 Chapter 11.

- (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. **§ 10-**

2.05 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: $MAWA = (ET_o - Eppt) (0.62) [(0.7 \times LA) + (0.3 \times SLA)]$.

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

§ 10-02.06 Reference Evapotranspiration (ET_o) Table*.

- (a) The following is the reference Evapotranspiration (ET_o) Table for the City of Los Banos:

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual ET _o
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

* 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

§ 10-02.07 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.

PART 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%

PART B. WATER BUDGET CALCULATIONS

Part BI. Maximum Applied Water Allowance (MAWA)

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

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

where:

- MAWA = Maximum Applied Water Allowance (gallons per year)
- ET_o = 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 = 7 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:

$$MAWA = (ET_o - Eppt) (0.62) [(0.7 \times LA) + (0.3 \times SLA)]$$

Maximum Applied Water Allowance = _____ gallons per year

Show calculations.

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

$$ETWU = (ET_o) (0.62) PFr \frac{x}{1EHA + SLA}$$

where:

- ETWU = Estimated total water use per year (gallons per year)
- ET_o = 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 (FIA) (square feet)	PF x HA (square feet)
			Sum	
	SLA			

Estimated Total Water Use =

gallons

Show calculations.

§ 10-2.08 Certificate of Completion Package.

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 10-2.03.10.

PART 4. SCHEDULE OF LANDSCAPE AND IRRIGATION MAINTENANCE

Attach schedule of Landscape and Irrigation Maintenance per ordinance Section 10-2.03.11.

PART 5. LANDSCAPE IRRIGATION AUDIT REPORT

Attach Landscape Irrigation Audit Report per ordinance Section 10.2.03.12.

PART 6. SOIL MANAGEMENT REPORT

Attach soil analysis report, if not previously submitted with the Landscape Documentation Package per ordinance Section 10-2.03.05.

Attach documentation verifying implementation of recommendations from soil analysis report per ordinance Section 10-2.03.05.

§ 10-2.09 Fees.

Landscape and irrigation plan review and inspection fees shall be paid to the City at Public Works Department when landscape and irrigation plans are submitted. The amount of the fee is established by City Council resolution as recommended by the Parks and Recreation Commission.

§ 10-2.10 Inspection.

Upon installation of landscaping and irrigation systems, the installer must contact the Public Works Department to request an inspection for compliance with the approved plans before a certificate of occupancy will be issued by the Public Works Department.

Section 2. To the extent that the terms and provisions of this Ordinance may be inconsistent or in conflict with the terms or conditions of any prior City ordinance, motion, resolution, rule or regulation governing the same subject, the terms of this Ordinance shall prevail with respect to the subject matter thereof and such inconsistent or conflicting provisions of prior ordinances, motions, resolutions, rules or regulations are hereby repealed.

Section 3. If any section, subsection, subdivision, paragraph, sentence, clause or phrase added by this Ordinance, or any part thereof, is for any reason held to be unconstitutional or invalid or ineffective by any court of competent jurisdiction, such decision shall not affect the validity or effectiveness of the remaining portions of this Ordinance or any part thereof. The City Council hereby declares that it would have passed each section, subsection, subdivision, paragraph, sentence, clause or phrase thereof irrespective of the fact that any one or more subsections, subdivisions, paragraphs, sentences, clauses or phrases are declared unconstitutional, invalid or ineffective.

Section 4. This Ordinance shall go into effect and be in full force and operation thirty (30) days after its final passage and adoption. The City Clerk shall certify to the

adoption of this Ordinance and cause the same to be posted and published once within fifteen days after passage and adoption as may be required by law; or, in the alternative the City Clerk may cause to be published a summary of this Ordinance and a certified copy of the text of this Ordinance shall be posted in the Office of the City Clerk five days prior to the date of adoption of this Ordinance; and, within fifteen days after adoption, the City Clerk shall cause to be published, the aforementioned summary and shall post a certified copy of this Ordinance, together with the vote for and against the same, in the Office of the City Clerk.

Introduced by Council Member Sousa and seconded by Council Member Villalta on the 20th day of January 2010.

Passed on the 3rd day of February 2010 by the following vote:

AYES: Council Members Faria, Sousa, Stone, Villalta, Mayor Jones
NOES: None
ABSENT: None

APPROVE

1/4/10 WPA tcA1-9

Tommy Greer, Mayor

ATTEST:

Lucille L. Mallonee

Lucille L. Mallonee, City Clerk



City of
Los Banos
Public Works Department

FOR IMMEDIATE RELEASE – April 3, 2015

**CONTACT: Mark Fachin, Public Works Director/City Engineer
(209) 827-7056**

**LOS BANOS CONTINUES RESTRICTING IRRIGATION
SCHEDULES TO TWICE A WEEK TO MEET STATE'S
25% WATER CONSERVATION MANDATE**

LOS BANOS, CA – On April 1, 2015, the State of California Governor, Edmund G. Brown, Jr., signed Executive Order B-29-15 which set a mandated statewide 25% reduction in potable urban water usage through February 28, 2016.

This action addresses the severe impacts on California's water supplies and its ability to meet all water demands in the State due to the current drought.

The City's current Urgency Ordinance which was adopted on August 6, 2014, is still being enforced. This Ordinance limits landscape irrigation to twice a week.

Properties with even numbered addresses are restricted to outdoor irrigation on Sundays and Wednesdays, while properties with odd numbered addresses are restricted to outdoor irrigation on Tuesdays and Saturdays. Irrigation of lawns and landscaping is prohibited between the hours of 11:00am and 7:00pm on any day of the week. Watering would not be allowed on Mondays, Thursdays, and Fridays. This schedule is year round.

Calendar year 2013 & 2014 were the driest years in recorded history for many areas of California and water conservation is more important than ever.

"The State of California and the City of Los Banos are faced with a water crisis which has only become more critical", said Mayor Michael Villalta. "Everyone needs to work together to meet the State's mandated 25% water use reduction. Every citizen and community group must do their part in meeting the mandate."

The Executive Order makes the 25% mandate a requirement for Cities, Commercial, Industrial, and Institutional Properties.

"Last year's efforts to reach the 20% water conservation goal for the City of Los Banos fell short of the target," said Los Banos Public Works Director Mark Fachin. "The previous measures which included using water saving shut off nozzles, using a broom to clean concrete surfaces, fixing leaks and drips promptly, restricting indoor water use still need to be practiced by everyone. The new 25% mandate will require that the enforcement of water wasting will be increased and fines will be given in an effort to meet the mandate."

In response to the new State mandate, the City of Los Banos parks are now on a twice a week water schedule, with no watering between the hours of 11:00am and 7:00pm.

If citizens need assistance in setting their sprinkler timers or if they would like a water audit done on their service, please contact the Public Works Department at 827-7056 to set up an appointment. These services are done free of charge.

Conservation measures are listed on the City's website www.losbanos.org, as well as the States 'Save our Water' website www.saveourwater.com.

Additional information is available at the Public Works Department.

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At The Crossroads of California|Friday, April 1, 2016

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New 2014 Water Conservation Information

Posted: 8:17 pm, March 20, 2014

411 Madison Avenue
Los Banos, Ca. 93635

Phone: (209) 827-7056
FAX: (209) 827-7069

To: Residents of the City of Los Banos:

Water Conservation Program
March 20 through September 30, 2014

As we prepare to begin this year's Water Conservation Program, I would like to take this opportunity to thank everyone for the achievements of past years. **Per City Urgency Ordinance # 1118, the Conservation period for 2014 has been extended.**

- If your street address ends with an **odd** number, your watering days are Tuesday, Thursday and Saturday.
- If your street address ends with an **even** number, your watering days are Sunday, Wednesday and Friday.
- No watering is allowed on Monday.
- No watering is allowed between the hours of 11:00A.M. and 7:00P.M., **beginning March 20** through September 30.
- New plantings, such as new lawns, ground covering or bedding plants may be watered every day before 11:00A.M. or after 7:00P.M., providing the following conditions are met:



New lawns, ground covering and bedding plants shall be considered new for a period of one (1) year from planting date.



Along with helping to conserve water, you may also help to decrease the pollutants such as oil, dirt, chemicals and fertilizers in storm drain runoff water. This can be done by properly using, storing and disposing of chemicals and fertilizers, and sweeping sidewalks and driveways instead of using a hose. [The City of Los Banos now offers curbside recycling of motor oil & oil filters!](#) Thank you for past and future water conservation and safe water practices.

If you have questions regarding these programs, or wish to have your sprinkler timer programmed free of charge, please call the Public Works Department at (209) 827-7056.

Sincerely,

Mark Fachin

Mark Fachin, P.E.
Public Works Director/City Engineer

Posted in: Uncategorized



• City of Los Banos
520 J Street
Los Banos, CA 93635
Phone: (209) 827-7000



Friday

0%

High 77°

Low 50°



Saturday

0%

High 81°

Low 53°



Sunday

0%

High 82°

Low 52°

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City of
Los Banos
Public Works Department

FOR IMMEDIATE RELEASE – March 4, 2014

**CONTACT: Mark Fachin, Public Works Director/City Engineer
(209) 827-7056**

**LOS BANOS TO CONSERVE 20% WATER
TO MEET GOVERNOR'S DROUGHT DECLARATION**

LOS BANOS, CA – On January 17, 2014, Governor Brown declared a statewide drought emergency and has asked all Californians to reduce their water use by 20 percent.

Calendar year 2013 was the driest year in recorded history for many areas of California, and water conservation is more important than ever.

“Our community and all of California are faced with a water crisis,” said Mayor Michael Villalta. “Our citizens need to come together to meet the Governor’s 20 percent water use reduction. In order to attempt to keep the City’s water supply healthy, every citizen needs to do their part.”

Conservation measures are listed on the City’s website as well as the State’s ‘Save our Water’ website.

“Efforts to conserve 20 percent water use includes irrigation per scheduled times, using water-saving shutoff nozzles, using a broom to clean concrete surfaces, fixing leaks and drips promptly, taking short showers, and washing only full loads of clothes or dishes,” said Los Banos Public Works Director Mark Fachin. “All the efforts made to conserve water will add up in the effort to deal with this drought. The City will be cutting back on park irrigation and enforcing water waste warnings and citations in this conservation effort.”

If citizens need assistance in setting their sprinkler timers or if they would like a water audit done on their service, please contact the Public Works Department at 827-7056 to set up an appointment. These services are done free of charge.

Additional information is available at www.losbanos.org, Public Works Department.



City of
Los Banos
Public Works Department

FOR IMMEDIATE RELEASE – August 7, 2014

***CONTACT: Mark Fachin, Public Works Director/City Engineer
(209) 827-7056***

**LOS BANOS RESTRICTS IRRIGATION SCHEDULES
TO TWICE A WEEK TO MEET STATE'S
20% WATER CONSERVATION GOAL**

LOS BANOS, CA – On July 28, 2014, the State of California Office of Administrative Law issued a notice of approval of emergency regulatory action which set further goals and restrictions on the State's drought emergency 20% water conservation goal.

This action addresses the severe impacts on California's water supplies and its ability to meet all water demands in the State due to the current drought.

The City, in an attempt to meet the 20% conservation goal, adopted an Urgency Ordinance on August 6, 2014, which limited landscape irrigation to twice a week.

Properties with even numbered addresses are restricted to outdoor irrigation on Sundays and Wednesdays, while properties with odd numbered addresses are restricted to outdoor irrigation on Tuesdays and Saturdays. Irrigation of lawns and landscaping is prohibited between the hours of 11:00am and 7:00pm on any day of the week. Watering would not be allowed on Mondays, Thursdays, and Fridays. This schedule is effective immediately and it is year round.

Calendar year 2013 was the driest year in recorded history for many areas of California and water conservation is more important than ever.

"Our community and all of California is faced with a water crisis", said Mayor Michael Villalta. "Our citizens need to come together to meet the Governor's 20% water use reduction. In order to attempt to keep the City's water supply healthy, every citizen needs to do their part, including limiting their irrigation to twice a week."

Conservation measures are listed on the City's website, as well as the States 'Save our Water' website.

“Efforts to conserve 20% water use in Los Banos have not met the goal. In order to conform to State law, and further attempt to achieve the 20% goal, the City has restricted outdoor landscaping irrigation to twice a week. The previous measures which included using water saving shut off nozzles, using a broom to clean concrete surfaces, fixing leaks and drips promptly, restricting indoor water use still need to be practiced by everyone,” said Los Banos Public Works Director Mark Fachin. “The enforcement of water wasting warnings and fines will be increased in an effort to meet the water conservation goal.”

If citizens need assistance in setting their sprinkler timers or if they would like a water audit done on their service, please contact the Public Works Department at 827-7056 to set up an appointment. These services are done free of charge.

Additional information is available at www.losbanos.org, Public Works Department.

APPENDIX G

Rate Schedule

EXHIBIT A
SCHEDULE OF WATER SERVICE FEES

Every person whose premises in the City is served by a connection with the public water system of the City shall pay a water service fee as follows:

Customer Classification	Monthly Water Rates and Effective Dates					
	Current through 8/31/2011	Effective 9/1/2011	Effective 7/1/2012	Effective 7/1/2013	Effective 7/1/2014	Effective 7/1/2015
Residential						
Flat Monthly Rate	\$16.34	\$16.47	\$18.01	\$18.91	\$19.86	\$21.25
Multiple Family > 3 unit	Flat + 5.81 per unit	Flat + \$5.85 per unit	Flat + \$6.41 per unit	Flat + \$6.73 per unit	Flat + \$7.06 per unit	Flat + \$7.56 per unit
Overage per 100 cubic feet	\$1.26	\$1.32	\$1.39	\$1.46	\$1.53	\$1.64
Commercial						
Meters < 1"	\$16.34	\$16.47	\$18.01	\$18.92	\$19.86	\$21.25
Meters 1"- 1½"	\$19.89	\$20.04	\$21.93	\$23.02	\$24.18	\$25.87
Meters 1½"- 2"	\$22.93	\$23.11	\$25.28	\$26.54	\$27.87	\$29.82
Meters 2" - 3"	\$26.18	\$26.39	\$28.86	\$30.31	\$31.82	\$34.05
Meters 3"- 4"	\$32.71	\$32.97	\$36.06	\$37.87	\$39.76	\$42.54
Meters > 4"	Determined by Public Works Department					
Overage per 100 cubic feet	\$1.26	\$1.32	\$1.39	\$1.46	\$1.53	\$1.64
Allowance amount for all users = 1,500 cubic feet per month. Any usage over 1,500 cubic feet will be charged an overage rate per each 100 cubic feet						

APPENDIX H

Public Outreach



City of
Los Banos
At the Crossroads of California

**City of Los Banos
Public Works Department
411 Madison Avenue
Los Banos, CA 93635
Telephone: 209 827-7056
Fax: 209 827-7069
www.losbanos.org**

May 1, 2014

Dear Water Consumer:

Our lives and economy depend on having a reliable supply of clean, fresh water. In order to provide this, the staff of the City of Los Banos Public Works Department spends a substantial amount of hours monitoring and testing the water delivered to your home, to ensure its quality.

It is a pleasure to report that the results of drinking water testing done throughout the year 2013 have met all regulated Environmental Protection Agency and State of California Drinking Water Testing Requirements. The attached report provides detailed information regarding our testing requirements and their results.

English and Spanish versions of this document are available at www.losbanos.org. On Home Page, access *City Government*, select *Departments*, then *Public Works*, then, *Public Works Documents*. You may also visit us at 411 Madison Avenue for a printed copy. Additionally, if you have any questions or comments regarding this report, please feel free to contact Randy Williamson, of the Public Works staff at (209) 827-7056.

Para una version en Espanol ir al www.losbanos.org, menu de Enlaces Rapiidos (Quick Links Menu), Documentos de obras Publicas (Public Works). Usted tambien puede obtener un copia en la oficina principal del Departamento de Obras Publicas, ubicado en el 411 Madison Avenue.

Sincerely,

Mark Fachin

Mark Fachin, P. E.
Public Works Director/City Engineer

City of Los Banos

2013 Drinking Water Consumer Confidence Report

This report contains important information on your drinking water.

Este informe contiene informacion muy importante sobre su agua potable.

Para una version en Espaniol ir al www.LosBanos.org, menu de Enlaces RapiDOS (Quick Links), Documentos de Obras Publicas (Public Works). Usted tambien puede obtener una copia en la oficina principal del Departamento de Obras Publicas, ubicado en el 411 Madison Avenue.

The information gathered here is compiled from the testing of all drinking water sources, which the City of Los Banos uses to provide potable drinking water to your homes and businesses. During the 2013 Calendar Year, your tap water was below all regulated Primary Maximum Contaminant Levels for EPA and State testing requirements for drinking water. The water system in one well did exceed the Secondary Contaminant Level for MTBE, which will be explained later in the report. This report includes information regarding where your water comes from, what it contains, and how it compares to State water quality standards. We are committed to providing you with information because informed customers are our best allies. Listed in the tables of this report are the contaminants found in your drinking water. We have also included information on bacteria testing, of which no positive samples occurred in 2013. If you would like additional water quality information or have any questions regarding the information covered in this report, you may contact the Public Works Department or Greg Pimentel, Interim Assistant Public Works Director at (209) 827-7056.

As a resident, you may participate in decisions that affect drinking water quality. City Council meetings are scheduled at 7:00 P.M. on the first and third Wednesdays of each month. City Council meetings are open to the public, and are televised on Cable Channel 96 and available on the internet at www.LosBanos.org. For more information, call (209) 827-7056.

WHERE YOUR DRINKING WATER COMES FROM

The City of Los Banos owns and operates thirteen approved groundwater production wells that work in conjunction with each other to provide adequate pressure and volume to your location. These groundwater extraction wells draw water at various depths from water producing zones called "Aquifers." Clay layers separate each of the zones. These wells are located in and around the City Limits at various locations. The City owns the land immediately around these wells and restricts any activity that could contaminate them.

A Source Water Assessment was conducted for the active water supply wells of the City of Los Banos Water System in December 2001. The sources are considered most vulnerable to the following activities associated with contaminants detected in the water supply:

Agricultural Drainage
Apartments & Condominiums
Automobile Body Shops
Automobile Car Washes
Automobile Gas Stations
Automobile Repair Shops
Chemical/Petroleum Pipelines
Drinking Water Treatment Plants
Dry Cleaners
Fertilizer/Pesticide/Herbicide App.

Fleet/Truck/Bus Terminals
Food Processing
Hardware/Lumber/Parts Stores
Historic Gas Stations
Housing (high density)
Machine Shops
Medical/Dental Offices/Clinics
Offices Buildings/Complexes
Parks
Pesticide/Fertilizer/Petroleum

Photo Processing/Printing
Rental Yards
RV/Mini Storage
Schools
Septic Systems (low density)
Septic Systems (high density)
Sewer Collection Systems
Storage & Transfer Areas
Veterinary Offices/Clinics
Wood/Pulp/Paper Processing

The sources are considered most vulnerable to the following activities not associated with any detected contaminants:

Airports
Concentrated Animal Feeding Operations
Wells (agricultural/irrigation)

Historic Waste Dumps/Landfills
Known Contaminant Plumes

A copy of the complete assessment may be viewed at the City of Los Banos Public Works Department, 411 Madison Avenue. You may request a summary of the assessment be sent to you by contacting the Public Works Department at (209) 827-7056.

IS YOUR WATER TREATED WITH ANY CHEMICALS?

The answer is **yes**. **Chlorine (Sodium Hypochlorite)** and **Fluoride (Sodium Fluoride)** are introduced to the system as the water is pumped from the wells. Chlorine is used to disinfect drinking water. Fluoride is added for dental health. Both chemicals are monitored daily to ensure concentrations are kept at regulated levels. For additional information on the internet regarding Fluoridation, you may access (www.cdph.ca.gov/certlic/drinkingwater/Pages/Fluoridation.aspx).

IMPORTANT HEALTH INFORMATION

Drinking Water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the USEPA's Safe Drinking Water Hotline at 1-800-426-4791.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons, such as persons with Cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV / AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. USEPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

- A.) **Microbial Contaminants**, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- B.) **Inorganic Contaminants**, such as salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining and farming.
- C.) **Pesticides and Herbicides**, which may come from a variety of sources such as agriculture and residential uses.
- D.) **Radioactive contaminants** that are naturally-occurring, or the result of oil and gas production and mining activities.
- E.) **Organic chemical contaminants**, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production; may also come from gas stations, urban storm water runoff, agricultural application, and septic systems.

In order to ensure that tap water is safe to drink, U.S. Environmental Protection Agency (USEPA) and the California Department of Public Health prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. Department regulations also establish limits for contaminants in bottled water that provide the same protection for public health.

The following tables are based on testing taken during the 2013 Calendar year. The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are more than one year old. Contaminant testing for certain unregulated contaminants and some radiological contaminants were only required to be tested once and the results are indicated. Some contaminants are tested more than once a year, and each month a test was taken will be indicated in the tables.

TERMS AND ABBREVIATIONS USED IN THE TABLES:

MAXIMUM CONTAMINANT LEVEL (MCL): The highest level of a contaminant that is allowed in drinking water. Primary MCLs are set as close to the PHGs (or MCLGs) as is economically and technologically feasible. Secondary MCLs are set to protect the odor, taste and appearance of drinking water.

MAXIMUM CONTAMINANT LEVEL GOAL (MCLG): The level of a contaminant in drinking water, below which there is no known or expected risk to health. MCLGs are set by the U.S. Environmental Protection Agency.

MAXIMUM RESIDUAL DISINFECTANT LEVEL (MRDL): The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

MAXIMUM RESIDUAL DISINFECTANT LEVEL GOAL (MRDLG): The level of a drinking water disinfectant, below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

PUBLIC HEALTH GOAL (PHG): The level of a contaminant in drinking water, below which there is no known or expected risk to health. PHGs are set by the California Environmental Protection Agency.

PRIMARY DRINKING WATER STANDARD (PDWS): MCLs and MRDLs for contaminants that affect health, along with their monitoring and reporting requirements, and water treatment requirements.

REGULATORY ACTION LEVEL (AL): The concentration of a contaminant which if exceeded, triggers treatment or other requirements that a water system must follow.

PARTS PER MILLION (ppm): or milligrams per liter. It means one part per million parts.

PARTS PER BILLION (ppb): or micrograms per liter. It means one part per billion parts.

PARTS PER TRILLION (PPT): This means 1 part per trillion parts.

PICO CURIES PER LITER (pCi / L): A measure of radioactivity.

NONE DETECTED (N/D): Contaminant not detected.

NOT APPLICABLE (N/A): Does not apply.

TREATMENT TECHNIQUE (TT): A required process intended to reduce the level of a contaminant in drinking water.

COLIFORM BACTERIA – DISTRIBUTION SYSTEM

Microbiological Contaminant	Highest Number of Detections	Number of Months in Violation	MCL	MCLG	Typical Source of Bacteria
Total Coliform Bacteria Tested Weekly 2013	0	0	More than one sample a month with a detection	0	Naturally present in the environment
Fecal Coliform or <i>E. coli</i>	0	0	A routine sample and a repeat sample detect Total Coliform; either sample also detects Fecal Coliform or <i>E. coli</i> .	0	Human and animal fecal waste

FECAL BACTERIA INDICATOR-POSITIVE GROUND WATER SOURCE SAMPLES

Microbiological Contaminants	Total No. of Detections	Sample Dates	MCL [MRDL]	PHG (MCLG) [MRDLG]	Typical Source of Contaminant
<i>E. coli</i>	0	N/A	0	(0)	Human and animal fecal waste
Enterococci	0	N/A	TT	N/A	Human and animal fecal waste
Coliphage	0	N/A	TT	N/A	Human and animal fecal waste

DISINFECTION BY-PRODUCTS

Contaminant	Date(s) Tested	Unit of Measure	MCL or MRDL	PHG (MCLG) or MRDLG	Average Detected Level	Range of Detection	Source of Contaminants
HAA5 (Haloacetic Acids)	Aug. '13 Nov. '13	ppb	60	N/A	2.2	N/D-5.4	By-product of drinking water disinfection
TTHMS (Total Trihalomethanes)	Aug. '13 Nov. '13	ppb	80	N/A	13.3	3-28	By-product of drinking water disinfection
Chlorine	Daily '13	ppm	4.0 as CL2	4.0 as CL2	0.49	0.40-0.58	Drinking water disinfectant added for treatment

PRIMARY INORGANIC CONTAMINANTS

Contaminant	Date(s) Tested	Unit of Measure	MCL	PHG (MCLG)	Average Detected Level	Range of Detection	Source of Contaminants
ARSENIC	July '11	ppb	10	4	5	3 - 7	Erosion of natural deposits; runoff from orchards
BARIUM	July '11	ppm	1	2	0.038	N/D - 0.13	Erosion of natural deposits
TOTAL CHROMIUM	July '11	ppb	50	(100)	27	19 - 34	Erosion of natural deposits; discharge from steel and pulp mills and chrome plating
NITRATE As nitrate	Jan. '13 April '13 July '13 Oct. '13	ppm	45	45	26	8.3 - 37	Leaching from livestock confinement areas; leaching from fertilizer use; leaching from septic tanks; erosion of natural deposits
FLUORIDE ** (naturally-occurring)	July '11	ppm	2.0	1.0	0.15	0.1 – 0.48	Erosion of natural deposits

** Our water system treats your drinking water by adding fluoride to the naturally-occurring fluoride, in order to promote dental health in consumers. The fluoride levels in the treated water are tested daily and maintained within a range of 0.7 to 1.3 ppm, as required by California Department of Public Health regulations.

HEALTH STATEMENT ON ARSENIC

While your drinking water meets the Federal and State standard for Arsenic, it does contain low levels of Arsenic. The Arsenic standard balances the current understanding of Arsenic's possible health effects against the costs of removing Arsenic from drinking water. The U.S. Environmental Protection Agency continues to research the health effects of low levels of Arsenic, which is a mineral known to cause Cancer in humans at high concentrations, and is linked to other health effects such as skin damage and circulatory problems.

HEALTH STATEMENT ON NITRATE

Your drinking water meets the State standard for Nitrate; however it does contain low levels of Nitrate. Nitrate in drinking water at levels above 45 parts per million is a health risk for infants of less than six months of age. Such Nitrate levels in drinking water can interfere with the capacity of the infants' blood to carry oxygen, resulting in a serious illness; symptoms include shortness of breath and blueness of skin. Nitrate levels above 45 parts per million may also affect the ability of the blood to carry oxygen in other individuals, such as pregnant women and those with certain specific enzyme deficiencies. If you are caring for an infant, or you are pregnant, you should ask advice from your health care provider. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity.

HEALTH STATEMENT ON LEAD

If present, elevated levels of Lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The City of Los Banos is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for Lead exposure by flushing your tap for 30 seconds to 2 minutes before using the water for drinking or cooking. If you are concerned about Lead in your water, you may wish to have your water tested. Information on Lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

HEALTH INFORMATION ON CHROMIUM

Chromium is a metallic element in the periodic table. It is odorless and tasteless. Chromium is found naturally in rocks, plants, soil and volcanic dust, humans and animals. The most common forms of Chromium in the environment are Trivalent (Chromium-3), Hexavalent (Chromium-6) and the metal form, Chromium-0. Chromium-3 occurs naturally in many vegetables, fruits, meats, grains and yeast. Chromium-6 is generally produced by industrial processes and can also be naturally-occurring. Chromium-0 is generally produced by industrial processes. Chromium-3 is a nutritionally essential element in humans and is often added to vitamins as a dietary supplement. Chromium-3 has relatively low toxicity and would be a concern in drinking water only at very high levels of contamination, unlike Chromium-6 and-0, which are more toxic and pose potential health risks to people. Some people who use water containing Chromium (total) well in excess of the maximum contaminant level (MCL) over many years could experience allergic dermatitis. Chromium-6 (Hexavalent Chromium) is currently regulated under the 50-micrograms per liter ($\mu\text{g/L}$ or Parts Per Billion) maximum contaminant level (MCL) for total Chromium. For more information regarding Chromium-6 you can go to the California Department of Public Health website at: <http://www.cdph.ca.gov/certlic/drinkingwater/Pages/Chromium6.aspx>.

RADIOACTIVE CONTAMINANTS

Contaminant	Date(s) Tested	Unit of Measure	MCL	PHG (MCLG)	Average Detected Level	Range of Detection	Source of Contaminants
Gross Alpha Particle Activity	Nov. '11	pCi / L	15	(0)	6	1.6-14.9	Erosion of natural deposits
URANIUM	Nov. '11	pCi / L	20	0.43	7	3.9-11	Erosion of natural deposits
RADIUM 226	May '06	pCi / L	5	0.05	0.09	N/D-0.19	Erosion of natural deposits

VOLATILE ORGANIC CONTAMINANTS

Contaminant	Date(s) Tested	Units	MCL	PHG (MCLG)	Average Detected Level	Range of Detection	Source of Contaminants
TETRACHLOROETHYLENE (PCE)	Feb. '13 May '13 Aug. '13 Nov. '13	ppb	5	0.06	1.1	0.9 - 1.2	Discharge from factories, dry cleaners and auto shops (metal degreaser)
METHYL-TERT-BUTYL ETHER (MTBE)	Feb. '13 May '13 Aug. '13 Nov. '13	ppb	Primary MCL 13 Secondary MCL 5	13	5.3* Secondary MCL Violation*	4.7 - 6.2	Gas additive; leaking underground storage tanks

***INDICATES SECONDARY MCL VIOLATION FOR TASTE AND ODOR. ONE CITY WELL HAS DETECTED MTBE, WHICH IS A GASOLINE ADDITIVE, AND HAS EXCEEDED THE SECONDARY MCL LEVEL OF 5 PPB FOR TASTE AND ODOR. THE CITY IS REQUIRED TO TEST THIS WELL FOR MTBE QUARTERLY, IN ORDER TO MONITOR MTBE LEVELS AT OR BELOW SECONDARY MCL LEVELS. THE PRIMARY MCL IS 13 PPB AND OUR WELL HAS NOT MET OR EXCEEDED THE PRIMARY MCL LEVEL.**

LEAD AND COPPER HOUSEHOLD TAP MONITORING

The Department of Health Services requires our water system to test for Lead and Copper at household tap sources. The required testing is performed every three years at a representative amount of houses based on service connections and possible at-risk household plumbing. The AL is based on the 90th percentile of the number of sites tested. The Regulatory Action Level is a concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.

Contaminant	Date Tested	Unit of Measure	Regulatory Action Level	Public Health Goal	Average Detected Level	Range of Detection	Source of Contaminants
LEAD	Aug. '11	ppb	15	0.2	90 th percentile; detected level is 0	Number of sites tested above the AL is 0 of 39	Internal corrosion of household plumbing systems
COPPER	Aug. '11	ppm	1.3	0.3	90 th percentile level is 0.41	Number of sites tested above AL is 0 of 39	Internal corrosion of household plumbing systems

UNREGULATED CONTAMINANTS

Unregulated contaminant monitoring helps EPA and the California Department of Public Health to determine where certain contaminants occur and whether the contaminants need to be regulated. While the following contaminants are unregulated, there are California notification levels. Notification levels are advisory levels and not enforceable.

Contaminant	Date(s) Tested	Unit of Measure	Notification Level (PHG)	Average Detected Level	Range of Detection	Health Effects Language
Boron	May '03 May '04	ppm	1.0	0.75	N/D -1.5	The babies of some pregnant women who drink water containing Boron in excess of the notification level, may have an increased risk of developmental effects, based on studies in laboratory animals.
Chromium VI (Hexavalent Chromium)	Oct. '13	ppb	(0.02)	29	21 - 40	See Health Information on Chromium on Page 5 of this report.
Radon	July '01	pCi / L	N/A	560	478 - 637	See Health Information on Radon below.
Vanadium	May '03 May '04	ppb	50	14	7 - 20	The babies of some pregnant women who drink water containing Vanadium in excess of the notification level, may have an increased risk of developmental effects, based on studies in laboratory animals.

HEALTH INFORMATION ON RADON

Radon is a radioactive gas that you cannot see, taste, or smell. It is found throughout the United States. Radon can move up through the ground and into a home through cracks and holes in the foundation. Radon can build up to high levels in all types of homes. Radon can also get into indoor air when released from tap water from showering, washing dishes, and other household activities. Compared to Radon entering the home through soil, Radon entering the home through tap water will in most cases be a small source of Radon in indoor air. Radon is a known human carcinogen. Breathing air containing Radon can lead to lung cancer. Drinking water containing Radon may also cause increased risk of stomach cancer. If you are concerned about Radon in your home, test the air in your home. Testing is inexpensive and easy. You should pursue Radon removal for your home if the level of Radon in your air is 4 Pico curies per liter of air (pCi/L) or higher. There are simple ways to fix a Radon problem that are not too costly. For additional information, call your State Radon Program, at 1-800-745-7236, the EPA Safe Drinking Water Act Hotline at 1-800-426-4791, or the National Safety Council Radon Hotline at 1-800-SOS-RADON.

SECONDARY INORGANIC CONTAMINANTS

Secondary Contaminant Levels address aesthetics, such as taste and odor.

Contaminant	Date(s) Tested	Unit of Measure	MCL	Average Detected Level	Range of Detection	Source of Contaminants
Total Dissolved Solids (TDS)	July '11	ppm	1000	687	390 - 1100	Runoff/leaching from natural deposits
Specific Conductance	July '11	uS/cm	1600	1052	640 - 1700	Substances that form ions when in water
CHLORIDE	July '11	ppm	500	118	61 - 200	Runoff/leaching from natural deposits
SULFATE	July '11	ppm	500	117	40 - 270	Runoff/leaching from natural deposits
PH	July '11	Standard Units	6.5 - 8.5	8.1	8 - 8.2	Leaching from natural deposits
TURBIDITY	July '11	ntu	5	0.16	N/D - 1.9	Soil runoff

SODIUM AND HARDNESS

Contaminant	Date(s) Tested	Unit of Measure	MCL	Average Detected Level	Range of Detection	Source of Contaminants
SODIUM	July '11	ppm	N/A	94	48 - 180	Salt present in the water is generally naturally-occurring.
TOTAL HARDNESS	July '11	ppm	N/A	349	210 - 600	Is the sum of polyvalent cations present in the water, generally magnesium and calcium. The cations are usually naturally-occurring.
Bicarbonate	July '11	ppm	N/A	259	140 - 400	Leaching from natural deposits
CALCIUM	July '11	ppm	N/A	73	42 - 120	Leaching from natural deposits
ALKALINITY (Total)	July '11	ppm	N/A	212	120 - 330	Leaching from natural deposits
Magnesium	July '11	ppm	N/A	40	24 - 70	Leaching from natural deposits
Potassium	July '11	ppm	N/A	2.3	2.1 - 2.5	Leaching from natural deposits

WATER CONSERVATION PROGRAM

The Water Conservation Program is currently under way. The Public Works Department would like to take this opportunity to thank everyone for the success of last year's program. This year's program will be the same as last year. The schedule is as follows:

- If your street address ends with an **odd** number, your watering days are Tuesday, Thursday and Saturday.
- If your street address ends with an **even** number, your watering days are Sunday, Wednesday and Friday.
- No watering is allowed on Mondays.
- No watering is allowed between the hours of 11:00 a.m. and 7:00 p.m., beginning May 1 through and including September 30.
- New plantings, such as new lawns, ground covering or bedding plants, may be watered every day before 11:00 a.m. and after 7:00 p.m., providing the following conditions are met:

New lawns, ground covering, and bedding plants shall be considered new for a period of one (1) year from planting date.

If you have questions regarding this program or need assistance programming your sprinkler timers, contact the Public Works Department at (209) 827-7056.

WATER CONSERVATION TIPS FOR CONSUMERS

Protection of drinking water is everyone's responsibility. You can help protect your community's drinking water source in several ways:

- Take short showers – a 5 minute shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.
- Shut off water while brushing your teeth, washing your hair and shaving, and save up to 500 gallons per month.
- Use a water-efficient shower head. They are inexpensive, easy to install, and can save up to 750 gallons per month.
- Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons per month.
- Water plants only when necessary and follow the Los Banos irrigation schedule.
- Fix leaking toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.
- Adjust sprinklers so only your lawn is watered. Apply water only as fast as the soil can absorb it, and during the cooler parts of the day to reduce evaporation.
- Pick up after your pets.
- Eliminate excess use of lawn and garden fertilizers and pesticides – they contain hazardous chemicals that can reach your drinking water source.
- Dispose of chemicals properly; take used motor oil to a recycling center.
- Teach your kids about water conservation to insure a future generation that uses water wisely. Make it a family effort to reduce next month's water bill!

The following is a list of City current drought response efforts:

- **Muni code** requirements
- **Classroom presentations** to 3rd graders by our water crew including a power-point presentation and educational handouts to take home
- **Community event booths** with banner and educational handouts
- **Banners** to be hung at City hall and the Community Center
- **Crew training** on watering schedules and water conservation practices by our Water Quality Specialist, with a power point presentation
- **Free irrigation timer programming** (currently doing 7 per day average)
- Water conservation information on **TV channel 96**
- Water conservation information on the **City website**
- Water conservation on **Face-book**
- Water conservation/drought information on the **electronic sign at The Community Center** on 7th Street
- Water conservation/drought information on the **electronic sign at The Flag Park** on Pacheco Blvd.
- Water conservation **brochures given out to school students**
- Water conservation information included in our **Consumer Confidence Report** – mailed to all water account holders
- **Community event booth** with signs and banner set up to pass out water conservation literature and educate the community about water conservation practices. (National Night Out, Street Fair, May Day Fair, Solute to Seniors, Tomato Fest)
- **Free leak audits** offered upon request or reports of high consumption
- **Letters and personal contacts to industries and our highest water users**
- **Reduction of irrigation at all city parks and planter strips**
- **Stopped watering all median turf**
- **Reduction of all PW facilities irrigation**
- **Personal contact to our Merced County School Superintendent** and Head of Grounds Maintenance
- **Newspaper articles** quoting the story as told by our Public Works Director
- **Water bills include a bar-graph** clearly showing the users water usage history and savings
- **Staff has recently attended regional class** for drought preparedness and conservation put **on by the California Rural Water Association and the State Department of Water Resources**
- **Watering schedules have been reduced to two days per week**
- The Public Works Department is **patrolling daily for watering violations**, issuing warnings, violations, and providing educational materials. We have issued 1138 violations through October 21, 2015
- We have placed **“WATER PATROL” signs on our PW trucks**
- We have **placed 120 Lawn Signs** “SEVERE DROUGHT, CONSERVE WATER NOW!!!” signs have been placed around the City roadways
- We **distributed over 10,000 door hanger packets (door-to-door) to all homes, apartments and businesses** on the week of May 11th. This was accomplished with the assistance of school volunteer groups, as a service project, who stuffed all of the door hanger packets.
- **Letters delivered to all schools and sent home with all 6,303 students** to reinforce that conservation needs to continue and showing pictures of the impact of the drought on our watershed
- **Educational door hangers, hung by patrollers, targeting properties with green lawns**
- Other – personal contacts, responding to questions and complaints, investigation and follow-up to whistle blowers, a shift in the personnel duties and responsibilities to accomplish this goal.

APPENDIX I

Standardized 2015 UWMP Tables

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
CA2410005	City of Los Banos	11,495	6,657
TOTAL		11,495	6,657

NOTES: Units of volume in acre-feet. All standard UWMP tables are included in Appendix I at the back of this report.

Table 2-2: Plan Identification		
Select Only One	Type of Plan	Name of RUWMP or Regional Alliance <i>if applicable</i>
<input checked="" type="checkbox"/>	Individual UWMP	
<input type="checkbox"/>	Water Supplier is also a member of a RUWMP	
<input type="checkbox"/>	Water Supplier is also a member of a Regional Alliance	
<input type="checkbox"/>	Regional Urban Water Management Plan (RUWMP)	
NOTES: Los Banos is not a part of any Regional Alliance.		

Table 2-3: Agency Identification	
Type of Agency (select one or both)	
<input type="checkbox"/>	Agency is a wholesaler
<input checked="" type="checkbox"/>	Agency is a retailer
Fiscal or Calendar Year (select one)	
<input checked="" type="checkbox"/>	UWMP Tables Are in Calendar Years
<input type="checkbox"/>	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	AF
NOTES: All volumes reported in acre-feet.	

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 <i>(Add additional rows as needed)</i>
--

N/A*

NOTES: *The City of Los Banos supplies all their own water.

Table 3-1 Retail: Population - Current and Projected

Population Served	2015	2020	2025	2030	2035	2040 <i>(opt)</i>
	37,145	45,410	55,515	67,867	82,969	101,431

NOTES: All projections assume uniform population growth rate of 4.1%

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

Use Type <i>(Add additional rows as needed)</i>	2015 Actual		
	Additional Description <i>(as needed)</i>	Level of Treatment When Delivered	Volume
Single Family		Drinking Water	3,989
Multi-Family		Drinking Water	324
Commercial		Drinking Water	1,225
Landscape		Drinking Water	354
Losses		Drinking Water	695
TOTAL			6,587

NOTES: Units of volume in acre-feet. Losses for 2015 were calculated at 11.5% per pumpage and metered usage records.

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

Use Type	Additional Description	Projected water Use <i>Report To the Extent that Records are Available</i>				
		2020	2025	2030	2035	2040-opt
Single Family		4,877	5,962	7,288	8,910	10,893
Multi-Family		396	484	592	724	885
Commercial		1,498	1,831	2,238	2,736	3,345
Landscape		433	529	647	791	967
Losses		939	1,148	1,403	1,715	2,097
TOTAL		8,143	9,954	12,168	14,876	18,187

NOTES: Units of volume in acre-feet. Commercial use includes Institutional/Governmental. All projections assume a uniform annual population growth rate of 4.1% based upon the 2009 City of Los Banos General Plan Update . This is a conservitave estimate based upon recent trends.

Table 4-3 Retail: Total Water Demands

	2015	2020	2025	2030	2035	2040 <i>(opt)</i>
Potable and Raw Water <i>From Tables 4-1 and 4-2</i>	6,587	8,143	9,954	12,168	14,876	18,187
Recycled Water Demand <i>From Table 6-4</i>	149	820	1,010	1,230	1,500	0
TOTAL WATER DEMAND	6,736	8,963	10,964	13,398	16,376	18,187

NOTES: Units of volume in acre-feet.

All projections assume uniform population growth rate of 4.1%.

Table 4-4 Retail: 12 Month Water Loss Audit Reporting	
Reporting Period Start Date	Volume of Water Loss*
01/2015	695 AF/YR
* Taken from the field "Water Losses" (a combination of apparent losses and real losses) from the AWWA worksheet.	
NOTES:	

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

Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook)	Yes
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.	Section 9
Are Lower Income Residential Demands Included In Projections?	No
NOTES:	

Table 5-1 Baselines and Targets Summary					
<i>Retail Agency or Regional Alliance Only</i>					
Baseline Period	Start Year	End Year	Average Baseline GPCD*	2015 Interim Target *	Confirmed 2020 Target*
10-15 year	2001	2010	210	188	165
5 Year	2006	2010	214		
*All values are in Gallons per Capita per Day (GPCD)					
NOTES:					

Table 6-1 Retail: Groundwater Volume Pumped

Groundwater Type	Location or Basin Name	2011	2012	2013	2014	2015
Alluvial Basin	San Joaquin Valley, Delta Mentoda Subbasin	7776	8399	8486	7894	6657
TOTAL		7,776	8,399	8,486	7,894	6,657

NOTES: Units of volume in acre-feet

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

100	Percentage of 2015 service area covered by wastewater collection system <i>(optional)</i>					
100	Percentage of 2015 service area population covered by wastewater collection system <i>(optional)</i>					
Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	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?	Is WWTP Operation Contracted to a Third Party? <i>(optional)</i>
City of Los Banos	Estimated	3,250	City of Los Banos	City Of Los Banos WWTP	Yes	No
Total Wastewater Collected from Service Area in 2015:		3,250	Volume is reported in Acre-Feet			
NOTES: Estimated based upon 2010 City of Los Banos Master Plan for Wastewater Collection System and total 2015 residential and commercial metered water usage.						

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

<input type="checkbox"/> No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.										
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number <i>(optional)</i>	Method of Disposal	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level	2015 volumes			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
City of Los Banos Wastewater Treatment Plant	17963 W. Henry Miller Rd. Los Banos CA.	WWTP Permanent Pasture	NA	Land disposal	No	Secondary, Undisinfected	3,250	149	0	NA

Total							3,250	149	0	0
--------------	--	--	--	--	--	--	-------	-----	---	---

NOTES: As stated in the report, the quality of effluent reused on pastureland does not meet the standards for recycled water. Secondary Undisinfected was chosen from the drop down list since Primary Treatment is not included.

Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area

<input type="checkbox"/>	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.								
Name of Agency Producing (Treating) the Recycled Water:			City of Los Banos Wastewater Treatment Plant						
Name of Agency Operating the Recycled Water Distribution			City of Los Banos Wastewater Treatment Plant						
Supplemental Water Added in 2015			NA						
Source of 2015 Supplemental Water			NA						
Beneficial Use Type	General Description of 2015 Uses	Level of Treatment	2015	2020	2025	2030	2035	2040 (opt)	
Agricultural irrigation	Pasture Land Irrigation	Secondary, Undisinfected	149	820	1,010	1,230	1,500	NA	
Total:			149	820	1,010	1,230	1,500	0	
<i>*IPR - Indirect Potable Reuse</i>									
NOTES: The Los Banos WWTP only treats this effluent to a Primary Level. Secondary Undisinfected was chosen from the drop down list since Primary Treatment is not included. As stated in the report, the quality of effluent reused on pastureland does not meet the standards for recycled water.									

Table 6-5 Retail: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual

□	Recycled water was not used in 2010 nor projected for use in 2015. The supplier will not complete the table below.	
Use Type	2010 Projection for 2015	2015 Actual Use
Agricultural irrigation	670	149
Total	670	149

NOTES: As stated in the report, the quality of effluent reused on pasture land does not meet the standards for recycled water.

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.		
	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
Total			0

NOTES: This table does not apply to the Los Banos UWMP.

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.

Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.

Page 47 Provide page location of narrative in the UWMP

Name of Future Projects or Programs	Joint Project with other agencies?		Description (if needed)	Planned Implementation Year	Planned for Use in Year Type	Expected Increase in Water Supply to Agency
New Well				2019		3,228

NOTES: Units in acre-feet per year.

Table 6-8 Retail: Water Supplies — Actual

Water Supply		2015		
	Additional Detail on Water Supply	Actual Volume	Water Quality	Total Right or Safe Yield (optional)
Groundwater	Delta-Mendota Subbasin	6,657	Drinking Water	
Total		6,657		0

NOTES: Units of volume in acre-feet

Table 6-9 Retail: Water Supplies — Projected

Projected Water Supply <i>Report To the Extent Practicable</i>											
Water Supply	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)
Groundwater	Delta-Mendota Subbasin	8,138		9,949		12,163		14,869		18,178	
Total		8,138	0	9,949	0	12,163	0	14,869	0	18,178	0

NOTES: Units of volume in acre-feet

Table 7-1 Retail: Basis of Water Year Data

Year Type	Base Year <i>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</i>	Available Supplies if Year Type Repeats	
		<input type="checkbox"/>	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location _____
		<input checked="" type="checkbox"/>	Quantification of available supplies is provided in this table as either volume only, percent only, or both.
		Volume Available	% of Average Supply
Average Year	2005	See note	100%
Single-Dry Year	1977		100%
Multiple-Dry Years 1st Year	1989		100%
Multiple-Dry Years 2nd Year	1990		100%
Multiple-Dry Years 3rd Year	1991		100%
Multiple-Dry Years 4th Year <i>Optional</i>	1992		100%
Multiple-Dry Years 5th Year <i>Optional</i>			
Multiple-Dry Years 6th Year <i>Optional</i>			
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.			
NOTES: No more exhaustive data are available, but in all year types the City has been able to meet demands with use of groundwater.			

Table 7-2 Retail: Normal Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 <i>(Opt)</i>
Supply totals	8,138	9,949	12,163	14,869	18,178
Demand totals	8,963	10,964	13,398	16,376	18,187
Difference	(825)	(1,015)	(1,235)	(1,507)	(9)
NOTES: Units of volume in acre-feet. The difference is residual and likely due to meter tolerances and other minor cumulative reporting practices.					

Table 7-3 Retail: Single Dry Year Supply and Demand Comparison					
	2020	2025	2030	2035	2040 (Opt)
Supply totals	8,138	9,949	12,163	14,869	18,178
Demand totals	8,138	9,949	12,163	14,869	18,178
Difference	0	0	0	0	0
NOTES: Units of volume in acre-feet					

Table 7-4 Retail: Multiple Dry Years Supply and Demand Comparison						
		2020	2025	2030	2035	2040 (Opt)
First year	Supply totals	8,138	9,949	12,163	14,869	18,178
	Demand totals	8,138	9,949	12,163	14,869	18,178
	Difference	0	0	0	0	0
Second year	Supply totals	8,138	9,949	12,163	14,869	18,178
	Demand totals	8,138	9,949	12,163	14,869	18,178
	Difference	0	0	0	0	0
Third year	Supply totals	8,138	9,949	12,163	14,869	18,178
	Demand totals	8,138	9,949	12,163	14,869	18,178
	Difference	0	0	0	0	0
Fourth year <i>(optional)</i>	Supply totals	8,138	9,949	12,163	14,869	18,178
	Demand totals	8,138	9,949	12,163	14,869	18,178
	Difference	0	0	0	0	0
Fifth year <i>(optional)</i>	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
Sixth year <i>(optional)</i>	Supply totals					
	Demand totals					
	Difference	0	0	0	0	0
NOTES: Units of volume in acre-feet						

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

Stage	Complete Both	
	Percent Supply Reduction ¹ <i>Numerical value as a percent</i>	Water Supply Condition ² <i>(Narrative description)</i>
<i>Add additional rows as needed</i>		
1 (Mandatory)	15%	Available water production is 10% to 15% less than the estimated monthly peak hour demands
2 (Mandatory)	30%	Available water production is 15% to 30% less than the estimated monthly peak hour demand
3 (Mandatory)	50%	Available water production is 30% to 50% less than the estimated monthly peak hour demand
¹ One stage in the Water Shortage Contingency Plan must address a water shortage of 50%. ² These stages may also apply to mandatory conservation efforts as set by City Council.		
NOTES:		

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

Stage	Restrictions and Prohibitions on End Users	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
1	Landscape - Restrict or prohibit runoff from landscape irrigation		Yes
1	Landscape - Limit landscape irrigation to specific times	Irrigation prohibited between 11:00 am and 7:00 pm.	Yes
1	Landscape - Limit landscape irrigation to specific days	Per Council direction	Yes
1	Other - Require automatic shut of hoses	Wash cars only with automatic shutoff on hoses.	Yes
1	Other - Prohibit use of potable water for washing hard surfaces	Use broom to clean driveways and sidewalks.	Yes
1	CII - Restaurants may only serve water upon request		Yes
1	CII - Lodging establishment must offer opt out of linen service		Yes
2	Other	Prohibit cleaning hardscapes with water	Yes
2	Landscape - Prohibit certain types of landscape irrigation	Mandatory irrigation conservation program.	Yes
3	Other	Prohibit vehicle washing except commercial carwashes	Yes
3	Other	No new service connections	No
3	Other water feature or swimming pool restriction	Prohibit filling of swimming pools and water features	Yes

NOTES: Customer will receive a warning for first offense. Penalties shown are for second offense . Penalties for subsequent offenses will be 150% of the previous penalty. Actual water conservation restrictions and prohibitions to be based on City Council adopted ordinances.

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

Stage	Consumption Reduction Methods by Water Supplier	Additional Explanation or Reference <i>(optional)</i>
1-3	Expand Public Information Campaign	Community event booths, community center banners, city website, Facebook website, newspaper articles, door hanger packets, etc.
1-3	Improve Customer Billing	Bills include bar-graph illustrated users water usage history and savings
1-3	Increase Frequency of Meter Reading	All connections are metered
1-3	Increase Water Waste Patrols	Daily patrols; City vehicles have "WATER PATROL" signs appended
1-3	Offer Water Use Surveys	City offers assistance setting sprinkler timers and water audits on services.
NOTES:		

Table 8-4 Retail: Minimum Supply Next Three Years

	2016	2017	2018
Available Water Supply AF	6,929	7,214	7,509

NOTES: Units in acre-feet. Assumed average annual growth rate of 4.1% with 100% demand met.

Table 10-1 Retail: Notification to Cities and Counties		
City Name	60 Day Notice	Notice of Public Hearing
NA		
County Name	60 Day Notice	Notice of Public Hearing
Merced County	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Note, The City of Los Banos does not supply water to any other cities or utilities.		



City of
Los Banos

At the Crossroads of California