

CITY OF NEWMAN



2015 URBAN WATER MANAGEMENT PLAN

July 2016

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ABBREVIATIONS

AF	Acre-Feet
CASGEM	California Statewide Groundwater Elevation Monitoring
City	City of Newman
CWC	California Water Code
DWR	Department of Water Resources
GAL	Gallons
GPM	Gallons per Minute
CCF	hundred cubic feet
MG	Million Gallons
MGD	Million Gallons per Day
MG/L	Milligrams per liter
PWS	Public Water System
UWMP	Urban Water Management Plan
UWMPA	Urban Water Management Plan Act

CHAPTER 1 INTRODUCTION AND OVERVIEW

1.1. Background and Purpose

The California Water Code requires all urban water suppliers within the state to prepare and adopt Urban Water Management Plans (UWMP) for submission to the California Department of Water Resources (DWR). The UWMPs must be updated every five years and satisfy the requirements of the Urban Water Management Planning Act of 1983 including amendments that have been made to the Act. The UWMPA requires urban water suppliers servicing 3,000 or more connections, or supplying more than 3,000 acre feet (AF) of water annually, to prepare an UWMP.

The purpose of the UWMP is to maintain efficient use of urban water supplies, continue to promote conservation programs and policies, ensure that sufficient water supplies are available for future beneficial use, and provide a mechanism for response during water drought conditions. This report, which was prepared in compliance with the California Water Code, and as set forth in the guidelines and format established by the DWR, is the City of Newman's (City) 2015 UWMP.

1.2. Urban Water Management Planning ant the California Water Code

Water planning is an essential function of water suppliers, but is critical as California grapples with ongoing drought and expected long-term climate changes. Prior to the adoption of the Urban Water Management Planning Act (UWMPA), there were no specific requirements that water agencies conduct long-term resource planning. While many water agencies had conducted long-term water supply and resource planning prior to the Act, those who had not were left vulnerable to supply disruptions during dry periods or catastrophic events.

1.2.1. Urban Water Management Planning Act of 1983

In 1983, State Assembly Bill (AB) 797 modified the California Water Code Division 6, by creating the UWMPA. Several amendments to the original UWMPA, which were introduced since 1983, have increased the data requirements and planning elements to be included in this 2015 UWMP.

Initial amendments to the UWMPA required that total projected water use be compared to water supply sources over the next 20 years, in 5-year increments. Recent DWR guidelines also suggest projecting through a 25-year planning horizon to maintain a 20-year timeframe until the next UWMP update has been completed and for use in developing Water Supply Assessments.

Other amendments require that UWMPs include provisions for recycled water use, demand management measures, and a water shortage contingency plan. Recycled water was added in the reporting requirements for water usage and figures prominently in the requirements for evaluation of alternative water supplies, when future projections predict the need for additional water supplies. Each urban water purveyor must coordinate the preparation of the water shortage contingency plan with other urban water purveyors in the area, to the extent practicable. Each water supplier must also

describe their water demand management measures that are being implemented, or scheduled for implementation.

In addition to the UWMPA and its amendments, there are several other regulations that are related to the content of the UWMP. In summary, the key relevant regulations are:

- ❖ AB 1420: Requires implementation of demand management measures (DMMs)/best management practices (BMPs) and meeting the 20 percent reduction by 2020 targets (mandated by SBx7-7) to qualify for water management grants or loans.
- ❖ AB 1465: Requires water suppliers to describe opportunities related to recycled water use and stormwater recapture to offset potable water use.
- ❖ Amendments Senate Bill (SB) 610 (Costa, 2001), and SB 221 (Daucher, 2001), which became effective beginning January 1, 2002, require counties and cities to consider information relating to the availability of water to supply new large developments by mandating the preparation of further water supply planning (Daucher) and Water Supply Assessments (Costa).
- ❖ SB 1087: Requires water suppliers to report single family residential (SFR) and multifamily residential (MFR) projected water use for planned lower income units separately.
- ❖ Amendment SB 318 (Alpert, 2004) requires the UWMP to describe the opportunities for development of desalinated water, including but not limited to, ocean water, brackish water, and groundwater, as long-term supply.
- ❖ AB 105 (Wiggins, 2004) requires urban water suppliers to submit their UWMPs to the California State Library.
- ❖ SBx7-7: Requires development and use of new methodologies for reporting population growth estimates, base per capita use, and water conservation. This water bill also extended the 2010 UWMP adoption deadline for retail agencies to July 1, 2011.

The UWMPA is included for reference in Appendix A.

1.2.2. Applicable changes to the Water Code since 2010

Table 1-1 provides a summary of the changes to the California Water Code (CWC) since 2010:

Table 1-1 Changes to the CWC since 2010			
Topic	CWC Section	Legislative Bill	Summary
Demand Management Measures	10631 (f)(1) and (2)	AB 2067 Weber 2014	Requires water suppliers to provide narratives describing their water demand management measures, as provided. Requires retail water suppliers to address the nature and extent of each water demand management measure implemented over the past 5 years and describe the water demand management measures that the supplier plans to implement to achieve its water use targets.

Table 1-1 Changes to the CWC since 2010			
Topic	CWC Section	Legislative Bill	Summary
Submittal Date	10621 (d)	AB 2067 Weber 2014	Requires each urban water supplier to submit its 2015 plan to the Department of Water Resources by July 1, 2016.
Submittal Format	10644 (a) (2)	SB 1420 Wolk 2014	Requires the plan, or amendments to the plan, to be submitted electronically to the department.
Standardized Forms	10644 (a) (2)	SB 1420 Wolk 2014	Requires the plan, or amendments to the plan, to include any standardized forms, tables, or displays specified by the department.
Water Loss	10631 (e) (1) (J) and (e) (3) (A) and (B)	SB 1420 Wolk 2014	Requires a plan to quantify and report on distribution system water loss.

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

The Water Conservation Act of 2009 required retail urban water suppliers to report in their UWMPs their Base Daily per Capita Water Use (Baseline GPCD), 2015 Interim Urban Water Use Target, 2020 Urban Water Use Target, and Compliance Daily per Capita Water Use. These terms are defined in Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use, DWR 2011 (Methodologies) consistent with SB X7-7 requirements.

Beginning in 2016, retail water suppliers are required to comply with the water conservation requirements in SB X7-7 in order to be eligible for State water grants or loans. The complete text of the Water Conservation Act is in Appendix B. Retail water agencies are required to set targets and track progress toward decreasing daily per capita urban water use in their service area, which will assist the State in meeting its 20 percent reduction goal by 2020.

1.3. Urban Water Management Plan in Relation to Other Planning Efforts

Urban suppliers provide information on water management specific to their service areas. However, water management does not happen in isolation; there are other planning processes that integrate with the UWMP to accomplish urban planning. Some of these plans include city and county General Plans, Water Master Plans, Recycled Water Master Plans, integrated resource plans, Integrated Regional Water Management Plans, Groundwater Management Plans, and others.

This 2015 UWMP relies on planning documents prepared by Stanislaus County, the City's 2030 General Plan, the 2016 Housing element and the City's 2008 Water Master Plan.

1.4. UWMP Organization

This 2015 UWMP has been organized following the DWR's recommended outline. The following is a description of the Chapters and a brief description of the content in each Chapter:

- ❖ **Chapter 1 - Introduction and Overview:** This introductory chapter provides a discussion on the importance and extent of the City's water management planning efforts.
- ❖ **Chapter 2 - Plan Preparation:** This chapter provides information on the process followed for developing the UWMP, including efforts in coordination and outreach.
- ❖ **Chapter 3 - System Description:** This chapter includes maps of the service area, a description of the service area and climate, the Public Water System, and the City's organizational structure and history.
- ❖ **Chapter 4 - System Water Use:** This chapter describes and quantifies the current and projected water uses within the City's service area.
- ❖ **Chapter 5 - Baselines and Targets:** This chapter describes the method used for calculating the baseline and target water consumption. This chapter also demonstrates that the City has achieved the 2015 interim water use target, and the City's plans for achieving the 2020 water use target.
- ❖ **Chapter 6 - System Supplies:** This chapter describes and quantifies the current and projected sources of water available to the agency. This chapter also includes a description and quantification of potential recycled water uses and supply availability.
- ❖ **Chapter 7 - Water Supply Reliability:** This chapter describes the reliability of the City's water supply and project the reliability out 20 years. This description is provided for normal, single dry years and multiple dry years.
- ❖ **Chapter 8 - Water Shortage Contingency Planning:** This chapter provides the City's staged plan for dealing with water shortages, including a catastrophic supply interruption.
- ❖ **Chapter 9 - Demand Management Measures:** This chapter communicates the City's efforts to promote conservation and to reduce demand and specifically addresses several demand management measures.
- ❖ **Chapter 10 - Plan Adoption, Submittal, and Implementation:** This chapter describes the steps taken to adopt and submit the UWMP and to make it publicly available. This chapter also includes a discussion of the City's plan to implement the UWMP.

CHAPTER 2 PLAN PREPARATION

2.1. Introduction

This chapter provides the basis for preparing the 2015 UWMP and describes the various levels of regional coordination that the City has employed. It also describes the reporting period and the units of measure used by the City to report water volumes throughout the 2015 UWMP.

Finally this chapter also provides a description of the coordination and outreach efforts followed in the preparation of the 2015 UWMP. Coordination and outreach are key elements to developing a useful and accurate UWMP.

2.2. Basis for Preparing a Plan

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

The City of Newman (City) supplies water for municipal purposes to its estimated 2015 population of 10,753 and a total of 3,321 customer connections. Thus, the City is classified as an “urban water supplier” as defined in Section 10617 of the CWC. In accordance with the CWC, as an urban water supplier the City is required to update its urban water management plan every five years. The City was not an urban water supplier in 2005 or 2010 and was not required to submit an UWMP. The City became an urban water supplier in 2015 and this UWMP is the first UWMP that is being submitted to the Department of Water Resources (DWR).

2.2.1. Public Water Systems

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 (a) of Section 10608.28.

(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.

The City of Newman is a public water system (PWS#5010013) and is regulated by the State Water Resources Control Board, Division of Drinking Water (SWRCB-DDW). The SWRCB-DDW requires reporting on public water systems.

The City files electronic Annual Reports to the Drinking Water Program (eARDWP) to the Board, which include annual reports of water usage and other information. The information provided in this UWMP is consistent with the data reported in the eARDWP.

2.2.2. Agencies Serving Multiple Service Areas/Public Water Systems

The City of Newman serves only one PWS. Information about that PWS is shown below in Table 2-1.

Table 2-1 Retail Only: Public Water Systems (Standard Table 2-1)			
Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied in 2015 (MG)
CA5010013	City of Newman	3,321	619

2.3. Individual or Regional Planning and Compliance

Before developing this 2015 UWMP, the City considered becoming involved in regional planning processes. While regional reporting is an option in the future, the City of Newman has chosen Individual Reporting for the 2015 UWMP.

The City is a member of the Westside Integrated Regional Water Management Plan (IRWMP). As a member of IRWMP the City anticipates a much greater coordination with all water suppliers and users in the near future. In addition the City is participating with the Delta-Mendota Water Authority in the formation of a Sustainable Groundwater Management Agency.

The City has developed this 2015 UWMP covering only its agency service area and addressing all requirements of the Water Code. Table 2-2 shows that the City has developed an individual UWMP.

Table 2-2 Plan Identification (Standard Table 2-2)		
☒	Individual UWMP	
☐	Regional UWMP (RUWMP)	
	Select One:	
	☐	RUWMP includes a Regional Alliance
	☐	RUWMP does not include a Regional Alliance

2.4. Fiscal or Calendar Year and Units of Measure

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

Water suppliers may report on either a fiscal or calendar year basis. DWR prefers that agencies report on a calendar year basis in order to ensure UWMP data is consistent with data submitted to other reports to the State.

The City of Newman is reporting on a calendar year basis. All data included in this 2015 UWMP is consistent with the calendar year basis.

2.4.2. Reporting Complete 2015 Data

2015 UWMPs are required to include the water use and planning data for the entire calendar year of 2015, if an agency is reporting on a calendar year basis. This 2015 UWMP contains information for the entire 2015 year.

2.4.3. Units of Measure

Water agencies use various units of measure when reporting water volumes, such as acre-feet (AF), million gallons (MG), or hundred cubic feet (CCF). Agencies may report volumes of water in any of these units, but must maintain consistency throughout the UWMP.

The City of Newman reports water volumes in million gallons (MG). For consistency, this 2015 UWMP also uses MG as the reporting units. Table 2-3 shows the type of agency, type of reporting year, and the units of measurement used throughout the 2015 UWMP.

Table 2-3 Agency Identification (Standard Table 2-3)	
Type of Agency	
☐	Agency is a wholesaler
☒	Agency is a retailer
Fiscal or Calendar Year	
☒	UWMP Tables Are in Calendar Years
☐	UWMP Tables Are in Fiscal Years
If Using Fiscal Years Provide Month and Day that the Fiscal Year Begins (dd/mm)	
NA	
Units of Measure Used in UWMP	
Unit	Million Gallons (MG)
NOTES:	

2.5. Coordination and Outreach

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 water supplier relies upon a wholesale agency for a water supply, both suppliers are required to provide each other with information regarding projected water supply and demand. The projections should be consistent with each agency's supply and demand projections.

The City of Newman does not receive water from any wholesale agency. Standard Table 2-4 is included below indicating that the information requested does not apply to the City of Newman.

Table 2-4 Water Supplier Information Exchange (Standard Table 2-4)
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>
Not Applicable
NOTES:

2.5.2. Coordination with Other Agencies and the Community

CWC 10620

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

CWC 10642

Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan...

In the preparation of this 2015 UWMP the City has coordinated with other appropriate agencies in the area, to the extent practicable. The following is a list of agencies and organizations that the City has contacted in the preparation of this 2015 UWMP:

- ❖ Central California Irrigation District
- ❖ Merced Irrigation District
- ❖ City of Gustine
- ❖ City of Patterson
- ❖ City of Turlock
- ❖ Stanislaus County
- ❖ Merced County

Copies of the letters sent to each of those agencies are included in Appendix C.

2.5.3. Notice to Cities and Counties

CWC 10621 (b)

Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan.

Agencies must notify cities and counties within which they serve water that the UWMP is being updated and reviewed. Since all water supplied by the City of Newman is within city boundaries, no additional cities or counties were notified of the 2015 UWMP or invited to participate in the process.

CHAPTER 3 SYSTEM DESCRIPTION

3.1. General Description

CWC Section 10631 (a)

Describe the service area of the supplier...

The City of Newman is located in Stanislaus County, approximately 25 miles south of Modesto, 100 miles south of Sacramento and 100 miles southeast of San Francisco. Incorporation of the City occurred in 1908. The City is a public agency that provides water service to all residential, commercial, and industrial customers and for fire protection uses.

Newman 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 Newman, 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.

According to the US Census, there were 7,093 people living in Newman in 2000, and 10,224 in 2010. Those population estimates represent a 50 percent increase from 2000, or approximately 5 percent per year. This increase in population is primarily a reflection of the regional growth pressures that are affecting the Central Valley as people living in more expensive regions look for affordable housing in the Valley.

The City adopted the Newman 2030 General Plan (General Plan) in April 2007. The General Plan assesses delineated land use areas referred to as the Sphere of Influence (SOI), which is larger than the proposed City limits. The SOI includes land over which the City does not have complete jurisdiction; however the City has the option to annex the land and develop it in the future. The City and their planners decided to divide the SOI into two areas, the Primary and Secondary SOI. The Primary SOI depicts areas that originally were anticipated to be developed within ten years after the adoption of the General Plan. The Secondary SOI includes lands that were anticipated to be developed through 2030. As a result of the recent slowdown in the economy and development throughout the Central Valley, it is now anticipated that full build-out of both the Primary and Secondary SOIs may take longer than predicted in the General Plan.

The SOI area encompasses approximately 5.9 square miles (3,750 acres). The SOI is recognized as the ultimate City growth boundary over the life of the City's current General Plan. This 2015 Urban Water Management Plan assumes that the SOI describes the future water system service area.

The land uses in the 2030 General Plan include residential (low density, medium density, high density, central, and planned mixed), Commercial (community, service, and downtown), business park, industrial (light and heavy), public and recreational. Residential is the predominant land use in Newman. About 74.4 percent of the total area within the City limits is designated as residential. The second largest land use is public land. Table 3-1 provides the land use acreages for the most current estimate (2008 Water

Master Plan), and the projected land use acreages at build-out of the City limits and build-out of the primary and secondary SOIs. Table 3-1 utilizes the land uses in the UWMP Guidelines.

Table 3-1 Land Uses				
Land Use	Most Current Estimate	City Limits Build-out	Primary SOI Build-out	Secondary SOI Build-out
Single Family Residential	641.9	713.1	1,379.5	2,497.3
Multi-family Residential	26.8	32.4	32.4	32.4
Commercial	37.3	72.0	186.3	186.3
Institutional/Governmental	101.7	111.7	111.7	158.5
Industrial	68.4	109.0	132.0	790.0
Landscape	22.3	25.3	34.7	34.7
Total acreage	898.4	1,063.4	1,876.5	3,699.1

For purposes of this 2015 UWMP, the boundary of the secondary SOI is assumed to be adequate through 2040 due to the recent slowdown in development.

3.2. Service Area Maps

A Service Area Map is included in Appendix D of this 2015 UWMP. The service area map contains the City Limits, the boundary of the primary and secondary SOI, the potable water service area boundary (same as Public water system boundary), the location of the water supply wells, and the layout of the distribution system (with pipe sizes).

3.3. Service Area Climate

CWC Section 10631 (a)

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

The climate of Newman 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. Newman 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 the latter part of July. 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 Newman is presented below.

Table 3-2 Climate Data				
Month	Avg. Precipitation (in)	Avg. Max Temp (°F)	Avg. Min Temp (°F)	Monthly ET _o (in)
January	2.36	55.9	36.2	1.55
February	2.00	62.6	39.5	2.24
March	1.60	69.0	42.1	3.72
April	0.77	76.0	45.1	5.10
May	0.33	84.4	49.9	6.82
June	0.06	92.0	55.3	7.80
July	0.01	97.3	59.3	8.68
August	0.02	95.1	58.0	7.75
September	0.19	90.5	54.9	5.70
October	0.48	80.7	48.8	4.03
November	1.10	67.2	40.3	2.10
December	1.78	56.5	35.7	1.55
Annual Total/Average	10.69	77.3	47.1	57.0

3.4. Service Area Population

CWC Section 10631 (a)

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.

Newman has historically experienced steady population growth and future projections anticipate further growth. The persistent increase in population is primarily a reflection of the regional growth pressures that are affecting the Central Valley as people living in more expensive regions look for affordable housing in the Valley. Anticipating increased demand from population growth and new enterprise are important aspects of the City’s UWMP. The City’s UWMP anticipates the effects of increased demand on water resources arising from sustained population growth.

The 2010 U.S. Census Bureau population estimate for the City of Newman was 10,224, up from 7,093 at the 2000 US Census, and up from 4,151 at the 1990 Census. The average annual growth rate since 1990 has been approximately 4.6 percent.

The California Department of Finance (DOF) estimates the 2015 population of Newman to be 10,753. According to StanCOG’s “2040 Regional Demographic Forecast,” Newman’s population is expected to grow at a 2.2 percent annual average growth rate through 2040. Table 3-3 (Standard Table 3-1) contains the projected population for the next twenty-five years, in 5-year increments, assuming a 2.2 percent annual average growth rate.

Table 3-3 Population - Current and Projected (Standard Table 3-1)						
Population Served	2015	2020	2025	2030	2035	2040
	10,753	11,989	13,367	14,904	16,617	18,527

CHAPTER 4 SYSTEM WATER USE

4.1. Introduction

This chapter provides a description and quantifies the City’s current water use and water use projections through the year 2035. The data provided in this section allows the City to accurately analyze the use of the water resources and conduct good resource planning. The future demand estimates allows the City to manage the water supply and appropriately plan their infrastructure investments. The terms “water use” and “water demand” will be used interchangeably.

4.2. Recycled versus Potable and Raw Water Demand

The City’s water supply is exclusively groundwater. Recycled water is used at the City’s WWTP reclamation areas to grow pasture. Tables 4-1, 4-3, and 4-4 contain the current and project raw water demands.

4.3. Water Use by Sector

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).

This 2015 UWMP includes past, current, and projected water use in five-year increments. The City will determine the reliability of their projected water supply based upon that information. This 2015 UWMP also identifies the water use by sector. The City breaks down the metered water deliveries into single

family residential, multi-family residential, commercial, industrial and landscape irrigation. The institutional/governmental water use is included in the commercial category. Tables 4-1 and 4-2 contain the actual and projected water demands respectively.

Table 4-1 Retail: Demands for Potable and Raw Water – Actual (Standard Table 4-1)			
Use Type	2015 Actual		
	Additional Description	Level of Treatment When Delivered	Volume (MG)
Single Family	3,089 Connections	Drinking Water	364
Multi-Family	67 Connections	Drinking Water	25
Commercial	123 Connections	Drinking Water	71
Industrial	22 Connections	Drinking Water	93
Landscape	42 acres of parks	Drinking Water	44
Losses	Un accounted Water	Drinking Water	22
TOTAL			619

Table 4-2 lists the projected number of connections by user type. The number of connections where projected using a 2.2 percent growth rate consistent with the population growth.

Table 4-2 Projected Number of connections by user type						
Use Type	2015	2020	2025	2030	2035	2040
Single Family	3,089	3,444	3,840	4,281	4,773	5,322
Multi-Family	67	75	84	94	105	117
Commercial	123	137	153	171	191	213
Industrial	22	25	28	31	35	39
Landscape	17	17	20	20	20	20
Total	3,318	3,698	4,125	4,597	5,124	5,711

Table 4-3 lists the projected water demands through years 2040. The projected water demands were obtained by multiplying the number of projected connections by the user's average annual consumption. Landscape areas (i.e. parks) assume 42 acres of parks currently existing and an ultimate area of 51 acres in 2030 as listed in the General Plan. Landscape water demands were calculated using 80 percent of the total park area and assuming a 4 acre-ft per acre per year.

Losses in the distribution system are hard to predict. On one hand losses will increase as the distribution system deteriorates over time and residential water fixtures age. However, the City is planning an Automated Meter Read project and is seeking financing to address leaks in the system. Therefore, the volume of unaccounted water (losses) is assumed to remain constant through year 2040.

Table 4-3 Retail: Demands for Potable and Raw Water - Projected (Standard Table 4-2)

Use Type	Additional Description	Projected Water Use				
		2020	2025	2030	2035	2040
Single Family		406	452	504	562	627
Multi-Family		28	32	35	39	44
Commercial		79	88	98	110	122
Industrial		105	118	131	147	164
Landscape		44	44	53	53	53
Losses		22	22	22	22	22
TOTAL		684	756	844	934	1,033
NOTES:						

Table 4-4 lists provides a summary of the City’s potable water demand projections. Note that recycled water demands are

Table 4-4 Retail: Total Water Demands (Standard Table 4-3)

	2015	2020	2025	2030	2035	2040
Potable and Raw Water <i>From Standard Tables 4-1 and 4-2</i>	619	684	756	844	934	1,033
Recycled Water Demand <i>From Standard Table 6-4</i>	403	449	501	558	622	694
TOTAL WATER DEMAND	1,021	1,133	1,257	1,402	1,557	1,727

4.4. Distribution System Losses

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

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 (e)(3)

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

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

Water distribution system losses is a crucial part of water demand management. Distribution system loss is the volume of water that is produced and distributed but not sold or metered to customers. Leakage is usually the largest component of distribution loss. In addition to leakage, the following are other sources of water loss:

- ❖ Slow meters
- ❖ Theft
- ❖ Fire Protection
- ❖ Unmetered construction water used for flushing pipelines and dust control
- ❖ Unmetered water used for flushing dead ends within the system to maintain water quality
- ❖ Irrigation of parks and landscape districts which are not metered

Figure 4-1 shows a comparison of metered water vs produced water since 2005.

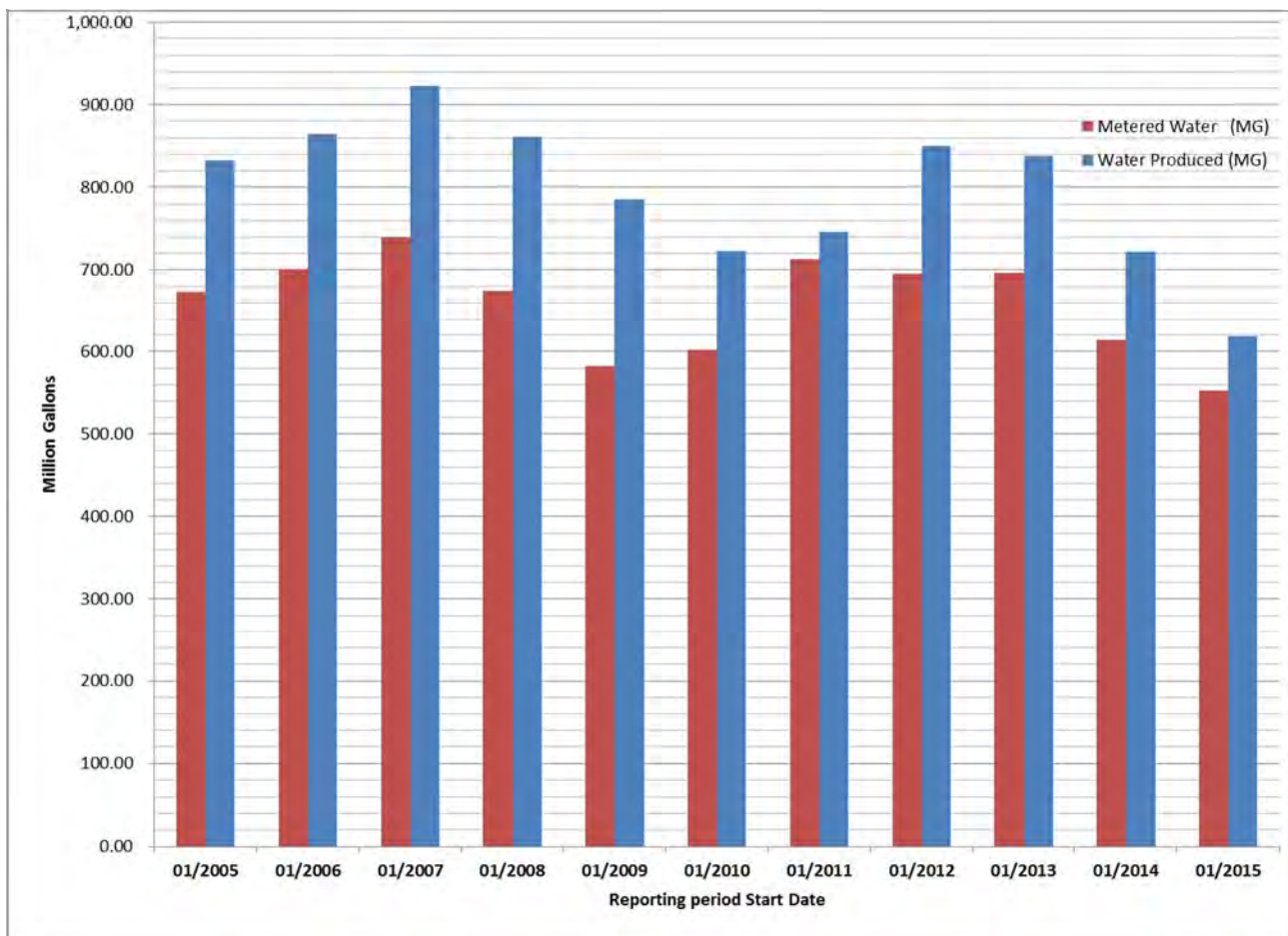


Figure 4-1 Water Production vs Metered Water

Table 4-5 contains the 12 month water loss audit reporting since 2005.

Table 4-5 12 Month Water Loss Audit Reporting (Standard Table 4-4)	
Reporting Period Start Date (mm/yyyy)	Volume of Water Loss (MG)
01/2005	159
01/2006	164
01/2007	183
01/2008	186
01/2009	203
01/2010	121
01/2011	34
01/2012	155
01/2013	150
01/2014	108
01/2015	66

The unaccounted for water averaged 16.5 percent of the total produced water since 2005. Most of the volume of unaccounted water goes to the irrigation of 17 City parks with varying sizes and landscape districts (i.e. green belts) surrounding new subdivisions. As shown in Table 4-1, the estimated volume of water applied to parks and landscape areas in 2015 was 44 MG. The City is installing water meters in all the remaining unmetered connections.

4.5. Future Water Savings

CWC 10631 (e)(4)

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

(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 water use projections are calculated using 2015 consumption data as the baseline. The 2015 consumption is considered include a lot of the water conservation measures that the City implemented due to the drought conditions. Additional water savings will be realized in the future by reducing leaks in

the system and replacing old water fixtures. However, those future water savings have not been included in water use projections. The City recently adopted a water conservation ordinance that amends the City’s municipal code adding a section on water conservation. It is still unclear how much savings the new ordinance will deliver in future years.

4.6. Water Use for Lower Income Households

CWC 10631.1(a)

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

California Health and Safety Code 50079.5 (a)

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

Urban water suppliers are required to identify water demand required for lower income housing in its water use projections. Newman’s share of regional housing needs originates with the California Department of Housing and Community Development (HCD). HCD first estimates a statewide need for housing, which is broken down into regions, each of which then has an assigned share of estimated housing needs. The Stanislaus County Council of Governments (StanCOG) is the local agency mandated by California Government Code §65554(a) to distribute the “Fair Share Allocation” of the regional housing need to each jurisdiction in Stanislaus County. The “Fair Share Allocation” of housing is a specific number of residential units, in different price ranges, assigned to each local jurisdiction including Newman. The City of Newman 2016 Housing Element estimates that approximately 39.3 percent of the total housing needs are for low income households. The needs allocation is further classified as low income, very low income and extremely low income. The extremely low income families require rental assistance and these units are assumed to be multi-family residential (MFR) units. The low income and very low income are assumed to be single-family residential (SFR) units. Based on the projected low income housing residential unit needs, Table 4-6 lists the projected number of housing units through 2040.

Table 4-6 Projected Number of additional low income housing units							
Use Type	Income ⁽¹⁾	StanCOG Allocation	2015-20	2020-25	2025-30	2030-35	2035-40
Extremely Low Income	<30%	11.0%	39	44	49	54	60
Very Low Income	30%-50%	12.9%	46	51	57	63	71

Table 4-6 Projected Number of additional low income housing units							
Use Type	Income ⁽¹⁾	StanCOG Allocation	2015-20	2020-25	2025-30	2030-35	2035-40
Low Income	50%-80%	15.3%	54	61	67	75	84
Total		39.2%	139	156	173	192	215
⁽¹⁾ : As a percentage of the State's Median Household Income							

The estimated volume of water needed to meet the new lower income housing units are shown in Table 4-7.

Table 4-7 Projected Water Use needed for additional low income housing units					
Use Type	2015-20	2020-25	2025-30	2030-35	2035-40
Extremely Low Income	14.6	16.5	18.4	20.3	22.5
Very Low Income	5.4	6.0	6.7	7.4	8.4
Low Income	6.4	7.2	7.9	8.8	9.9
Total	26.4	29.7	33.0	36.5	40.8

The projected water demands for lower income housing are included in the projections of water demands shown in Tables 4-3 and 4-4. Demand for existing lower income housing is being met and is included in the volumes shown in Tables 4-3 and 4-4.

Table 4-8 Inclusion in Water Use Projections (Standard Table 4-5)	
Are Future Water Savings Included in Projections?	No
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc... utilized in demand projections are found.	
Are Lower Income Residential Demands Included In Projections?	Yes

4.7. Climate Change

DWR Guidelines recommend that the 2015 UWMP include a discussion of potential climate change impacts on projected demand. The City of Newman is part of the Westside San Joaquin Integrated Regional Water Management Plan. Appendix E contains the Westside San Joaquin IRWM Climate Change Vulnerability Assessment.

There is mounting scientific evidence that global climate conditions are changing and will continue to change as a result of the continued build-up of greenhouse gases (GHGs) in the Earth's atmosphere. Changes in climate can affect municipal water supplies through modifications in the timing, amount, and form of precipitation, as well as water demands and the quality of surface runoff. These changes can affect all elements of water supply systems, from watersheds to reservoirs, conveyance systems, and treatment plants.

Indications of climate change have been observed over the last several decades throughout California. Statewide average temperatures have increased by about 1.7°F from 1895 to 2011, with the greatest

warming in the Sierra Nevada. Although the State’s weather has followed the expected pattern of a largely Mediterranean climate throughout the past century, no consistent trend in the overall amount of precipitation has been detected, except that a larger proportion of total precipitation is falling as rain instead of snow.

The correlation between temperature and water demand is well documented and understood. The City’s the largest percentage of the water demand is driven by outdoor irrigation. Higher temperatures will increase evapotranspiration rates and increase demands. Higher temperatures will also extend the duration of the outdoor landscaping growing season increasing the maximum day demands on the spring and fall seasons.

It is evident that climate change adds new uncertainties to the challenges of planning. Changes in weather could significantly affect water supply planning. Since climatic pressures could potentially affect supply reliability, continual attention to this issue will be necessary in the future.

CHAPTER 5 BASELINES AND TARGETS

5.1. Introduction

With the adoption of the Water Conservation Act of 2009, also known as the SB X7-7, (see Appendix B), the State is required to set a goal of reducing urban water use by 20 percent by the year 2020. Each retail urban water supplier must determine baseline water use during their baseline period and also target water use for the years 2015 and 2020 in order to help the State achieve the 20 percent reduction.

In the 2015 UWMP, water agencies must demonstrate compliance with their established water use target for the year 2015. This also demonstrates whether or not the agency is currently on track to achieve its 2020 target. Compliance is verified by DWR’s review of the SB X7-7 Verification Form included in Appendix F of this 2015 UWMP.

5.2. Updating Calculations from 2010 UWMP

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.

This 2015 UWMP is the first document that contains calculations about water use targets and population estimates.

5.2.1. Target Method

CWC 10608.20 (b)

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

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

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

(A) For indoor residential water use, 55 gallons per capita daily water use as a

provisional standard. Upon completion of the department's 2016 report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the Legislature by statute.

(B) For landscape irrigated through dedicated or residential meters or connections, water efficiency equivalent to the standards of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7 (commencing with Section 490) of Division 2 of Title 23 of the California Code of Regulations, as in effect the later of the year of the landscape's installation or 1992. An urban retail water supplier using the approach specified in this subparagraph shall use satellite imagery, site visits, or other best available technology to develop an accurate estimate of landscaped areas.

(C) For commercial, industrial, and institutional uses, a 10-percent reduction in water use from the baseline commercial, industrial, and institutional water use by 2020.

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

(4) A method that shall be identified and developed by the department, through a public process, and reported to the Legislature no later than December 31, 2010. The method developed by the department shall identify per capita targets that cumulatively result in a statewide 20-percent reduction in urban daily per capita water use by December 31, 2020. In developing urban daily per capita water use targets, the department shall do all of the following:

(A) Consider climatic differences within the state.

(B) Consider population density differences within the state.

(C) Provide flexibility to communities and regions in meeting the targets.

(D) Consider different levels of per capita water use according to plant water needs in different regions.

(E) Consider different levels of commercial, industrial, and institutional water use in different regions of the state.

(F) Avoid placing an undue hardship on communities that have implemented conservation measures or taken actions to keep per capita water use low.

Target Method 1 has been selected by the City as the preferred compliance method to determine water use targets. Target Method 1 is calculated as a 20% reduction of the baseline daily water use.

5.2.2. SBX7-7 Verification Form

To satisfy the provisions of SB X7-7, the City must establish a per capita water use target for the year 2020 as well as an interim target. DWR has provided guidelines for determining these targets in its Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use and also in the 2015 UWMP Guidebook. The City's baseline water use is based on the City's historic water use and is determined by procedures identified in the following sections.

All retail agencies, whether updating their baselines and targets from 2010, or calculating these for the first time in 2015 UWMPs, are required to submit the standardized tables in the SB X7-7 Verification Form with their 2015 UWMPs. These standardized tables were not available in 2010 and are required to demonstrate compliance with the Water Conservation Act of 2009.

The tables in the SB X7-7 Verification Form are distinguished from the other standardized tables in this 2015 UWMP by their name, which will state "SB X7-7", followed by the table number.

5.3. Baseline Periods

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.*
- (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).*

The City is responsible for determining both a 10 or 15-year baseline and a 5-year baseline in accordance with DWR's guidelines.

5.3.1. Determination of the 10-15 Year Baseline Period (Baseline)

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 City did not meet at least 10% of its 2008 measured retail water demand through recycled water. Therefore, the baseline must be calculated over a 10-year period. This 2015 UWMP uses the period between January 1st, 2001 and December 31st, 2010 and the baseline period.

5.3.2. Determination of the 5 Year Baseline (Target Confirmation)

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 UWMPA requires urban water suppliers to calculate water use, in GPCD, for a 5-year baseline period. The 5-year baseline period is used to confirm that the selected 2020 target meets the minimum water use reduction requirements in accordance with CWC 10608.22. The selected 5-year Baseline Period for the 2015 UWMP is January 1st, 2006 through December 31st, 2010.

5.4. Service Area Population

CWC 10608.20

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

(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.

To obtain an accurate estimate of the annual per capita consumption, the 2015 UWMP must estimate population of the area actually served. The population estimates must include each baseline year in both of the baseline periods and for the 2015 compliance year. The methods available for estimating the City's population are provided in Methodology 2 of the Methodologies document. The following is a description of the methodology used in this 2015 UWMP to estimate the City's population.

5.4.1. Population Methodology

Agencies whose service area boundaries correspond by 95 percent or more with the boundaries of a city during the baseline period and the compliance year 2015 will be able to obtain population estimates from tables prepared by the Department of Finance (DOF).

The City’s service area boundaries correspond with the boundaries of the City during the baseline and compliance years. Department of Finance population tables have been used to estimate the service area population. The service area population for each of the baseline years is shown in Table 5-1.

Table 5-1 Service Area Population (SB X7-7 Table 3)		
Year		Population
10 to 15 Year Baseline Population		
Year 1	2001	7,443
Year 2	2002	7,445
Year 3	2003	7,602
Year 4	2004	8,099
Year 5	2005	8,798
Year 6	2006	9,704
Year 7	2007	9,799
Year 8	2008	10,029
Year 9	2009	10,183
Year 10	2010	10,208
5 Year Baseline Population		
Year 1	2006	9,704
Year 2	2007	9,799
Year 3	2008	10,029
Year 4	2009	10,183
Year 5	2010	10,208
2015 Compliance Year Population		
2015		10,753

5.5. Gross Water Use

CWC 10608.12 (g)

“Gross Water Use” means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:

- (1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier*
- (2) The net volume of water that the urban retail water supplier places into long term storage*
- (3) The volume of water the urban retail water supplier conveys for use by another urban water*

supplier

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

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

Gross water use is a measure of water that enters the City’s distribution system over a 12-month period with certain allowable exclusions. These exclusions are:

- Recycled water delivered within the service area
- Indirect recycled water
- Water placed into long term storage
- Water conveyed to another urban supplier
- Water delivered for agricultural use
- Process water

Gross water use is accurately measured at the point that water enters the distribution system. Measuring at this point ensures that all the water, including losses and other non-revenue water (i.e., firefighting, line flushing, etc...) is accounted for. Gross water use is calculated for each baseline year and the 2015 Compliance Year. Gross Water Use is shown in Table 5-2.

Table 5-2 Annual Gross Water Use (SB X7-7 Table 4)								
	Baseline Year	Volume into Distribution System (MG)	Deductions					Annual Gross Water Use
			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	644	0	0	0	0	0	644
Year 2	2002	664	0	0	0	0	0	664
Year 3	2003	698	0	0	0	0	0	698
Year 4	2004	755	0	0	0	0	0	755
Year 5	2005	833	0	0	0	0	0	833
Year 6	2006	865	0	0	0	0	0	865
Year 7	2007	922	0	0	0	0	0	922
Year 8	2008	861	0	0	0	0	0	861
Year 9	2009	786	0	0	0	0	0	786
Year 10	2010	723	0	0	0	0	0	723
10 - year baseline average gross water use								775
5 Year Baseline - Gross Water Use								
Year 1	2006	865	0	0	0	0	0	865
Year 2	2007	922	0	0	0	0	0	922
Year 3	2008	861	0	0	0	0	0	861
Year 4	2009	786	0	0	0	0	0	786
Year 5	2010	723	0	0	0	0	0	723
5-year baseline average gross water use								831
2015 Compliance Year - Gross Water Use								
2015		619	0	0	0	0	0	619

5.6. Baseline Daily per Capita Water Use

The final step in baseline calculations is to determine the water used per person per day GPCD in each of the baseline years. This is done for each baseline year by dividing the gross water use by the service area population. Each baseline year is shown in Table 5-3.

Table 5-3 Gallons Per Capita Per Day GPCD (SB X7-7 Table 5)				
Baseline Year		Service Area Population	Annual Gross Water Use (MG)	Daily Per Capita Water Use GPCD
10 to 15 Year Baseline				
Year 1	2001	7,443	644	237
Year 2	2002	7,445	664	244
Year 3	2003	7,602	698	252
Year 4	2004	8,099	755	255
Year 5	2005	8,798	833	259
Year 6	2006	9,704	865	244
Year 7	2007	9,799	922	258
Year 8	2008	10,029	861	235
Year 9	2009	10,183	786	211
Year 10	2010	10,208	723	194
10 Year Average Baseline				239
5 Year Baseline				
Year 1	2006	9,704	865	244
Year 2	2007	9,799	922	258
Year 3	2008	10,029	861	235
Year 4	2009	10,183	786	211
Year 5	2010	10,208	723	194
5 Year Average Baseline				229
2015 Compliance Year				
2015		10,753	619	158

Table 5-4 provides a summary of the calculated baselines and 2015 consumption based on the data provides in Table 5-3.

Table 5-4 Summary of baselines and current consumption (SB X7-7 Table 6)	
10 Year Baseline GPCD	239
5 Year Baseline GPCD	229
2015 Compliance Year GPCD	158
NOTES:	

5.7. 2015 and 2020 Targets

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...

The UWMPA requires urban water suppliers to determine the 2020 Urban Water Use Target. Four target methods have been developed, and identify the specific steps water suppliers shall follow to establish these targets. These methods are as follows:

- ❖ Target Method 1: 80% of 10- to 15- Year Baseline
- ❖ Target Method 2: Performance Standards
- ❖ Target Method 3: 95% of Hydrologic Regional Target
- ❖ Target Method 4: Savings by Water Sector

Once the 2015 plan is submitted, the Target Method may not be changed in any amendments to the 2015 Plan or in the 2020 Plan.

5.7.1. Target Method

The City's 2015 UWMP will be utilizing Target Method 1. The 2020 Urban Water Use Target is calculated as 80 percent of the base daily per capita water use. This 20 percent reduction of the 10 Year Baseline was determined to be 119 GPCD as shown Table 5-4.

Table 5-5 Target Method 1 20% Reduction (SB X7-7 Table 7-A)	
10 Year Baseline	2020 Target GPCD
239	191

5.7.2. Target Confirmation – Use of 5 Year Baseline

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 2020 water use target must reduce the City's 2020 water use by a minimum of 5% from the 5-year baseline. Table 5-5 shows that the Confirmed 2020 water use target is below that minimum at 191 GPCD.

Table 5-6 Confirm Minimum Reduction for 2020 Target (SB X7-7 Table 7-F)			
5 Year Baseline GPCD	Maximum 2020 Target*	Calculated 2020 Target	Confirmed 2020 Target
229	217	191	191
* Maximum 2020 Target is 95% of the 5 Year Baseline GPCD			

5.7.3. 2015 Interim Urban Water Use Target

The 2015 Interim Target is the value halfway between the 10-year Baseline and the Confirmed 2020 Target. The City's 2015 Interim Target of 215 GPCD is shown in Table 5-6 below.

Table 5-7 2015 Interim Target GPCD (SB X7-7 Table 8)		
Confirmed 2020 Target	10 Year Baseline GPCD	2015 Interim Target GPCD
191	239	215
NOTES:		

5.7.4. Baselines and Targets Summary

A summary of baselines and targets is shown in Table 5-7 below.

Table 5-8 Baselines and Targets Summary (Standard Table 5-1)					
Baseline Period	Start Year	End Year	Average Baseline *	2015 Interim Target *	Confirmed 2020 Target*
10 year	2001	2010	239	215	191
5 Year	2006	2010	229		
*All values are in Gallons per Capita per Day GPCD					

5.8. 2015 Compliance Daily per Capita Water Use

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.

Water suppliers must calculate their actual 2015 water use for the calendar year to determine whether or not they have met their per capita 2015 and assess their progress towards meeting their 2020 target water use.

5.8.1. Meeting the 2015 Target

In 2015 the City’s daily per capita water use was determined to be 158 GPCD, which is less than the 2015 Interim Target of 215 GPCD and Confirmed 2020 Target of 191 GPCD. Therefore, the City has met their 2015 per capita water use and is already on track to meet the Confirmed 2020 Target. This confirmation can be seen in Table 5-7 in the following section.

5.8.2. Adjustments to Gross Water Use

CWC 10608.24 (d)

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

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

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

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.

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.

Methodology Document, Methodology 4

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

For this 2015 UWMP the City of Newman has achieved their targeted reduction. As shown in Table 5-6 in Section 5.7.4, the City is already in compliance with their 2020 Confirmed Target of 191 GPCD.

Table 5-9 2015 Compliance (SB X7-7 Table 9 & Standard Table 5-2)

Actual 2015	2015 Interim Target	Optional Adjustments to 2015					2015 GPCD	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events	Economic Adjustment	Weather Normalization	TOTAL Adjustments	Adjusted 2015		
158	215	0	0	0	0	158	158	Yes

**All values are in Gallons per Capita per Day GPCD*

CHAPTER 6 SYSTEM SUPPLIES

6.1. Purchased Water

The City of Newman does not purchase water from any other urban water suppliers or other entities.

6.2. Groundwater

The City obtains its entire water supply from the underlying groundwater basin. There are three active domestic water supply wells and one standby well in service. The well capacities range from 1000 to 2,500 gallons per minute (gpm). With all of the wells operating the total capacity is 6,800 gpm, which exceeds the current maximum day demand.

The following is a description of each of the groundwater wells:

Well No. 1R (Active)

Well No. 1R was drilled in 1994, using the reverse rotary construction method, to a depth of 645 feet. Sixteen inch diameter well casing was completed at a depth of 635 feet and protrudes from the surface approximately 18 inches. The 16-inch diameter well casing is screened between 340 and 620 feet below the ground surface. Well No. 1R was constructed with a cement annular seal that extends to a depth of 50 feet and the well is gravel packed. The well is equipped with a 150-hp oil-lubricated, variable frequency drive deep well turbine pump with an actual capacity of approximately 1800 gpm. Well No. 1R is equipped with an emergency generator.

Well No. 5 (Standby)

Well No. 5 was drilled in 1969, using the rotary construction method, to a depth of 465 feet. Fourteen inch diameter well casing was completed at a depth of 450 feet and protrudes from the surface approximately 24 inches. The 16-inch diameter well casing is screened between 162 and 450 feet below the ground surface. Well No. 5 was constructed with a cement annular seal that extends to a depth of 50 feet and the well is gravel packed. The well is equipped with a 60-hp oil-lubricated, deep well turbine pump with an actual capacity of approximately 1000 gpm.

Well No. 6 (Active)

Well No. 6 was drilled in 1990, using the reverse rotary construction method, to a depth of 510 feet. Sixteen inch diameter well casing was completed at a depth of 500 feet and protrudes from the surface approximately 18 inches. The 16-inch diameter well casing is screened between 350 and 500 feet below the ground surface. Well No. 06 was constructed with a cement annular seal that extends to a depth of 50 feet and the well is gravel packed. The well is equipped with a 100-hp water-lubricated, variable frequency drive deep well turbine pump with an actual capacity of approximately 1500 gpm. Well No. 6 is equipped with an emergency generator.

Well No. 8 (Active)

Well No. 8 was drilled in 2004, using the reverse rotary construction method, to a depth of 498 feet. Sixteen inch diameter well casing was completed at a depth of 485 feet and protrudes from the surface approximately 18 inches. The 16-inch diameter well casing is screened between 180 and 480 feet below the ground surface. Well No. 08 was constructed with a cement annular seal that extends to a depth of 100 feet and the well is gravel packed. The well is equipped with a 300-hp water-lubricated, variable frequency drive deep well turbine pump with an actual capacity of approximately 2500 gpm. Well No. 8 is equipped with an emergency generator.

Currently, Well No. 8 has a capacity of approximately 2,500 gpm and is the largest producing well. With Well No. 8 out of service, the system capacity would be reduced to 4,300 gpm (6.2 MGD). The City's MDD is based on 2012 data and is approximately 3,864 gpm. The PHD (calculated as 1.5 times the MDD) is 5,796 gpm. If Well No. 8 were out of service during the maximum day demand period, the PHD would exceed the total production and it is possible that the system would have difficulty keeping up with pressure if demands were not reduced.

The water supply meets the primary maximum contaminant levels associated with health and safety. Nitrate and chromium 6 are the primary concerns. Three of the current active wells have had samples with nitrate concentrations above 50 percent of the MCL at which point the SWRCB-DDW requires a water utility to monitor nitrate quarterly.

Chromium 6 is also present in all of the City's groundwater wells. Well No. 5 has chromium 6 concentration that are almost double of the MCL and it was placed in standby. The other three wells have chromium 6 concentrations that have either exceeded the MCL in the past or just below the MCL. Chromium 6 is currently the largest threat to the City's water supply.

Salt concentrations measured as electrical conductivity (EC) and total dissolved solids (TDS) are also high in the City's water supply. All the current active wells are above the SWRCB-DDW recommended concentration for both TDS and EC, and in at least one well (Well 1R), samples have regularly been above the upper contaminant level. Source water salinity is further increased through its domestic, commercial and industrial usage hence causing the problems at the wastewater treatment facility.

Salinity in water can only be reduced through desalination treatment such as reverse osmosis (RO) or electrodialysis reversal (EDR), both of which result in major capital and annual operational costs. Currently the City does not have any programs in place that will address the elevated salinity concentration of water pumped from its domestic wells.

6.2.1. Basin Description

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.

Newman is located in the San Joaquin River Hydrologic Region (groundwater basin) and extracts its groundwater from the Delta-Mendota Subbasin. DWR Bulletin 118 – Update 2003, “California’s Groundwater” contains a detailed description of the Delta-Mendota Subbasin and its characteristics and conditions. A copy of this description is included in Appendix G.

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 has 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, dropping 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. Subbasin water levels have shown the ability to recover from periods of reduced rainfall and reduced surface water deliveries.

6.2.2. Groundwater Management

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:

A copy of any groundwater management plan adopted by the urban water supplier... or any other specific authorization for groundwater management.

...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 relies 100% on local groundwater for its water supplies. The City monitors the levels, quantities, and quality of its portable supply wells and makes all of the information available to the Community, agencies, and stakeholders, including the State of California. The City is within a high priority groundwater basin that is not currently monitored under the California Statewide Groundwater Elevation Monitoring (CASGEM) program. Currently, there are no indications that an effort to monitor the Delta Mendota groundwater subbasin under CASGEM has been started. In the future, if and when an effort to monitor the subbasins under CASGEM is initiated, the City would modify existing monitoring efforts to comply with the updated CASGEM monitoring efforts.

The City of Newman has not prepared a Groundwater Management Plan. However, the City works closely with the other local water suppliers to monitor and manage groundwater in the area. Newman and the Central California Irrigation District (“CCID”) jointly determined that, as of August 1992, the groundwater inflow into the Newman urban area could be increased from 2,500 AFA, as existed at the time, to at least 5,000 to 7,500 AFA with no adverse migration of poor quality groundwater into an expanded urban area. (Newman General Plan EIR, p[V-2] (October 20, 1992.)

6.2.3. Overdraft Conditions

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 2003 update to the DWR Bulletin 118 identifies groundwater overdraft as the condition of a groundwater basin or subbasin in which the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years, during which the water supply conditions approximate average conditions. Conditions of critical overdraft result from undesirable impacts which can include seawater intrusion, land subsidence, groundwater depletion, and/or chronic lowering of groundwater levels. All basins designated as high or medium priority and subject to critical conditions of overdraft are required to be managed under a groundwater sustainability plan or coordinated groundwater sustainability plans by January 31, 2020.

In Chapter 6 of Bulletin 118 the DWR’s does not identify the Delta Mendota as critically overdrafted subbasins. However, on August 19, 2015, the DWR presented a draft list to the California Water Commission which identified the Delta Mendota subbasin as a critically overdrafted groundwater subbasin. This list of critically overdraft basins was made final in January 2016.

As the City grows, further reliance on groundwater for the primary water supply could result in an overdraft of the subbasin. Further evaluation of the aquifer should be made to confirm long-term yields.

6.2.4. Historical Pumping

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) (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. The description and

analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

Table 6-1 below shows historic groundwater pumping over the last five years. It is apparent that the City's groundwater basins are a limited resource and are already subjected to overdraft. According to the City's Water Master Plan, it is a long-term goal to add surface water to its water supply.

Table 6-1 Groundwater Volume Pumped						
☐	Supplier does not pump groundwater. The supplier will not complete the table below.					
Groundwater Type	Location or Basin Name	2011	2012	2013	2014	2015
Alluvial Basin	Well 1R 1125 Fresno St.	1.3	8.9	0.8	0.3	0.6
Alluvial Basin	Well 5 876 N St.	84.2	177.0	104.2	95.4	88.5
Alluvial Basin	Well 6 1002 T St.	412.3	152.1	162.2	110.4	48.3
Alluvial Basin	Well 8 1051 Barrington Ave	248.3	512.5	571.0	515.6	481
TOTAL		746	851	838	722	619

With the addition of a surface water supply, groundwater pumping can be reduced over time allowing for enhanced groundwater recharge and conjunctive use opportunities.

6.2.5. Groundwater Banking

The City does not have any plans to practice groundwater banking.

6.3. Surface Water

The City of Newman does not currently use self-supplied surface water as part of its water supply. The City's water master plan recommends to incorporate surface water to meet further water supply demands. However, the cost of such conversion makes the project unfeasible at this time.

6.4. Stormwater

The City of Newman has acquired and is proposing to develop 103 acres to implement the Low Impact Development (LID) by receiving, treating and storing urban water runoff such as nuisance water from park/open spaces, parking areas and landscaped areas. The City is planning to develop 78 acres for water treatment, implementing LID applications such as vegetated swales, constructed wetlands, and bio-retention basins. The remaining 25 acres are planned to be used for the storage of the treated water, which can be used to irrigate city land, maximize groundwater recharge and implement water conservation by reusing the treated water. The LID project consists of five components, including; reduce discharge of sediment/pollutants; improve the quality of urban water runoff; re-use treated water for irrigation; provide an attractive and highly utilized recreational park for bicyclists and pedestrians; and implement the public outreach/education programs for LID and Water Conservation. The LID Project will allow the City to achieve a long-term water quality improvement as well as reuse water more efficiently.

The key benefits of the proposed LID project are summarized as follows:

- ❖ Reducing discharge of sediment and pollutants in untreated stormwater runoff and irrigation tale water into the San Joaquin River System, in turn improving the quality of water discharged;
- ❖ Reducing the amount of stormwater discharged into the San Joaquin River System;
- ❖ Reducing selenium and salinity loading in Newman Wasteway and San Joaquin River;
- ❖ Improving quality of municipal drainage discharge water;
- ❖ Regulating discharge into the Newman Wasteway;
- ❖ Preserving open space and improving flood protection;
- ❖ Reusing treated water for irrigation of City property or sale to other users; and
- ❖ Providing recreational enhancements for bike, pedestrian and other recreational uses.

6.5. Wastewater and Recycled Water

6.5.1. Recycled Water Coordination

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 unsupportable. 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.

6.5.2. Wastewater Collection, Treatment, and Disposal

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.

The City collects, treats, and recycles both municipal wastewater generated from a combination of residential, commercial, and industrial sources. Wastewater is collected throughout the City via a network of sanitary sewer collection pipelines. With the aid of 7 sewer lift stations, the influent is gravity fed to the wastewater treatment plant (WWTP) in the northeast part of the City.

Wastewater is collected and treated at the Wastewater Treatment and Disposal Facilities located on 800 acres of city land next to the San Joaquin River, one-mile northeast of town on Hills Ferry Road. The plant produces an undisinfected secondary effluent. The wastewater treatment plant has a permitted capacity of 1.69 MGD. Wastewater flows averaged 1.103 MGD during 2015.

The treatment process consists of a bar-screen, a Parshall flume/ultrasonic flow meter, two aerated lagoons in series and one oxidation pond. Aeration Lagoon #1 is 4 acres and it is equipped with diffused aeration. Air is supplied by nine 10hp blowers. Wastewater effluent from Aeration Lagoon No. 1 gravity flows into Aeration Lagoon #2. Aeration Lagoon No. 2 is 5 acres and is equipped with three 40hp and two 50hp floating surface aerators. Wastewater effluent from Aeration Lagoon No. 2 gravity flows into an oxidation pond. The oxidation Pond is 50 acre and is equipped with a recirculation system that pumps effluent flows back to Aeration Lagoon No. 2.

Effluent flow from the oxidation pond is pumped to irrigate the 60 acres of solid set sprinklers in the Terraces where pasture is grown for hay. Also from the oxidation pond effluent is transferred to storage reservoirs #1 and #2 totaling 73 acres. Treated wastewater is stored in the reservoirs during the non-irrigation season which generally is from November through April.

During the irrigation season, in addition to the 60 acres of Terraces where pasture is grown for hay, treated wastewater is reused for irrigation of City owned farmland. Currently nearly 200 acres is flood irrigated from the storage reservoirs. The City has purchased an additional 342 acres of adjacent farmland which is being developed for irrigation or being leased.

The total WWTP and effluent reclamation areas occupy a little over 800 acres with 600 acres of that being farmland for the reuse/reclamation component for both present and future use. The primary crop being grown is alfalfa. Alfalfa is grown for five years and then removed. When the alfalfa is removed, corn is grown as a summer crop and oats as a winter crop. Growing corn and oats is done for two years following the removal of alfalfa. After two years the reclamation areas are planted again with alfalfa. All tailwater runoff from the irrigation fields is recovered and reused making the WWTP a full reclamation facility with zero discharge.

Table 6-2 provides a total volume of wastewater collected within the service area in 2015.

Table 6-2 Wastewater Collected Within Service Area in 2015 (Standard Table 6-2)						
☐	There is no wastewater collection system. The supplier will not complete the table below.					
100%	Percentage of 2015 service area covered by wastewater collection system					
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 in 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 Newman	Metered	403	City of Newman	City of Newman	Yes	No
Total Wastewater Collected from Service Area in 2015:		403				

Table 6-3 Wastewater Treatment and Discharge Within Service Area in 2015 (Standard Table 6-3)										
☐	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 Newman	Reclamation Areas	Irrigation		Irrigation	No	Secondary Undisinfected	403	0	403	0
Total							403	0	403	0

6.5.3. Recycled Water System

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 disinfected tertiary water standards to allow it to be used as a component of its water supply. Most of the effluent from the City's WWTP is reused through the irrigation of approximately 200 acres of pastureland. Future expansion of the WWTP currently includes planned expansion of the effluent reuse area to approximately 400 acres according. Projected volumes are based on an annual growth rate of 2.2% 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

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...

Table 6-4 Current and Projected Recycled Water Direct Beneficial Uses Within Service Area (Standard Table 6-4)									
☐		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 Newman						
Name of Agency Operating the Recycled Water Distribution System:			City of Newman						
Supplemental Water Added in 2015			145.59						
Source of 2015 Supplemental Water			Irrigation Well						
Beneficial Use Type	General Description of 2015 Uses	Level of Treatment	2015	2020	2025	2030	2035	2040	
Agricultural irrigation	Irrigation	Secondary, Undisinfected	403	449	501	558	622	694	
Landscape irrigation (excludes golf courses)									
Golf course irrigation									
Commercial use									
Industrial use									
Geothermal and other energy production									
Seawater intrusion barrier									
Recreational impoundment									
Wetlands or wildlife habitat									
Groundwater recharge (IPR)									
Surface water augmentation (IPR)									
Direct potable reuse									
Other	-								

6.5.4.1. Planned Versus Actual Use of Recycled Water

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.

As described in Section 6.5.1., direct use of recycled water in the City is technically feasible yet economically unsupportable. 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.

While the current method of reuse reduces the demand on the groundwater and provides basin recharge, there are more direct ways to obtain water supply benefit through recycling of wastewater. These 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. If the use of surface water becomes financially feasible, the potential for exchange of recycled water for a surface water supply will be investigated.

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. The potential for increasing recycled industrial wastewater has not been studied, and no estimates of its potential water supply benefit are available. A comparison of past and present uses and their associated volumes are presented in Table 6-5.

Table 6-5 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual (Standard Table 6-5)			
□		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		N/A	403
Landscape irrigation (excludes golf courses)			
Golf course irrigation			

Table 6-5 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual (Standard Table 6-5)

□		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
Commercial use			
Industrial use			
Geothermal and other energy production			
Seawater intrusion barrier			
Recreational impoundment			
Wetlands or wildlife habitat			
Groundwater recharge (IPR)			
Surface water augmentation (IPR)			
Direct potable reuse			
Other	Required for this use		

6.5.5. Actions to Encourage and Optimize Future Recycled Water Use

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.

The City is not currently planning to change its recycled water use in the near term. Given the current usage of treated wastewater for agricultural purposes (which lessens pumping on the same subbasin from which the City extracts water to meet demands) there is no hydrological benefits to increasing such recycling use. The City will expand the reclamation areas as needed to be able to dispose of 100 percent of the treated effluent.

The City's Public Works Department will encourage industrial and commercial customers to implement recycled water use programs within their sites. 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. Actions to encourage recycled water use are summarized in Table 6-6.

Table 6-6 Methods to Expand Future Recycled Water Use (Standard Table 6-6)			
☐	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
Add more Reclamation Area		2020	291 by year 2040

6.6. Desalinated Water Opportunities

CWC 10631(i)

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

Salinity measured as total dissolved solids (TDS), of the groundwater in many of the aquifer zones beneath and near the City exceeds the Secondary Upper Limit of the Domestic Water Quality Standards. The City's 2008 Master Plan for Water Distribution System (Water Master Plan) assumes that treated surface water will be a source of water in the future. The Water Master Plan recommends treated surface water 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 desalination of groundwater and has less environmental consequences. However, there continue to be advancements in reverse osmosis (RO) membrane technology that continue to reduce the cost of RO treatment. Depending upon the success of procurement of a surface water supply, desalination of the groundwater may become an attractive alternative to meet future water needs provided disposal of the brine can be accomplished economically and without significant adverse environmental impact. Without marked changes in the Subbasin water supply and demand balance, the groundwater supply should be sufficient to meet the City needs through 2040.

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

6.7. Exchanges or Transfers

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.

6.8. Future Water Projects

CWC 10631(h)

...The urban water supplier shall include a detailed description of expected future projects and programs... that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

The City of Newman currently relies solely on groundwater for its water supply. The City's water master plan evaluates the feasibility of conjunctive use of groundwater and surface water. The high initial capital costs to add surface water make the project unfeasible at this time. The City intends to meet its projected water demands through the continued use of groundwater alone. In addition to the need for future distribution pipelines, the has identified the need for new wells to meet projected demands and two new 2.0 million gallon storage tanks with booster pumps to meet operational and fire storage requirements.

Significant water use reductions that have occurred the last two years and 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 is preparing a Planning Application to the Drinking Water State Revolving Fund to construct a new well, a water storage tank and a booster pump station. Table 6-7 list the proposed water supply projects.

Table 6-7 Expected Future Water Supply Projects or Programs (Standard Table 6-7)						
☐	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.					
	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
	Y/N	If, Yes provide Agency Name				
New Well, Water Storage and Booster Pump Station	No			2018	Average Year	893

6.9. Summary of Existing and Planned Sources

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.

Water pumped from the City's underlying aquifer has historically been the only source of potable water supply. The well network has been expanded over the years with a total of eight wells having been drilled and placed into service, although not all of the wells have been in service simultaneously. Water supply for the City is supplied from three active wells, Wells 1R, 6, and 8, and one standby well, Well 5. The four wells have a design capacity of 9.8 MGD.

The existing distribution system consists of approximately 28 miles of asbestos-cement, steel and PVC mains. Pipeline diameters range from ¾ to 12 inches. The majority of pipe material is PVC. The City facilities also include a 100,000 gallon elevated bolted steel storage tank located within the Well 1R site at the Public Works Building. The tank is relatively small and stabilizes system pressure and provides some emergency storage, but is not large enough to provide significant storage during supply outages.

According to their Water Master Plan, the City may need to make major change in their future water supply by eventually converting from groundwater to surface water. However, conversion to surface

water will not occur for some time, and interim capacity will be necessary in the form of wells. The number of wells will vary depending on the size of the surface water treatment plant capacity and timing of the project, but the City estimates that these wells will need to produce a minimum of 1,700 gallons per minute (gpm).

The City lies within the Central California Irrigation District (CCID) boundaries. CCID has substantial water rights and access to surface water within the Delta Mendota Canal and the California Aqueduct, however, accessing water from the Aqueduct will require additional agreements involving the DWR. The City has approached CCID about the possibility of purchasing untreated surface water, which would then be treated at a City owned facility and used for municipal and industrial uses within the City. The high capital cost of adding surface water makes that project unfeasible at this time.

Table 6-8 Water Supplies — Actual (Standard Table 6-8)				
Water Supply	Additional Detail on Water Supply	2015		
		Actual Volume	Water Quality	Total Right or Safe Yield
Groundwater		619	Drinking water	3,889
Total		619		3,889

Table 6-9 Water Supplies — Projected (Standard Table 6-9)

Water Supply	Additional Detail on Water Supply	Projected Water Supply									
		2020		2025		2030		2035		2040	
		Reasonably Available Volume	Total Right or Safe Yield	Reasonably Available Volume	Total Right or Safe Yield	Reasonably Available Volume	Total Right or Safe Yield	Reasonably Available Volume	Total Right or Safe Yield	Reasonably Available Volume	Total Right or Safe Yield
Groundwater		1,333	3,889	1,257	3,889	1,402	3,889	1,557	3,889	1,727	3,889
Total		1,333	3,889	1,257	3,889	1,402	3,889	1,557	3,889	1,727	3,889

6.10. Climate Change Impacts to Supply

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 Newman area is 10.24 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 varies directly with daily temperature maximums and the Newman region experiences on average over 100 days a year with maximum daily temperatures over 90 degrees.

The City overlies the Delta-Mendota groundwater subbasins within the San Joaquin Groundwater Basin. Much of the recharge on this basin occurs from the San Joaquin River and surface water in canals. Drought periods will reduce the availability of surface water and will limit the amount of recharge. The reduced recharge in combination with increased pumping will cause groundwater levels to decline. In addition to dropping groundwater levels, the Delta-Mendota Subbasin has high concentrations of total dissolved solids (TDS). Reduced streamflows in the River could allow for further migration of salinity in the groundwater basin. Additionally, climate change impacts may cause increased evapotranspiration and a longer growing season, further exacerbating groundwater overdraft and high salinity levels.

CHAPTER 7 WATER SUPPLY RELIABILITY ASSESSMENT

7.1. Introduction

The Urban Water Management Planning Act (UWMPA) requires that the Urban Water Management Plan (UWMP) address the reliability of the agency’s water supplies. This includes supplies that are vulnerable to seasonal or climatic variations. The UWMPA also requires that the UWMP include information on the quality of water supplies and how this affects management strategies and supply reliability. In addition, an analysis must be included to address supply availability in a single dry year and in multiple dry years. The relevant sections of the UWMPA are presented below.

7.2. Constraints on Water Sources

CWC 10631(c)(2)

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

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

There are a variety of factors that can impact water supply reliability. These factors include water quality, legal constraints, and climatic issues. A brief discussion on each of these factors is provided below.

7.2.1. Water Quality

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. One of the City wells has chromium 6 concentrations exceeding the maximum contaminant level (MCL) of 10 micrograms per liter and has been placed on standby status. Also, many of the balance of City wells are near the chromium 6 MCL. This may require exploring for new well locations where the chromium levels are below the MCL. There are other groundwater constituents such as nitrates and salinity that have the potential to reduce the desirability and affordability of using groundwater. The progressive degradation of local underlying groundwater may force the City into exploring surface water supply alternatives and/or groundwater wells further away from the City.

7.2.2. Climatic Changes

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 Newman 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 varies directly with daily temperature maximums and the Newman 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 climactic changes can be easily qualified, 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 reduced rainfall (drought) and reduced surface water deliveries. 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.

7.2.3. Legal Constraints

Legal factors, such as pumping limitations in adjudicated groundwater basins and surface water contracts, are capable of affecting the reliability of a water distribution system. As noted in Chapter 6, however, the Delta-Mendota Sub basin (the City's sole source of supply) is not an adjudicated groundwater basin. Therefore, adjudication-related legal limitations are unlikely to affect the amount of groundwater that the City can extract from this sub basin.

The Sustainable Groundwater Management Act, signed by the Governor in September 2014 provides for regulation of critically over-drafted groundwater basins by Groundwater Sustainability Agencies (GSA's) or by the State if a local GSA is not established. The City is planning to join the San Joaquin River Exchange Contractors Water Authority in their Groundwater Sustainability Agency (GSA). It is unclear what, if any, effect the regulations under this Act will have in the City's water supply. Such an impact is very likely to be a "regulatory shortage" more than a "water molecule shortage," but the effects would be the same.

Similarly, in response to the current multi-year drought the Governor by Executive Order caused California water suppliers to reduce water consumption by 25%. Further regulatory enforcement of this Executive Order may prove to be another example of a regulatory shortage that is legal in nature.

7.3. Reliability by Type of Year

CWC Section 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.*

Based on the resiliency of the groundwater basin and as long as potable groundwater can be extracted by the City wells, which are individual sources in certain respects, 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's 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.

Table 7-1 Basis of Water Year Data (Standard Table 7-1)

Year Type	Base Year	Available Supplies if Year Type Repeats	
		Volume Available	% of Average Supply
Average Year	2015		100%
Single-Dry Year	2015		100%
Multiple-Dry Years 1st Year	2015		100%
Multiple-Dry Years 2nd Year	2015		100%
Multiple-Dry Years 3rd Year	2015		100%

7.4. Supply and Demand Assessment

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.

7.4.1. Normal Year

The reliability of the City’s water supply and lack of vulnerability to seasonal or climatic shortage is discussed in Chapter 6. As previously stated, based on the resiliency of the groundwater basin and as long as potable groundwater can be extracted by the City wells, which are individual sources in certain respects, it is not anticipated that a single or multiple dry year period will reduce the availability of water supply to the City.

Groundwater has and will continue to provide drought protection for the City. However, the City has engaged in extensive emergency planning in preparation for potential service interruptions and a Water Shortage Contingency Plan is presented in Chapter 8.

Comparisons of projected supply and demand for normal year through 2040, in five-year increments are presented in Table 7-2.

Table 7-2 Normal Year Supply and Demand Comparison (Standard Table 7-2)					
	2020	2025	2030	2035	2040
Supply totals	1,133	1,257	1,402	1,557	1,727
Demand totals	1,133	1,257	1,402	1,557	1,727
Difference	0	0	0	0	0

7.4.2. Single Dry Year

Dry year effects are simulated through a methodology which assumes that dry year demand will decrease by approximately 10 percent below normal year demands as a consequence of mandatory water use restrictions. Projected supplies were compared to the decreased demands for dry years and are presented in Table 7-3.

Table 7-3 Single Dry Year Supply and Demand Comparison (Standard Table 7-3)					
	2020	2025	2030	2035	2040
Supply totals	1,020	1,131	1,262	1,414	1,554
Demand totals	1,020	1,131	1,262	1,414	1,554
Difference	0	0	0	0	0

7.4.3. Multiple Dry year

Table 7-4 shows water supply and demands during multiple dry year events over the planning period. The City assumes, conservatively, that surface water supplies from the TID will be reduced by 25%

during the second and third dry years. To offset reduced surface water supplies and to meet water demands during this period, the City will increase groundwater production. It is anticipated that groundwater levels will increase significantly in the years 2020-2035 as surface water is added to the City's water supply portfolio and groundwater pumping is reduced. Using its water supplies conjunctively, this "banked" groundwater could be used to offset the reduction in surface water supply.

Table 7-4 Multiple Dry Years Supply and Demand Comparison (Standard Table 7-4)						
		2020	2025	2030	2035	2040
First year	Supply totals	1,020	1,131	1,262	101,4	1,554
	Demand totals	1,020	1,131	1,262	101,4	1,554
	Difference	0	0	0	0	0
Second year	Supply totals	906	1,005	1,222	1,246	1,382
	Demand totals	906	1,005	1,222	1,246	1,382
	Difference	0	0	0	0	0
Third year	Supply totals	793	880	982	1,090	1,209
	Demand totals	793	880	982	1,090	1,209
	Difference	0	0	0	0	0

As shown in Tables 7-2, 7-3, and 7-4, anticipated supplies groundwater are sufficient to meet all demands through year 2040 even under drought conditions. It is important to consider that the Subbasin has historically been in a state of overdraft. The data in Tables 7-2, 7-3 and Table 7-4 assume that the supply is equal to demand only because there is currently a sufficient volume of water within the subbasin to meet the projected demand. In order to continue to utilize groundwater, it is essential that the City continue its current efforts towards conservation, groundwater recharge, and groundwater management. Reducing per capita water use, groundwater recharge with Central California Irrigation District, water metering, and recycled water are all important components of ensuring future usage of the Delta-Mendota Subbasin. Groundwater banking for drought years is also recommended, so that years with low surface runoff do not further harm the subbasin. The City will need to continually develop additional water management strategies to meet projected demand on a long term basis.

7.5. Regional Supply Reliability

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 recognizes the importance of maintaining a high quality, reliable water supply. Although water is a renewable resource, there is a limit on the amount of water that can be sustainably drawn from a

given supply source (e.g., groundwater basins, surface water sources). But because of the City’s location in the Central Valley and proximity to other available supply sources, the use of groundwater as a primary water supply source is expected to continue through 2040.

Determining the supply reliability for the City is difficult because of the complex factors that accompany groundwater use in general. The City’s wells currently draw water from a non-adjudicated groundwater basin (Delta-Mendota Subbasin) with no limits on pumping and that has been labeled as being in a critical state of overdraft. Therefore, reliability of the groundwater supply will depend on the long-term balance between groundwater extraction and recharge for the Subbasin as a whole.

To minimize its contribution to groundwater depletion, sustainable use of groundwater supply sources is the primary focus of the City’s urban water management activities extending into the future. Consequently, a main focus for the City is to maximize the efficient use of water and to promote conservation. This will be accomplished through the implementation of demand management measures (DMMs) that have not been implemented by the City, continued implementation of DMMs that have currently been implemented by the City, and other conservation activities.

Additionally, the City has actively pursued supplemental programs. The programs include:

- ❖ Groundwater. The City of Newman has acquired and is proposing to develop 103 acres to implement the Low Impact Development (LID) by receiving, treating and storing urban water runoff such as nuisance water from park/open spaces, parking areas and landscaped areas. The City will develop 78 acres for water treatment, implementing LID applications such as vegetated swales, constructed wetlands, and bioretention basins. The remaining 25 acres will be used for the storage of the treated water, which can be used to irrigate city land, maximize groundwater recharge and implement water conservation by reusing the treated water. The LID project consists of five components, including; reduce discharge of sediment/pollutants; improve the quality of urban water runoff; re-use treated water for irrigation; provide an attractive and highly utilized recreational park for bicyclists and pedestrians; and implement the public outreach/education programs for LID and Water Conservation. The LID Project will allow the City to achieve a long-term water quality improvement as well as reuse water more efficiently. This project is expected to generate approximately 973 ac-ft of water per year.
- ❖ Recycled Water. A portion of the City’s treated wastewater is applied to farmland. This recycled water stream does not offset municipal use because the City does not have any agricultural customers, but it does offset additional groundwater use by some of the farmers that receive the effluent, who would otherwise use groundwater to irrigate their fields.

CHAPTER 8 WATER SHORTAGE CONTINGENCY PLANNING

8.1. Introduction

CWC 10632

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.

- (a) 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.*
- (b) 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.*
- (c) 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.*
- (d) 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.*
- (e) 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.*
- (f) Penalties or charges for excessive use, where applicable.*
- (g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), 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.*
- (h) A draft water shortage contingency resolution or ordinance.*
- (i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.*

Water shortage contingency planning is a strategic planning process to prepare for and respond to water shortages. Good planning and preparation can help the City maintain reliable supplies and reduce the impacts of supply interruptions.

This chapter provides a description of the water shortage contingency planning efforts at the City. Guidance is included for reporting the staged response to a water shortage, such as a drought, that occurs over a period of time, as well catastrophic supply interruptions which occur suddenly.

A water shortage contingency plan (WSCP) is a document that can be created separately from the UWMP and amended as needed without amending the corresponding UWMP. However, the most current version of the WSCP must be included as part of the UWMP when the UWMP is submitted to DWR.

8.2. Stages of Action

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 number of stages of action in a WSCP is at the discretion of the water supplier. Typically, water agencies will include between three and five stages of action in a WSCP. The stages reflect decreasing water supplies with increasing levels of prohibitions and consumption reduction methods. Agencies must include a stage that addresses a reduction of 50 percent in the water supply.

Water agencies relying solely on groundwater, such as the City, are much less likely to experience water shortages than those agencies relying primarily on surface water. However, this reliability is not guaranteed and water supply shortages or interruptions can occur due to extended periods of drought or unexpected well failures, regional power outages, earthquakes, etc.

The City adopted in 2015 Ordinance No. 2015-2 amending Title 11 public ways and property, adding Chapter 11.05 water conservation and education and rescinding Section 11.05.230 irrigation of lawns and landscaping of the Newman City Code. The ordinance implements mandatory prohibitions related to water conservation. The City adopted this ordinance in response to the water supply conditions associated with the most recent drought and to comply with State Emergency Water Conservation Regulations.

Section 11.5A.100 of the amended City Code describes the following five conservation stages:

I. Stage 1 – Mandatory Water Conservation

Stage 1 calls for a low level of informational outreach and enforcement of the permanent water use ordinances. Customers of the City of Newman are hereby directed to limit the amount of water used on a year round basis. Due to the characteristics of the current City of Newman water system, additional water conservation is needed between March 1st and October 31st each year as established by Section 11.05A.040.

II. Stage 2 – Mandatory Water Conservation: Warning

Upon implementation of this chapter by the City Manager pursuant to Section 11 .5A.080 of this Code, and publication of notice that Stage 2 Mandatory Conservation Compliance Measures are in effect, the following mandatory conservation compliance measures shall apply:

1. Outdoor landscape watering. Outdoor landscape watering shall be limited to three times per week on an odd-even basis in accordance with Section 11.5A.100 B(2). If the address ends in an even number, the water days shall be Tuesday, Thursday and Saturday. If the address ends in an odd number, the watering days will be Wednesday, Friday and Sunday.
2. Outdoor watering is prohibited between the hours of 1 p.m. and 6 p.m.
3. Large commercial landscapes and City parks shall have individual watering schedules approved by the Public Works Department.
4. Residential vehicle washing. Residents shall be allowed to wash their vehicles as established by Section 11 .05A.050 D.

III. Stage 3 – Mandatory Water Conservation: Warning

Upon implementation of this Chapter by the City Manager pursuant to Section 11.5A.080 of this Code, and publication of notice that Stage 3 Mandatory Conservation Compliance Measures are in effect, the following Mandatory Water Conservation Compliance Measures shall apply:

1. Outdoor Landscaping Watering. Outdoor landscape watering shall be limited to two times per week in accordance with Section 11.5A.100 B(2). If the address ends in an even number, the watering days shall be Tuesday and Saturday. If the address ends in an odd number, the watering days shall be Wednesday and Sunday.
2. Large commercial landscapes and City parks shall also be limited to two days per week, as scheduled by the Public Works Department.
3. Residential vehicle washing. Residents shall be allowed to wash their vehicles as established by Section 11.05A.050 D.
4. Further use of decorative fountains or reflection ponds shall be disconnected until further notice.

IV. Stage 4 – Mandatory Water Conservation: Warning

Upon implementation of this Chapter by the City Manager pursuant to Section 11.5A.080 and publication of notice that Stage 4 Mandatory Conservation Compliance Measures are in effect, the following mandatory conservation compliance measures shall apply:

1. Outdoor landscape watering shall be limited to one day per week. If the address ends in an even number, the watering day shall be Saturday. If the address ends in an odd number, the watering day shall be Sunday. Watering hours shall be in accordance with Section 11.05A.100 B(2). No outdoor landscaping watering Monday through Friday.
2. Large commercial landscaping and City parks shall be limited to one (1) day per week, as scheduled by the Public Works Department.

3. Filling newly constructed or drained swimming pools with City water shall be prohibited.
4. Construction water from City fire hydrants shall be banned but treated effluent water from the wastewater treatment plant may be made available for construction water purposes.
5. Further use of decorative fountains or reflection ponds shall be discontinued until further notice.
6. Washing of automobiles, trucks, trailers, boats, airplanes and other types of mobile equipment not occurring upon the immediate premises of commercial car washes and commercial service stations and not in immediate interest of the public health, safety, and welfare shall be prohibited.

V. Stage 5 – Mandatory Water Conservation: Warning

Upon implementation of this Chapter by the City Manager pursuant to Section 11.5A.080 of this Code, and publication of notice that Stage 5 Mandatory Conservation Compliance Measures are in effect, the following mandatory conservation compliance measures shall apply:

1. Outdoor landscape watering shall be prohibited. This includes multi-purpose commercial landscapes and City parks and median strips.
2. Industry and commercial businesses shall be required to curtail consumption in order to maintain adequate supplies of water for health and safety.
3. If there is total well failure, disaster relief from outside the City of Newman shall be required.

Table 8-1 summarizes the Stages of the City’s current Water Conservation Plan and the Water supply condition that would determine when a particulate stage must be implemented.

Table 8-1 Stages of Water Shortage Contingency Plan (Standard Table 8-1)		
Stage	Complete Both	
	Percent Supply Reduction ¹	Water Supply Condition
1	0	❖ Average (or above average) Precipitation for the last 12-24 months ❖ Total production capacity in operation at 100 percent ❖ Adequate pressures in the system during PHF periods
2	10	❖ Below Average Precipitation for the last 12-24 months ❖ Total production capacity loss of 0-10 percent
3	20	❖ Below Average Precipitation for the last 24-36 months ❖ Total production capacity loss of 10-20 percent
4	30	❖ Below Average Precipitation for the last 36-48 months ❖ Total production capacity loss of 20-30 percent ❖ Low pressure in the Distribution System during PHF periods
5	50	❖ Below Average Precipitation for the last 48-60 months

Table 8-1 Stages of Water Shortage Contingency Plan (Standard Table 8-1)		
Stage	Complete Both	
	Percent Supply Reduction ¹	Water Supply Condition
		❖ Total production capacity loss greater than 30 percent ❖ Low pressure in the Distribution System during PHF periods
¹ One stage in the Water Shortage Contingency Plan must address a water shortage of 50%.		

Each stage includes a water supply reduction, expressed as a percentage of normal water supply. The rationing plan includes voluntary and mandatory conservation measures that are dependent on the cause, severity and anticipated duration of the water supply shortage. A combination of voluntary and mandatory water conservation measures would be used to reduce water usage in the event of water shortages.

8.3. Prohibitions on End Uses

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.

Chapter 11.5A of the City’s Municipal Code contains provisions with regards to water conservation including prohibition on end uses during the various stages of water conservation. Table 8-2 lists the restriction on end uses at the various stages of water conservation.

Table 8-2 Restrictions and Prohibitions on End Uses (Standard Table 8-2)			
Stage	Restrictions and Prohibitions on End Users	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
1	Landscape - Limit landscape irrigation to specific times	Prohibited from 1 pm to 6 pm	Yes
2	Landscape - Limit landscape irrigation to specific days	Allowed 3 days a week	Yes
2	Landscape - Limit landscape irrigation to specific times	Prohibited from 1 pm to 6 pm	Yes
2	Other - Require automatic shut of hoses	When washing cars	Yes
3	Landscape - Limit landscape irrigation to	Allowed 2 days a	Yes

Table 8-2 Restrictions and Prohibitions on End Uses (Standard Table 8-2)

Stage	Restrictions and Prohibitions on End Users	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
	specific days	week	
3	Water Features - Restrict water use for decorative water features, such as fountains	Prohibited	Yes
4	Landscape - Limit landscape irrigation to specific days	Allowed once per week	Yes
4	Other water feature or swimming pool restriction	No swimming pool filling	Yes
4	Other - Prohibit use of potable water for construction and dust control	Use recycled water	Yes
4	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Prohibited	Yes
5	Landscape - Prohibit all landscape irrigation	Prohibited	Yes
5	CII - Other CII restriction or prohibition	curtail consumption as required	Yes

8.3.1. Landscape Irrigation

Section 11.5A.040 of the City’s Municipal Code requires all users of water within the City limits of the City of Newman to be subject to the following regulation:

- A. From March 1st to October 31st all outside watering, including lawns and landscaping, shall be prohibited between the hours of 1:00 p.m. and 6:00 p.m. It shall be unlawful for any person, firm or corporation to conduct outside watering during said times, unless approval, for good cause, as been granted by the Public Works Director.*

However, Section 11.5A.050 allows newly planted lawns to be watered daily until the second mowing has been completed upon notification of the Public Works Department.

8.3.2. Commercial, Industrial, Institutional (CII)

Section 11.5A.130 of the City’s Municipal Code requires all users to comply with water use restrictions as determined by the State of water conservation. Commercial and Industrial users are subject to outdoor landscaping watering restrictions starting in Stage 2 of the water conservation Plan. Commercial and Industrial water restrictions (other than landscaping use) are imposed in Stage 5 of the water conservation plan.

8.3.3. Water Features and Swimming Pools

The use decorative fountains or reflection ponds is prohibited in Newman starting with Stage 4 of the Water Conservation Plan. Filling newly constructed or drained swimming pools with City water is prohibited at Stage 5 of the Water Conservation Plan.

8.3.4. Defining Water Features

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 in-ground and aboveground structures and includes, but is not limited to, hot tubs, spas, portable spas, and non-portable wading pools.

The City's Municipal Code prohibits the use of any decorative water feature unless they use recirculating water. The City also restricts filling newly constructed or drained pools during the highest water conservation stage.

8.3.5. Other

The following prohibitions are contained in Section 11.5A.050 of the City's Municipal Code:

- ❖ The washing down or hosing of recreational vehicles, sidewalks, gutters, outside structures, or other exterior surfaces without prior written consent of the City Manager or his designee. Sweeping or brushing is required unless prior approval for water use is obtained.
- ❖ The use of "slip-n-slides" and other recreational activities requiring a constant flow of water are prohibited.
- ❖ The washing of vehicles at a residence without a quick-acting automatic positive shut-off valve in proper operating condition limited to one (1) such washing per week per vehicle during designated watering days and times.

8.4. Penalties, Charges, Other Enforcement of Prohibitions

CWC 10632 (a)

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

Section 11.5A.150 of the City's Ordinance establishes the following penalties for water violations:

1. A penalty fee in the sum of Twenty-five (\$25.00) Dollars shall be assessed to the utility customer's account for a first violation within one (1) year after being served with a Notice of Acts Constituting Water Wasting, pursuant to Section 11.5A.140.

2. A penalty fee in the sum of fifty (\$50.00) Dollars shall be assessed to the utility customer's account for a second violation within said one (1) year after being served with a Notice of Acts Constituting Water Wasting, pursuant to Section 11.5A.140.
3. A penalty fee in the sum of One Hundred (\$100.00) Dollars shall be assessed to the utility customer's account for a third violation within said one (1) year after being served with a Notice of Intention to Impose a Penalty Fee for Water Wasting, pursuant to Section 11.5A.140.
4. The City may, at its option, discontinue the service after the third violation after giving the customer written notice.

8.5. Consumption Reduction Methods

8.5.1. Categories of Consumption Reduction Methods

Table 8-3 provides a summary of the consumption reduction methods that will be used by the City of Newman. The consumption reduction methods in Table 8-3 come from the 2015 UWMP Guidebook for Urban Water Suppliers.

Table 8-3 Stages of Water Shortage Contingency Plan - Consumption Reduction Methods (Standard Table 8-3)		
Stage	Consumption Reduction Methods by Water Supplier	Additional Explanation or Reference
1	Expand Public Information Campaign	
2	Increase Water Waste Patrols	
3	Expand Public Information Campaign	
3	Increase Water Waste Patrols	
3	Reduce System Water Loss	
4	Expand Public Information Campaign	
4	Increase Water Waste Patrols	
4	Reduce System Water Loss	
4	Decrease Line Flushing	
5	Expand Public Information Campaign	
5	Increase Water Waste Patrols	
5	Reduce System Water Loss	
5	Decrease Line Flushing	
5	Implement or Modify Drought Rate Structure or Surcharge	

Examples of specific actions that could fall into each category are discussed next. Where deemed helpful, comments regarding the City's specific implementations are also inserted into the suggested language from the State's publication.

- ❖ Expand Public Information Campaign- Begin or enlarge media campaign. Create bill insert with conservation information. Write articles for local newspaper. Conduct water efficiency workshops for different customer sectors.
- ❖ Improve Customer Billing- Increase billing frequency. Change format to report consumption in gallons per capita per day. Add information to the bill comparing the customer's use to similar customers.
- ❖ Offer Water Use Surveys- Actively reach out to high water users to offer water use surveys. Expand water use survey program to include new sectors.
- ❖ Provide Rebates or Giveaways of Plumbing Fixtures and devices- Implement new (toilet, clothes washer, etc....) rebate programs. Implement new (shower head, aerator, etc....) giveaway programs. The City will investigate funding sources and implementation of such programs over its next five year water management planning cycle.
- ❖ Provide Rebates for Landscape Irrigation Efficiency - Implement a new landscape efficiency rebate program that provides rebates for landscape conversion, irrigation controllers, sprinkler heads, etc.... Funding for programs of this type has not been available. The City will investigate funding sources and implementation of such programs over its next five year water management planning cycle.
- ❖ Decrease Line Flushing - Decrease the length of time for each line flushing. Decrease the frequency of line flushing.
- ❖ Reduce System Water Loss- Implement a water audit program and expand the leak repair program to control system losses.
- ❖ Increase Water Waste Patrols - Implement a Water Waste Patrol program. Increase staffing for Water Waste Patrol. Increase authority of Water Waste Patrol.
- ❖ Implement or Modify Drought Rate Structure or Surcharge -Implement a drought rate structure or modify a drought rate structure with a drought surcharge on all customers.

8.5.2. Rate Structures

"Drought surcharges" are surcharges that are implemented in times of water shortage. A drought surcharge is different from a conservation rate structure, which is in place at all times. Agencies may choose to embed a drought rate structure within their conservation rate structure. The City does not currently have a drought surcharge rate ordinance. Provisions to recover costs directly caused by the drought that were not built into the base City rates. The City intends to cover the costs for any drought related expenses and the shortage in revenues from operational reserves. If the duration of a drought period is such that reserves are exhausted the City may elect to implement a drought surcharge at that time.

It is an important water conservation strategy to set costs that recover the full water program costs. These costs include recharge and actions to sustain the groundwater basin that stores one hundred percent of the City's water supply. When these costs are ignored the price of water does not reflect its true costs. Traditional economic theories teach that any product that is underpriced will be subject to

higher consumption demand than would be the case if fairly priced. This same principle seems to also apply to water.

In the City’s most recent rate study costs are shifted gradually from the Base Charge to Use Charges over the Study Period. Under the FY 2015/16 cost structure, 52 percent of the monthly residential charger is fixes while 48 percent is variable based on metered consumption. The City may elect in the future to further reduce the fixed amount in lieu of higher consumption charges. The City’s rates also contain a Tiered structure with higher consumption rates in the upper Tiers which also encourages water conservation.

8.6. Determining Reductions

CWC 10632(a)

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

The City will rely on monthly water meter readings to record the production and consumption of water. Once the City implements the AMR project the City will be able to determine the reduction in consumption on a shorter time interval.

8.7. Revenue and Expenditure Impacts

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.

A high proportion of Newman’s revenues come from volumetric water rates. Water sales revenues are approximately 45 percent of the total monthly charge in a typical residential service. As a result, Newman’s revenues vary depending on the stage of water conservation that they City is in. In dry years, local demands will decrease as a consequence of prohibitions on certain water uses, and Newman may receive lower than anticipated revenues due to reduced sales volumes. In contrast, in wet years, demands increase as prohibitions are lifted, and revenues increase due to higher sales volumes.

Such revenue surpluses and shortages could cause instability in water rates. To mitigate this risk, Newman maintains financial reserves, with a minimum and target balance, to stabilize water rates during times of reduced water sales. The reserves hold revenues collected during times of high water sales and are used to offset the need for revenues during times of low sales.

8.8. Resolution or Ordinance

CWC 10632 (a)(8)

A draft water shortage contingency resolution or ordinance.

The City adopted Ordinance No. 2015-2 in May of 2015. Ordinance 2015-2 includes an amendment to the Title 11 of the City’s Municipal Code and adds a chapter (Chapter 11.05A) with regards to water conservation and education. Chapter 11.05A also contains a water conservation plan and outlines the various stages of water conservation. A copy of the Ordinance and Chapter 11.05A are included in Appendix H.

8.9. Catastrophic Supply Interruption

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.

This section of the UWMP identifies what actions will be taken by the City if there is a catastrophic reduction in water supplies. Catastrophic supply interruptions differ from the staged drought responses addressed earlier in this chapter in that catastrophic interruptions occur suddenly and can immediately jeopardize a large portion, or all, of the City’s water supply.

The City has a Water System Emergency Response Plan, which prepares for an interruption in the drinking water supply and potential consequences to water system integrity and public health. This plan was prepared in 2003. A copy of the City’s ERP is included in Appendix I.

The City’s use of groundwater as its primary water source creates redundancy to limit dependence of a geographic area on a single water supply source (i.e., areas are served by multiple groundwater wells). In the event of a regional power outage, the groundwater wells would be powered using emergency generators. The City maintains redundant power supplies for each of its well sites through the use of emergency power generators.

In the event of an earthquake, the City may experience a regional power outage and the water distribution system suffer breaks at multiple locations. The City’s distribution system contains valves to isolate portions of the distribution system in the event of water main breaks.

The following emergency actions will be implemented by the Public Works Department and Utilities Division:

Table 8-4 - Emergency Actions from Emergency Response Plan	
Situation	Steps to be taken
Leak or Service Interruption (Result of earthquake, etc.)	1. Isolate leak. Turn power or flow off, if necessary, to control leak. 2. Repair or isolate break to allow service to the maximum system population possible. Disinfect as per attached AWWA Standards; increase system disinfectant residual as precaution, until normal service is resumed. 3. Do Bacteriological sampling until 3 good consecutive samples are confirmed. 4. Reestablish normal service.
Low Pressure (Result of earthquake, fire, storm, etc.)	1. Increase production, if possible, to provide maximum system output. 2. Increase disinfectant residual as precaution to potential contamination.
Power outage	1. Generator will automatically go on line to provide continuous water pressure to system. 2. Increase disinfectant residual as precaution to potential contamination.

8.10. Minimum Supply Next Three Years

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.

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 4.02, because of large volumes of available groundwater and the fact that water levels are very stable in the Subbasin and the Newman area it is anticipated that groundwater will be able to meet all the water supply needs of the City for the next 25 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. The City plans to have groundwater be its supply due to its availability even during extended drought periods. However, groundwater treatment may eventually be required if not replaced or supplemented by the use of treated surface water.

Table 8-5 Minimum Supply Next Three Years (Standard Table 8-4)			
	2016	2017	2018
Available Water Supply	633	647	661

CHAPTER 9 DEMAND MANAGEMENT MEASURES

9.1. Introduction

Demand management measures (DMMs) are specific actions a water supplier takes to support its water conservation efforts. The goal of this Demand Management Measures (DMM) Chapter is to provide a comprehensive description of the water conservation programs that the City has implemented, is currently implementing, and plans to implement in order to meet its urban water use reduction targets.

The section of the CWC addressing DMMs was significantly modified in 2014, based on recommendations from the Independent Technical Panel (ITP) to the legislature. The ITP was formed by DWR to provide information and recommendations to DWR and the Legislature on new demand management measures, technologies and approaches to water use efficiency.

In its report to the Legislature, the ITP recommended that the UWMP Act should be amended to simplify, clarify, and update the DMM reporting requirements. The ITP recommended, and the legislature enacted, streamlining the retail agency requirements from 14 specific measures to six more general requirements plus an “other” category.

The City realizes the importance of DMMs to ensure a reliable future water supply. The City is committed to implementing water conservation programs to maximize sustainability in meeting future water needs for its customers. Due to the continued effective water conservation measures implemented by the City, the 2015 per capita water use has dropped to roughly 158 gallons per capita per day GPCD from 194 gpcpd in 2010.

A description of the City’s DMMs follows.

9.2. Demand Management Measures for Retail Agencies

CWC 10631 (f)

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

(i) Water waste prevention ordinances.

(ii) Metering.

(iii) Conservation pricing.

(iv) Public education and outreach.

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

(vi) Water conservation program coordination and staffing support.

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

9.2.1. Water Waste Prevention Ordinance

This DMM consists of adopting and enforcing a water waste ordinance that explicitly states that the waste of water is to be prohibited. The ordinance must prohibit specific actions that waste water, such as excessive runoff from landscape irrigation, or use of a hose outdoors without a shut off nozzle.

The City adopted Ordinance 2015-2 on May 26th, 2015 that amends Title 11 of the Municipal Code. More specifically, Ordinance 2015-2 adds Chapter 11.5A – Water Conservation and Education and rescinds Section 11.05.230 Irrigation of Lawns and Landscaping. Section 11.5A.100 describes water conservation stages. The City is currently in Stage 2 of Water Conservation.

As shown in Table 9-1, the City has recently been more pro-active in response to water wasting. As part of the water conservation efforts the City has expanded its public outreach and education on water conservation and has increased enforcement of water waste prohibitions. The increased vigilance and enforcement by the City has been reflected in the per capita water use associated with residential users. The per capita water use has declined 27% from 216 gpcpd in 2013 to 158 gpcpd in 2015.

9.2.2. Metering

CWC 526

(a) Notwithstanding any other provisions of law, an urban water supplier that, on or after January 1, 2004, receives water from the Federal Central Valley Project under a water service contract or subcontract... shall do both of the following:

(1) On or before January 1, 2013, install water meters on all service connections to residential and nonagricultural commercial buildings... located within its service area.

CWC 527

(a) An urban water supplier that is not subject to Section 526 shall do both the following:

(1) Install water meters on all municipal and industrial service connections located within its service area on or before January 1, 2025.

This DMM requires that water meters be installed for all new connections to allow billing by volume of use. This program also applies to retrofitting any existing unmetered connections. Title 11, Section 11.05 of City's Municipal Code requires installation of a water meter prior to approval of building permits obtained for construction, renovation, addition or alterations of structures.

Most of the City's connections are metered. The only unmetered connections are those that supply public parks and landscape areas. Existing water meters are manually read. Monthly meter readings are collected by City staff. City is seeking funding to implement an Automatic Meter Reading (AMR) system that will allow meter readings to be collected on real-time. AMR Systems also provide the benefit of leak detection.

9.2.3. Conservation Pricing

A conservation pricing structure is already in place and is not dependent upon a water shortage. The City's rate structure is designed to promote conservation by providing a 3,500 gallon monthly consumption allowance included in the monthly base rate. Water usage above 3,500 gallons per month is billed at a rate of \$0.0249 for every gallon. The excess consumption amount is added to the monthly bill.

9.2.4. Public Education and Outreach

The City distributes public information regarding water issues in mass mailings to all water service customers, through the City's Internet website, directly to walk-in customers at City Hall, and at the Public Works Department. Also, when warranted, time-critical public information is dispersed through the local print media, radio station announcements and public events.

Water use regulations and the annual Drinking Water Consumer Confidence Report (water quality report) are mailed each year to all customers. The City takes advantage of these mailings when necessary to provide its customers additional information on water conservation and other demand management measures.

Display cases and bulletin boards at City facilities augment the mailings by providing a permanent posting of the most current City mailings.

The City monthly water bill distributed to all water service customers is another vehicle used by the City for public education purposes. The bill mailing also contains public service announcements that are used to remind citizens of conservation and demand management measures.

9.2.5. Programs to Assess and Manage Distribution System Real Loss

The City recognizes distribution system leakage can be a primary type of loss. While it is essential to control losses, the initial step is to assemble a water audit to identify the nature and volumes of losses and financial impacts that these losses exert.

As described in Section 4.4 of this 2015 UWMP, the City's uncounted water volume for since 2005 has averaged 17 percent of the total produced water. However, the volumes of unaccounted water include irrigation water applied to parks and public landscaping areas that are currently unmetered. The City is currently installing meters in all of the unmetered services.

Once meter data is available from all of the connections the City will complete annual water audits to accurately quantify the volume of water loss. Leak detection programs will be implemented to locate and reduce water loss in the distribution system.

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:

- ❖ Coordination with internal City departments and the community at large to promote the principles of responsible water resource stewardship.
- ❖ Monitoring the practice and application of DMMs.
- ❖ Supervising the activities of the Water Patrol.
- ❖ 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.

9.2.7. Other Demand Management Measures

9.2.7.1. Residential Plumbing Retrofit

This program benefits existing customers by reducing their water consumption while minimizing the impact of their lifestyle. State legislation requires the installation of efficient plumbing in new construction, and effective 1994 requires that only Ultra Low Flush Toilets be sold in California.

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

The City will seek funding to offer customers new water savings devices such as faucet aerators, water-saving showerheads and toilet tanks.

9.2.7.2. High-Efficiency Washing Machine Rebate Program

This program generally provides a financial incentive (rebate offer) to qualifying customers who install high efficiency washing machines in their home. Other regional municipalities that performed an economic analysis on this program concluded that it would have a low benefit-to-cost ratio. This program is not currently implemented in the City. However, the City will seek grant funding when available to offer rebate programs to customers.

9.3. Implementation over the Past Five Years

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.

The City following is a description of the water conservation efforts that the City has been implementing over the last five years:

I. Ordinance

In 2014 the City revised its Water Conservation Ordinance to enhance it and the City moved from Stage 2 to Stage 3 in the Water Conservation Stages.

II. Metering

Over the past five years the City completed the metering of all accounts, including adding new meters to 137 City locations in parks and at public facilities. In 2014 the City replaced 19 very large meters on industrial accounts that were older and suspected of reading low.

III. Conservation Pricing

As discussed above and in Chapter 8, the City increased its residential water rates in early 2013. The rate increase also included a change in the rate structure to reduce the revenues from fixed rates and increase the revenues from variable rates. This shift is expected to result in water conservation.

IV. Public Education and Outreach

The programs described above and in Chapter 8 were either expanded or started in the last five years. The City has hired two employees within the last year for water waste enforcement which is included in this program.

V. Water Distribution System Losses

The City's system appears to be suffering from a leakage percentage that is lower than State standards and is generally lower than engineering best practices would suggest. The City will complete the installation of water meters at all connections within the next five years and begin auditing its water production and metered deliveries to ensure that leakage in the distribution system is maintained at low levels or further reduced.

VI. Water Conservation Program Coordination and Staffing Support

The City has enlisted the assistance of all staff in any City department that is in the field for purposes of reporting running water or potential waste. These outside working staff are to report such observations to water department staff.

9.4. Planned Implementation to Meet Water Use Targets

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.

As discussed just above, the City has implemented, either totally or in part, all of the demand management measures described in California Water Code 10631. The City is on target to meet its target of 191 gpcpd in 2020, having already exceeded its goal at the 2015 midpoint (achieved 158 gpcpd versus the 215 gpcpd 2015 goal). It is very likely that the City will remain in Stage 2 of the Water Conservation Ordinance stages which is very likely to make up much of the 15 gpcpd difference between present consumption and 2020-allowed consumption.

9.5. Members of the California Urban Water Conservation Council

CWC 10631 (i)

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

In 1991 (amended September 16, 1999), an MOU regarding urban water conservation in California was made that formalizes an agreement between the Department of Water Resources (DWR), water utilities, environmental organizations, and other interested groups to implement DMMs and make a cooperative effort to reduce the consumption of California's water resources. This MOU is administered by the California Urban Water Conservation Council (CUWCC). The City is not currently a signatory of the MOU and is therefore not a member of CUWCC. The City may consider becoming a member of the CUWCC in the future.

However, the City realizes the importance of the BMPs to ensure a reliable future water supply. The City is committed to implementing water conservation programs to maximize sustainability in meeting future water needs for its customers. Due to the continued effective water conservation measures implemented by the City, the 2015 per capita water use has dropped to roughly 158 gallons per capita per day (gpcd) from 259 gpcpd in 2005. The City will continue to monitor and adjust as necessary to achieve the target by 2020.

CHAPTER 10 PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

10.1. Inclusion of all 2015 Data

This 2015 UWMP includes the water use and planning data for the entire year of 2015.

10.2. Notice of Public Hearing

Water suppliers must hold a public hearing prior to adopting the 2015 UWMP. The public hearing provides an opportunity for the public to provide input to the plan before it is adopted. The City Council shall consider all public input before the 2015 UWMP is adopted.

10.2.1. Notice to Cities and Counties

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.

The City is the sole water supplier and water management agency for the area. For this reason, the City did not participate in an area, regional, watershed, or basin wide UWMP. While preparing the 2015 UWMP, however, the City coordinated its efforts with relevant agencies to ensure that the data and issues discussed in the plan are presented accurately.

The City provided formal written notification to Stanislaus County that the City's UWMP was being prepared 2015. Copies of the Notification letters are included in Appendix C. Copies of the final UWMP will be provided to Stanislaus County no later than 30 days after its submission to DWR.

10.2.2. Notice to the Public

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.

Copies of the City’s draft UWMP were made available for public review at City Hall and the local public library in the City. The City noticed a public hearing to review and accept comments on the draft plan with more than two weeks in advance of the hearing. The notice of the public hearing was published in the local press and mailed to City Clerk. On June 28, 2016, the City will hold a noticed public hearing to review and accept comments on the draft plan. Notice of the public hearing was published in the local press and a copy of the Notice to the Public is included in Appendix J.

As required by the Act, the 2015 UWMP is being provided by the City to the California Department of Water Resources, the California State Library, and the public within 30 days of the City’s adoption.

10.3. Public Hearing and Adoption

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. (RETAIL AGENCIES ONLY)*

Pursuant to the requirements of the UWMPA, this section summarizes the adoption, submittal, and implementation of the City’s 2015 UWMP.

10.3.1. Adoption

CWC 10642

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

The City prepared the 2015 UWMP during the winter and spring of 2016. The plan was updated after the public hearing and adopted by its City Council on June 28, 2016. A copy of the adopting resolution is provided in Appendix K.

Table 10-1 Notification to Cities and Counties (Standard Table 10-1)		
City Name	60 Day Notice	Notice of Public Hearing
City of Gustine	☒	☒
City of Patterson	☒	☒
City of Turlock	☒	☒
County Name	60 Day Notice	Notice of Public Hearing
Stanislaus County	☒	☒
Merced County	☒	☒

10.4. Plan Submittal

CWC 10621(d)

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

CWC 10644(a)

An urban water supplier shall submit to the department, the California State Library, and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption.

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.

10.4.1. Submitting a UWMP to DWR

The City submitted the UWMP to the DWR on July 1, 2016, using the electronic WUEdata submittal tool developed by DWR. A copy of the completion checklist is included in Appendix L.

10.4.2. Submitting UWMP to the California State Library

Within 30 days of submitting the UWMP to DWR the adopted UWMP was made available for public review during normal business hours at the locations specified for the viewing of the Draft 2015 UWMP and copies of the UWMP were submitted to the California State Library and Stanislaus County.

10.4.3. Submitting UWMP to the Cities and Counties

Within 30 days of submitting the UWMP to DWR the adopted UWMP was submitted to the Stanislaus County, Merced County, City of Gustine, City of Patterson, and City of Turlock.

10.5. Public Availability

CWC 10645

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

The adopted 2015 UWMP will be made available for public review at the City of Newman City Hall - Department of Public Works. Public may review the 2015 UWMP during regular business hours. In addition, a copy of the 2015 UWMP will also posted on the City's website.

10.6. Amending an Adopted Plan

CWC 10621(c)

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

CWC 10644(a)

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.

If major changes are made to this 2015 UWMP, the City will hold an additional public hearing and City Council will readopt the plan.

Appendix A
URBAN WATER MANAGEMENT PLAN ACT

California Water Code Division 6, Part 2.6.

Chapter 1. General Declaration and Policy §10610-10610.4

Chapter 2. Definitions §10611-10617

Chapter 3. Urban Water Management Plans

Article 1. General Provisions §10620-10621

Article 2. Contents of Plans §10630-10634

Article 2.5. Water Service Reliability §10635

Article 3. Adoption And Implementation of Plans §10640-10645

Chapter 4. Miscellaneous Provisions §10650-10656

Chapter 1. General Declaration and Policy

SECTION 10610-10610.4

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

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

- (1) The waters of the state are a limited and renewable resource subject to ever-increasing demands.
- (2) The conservation and efficient use of urban water supplies are of statewide concern; however, the planning for that use and the implementation of those plans can best be accomplished at the local level.
- (3) A long-term, reliable supply of water is essential to protect the productivity of California's businesses and economic climate.
- (4) As part of its long-range planning activities, every urban water supplier should make every effort to ensure the appropriate level of reliability in its water service sufficient to meet the needs of its various categories of customers during normal, dry, and multiple dry water years.
- (5) Public health issues have been raised over a number of contaminants that have been identified in certain local and imported water supplies.
- (6) Implementing effective water management strategies, including groundwater storage projects and recycled water projects, may require specific water quality and salinity targets for meeting groundwater basins water quality objectives and promoting beneficial use of recycled water.
- (7) Water quality regulations are becoming an increasingly important factor in water agencies' selection of raw water sources, treatment alternatives, and modifications to existing treatment facilities.

- (8) Changes in drinking water quality standards may also impact the usefulness of water supplies and may ultimately impact supply reliability.
- (9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.
- (b) This part is intended to provide assistance to water agencies in carrying out their long-term resource planning responsibilities to ensure adequate water supplies to meet existing and future demands for water.

10610.4. The Legislature finds and declares that it is the policy of the state as follows:

- (a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.
- (b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.
- (c) Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.

Chapter 2. Definitions

SECTION 10611-10617

10611. Unless the context otherwise requires, the definitions of this chapter govern the construction of this part.
- 10611.5. "Demand management" means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.
10612. "Customer" means a purchaser of water from a water supplier who uses the water for municipal purposes, including residential, commercial, governmental, and industrial uses.
10613. "Efficient use" means those management measures that result in the most effective use of water so as to prevent its waste or unreasonable use or unreasonable method of use.
10614. "Person" means any individual, firm, association, organization, partnership, business, trust, corporation, company, public agency, or any agency of such an entity.
10615. "Plan" means an urban water management plan prepared pursuant to this part. A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses,

reclamation and demand management activities. The components of the plan may vary according to an individual community or area's characteristics and its capabilities to efficiently use and conserve water. The plan shall address measures for residential, commercial, governmental, and industrial water demand management as set forth in Article 2 (commencing with Section 10630) of Chapter 3. In addition, a strategy and time schedule for implementation shall be included in the plan.

10616. "Public agency" means any board, commission, county, city and county, city, regional agency, district, or other public entity.

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

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

Chapter 3. Urban Water Management Plans

Article 1. General Provisions

SECTION 10620-10621

10620. (a) Every urban water supplier shall prepare and adopt an urban water management plan in the manner set forth in Article 3 (commencing with Section 10640).
- (b) Every person that becomes an urban water supplier shall adopt an urban water management plan within one year after it has become an urban water supplier.
- (c) An urban water supplier indirectly providing water shall not include planning elements in its water management plan as provided in Article 2 (commencing with Section 10630) that would be applicable to urban water suppliers or public agencies directly providing water, or to their customers, without the consent of those suppliers or public agencies.
- (d) (1) An urban water supplier may satisfy the requirements of this part by participation in areawide, regional, watershed, or basinwide urban water management planning where those plans will reduce preparation costs and contribute to the achievement of conservation and efficient water use.
- (2) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that

share a common source, water management agencies, and relevant public agencies, to the extent practicable.

- (e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.
 - (f) An urban water supplier shall describe in the plan water management tools and options used by that entity that will maximize resources and minimize the need to import water from other regions.
10621. (a) Each urban water supplier shall update its plan at least once every five years on or before December 31, in years ending in five and zero, except as provided in subdivision (d).
- (b) Every urban water supplier required to prepare a plan pursuant to this part shall, at least 60 days before the public hearing on the plan required by Section 10642, notify any city or county within which the supplier provides water supplies that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. The urban water supplier may consult with, and obtain comments from, any city or county that receives notice pursuant to this subdivision.
- (c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3 (commencing with Section 10640).
- (d) Each urban water supplier shall update and submit its 2015 plan to the department by July 1, 2016.

Article 2. Contents of Plan

SECTION 10630-10634

10630. It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied.
10631. A plan shall be adopted in accordance with this chapter that shall do all of the following:
- (a) Describe the service area of the supplier, including current and projected population, climate, and other demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.
 - (b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a). If groundwater is identified as an existing or planned source of

water available to the supplier, all of the following information shall be included in the plan:

- (1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management.
 - (2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For basins that a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.
 - (3) A detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.
 - (4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.
- (c) (1) Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage, to the extent practicable, and provide data for each of the following:
- (A) An average water year.
 - (B) A single-dry water year.
 - (C) Multiple-dry water years.
- (2) For any water source that may not be available at a consistent level of use, given specific legal, environmental, water quality, or climatic factors, describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.

- (d) Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.
- (e) (1) Quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses:
 - (A) Single-family residential.
 - (B) Multifamily.
 - (C) Commercial.
 - (D) Industrial.
 - (E) Institutional and governmental.
 - (F) Landscape.
 - (G) Sales to other agencies.
 - (H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.
 - (I) Agricultural.
 - (J) Distribution system water loss.
- (2) The water use projections shall be in the same five-year increments described in subdivision (a).
- (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.
- (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.
- (f) Provide a description of the supplier's water demand management measures. This description shall include all of the following:
 - (1) (A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measures that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.
 - (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.
 - (2) For an urban wholesale water supplier, as defined in Section 10608.12, a narrative description of the items in clauses (ii), (iv), (vi), and (vii) of subparagraph (B) of paragraph (1), and a narrative description of its distribution system asset management and wholesale supplier assistance programs.
- (g) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water

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

- (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.
 - (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.
 - (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).
- 10631.1. (a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code, as identified in the housing element of any city, county, or city and county in the service area of the supplier.
- (b) It is the intent of the Legislature that the identification of projected water use for single-family and multifamily residential housing for lower income households will assist a supplier in complying with the requirement under Section 65589.7 of the Government Code to grant a priority for the provision of service to housing units affordable to lower income households.

10631.2. (a) In addition to the requirements of Section 10631, an urban water management plan may, but is not required to, include any of the following information:

- (1) An estimate of the amount of energy used to extract or divert water supplies.
 - (2) An estimate of the amount of energy used to convey water supplies to the water treatment plants or distribution systems.
 - (3) An estimate of the amount of energy used to treat water supplies.
 - (4) An estimate of the amount of energy used to distribute water supplies through its distribution systems.
 - (5) An estimate of the amount of energy used for treated water supplies in comparison to the amount used for nontreated water supplies.
 - (6) An estimate of the amount of energy used to place water into or withdraw from storage.
 - (7) Any other energy-related information the urban water supplier deems appropriate.
- (b) The department shall include in its guidance for the preparation of urban water management plans a methodology for the voluntary calculation or estimation of the energy intensity of urban water systems. The department may consider studies and calculations conducted by the Public Utilities Commission in developing the methodology.

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

- (2) For the purposes of this section, water management grants and loans include funding for programs and projects for surface water or groundwater storage, recycling, desalination, water conservation, water supply reliability, and water supply augmentation. This section does not apply to water management projects funded by the federal American Recovery and Reinvestment Act of 2009 (Public Law 111-5).
- (3) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if the urban water supplier has

submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the water demand management measures. The supplier may request grant or loan funds to implement the water demand management measures to the extent the request is consistent with the eligibility requirements applicable to the water management funds.

(4) (A) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if an urban water supplier submits to the department for approval documentation demonstrating that a water demand management measure is not locally cost effective. If the department determines that the documentation submitted by the urban water supplier fails to demonstrate that a water demand management measure is not locally cost effective, the department shall notify the urban water supplier and the agency administering the grant or loan program within 120 days that the documentation does not satisfy the requirements for an exemption, and include in that notification a detailed statement to support the determination.

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

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

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

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

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

- (i) Compliance on an individual basis.
 - (ii) Compliance on a regional basis. Regional compliance shall require participation in a regional conservation program consisting of two or more urban water suppliers that achieves the level of conservation or water efficiency savings equivalent to the amount of conservation or savings achieved if each of the participating urban water suppliers implemented the water demand management measures. The urban water supplier administering the regional program shall provide participating urban water suppliers and the department with data to demonstrate that the regional program is consistent with this clause. The department shall review the data to determine whether the urban water suppliers in the regional program are meeting the eligibility requirements.
- (B) The department may require additional information for any determination pursuant to this section.
- (3) The department shall not deny eligibility to an urban water supplier in compliance with the requirements of this section that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the water demand management measures described in Section 10631.
- (c) In establishing guidelines pursuant to the specific funding authorization for any water management grant or loan program subject to this section, the agency administering the grant or loan program shall include in the guidelines the eligibility requirements developed by the department pursuant to subdivision (b).
- (d) Upon receipt of a water management grant or loan application by an agency administering a grant and loan program subject to this section, the agency shall request an eligibility determination from the department with respect to the requirements of this section. The department shall respond to the request within 60 days of the request.
- (e) The urban water supplier may submit to the department copies of its annual reports and other relevant documents to assist the department in determining whether the urban water supplier is implementing or scheduling the implementation of water demand management activities. In addition, for urban water suppliers that are signatories to the Memorandum of Understanding Regarding Urban Water Conservation in California and submit biennial reports to the California Urban Water Conservation Council in accordance with the memorandum, the department may use these reports to assist in tracking the implementation of water demand management measures.

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

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

10632. (a) The plan shall provide an urban water shortage contingency analysis that includes each of the following elements that are within the authority of the urban water supplier:
- (1) Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions that are applicable to each stage.
 - (2) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.
 - (3) Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.
 - (4) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.
 - (5) Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are

appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.

- (6) Penalties or charges for excessive use, where applicable.
 - (7) An analysis of the impacts of each of the actions and conditions described in paragraphs (1) to (6), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.
 - (8) A draft water shortage contingency resolution or ordinance.
 - (9) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.
- (b) Commencing with the urban water management plan update due 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.

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

- (a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.
- (b) A description of the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.
- (c) A description of the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.
- (d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.

- (e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.
 - (f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.
 - (g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.
10634. The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

Article 2.5. Water Service Reliability

SECTION 10635

10635. (a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand assessment shall compare the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.
- (b) The urban water supplier shall provide that portion of its urban water management plan prepared pursuant to this article to any city or county within which it provides water supplies no later than 60 days after the submission of its urban water management plan.
- (c) Nothing in this article is intended to create a right or entitlement to water service or any specific level of water service.

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

Article 3. Adoption and Implementation of Plans

SECTION 10640-10645

10640. Every urban water supplier required to prepare a plan pursuant to this part shall prepare its plan pursuant to Article 2 (commencing with Section 10630). The supplier shall likewise periodically review the plan as required by Section 10621, and any amendments or changes required as a result of that review shall be adopted pursuant to this article.

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

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

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

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

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

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

- (b) (1) Notwithstanding Section 10231.5 of the Government Code, the department shall prepare and submit to the Legislature, on or before December 31, in the years ending in six and one, a report summarizing the status of the plans adopted pursuant to this part.

The report prepared by the department shall identify the exemplary elements of the individual plans. The department shall provide a copy of the report to each urban water supplier that has submitted its plan to the department. The department shall also prepare reports and provide data for any legislative hearings designed to consider the effectiveness of plans submitted pursuant to this part.

- (2) A report to be submitted pursuant to paragraph (1) shall be submitted in compliance with Section 9795 of the Government Code.
- (c) (1) For the purpose of identifying the exemplary elements of the individual plans, the department shall identify in the report water demand management measures adopted and implemented by specific urban water suppliers, and identified pursuant to Section 10631, that achieve water savings significantly above the levels established by the department to meet the requirements of Section 10631.5.
- (2) The department shall distribute to the panel convened pursuant to Section 10631.7 the results achieved by the implementation of those water demand management measures described in paragraph (1).
- (3) The department shall make available to the public the standard the department will use to identify exemplary water demand management measures.

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

Chapter 4. Miscellaneous Provisions

SECTION 10650-10656

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

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

- (b) Any action or proceeding alleging that a plan, or action taken pursuant to the plan, does not comply with this part shall be commenced within 90 days after filing of the plan or amendment thereto pursuant to Section 10644 or the taking of that action.
10651. In any action or proceeding to attack, review, set aside, void, or annul a plan, or an action taken pursuant to the plan by an urban water supplier on the grounds of noncompliance with this part, the inquiry shall extend only to whether there was a prejudicial abuse of discretion. Abuse of discretion is established if the supplier has not proceeded in a manner required by law or if the action by the water supplier is not supported by substantial evidence.
10652. The California Environmental Quality Act (Division 13 (commencing with Section 21000) of the Public Resources Code) does not apply to the preparation and adoption of plans pursuant to this part or to the implementation of actions taken pursuant to Section 10632. Nothing in this part shall be interpreted as exempting from the California Environmental Quality Act any project that would significantly affect water supplies for fish and wildlife, or any project for implementation of the plan, other than projects implementing Section 10632, or any project for expanded or additional water supplies.
10653. The adoption of a plan shall satisfy any requirements of state law, regulation, or order, including those of the State Water Resources Control Board and the Public Utilities Commission, for the preparation of water management plans or conservation plans; provided, that if the State Water Resources Control Board or the Public Utilities Commission requires additional information concerning water conservation to implement its existing authority, nothing in this part shall be deemed to limit the board or the commission in obtaining that information. The requirements of this part shall be satisfied by any urban water demand management plan prepared to meet federal laws or regulations after the effective date of this part, and which substantially meets the requirements of this part, or by any existing urban water management plan which includes the contents of a plan required under this part.
10654. An urban water supplier may recover in its rates the costs incurred in preparing its plan and implementing the reasonable water conservation measures included in the plan. Any best water management practice that is included in the plan that is identified in the "Memorandum of Understanding Regarding Urban Water Conservation in California" is deemed to be reasonable for the purposes of this section.
10655. If any provision of this part or the application thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or applications of this part which can be given effect without the invalid provision or application thereof, and to this end the provisions of this part are severable.
10656. An urban water supplier that does not prepare, adopt, and submit its urban water management plan to the department in accordance with this part, is ineligible to receive funding pursuant to Division 24 (commencing with Section 78500) or Division 26

(commencing with Section 79000), or receive drought assistance from the state until the urban water management plan is submitted pursuant to this article.

Appendix B
WATER CONSERVATION ACT (SB X7-7)

California Water Code Division 6, Part 2.55.

Chapter 1. General Declarations and Policy	§10608-10608.8
Chapter 2. Definitions	§10608.12
Chapter 3. Urban Retail Water Suppliers	§10608.16-10608.44
Chapter 4. Agricultural Water Suppliers	§10608.48
Chapter 5. Sustainable Water Management	§10608.50
Chapter 6 Standardized Data Collection	§10608.52
Chapter 7 Funding Provisions	§10608.56-10608.60
Chapter 8 Quantifying Agricultural Water Use Efficiency	§10608.64

Chapter 1. General Declarations and Policy

SECTION 10608-10608.8

10608. The Legislature finds and declares all of the following:

- (a) Water is a public resource that the California Constitution protects against waste and unreasonable use.
- (b) Growing population, climate change, and the need to protect and grow California's economy while protecting and restoring our fish and wildlife habitats make it essential that the state manage its water resources as efficiently as possible.
- (c) Diverse regional water supply portfolios will increase water supply reliability and reduce dependence on the Delta.
- (d) Reduced water use through conservation provides significant energy and environmental benefits, and can help protect water quality, improve streamflows, and reduce greenhouse gas emissions.
- (e) The success of state and local water conservation programs to increase efficiency of water use is best determined on the basis of measurable outcomes related to water use or efficiency.
- (f) Improvements in technology and management practices offer the potential for increasing water efficiency in California over time, providing an essential water management tool to meet the need for water for urban, agricultural, and environmental uses.
- (g) The Governor has called for a 20 percent per capita reduction in urban water use statewide by 2020.
- (h) The factors used to formulate water use efficiency targets can vary significantly from location to location based on factors including weather, patterns of urban and suburban development, and past efforts to enhance water use efficiency.

- (i) Per capita water use is a valid measure of a water provider's efforts to reduce urban water use within its service area. However, per capita water use is less useful for measuring relative water use efficiency between different water providers. Differences in weather, historical patterns of urban and suburban development, and density of housing in a particular location need to be considered when assessing per capita water use as a measure of efficiency.

10608.4. It is the intent of the Legislature, by the enactment of this part, to do all of the following:

- (a) Require all water suppliers to increase the efficiency of use of this essential resource.
- (b) Establish a framework to meet the state targets for urban water conservation identified in this part and called for by the Governor.
- (c) Measure increased efficiency of urban water use on a per capita basis.
- (d) Establish a method or methods for urban retail water suppliers to determine targets for achieving increased water use efficiency by the year 2020, in accordance with the Governor's goal of a 20-percent reduction.
- (e) Establish consistent water use efficiency planning and implementation standards for urban water suppliers and agricultural water suppliers.
- (f) Promote urban water conservation standards that are consistent with the California Urban Water Conservation Council's adopted best management practices and the requirements for demand management in Section 10631.
- (g) Establish standards that recognize and provide credit to water suppliers that made substantial capital investments in urban water conservation since the drought of the early 1990s.
- (h) Recognize and account for the investment of urban retail water suppliers in providing recycled water for beneficial uses.
- (i) Require implementation of specified efficient water management practices for agricultural water suppliers.
- (j) Support the economic productivity of California's agricultural, commercial, and industrial sectors.
- (k) Advance regional water resources management.

10608.8. (a) (1) Water use efficiency measures adopted and implemented pursuant to this part or Part 2.8 (commencing with Section 10800) are water conservation measures subject to the protections provided under Section 1011.

- (2) Because an urban agency is not required to meet its urban water use target until 2020 pursuant to subdivision (b) of Section 10608.24, an urban retail water supplier's failure to meet those targets shall not establish a violation of law for purposes of any state administrative or judicial proceeding prior to

January 1, 2021. Nothing in this paragraph limits the use of data reported to the department or the board in litigation or an administrative proceeding. This paragraph shall become inoperative on January 1, 2021.

- (3) To the extent feasible, the department and the board shall provide for the use of water conservation reports required under this part to meet the requirements of Section 1011 for water conservation reporting.
- (b) This part does not limit or otherwise affect the application of Chapter 3.5 (commencing with Section 11340), Chapter 4 (commencing with Section 11370), Chapter 4.5 (commencing with Section 11400), and Chapter 5 (commencing with Section 11500) of Part 1 of Division 3 of Title 2 of the Government Code.
- (c) This part does not require a reduction in the total water used in the agricultural or urban sectors, because other factors, including, but not limited to, changes in agricultural economics or population growth may have greater effects on water use. This part does not limit the economic productivity of California's agricultural, commercial, or industrial sectors.
- (d) The requirements of this part do not apply to an agricultural water supplier that is a party to the Quantification Settlement Agreement, as defined in subdivision (a) of Section 1 of Chapter 617 of the Statutes of 2002, during the period within which the Quantification Settlement Agreement remains in effect. After the expiration of the Quantification Settlement Agreement, to the extent conservation water projects implemented as part of the Quantification Settlement Agreement remain in effect, the conserved water created as part of those projects shall be credited against the obligations of the agricultural water supplier pursuant to this part.

Chapter 2 Definitions

SECTION 10608.12

10608.12. Unless the context otherwise requires, the following definitions govern the construction of this part:

- (a) "Agricultural water supplier" means a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. "Agricultural water supplier" includes a supplier or contractor for water, regardless of the basis of right, that distributes or sells water for ultimate resale to customers. "Agricultural water supplier" does not include the department.
- (b) "Base daily per capita water use" means any of the following:
 - (1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

- (2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.
- (3) For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.
- (c) "Baseline commercial, industrial, and institutional water use" means an urban retail water supplier's base daily per capita water use for commercial, industrial, and institutional users.
- (d) "Commercial water user" means a water user that provides or distributes a product or service.
- (e) "Compliance daily per capita water use" means the gross water use during the final year of the reporting period, reported in gallons per capita per day.
- (f) "Disadvantaged community" means a community with an annual median household income that is less than 80 percent of the statewide annual median household income.
- (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.
- (h) "Industrial water user" means a water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development.
- (i) "Institutional water user" means 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.

- (j) "Interim urban water use target" means the midpoint between the urban retail water supplier's base daily per capita water use and the urban retail water supplier's urban water use target for 2020.
- (k) "Locally cost effective" means that the present value of the local benefits of implementing an agricultural efficiency water management practice is greater than or equal to the present value of the local cost of implementing that measure.
- (l) "Process water" means water used for producing a product or product content or water used for research and development, including, but not limited to, continuous manufacturing processes, water used for testing and maintaining equipment used in producing a product or product content, and water used in combined heat and power facilities used in producing a product or product content. Process water does not mean incidental water uses not related to the production of a product or product content, including, but not limited to, water used for restrooms, landscaping, air conditioning, heating, kitchens, and laundry.
- (m) "Recycled water" means recycled water, as defined in subdivision (n) of Section 13050, that is used to offset potable demand, including recycled water supplied for direct use and indirect potable reuse, that meets the following requirements, where applicable:
 - (1) For groundwater recharge, including recharge through spreading basins, water supplies that are all of the following:
 - (A) Metered.
 - (B) Developed through planned investment by the urban water supplier or a wastewater treatment agency.
 - (C) Treated to a minimum tertiary level.
 - (D) Delivered within the service area of an urban retail water supplier or its urban wholesale water supplier that helps an urban retail water supplier meet its urban water use target.
 - (2) For reservoir augmentation, water supplies that meet the criteria of paragraph (1) and are conveyed through a distribution system constructed specifically for recycled water.
- (n) "Regional water resources management" means sources of supply resulting from watershed-based planning for sustainable local water reliability or any of the following alternative sources of water:
 - (1) The capture and reuse of stormwater or rainwater.
 - (2) The use of recycled water.
 - (3) The desalination of brackish groundwater.

- (4) The conjunctive use of surface water and groundwater in a manner that is consistent with the safe yield of the groundwater basin.
- (o) "Reporting period" means the years for which an urban retail water supplier reports compliance with the urban water use targets.
- (p) "Urban retail water supplier" means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.
- (q) "Urban water use target" means the urban retail water supplier's targeted future daily per capita water use.
- (r) "Urban wholesale water supplier," means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.

Chapter 3 Urban Retail Water Suppliers

SECTION 10608.16-10608.44

10608.16.(a) The state shall achieve a 20-percent reduction in urban per capita water use in California on or before December 31, 2020.

- (b) The state shall make incremental progress towards the state target specified in subdivision (a) by reducing urban per capita water use by at least 10 percent on or before December 31, 2015.

10608.20.(a) (1) Each urban retail water supplier shall develop urban water use targets and an interim urban water use target by July 1, 2011. 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, and may determine the targets on a fiscal year or calendar year basis.

- (2) It is the intent of the Legislature that the urban water use targets described in paragraph (1) cumulatively result in a 20-percent reduction from the baseline daily per capita water use by December 31, 2020.

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

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

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

- (A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard. Upon completion of the department's 2016 report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the Legislature by statute.
 - (B) For landscape irrigated through dedicated or residential meters or connections, water efficiency equivalent to the standards of the Model Water Efficient Landscape Ordinance set forth in Chapter 2.7 (commencing with Section 490) of Division 2 of Title 23 of the California Code of Regulations, as in effect the later of the year of the landscape's installation or 1992. An urban retail water supplier using the approach specified in this subparagraph shall use satellite imagery, site visits, or other best available technology to develop an accurate estimate of landscaped areas.
 - (C) For commercial, industrial, and institutional uses, a 10-percent reduction in water use from the baseline commercial, industrial, and institutional water use by 2020.
- (3) Ninety-five percent of the applicable state hydrologic region target, as set forth in the state's draft 20x2020 Water Conservation Plan (dated April 30, 2009). If the service area of an urban water supplier includes more than one hydrologic region, the supplier shall apportion its service area to each region based on population or area.
- (4) A method that shall be identified and developed by the department, through a public process, and reported to the Legislature no later than December 31, 2010. The method developed by the department shall identify per capita targets that cumulatively result in a statewide 20-percent reduction in urban daily per capita water use by December 31, 2020. In developing urban daily per capita water use targets, the department shall do all of the following:
- (A) Consider climatic differences within the state.
 - (B) Consider population density differences within the state.
 - (C) Provide flexibility to communities and regions in meeting the targets.
 - (D) Consider different levels of per capita water use according to plant water needs in different regions.
 - (E) Consider different levels of commercial, industrial, and institutional water use in different regions of the state.
 - (F) Avoid placing an undue hardship on communities that have implemented conservation measures or taken actions to keep per capita water use low.
- (c) If the department adopts a regulation pursuant to paragraph (4) of subdivision (b) that results in a requirement that an urban retail water supplier achieve a reduction in daily per capita water use that is greater than 20 percent by December 31, 2020, an urban retail water supplier that adopted the method

described in paragraph (4) of subdivision (b) may limit its urban water use target to a reduction of not more than 20 percent by December 31, 2020, by adopting the method described in paragraph (1) of subdivision (b).

- (d) The department shall update the method described in paragraph (4) of subdivision (b) and report to the Legislature by December 31, 2014. An urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may adopt a new urban daily per capita water use target pursuant to this updated method.
- (e) An urban retail water supplier shall include in its urban water management plan due in 2010 pursuant to Part 2.6 (commencing with Section 10610) the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.
- (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.
- (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).
- (h) (1) The department, through a public process and in consultation with the California Urban Water Conservation Council, shall develop technical methodologies and criteria for the consistent implementation of this part, including, but not limited to, both of the following:
 - (A) Methodologies for calculating base daily per capita water use, baseline commercial, industrial, and institutional water use, compliance daily per capita water use, gross water use, service area population, indoor residential water use, and landscaped area water use.
 - (B) Criteria for adjustments pursuant to subdivisions (d) and (e) of Section 10608.24.
- (2) The department shall post the methodologies and criteria developed pursuant to this subdivision on its Internet Web site, and make written copies available, by October 1, 2010. An urban retail water supplier shall use the methods developed by the department in compliance with this part.
- (i) (1) The department shall adopt regulations for implementation of the provisions relating to process water in accordance with subdivision (l) of Section 10608.12, subdivision (e) of Section 10608.24, and subdivision (d) of Section 10608.26.
- (2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the

Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

- (j) (1) An urban retail water supplier is granted an extension to July 1, 2011, for adoption of an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) due in 2010 to allow the use of technical methodologies developed by the department pursuant to paragraph (4) of subdivision (b) and subdivision (h). An urban retail water supplier that adopts an urban water management plan due in 2010 that does not use the methodologies developed by the department pursuant to subdivision (h) shall amend the plan by July 1, 2011, to comply with this part.
- (2) An urban wholesale water supplier whose urban water management plan prepared pursuant to Part 2.6 (commencing with Section 10610) was due and not submitted in 2010 is granted an extension to July 1, 2011, to permit coordination between an urban wholesale water supplier and urban retail water suppliers.

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.

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

(b) Each urban retail water supplier shall meet its urban water use target by December 31, 2020.

(c) An urban retail water supplier's compliance daily per capita water use shall be the measure of progress toward achievement of its urban water use target.

(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.

(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.

- (e) When developing the urban water use target pursuant to Section 10608.20, an urban retail water supplier that has a substantial percentage of industrial water use in its service area may exclude process water from the calculation of gross water use to avoid a disproportionate burden on another customer sector.
- (f) (1) An urban retail water supplier that includes agricultural water use in an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) may include the agricultural water use in determining gross water use. An urban retail water supplier that includes agricultural water use in determining gross water use and develops its urban water use target pursuant to paragraph (2) of subdivision (b) of Section 10608.20 shall use a water efficient standard for agricultural irrigation of 100 percent of reference evapotranspiration multiplied by the crop coefficient for irrigated acres.
- (2) An urban retail water supplier, that is also an agricultural water supplier, is not subject to the requirements of Chapter 4 (commencing with Section 10608.48), if the agricultural water use is incorporated into its urban water use target pursuant to paragraph (1).

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.
- (b) In complying with this part, an urban retail water supplier may meet its urban water use target through efficiency improvements in any combination among its customer sectors. An urban retail water supplier shall avoid placing a disproportionate burden on any customer sector.
- (c) For an urban retail water supplier that supplies water to a United States Department of Defense military installation, the urban retail water supplier's implementation plan for complying with this part shall consider the conservation of that military installation under federal Executive Order 13514.
- (d) (1) Any ordinance or resolution adopted by an urban retail water supplier after the effective date of this section shall not require existing customers as of the effective date of this section, to undertake changes in product formulation, operations, or equipment that would reduce process water use, but may provide technical assistance and financial incentives to those customers to implement efficiency measures for process water. This section shall not limit

an ordinance or resolution adopted pursuant to a declaration of drought emergency by an urban retail water supplier.

- (2) This part shall not be construed or enforced so as to interfere with the requirements of Chapter 4 (commencing with Section 113980) to Chapter 13 (commencing with Section 114380), inclusive, of Part 7 of Division 104 of the Health and Safety Code, or any requirement or standard for the protection of public health, public safety, or worker safety established by federal, state, or local government or recommended by recognized standard setting organizations or trade associations.

10608.28.(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.
- (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.

10608.32. All costs incurred pursuant to this part by a water utility regulated by the Public Utilities Commission may be recoverable in rates subject to review and approval by the Public Utilities Commission, and may be recorded in a memorandum account and reviewed for reasonableness by the Public Utilities Commission.

10608.36. Urban wholesale water suppliers shall include in the urban water management plans required pursuant to Part 2.6 (commencing with Section 10610) an assessment of their present and proposed future measures, programs, and policies to help achieve the water use reductions required by this part.

10608.40. Urban water retail suppliers shall report to the department on their progress in meeting their urban water use targets as part of their urban water management plans

submitted pursuant to Section 10631. The data shall be reported using a standardized form developed pursuant to Section 10608.52.

10608.42.(a) The department shall review the 2015 urban water management plans and report to the Legislature by July 1, 2017, on progress towards achieving a 20-percent reduction in urban water use by December 31, 2020. The report shall include recommendations on changes to water efficiency standards or urban water use targets to achieve the 20-percent reduction and to reflect updated efficiency information and technology changes.

(b) A report to be submitted pursuant to subdivision (a) shall be submitted in compliance with Section 9795 of the Government Code.

10608.43. The department, in conjunction with the California Urban Water Conservation Council, by April 1, 2010, shall convene a representative task force consisting of academic experts, urban retail water suppliers, environmental organizations, commercial water users, industrial water users, and institutional water users to develop alternative best management practices for commercial, industrial, and institutional users and an assessment of the potential statewide water use efficiency improvement in the commercial, industrial, and institutional sectors that would result from implementation of these best management practices. The taskforce, in conjunction with the department, shall submit a report to the Legislature by April 1, 2012, that shall include a review of multiple sectors within commercial, industrial, and institutional users and that shall recommend water use efficiency standards for commercial, industrial, and institutional users among various sectors of water use. The report shall include, but not be limited to, the following:

- (a) Appropriate metrics for evaluating commercial, industrial, and institutional water use.
- (b) Evaluation of water demands for manufacturing processes, goods, and cooling.
- (c) Evaluation of public infrastructure necessary for delivery of recycled water to the commercial, industrial, and institutional sectors.
- (d) Evaluation of institutional and economic barriers to increased recycled water use within the commercial, industrial, and institutional sectors.
- (e) Identification of technical feasibility and cost of the best management practices to achieve more efficient water use statewide in the commercial, industrial, and institutional sectors that is consistent with the public interest and reflects past investments in water use efficiency.

10608.44. Each state agency shall reduce water use at facilities it operates to support urban retail water suppliers in meeting the target identified in Section 10608.16.

Chapter 4 Agricultural Water Suppliers

SECTION 10608.48

10608.48.(a) On or before July 31, 2012, an agricultural water supplier shall implement efficient water management practices pursuant to subdivisions (b) and (c).

(b) Agricultural water suppliers shall implement all of the following critical efficient management practices:

(1) Measure the volume of water delivered to customers with sufficient accuracy to comply with subdivision (a) of Section 531.10 and to implement paragraph (2).

(2) Adopt a pricing structure for water customers based at least in part on quantity delivered.

(c) Agricultural water suppliers shall implement additional efficient management practices, including, but not limited to, practices to accomplish all of the following, if the measures are locally cost effective and technically feasible:

(1) Facilitate alternative land use for lands with exceptionally high water duties or whose irrigation contributes to significant problems, including drainage.

(2) Facilitate use of available recycled water that otherwise would not be used beneficially, meets all health and safety criteria, and does not harm crops or soils.

(3) Facilitate the financing of capital improvements for on-farm irrigation systems.

(4) Implement an incentive pricing structure that promotes one or more of the following goals:

(A) More efficient water use at the farm level.

(B) Conjunctive use of groundwater.

(C) Appropriate increase of groundwater recharge.

(D) Reduction in problem drainage.

(E) Improved management of environmental resources.

(F) Effective management of all water sources throughout the year by adjusting seasonal pricing structures based on current conditions.

(5) Expand line or pipe distribution systems, and construct regulatory reservoirs to increase distribution system flexibility and capacity, decrease maintenance, and reduce seepage.

- (6) Increase flexibility in water ordering by, and delivery to, water customers within operational limits.
 - (7) Construct and operate supplier spill and tailwater recovery systems.
 - (8) Increase planned conjunctive use of surface water and groundwater within the supplier service area.
 - (9) Automate canal control structures.
 - (10) Facilitate or promote customer pump testing and evaluation.
 - (11) Designate a water conservation coordinator who will develop and implement the water management plan and prepare progress reports.
 - (12) Provide for the availability of water management services to water users. These services may include, but are not limited to, all of the following:
 - (A) On-farm irrigation and drainage system evaluations.
 - (B) Normal year and real-time irrigation scheduling and crop evapotranspiration information.
 - (C) Surface water, groundwater, and drainage water quantity and quality data.
 - (D) Agricultural water management educational programs and materials for farmers, staff, and the public.
 - (13) Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional changes to allow more flexible water deliveries and storage.
 - (14) Evaluate and improve the efficiencies of the supplier's pumps.
- (d) Agricultural water suppliers shall include in the agricultural water management plans required pursuant to Part 2.8 (commencing with Section 10800) a report on which efficient water management practices have been implemented and are planned to be implemented, an estimate of the water use efficiency improvements that have occurred since the last report, and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future. If an agricultural water supplier determines that an efficient water management practice is not locally cost effective or technically feasible, the supplier shall submit information documenting that determination.
- (e) The data shall be reported using a standardized form developed pursuant to Section 10608.52.
- (f) An agricultural water supplier may meet the requirements of subdivisions (d) and (e) by submitting to the department a water conservation plan submitted to the United States Bureau of Reclamation that meets the requirements described in Section 10828.

- (g) On or before December 31, 2013, December 31, 2016, and December 31, 2021, the department, in consultation with the board, shall submit to the Legislature a report on the agricultural efficient water management practices that have been implemented and are planned to be implemented and an assessment of the manner in which the implementation of those efficient water management practices has affected and will affect agricultural operations, including estimated water use efficiency improvements, if any.
- (h) The department may update the efficient water management practices required pursuant to subdivision (c), in consultation with the Agricultural Water Management Council, the United States Bureau of Reclamation, and the board. All efficient water management practices for agricultural water use pursuant to this chapter shall be adopted or revised by the department only after the department conducts public hearings to allow participation of the diverse geographical areas and interests of the state.
- (i)
 - (1) The department shall adopt regulations that provide for a range of options that agricultural water suppliers may use or implement to comply with the measurement requirement in paragraph (1) of subdivision (b).
 - (2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

Chapter 5 Sustainable Water Management

Section 10608.50

- 10608.50.(a) The department, in consultation with the board, shall promote implementation of regional water resources management practices through increased incentives and removal of barriers consistent with state and federal law. Potential changes may include, but are not limited to, all of the following:
- (1) Revisions to the requirements for urban and agricultural water management plans.
 - (2) Revisions to the requirements for integrated regional water management plans.
 - (3) Revisions to the eligibility for state water management grants and loans.

- (4) Revisions to state or local permitting requirements that increase water supply opportunities, but do not weaken water quality protection under state and federal law.
- (5) Increased funding for research, feasibility studies, and project construction.
- (6) Expanding technical and educational support for local land use and water management agencies.
- (b) No later than January 1, 2011, and updated as part of the California Water Plan, the department, in consultation with the board, and with public input, shall propose new statewide targets, or review and update existing statewide targets, for regional water resources management practices, including, but not limited to, recycled water, brackish groundwater desalination, and infiltration and direct use of urban stormwater runoff.

Chapter 6 Standardized Data Collection

SECTION 10608.52

- 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 (a) of Section 10608.28.
- (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 and an agricultural water supplier's compliance with implementation of efficient water management practices pursuant to subdivision (a) of Section 10608.48. The form shall accommodate reporting by urban water suppliers on an individual or regional basis as provided in subdivision (a) of Section 10608.28.

Chapter 7 Funding Provisions

Section 10608.56-10608.60

- 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 administered by the state unless the supplier complies with this part.
- (b) On and after July 1, 2013, an agricultural water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.

- (c) 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 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.
 - (d) Notwithstanding subdivision (b), the department shall determine that an agricultural water supplier is eligible for a water grant or loan even though the supplier is not implementing all of the efficient water management practices described in Section 10608.48, if the agricultural water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the efficient water management practices. The supplier may request grant or loan funds to implement the efficient water management practices to the extent the request is consistent with the eligibility requirements applicable to the water funds.
 - (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 disadvantaged community.
 - (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 of this part or Part 2.8 (commencing with Section 10800).
- 10608.60.(a) It is the intent of the Legislature that funds made available by Section 75026 of the Public Resources Code should be expended, consistent with Division 43 (commencing with Section 75001) of the Public Resources Code and upon appropriation by the Legislature, for grants to implement this part. In the allocation of funding, it is the intent of the Legislature that the department give consideration to disadvantaged communities to assist in implementing the requirements of this part.
- (b) It is the intent of the Legislature that funds made available by Section 75041 of the Public Resources Code, should be expended, consistent with Division 43 (commencing with Section 75001) of the Public Resources Code and upon appropriation by the Legislature, for direct expenditures to implement this part.

Chapter 8 Quantifying Agricultural Water Use Efficiency

SECTION 10608.64

10608.64. The department, in consultation with the Agricultural Water Management Council, academic experts, and other stakeholders, shall develop a methodology for quantifying the efficiency of agricultural water use. Alternatives to be assessed shall include, but not be limited to, determination of efficiency levels based on crop type or irrigation system distribution uniformity. On or before December 31, 2011, the department shall report to the Legislature on a proposed methodology and a plan for implementation. The plan shall include the estimated implementation costs and the types of data needed to support the methodology. Nothing in this section authorizes the department to implement a methodology established pursuant to this section.

Appendix C
NOTIFICATION LETTERS



PLEASE POST FOR GENERAL PUBLIC ACCESS

March 22, 2016

Central California Irrigation District
Chris White, General Manager
1335 West I Street
Los Banos, CA 95635

Subject: Notice of preparation for City of Newman 2015 Urban Water Management Plan

Dear Chris White:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), urban water suppliers are required to prepare an Urban Water Management Plan and update it every five years. The City of Newman (City) is preparing the 2015 UWMP for submission to the California Department of Water Resources (DWR). The 2015 UWMP must be submitted to DWR no later than July 1, 2016.

We invite your participation in this process. A Draft of the 2015 UWMP will be made available for public review. Public hearings will be scheduled ahead of the adoption of the 2015 UWMP by the City council.

If you would like more information regarding the City of Newman 2015 UWMP please contact:

Koosun Kim, PE, QSD
Public Works Director
City of Newman
938 Fresno Street
Newman, CA 95360
E-mail: kkim@cityofnewman.com

Sincerely,

A handwritten signature in black ink, appearing to read "Koosun Kim".

Koosun Kim
City of Newman



PLEASE POST FOR GENERAL PUBLIC ACCESS

March 22, 2016

Merced Irrigation District
Hicham Eltal, Deputy General Manager
744 West 20th Street
Merced, CA 95340

Subject: Notice of preparation for City of Newman 2015 Urban Water Management Plan

Dear Hicham Eltal:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), urban water suppliers are required to prepare an Urban Water Management Plan and update it every five years. The City of Newman (City) is preparing the 2015 UWMP for submission to the California Department of Water Resources (DWR). The 2015 UWMP must be submitted to DWR no later than July 1, 2016.

We invite your participation in this process. A Draft of the 2015 UWMP will be made available for public review. Public hearings will be scheduled ahead of the adoption of the 2015 UWMP by the City council.

If you would like more information regarding the City of Newman 2015 UWMP please contact:

Koosun Kim, PE, QSD
Public Works Director
City of Newman
938 Fresno Street
Newman, CA 95360
E-mail: kkim@cityofnewman.com

Sincerely,

A handwritten signature in black ink, appearing to read 'Koosun Kim'.

Koosun Kim
City of Newman



PLEASE POST FOR GENERAL PUBLIC ACCESS

March 22, 2016

City of Turlock
Garner Reynolds, Regulatory Affairs Manager
156 S Broadway, Suite 270
Turlock, CA 95380

Subject: Notice of preparation for City of Newman 2015 Urban Water Management Plan

Dear Garner Reynolds:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), urban water suppliers are required to prepare an Urban Water Management Plan and update it every five years. The City of Newman (City) is preparing the 2015 UWMP for submission to the California Department of Water Resources (DWR). The 2015 UWMP must be submitted to DWR no later than July 1, 2016.

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If you would like more information regarding the City of Newman 2015 UWMP please contact:

Koosun Kim, PE, QSD
Public Works Director
City of Newman
938 Fresno Street
Newman, CA 95360
E-mail: kkim@cityofnewman.com

Sincerely,

A handwritten signature in black ink, appearing to read "Koosun Kim".

Koosun Kim
City of Newman



PLEASE POST FOR GENERAL PUBLIC ACCESS

March 22, 2016

City of Patterson
Michael H. Willett, Public Works Director
1 Plaza, 2nd Floor
Patterson, CA 95363

Subject: Notice of preparation for City of Newman 2015 Urban Water Management Plan

Dear Michael H. Willett:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), urban water suppliers are required to prepare an Urban Water Management Plan and update it every five years. The City of Newman (City) is preparing the 2015 UWMP for submission to the California Department of Water Resources (DWR). The 2015 UWMP must be submitted to DWR no later than July 1, 2016.

We invite your participation in this process. A Draft of the 2015 UWMP will be made available for public review. Public hearings will be scheduled ahead of the adoption of the 2015 UWMP by the City council.

If you would like more information regarding the City of Newman 2015 UWMP please contact:

Koosun Kim, PE, QSD
Public Works Director
City of Newman
938 Fresno Street
Newman, CA 95360
E-mail: kkim@cityofnewman.com

Sincerely,

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Koosun Kim
City of Newman



PLEASE POST FOR GENERAL PUBLIC ACCESS

March 22, 2016

City of Gustine
Kathryn Reyes, Public Works Director
352 Fifth Street
Gustine, CA 95322

Subject: Notice of preparation for City of Newman 2015 Urban Water Management Plan

Dear Kathryn Reyes:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), urban water suppliers are required to prepare an Urban Water Management Plan and update it every five years. The City of Newman (City) is preparing the 2015 UWMP for submission to the California Department of Water Resources (DWR). The 2015 UWMP must be submitted to DWR no later than July 1, 2016.

We invite your participation in this process. A Draft of the 2015 UWMP will be made available for public review. Public hearings will be scheduled ahead of the adoption of the 2015 UWMP by the City council.

If you would like more information regarding the City of Newman 2015 UWMP please contact:

Koosun Kim, PE, QSD
Public Works Director
City of Newman
938 Fresno Street
Newman, CA 95360
E-mail: kkim@cityofnewman.com

Sincerely,

A handwritten signature in black ink, appearing to read 'Koosun Kim'.

Koosun Kim
City of Newman



PLEASE POST FOR GENERAL PUBLIC ACCESS

March 22, 2016

County of Merced - Division of Environmental Health
Ron Rowe, Director
260 East 15th Street
Merced, CA 95341

Subject: Notice of preparation for City of Newman 2015 Urban Water Management Plan

Dear Ron Rowe:

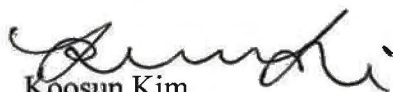
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If you would like more information regarding the City of Newman 2015 UWMP please contact:

Koosun Kim, PE, QSD
Public Works Director
City of Newman
938 Fresno Street
Newman, CA 95360
E-mail: kkim@cityofnewman.com

Sincerely,


Koosun Kim
City of Newman



PLEASE POST FOR GENERAL PUBLIC ACCESS

March 22, 2016

County of Stanislaus Environmental Resources
Jami Aggers, Director of Environmental Resources
3800 Cornucopia Way, Suite C
Modesto, CA 95358

Subject: Notice of preparation for City of Newman 2015 Urban Water Management Plan

Dear Jami Aggers:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), urban water suppliers are required to prepare an Urban Water Management Plan and update it every five years. The City of Newman (City) is preparing the 2015 UWMP for submission to the California Department of Water Resources (DWR). The 2015 UWMP must be submitted to DWR no later than July 1, 2016.

We invite your participation in this process. A Draft of the 2015 UWMP will be made available for public review. Public hearings will be scheduled ahead of the adoption of the 2015 UWMP by the City council.

If you would like more information regarding the City of Newman 2015 UWMP please contact:

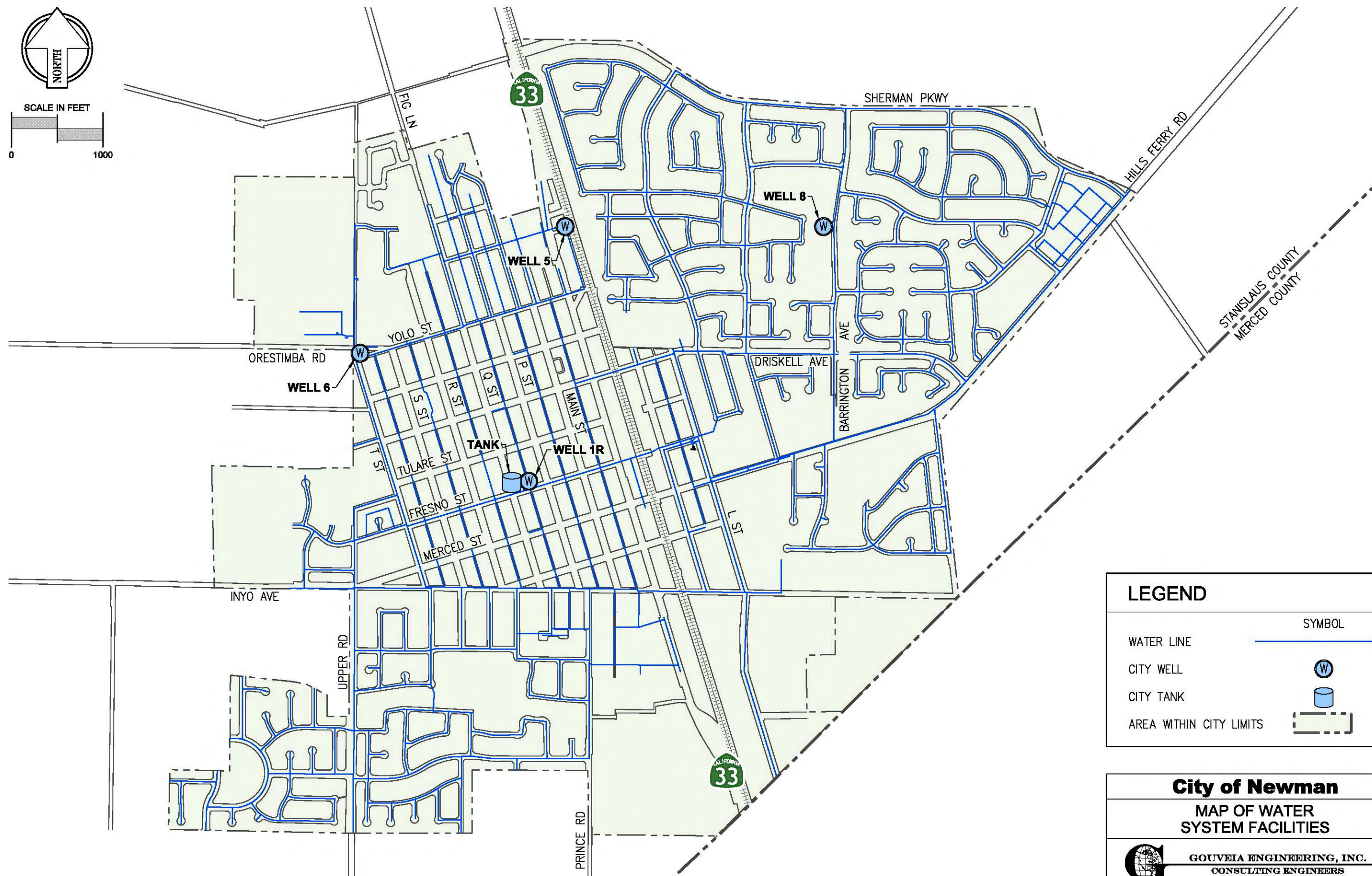
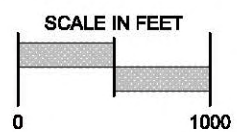
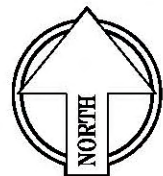
Koosun Kim, PE, QSD
Public Works Director
City of Newman
938 Fresno Street
Newman, CA 95360
E-mail: kkim@cityofnewman.com

Sincerely,

A handwritten signature in black ink, appearing to read 'Koosun Kim', is written over the word 'Sincerely,'.

Koosun Kim
City of Newman

Appendix D
SERVICE AREA MAP



LEGEND

	SYMBOL
WATER LINE	
CITY WELL	
CITY TANK	
AREA WITHIN CITY LIMITS	

City of Newman

MAP OF WATER SYSTEM FACILITIES



GOUVEIA ENGINEERING, INC.
CONSULTING ENGINEERS

456 Sixth Street • Gustine, California 95322 • Telephone (209) 854-3300

Appendix E
CLIMATE CHANGE VULNERABILITY ASSESSMENT

Chapter 13 Climate Change

The potential effects of climate change in California are well documented in multiple studies, reports and agencies communications (DWR, 2009; CNRA, 2012; Null, et al, 2010; DWR, 2011) and generally point to increased temperatures, sea level rise (SLR), a reduced winter snowpack, altered precipitation patterns, and more frequent storm events. The purpose of this section is to identify the forecasted climate change impacts specific to the Westside-San Joaquin Region and interpret these changes in climatic and hydrologic variables in terms of the region's vulnerability. This section also describes how the RMSs pursued in the region can be useful as adaptation responses for the areas of vulnerability and how the Region can monitor climate change information relevant to the region in the future. This section of the Westside-San Joaquin Region Integrated Water Resources Plan is not the only one that discusses it. Climate change aspects are relevant for many of the components of this plan (Objectives, Coordination, RMS, etc.) and it is therefore discussed, as applicable, in the respective chapters.

Climate change is a term with a very specific physical meaning – the long-term change in climatic conditions on the planet – but in the context of integrated regional water management, the term has crossover implications in the physical and natural systems, the social and economic activities, and the interaction between stakeholders to plan and implement projects and strategies to accomplish objectives. Several specific aspects of climate change (and terms) are discussed in this section:

- Climate change mitigation refers to reductions in greenhouse gas (GHG) emissions that may result from the implementation of policies, projects, and programs, and are discussed in this chapter when presenting RMSs considered by the Westside-San Joaquin Region
- Climate change adaptation refers to policies, projects and programs that can be used to reduce the vulnerability of the Region to climate change and are discussed in this chapter when presenting RMSs considered by the Westside-San Joaquin Region
- Climate change impacts refers to changes in specific climatic variables and sea level, but also the resulting impacts in specific aspects of the water resources system such as streamflows, snowpack, water temperature, ecosystem stress, etc. Impacts are discussed in this section first as part of the assessment of vulnerability, but also in terms of how the performance of specific projects and RMSs may vary as a result of climate change
- Climate change data refers to data, information, modeling results and forecasts related to specific climate, hydrology and ecology variables of interest to the Region. This is discussed in the vulnerability assessment at the end of the chapter when presenting a general plan for continued data gathering efforts

13.1 Legislative and Policy Context

The climate change elements of this WIWRP need to consider the current legislative, regulatory and policy context. In California, specifically, there are a number of policies and legislations dealing with climate change (mitigation, adaptation, vulnerability assessment). Relevant legislation pieces and resolutions in terms of California's response to climate change have been considered in this plan and are summarized in the next sections.

Executive Order EO S-3-05

EO S-3-05 establishes GHG emission reduction targets for California:

- By 2010, reduce GHG emissions to 2000 California levels
- By 2020, reduce GHG emissions to 1990 California levels
- By 2050, reduce GHG emissions to 80 percent below 1990 California levels

The California Environmental Protection Agency (CalEPA) has established the Climate Action Team (CAT) to coordinate efforts to meet these targets. Specifically relevant to the water sector is the Water-Energy subgroup (also known as WET-CAT) which is tasked with exploring mitigation strategies for energy consumption related to water use.

Assembly Bill 32

Assembly Bill 32 (AB 32), the California Global Warming Solutions Act of 2006, codifies the mid-term GHG reduction target established in EO S-3-05 and provides further details for those targets. AB 32 identifies the California Air Resources Board (CARB) as the State agency responsible to develop regulations, emission limits and additional measures to meet the limits.

CARB has designed a California cap-and-trade program that is enforceable and meets the requirements of AB 32. The program started on January 1, 2012, with an enforceable compliance obligation beginning with the 2013 GHG emissions.

Senate Bill 97 (2007)

Senate Bill 97 (SB 97) directed the Governor's Office of Planning and Research (OPR) to develop Guideline amendments for the California Environmental Quality Act (CEQA) to include the analysis of climate change in the environmental permitting process. The CEQA Guidelines call for lead agencies to determine baseline conditions and levels of significance and to evaluate mitigation measures. The guidelines do not prescribe mitigation measures.

Executive Order S-13-08 (2008)

EO S-13-08 is an executive order with the purpose of advancing California's ability to adapt to climate change and more specifically SLR. It directs a number of State agencies to engage in planning and research efforts to assess the vulnerability of California's transportation system and key coastal infrastructure to different SLR scenarios for the years 2050 and 2100. It also required the CAT (see EO S-3-05 above) to develop state strategies for adaptation in the water sector, ocean and coastal resources, infrastructure, biodiversity, and other areas.

California Ocean Protection Council Resolution

Adopted in March 2011, this resolution directs entities implementing coastal projects to consider SLR vulnerabilities and establishes that state agencies should make decisions regarding coastal and ocean management based upon guiding principles presented in the 2009 California Climate Adaptation Strategy (see below).

California Climate Adaptation Strategy (2009)

The Natural Resource Agency developed the California Climate Adaptation Strategy (2009) in response to EO S-13-08, outlining a set of guiding principles: "California must protect public health and safety and critical infrastructure; California must protect, restore, and enhance ocean and coastal ecosystems, on which our economy and wellbeing depend; California must ensure public access to coastal areas and

protect beaches, natural shoreline, and park and recreational resources; new development and communities must be planned and designed for long-term sustainability in the face of climate change; California must look for ways to facilitate adaptation of existing development and communities to reduce their vulnerability to climate change impacts over time; and California must begin now to adapt to the impacts of climate change. We can no longer act as if nothing is changing.”

Twelve key recommendations resulting from the strategy are:

1. Appoint a Climate Adaptation Advisory Panel (CAAP) to assess the greatest risks to California from climate change and to recommend strategies to reduce those risks, building on the Climate Change Adaptation Strategy.
2. Implement the 20x2020 water use reductions and expand surface and groundwater storage; implement efforts to fix Delta water supply, quality and ecosystems; support agricultural water use efficiency; improve statewide water quality; improve Delta ecosystem conditions; and stabilize water supplies as developed in the Bay Delta Conservation Plan.
3. Consider project alternatives that avoid significant new development in areas that cannot be adequately protected from flooding, wildfire, and erosion due to climate change.
4. Prepare, as appropriate, agency-specific adaptation plans, guidance or criteria.
5. For all significant state projects, including infrastructure projects, consider the potential impacts of locating such projects in areas susceptible to hazards resulting from climate change.
6. The CAAP and other agencies will assess California’s vulnerability to climate change, identify impacts to state assets, and promote climate adaptation/mitigation awareness through the Hazard Mitigation Web Portal and My Hazards Website, as well as other appropriate sites.
7. Identify key California land and aquatic habitats that could change significantly during this century due to climate change.
8. The California Department of Public Health will develop guidance for use by local health departments and other agencies to assess mitigation and adaptation strategies, which include impacts on vulnerable populations and communities, and assessment of cumulative health impacts.
9. Communities with General Plans and Local Coastal Plans should begin, when possible, to amend their plans to assess climate change impacts, identify areas most vulnerable to these impacts, and develop reasonable and rational risk reduction strategies using the CAS as guidance.
10. State firefighting agencies should begin immediately to include climate change impact information into fire program planning to inform future planning efforts.
11. State agencies should meet projected population growth and increased energy demand with greater energy conservation and an increased use of renewable energy.
12. New climate change impact research should be broadened and funded.

GHG Reporting Rule (2009)

Closely related to SB32 but at the federal level, in September 2009, United States Environmental Protection Agency (USEPA) released the Mandatory Reporting of Greenhouse Gases Rule (74FR56260, Reporting Rule) which requires reporting of GHG data and other relevant information from large sources and suppliers in the United States.

Senate Bill 375 (2008)

The Sustainable Communities and Climate Protection Act of 2008 (Sustainable Communities Act, SB 375) aligns with the State's goals to reduce GHG emissions through coordinated transportation and land use planning. Under the Act, CARB sets regional targets for GHG emissions reductions from passenger vehicle use. In 2010, ARB established these targets for 2020 and 2035 for each region covered by one of the State's metropolitan planning organizations (MPO). For the Westside-San Joaquin Region, the corresponding MPOs are the San Joaquin Council of Governments, Stanislaus Council of Governments, Merced County Association of Governments, Madera County Transportation Commission, and the Council of Fresno County Governments. CARB will periodically review and update the targets, as needed.

13.2 Climate Change Projections for the Region

For the WIWRP, two main sources of information have been used to define potential climate change impacts for the region. The first one is the Climate Resilience Evaluation and Awareness Tool (CREAT) tool developed by the USEPA, from which specific temperature and precipitation forecasts are available with geographic specificity. The second source of information is a study on hydrologic response and watershed sensitivity to climate change for the watersheds of the Sierra Nevada, published in 2010 (Null et. al., 2010). The importance of the hydrologic response study is that the climate variables of temperature and precipitation have been used as inputs to mechanistic hydrology models that forecast watershed impacts. The following sections describe the CREAT results and the analysis by Null et. al.

CREAT Results

The Climate Resilience Evaluation and Awareness Tool (CREAT) is a risk assessment- and scenario-based planning application for utilities in United States. Developed by USEPA, it contains basic national and regional climate science information, and has the ability to access data for specific geographic locations with comparisons of temperature and precipitation under mid-term and long-term conditions using different sets of predictions.

The most significant watersheds for the Westside-San Joaquin Region are the western-slope Sierra Nevada watersheds of the Stanislaus, Tuolumne, Merced, San Joaquin, and Kings Rivers. CREAT results were generated for an area in the Kings River headwaters and in the Tuolumne River headwaters (southern-most, mid/northern). Table 18 shows the predicted change in annual temperature and precipitation forecasted for the year 2060 for a global circulation model (GCM) with a hot and dry tendency (worst-case projections).

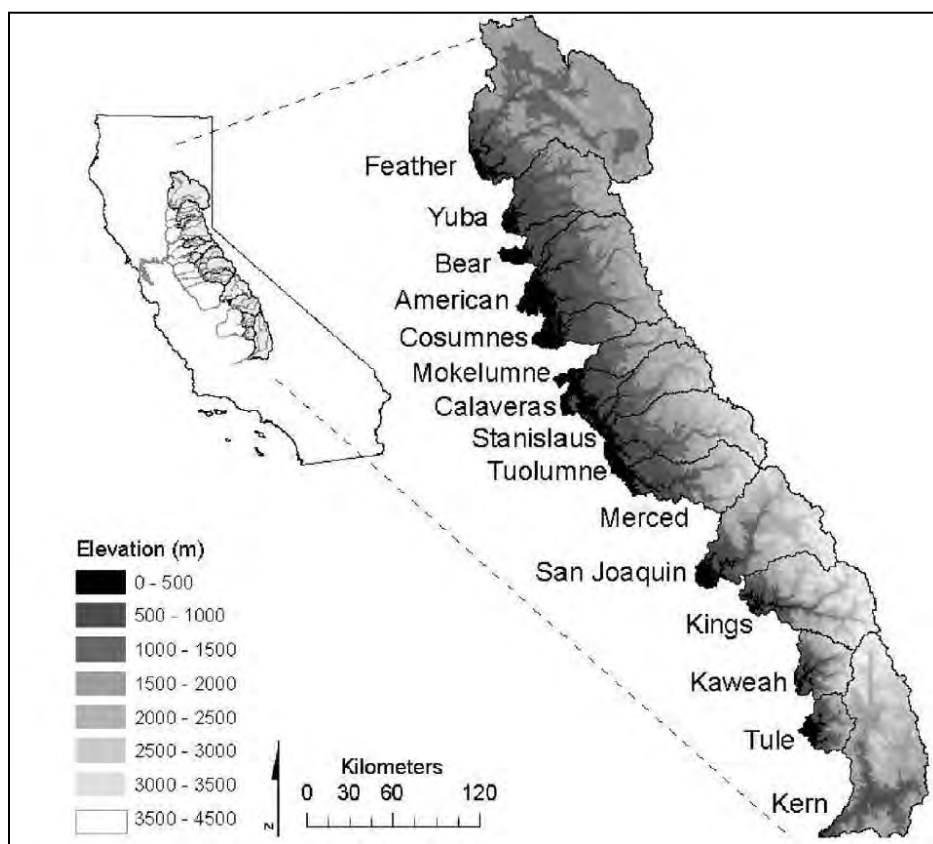
Table 18: Changes in Temperature and Precipitation (CREAT Results, 2060 Prediction)

Watershed	Average Temperature Difference	Annual Precipitation Difference	Storm Intensity Difference for 10-Year Storm
Kings River	+5.09 °F	-6.74 in.	+0.61 in./day
Tuolumne River	+4.95 °F	-7.05 in.	+0.91 in./day

The seasonality of precipitation changes from CREAT database models indicates that most of the precipitation differences would occur in the winter months, which is to be expected given the precipitation trends in California (e.g. wet season in winter).

Hydrology Impacts and Watershed Sensitivity

While the forecasted results in temperature and precipitation give an idea of how the local weather is expected to change on average, it is necessary to translate those changes into impacts on water resources systems. The study *Hydrologic Response and Watershed Sensitivity to Climate Warming in California's Sierra Nevada* (Null, et. al., 2010) assessed the differential hydrologic responses to climate change of 15 west-slope Sierra Nevada watersheds. Figure 14 shows the watersheds evaluated in the 2010 study. The Stanislaus, Tuolumne, Merced, San Joaquin, and Kings Rivers, which correspond to the most significant watersheds for the Westside-San Joaquin Region, are all included in the analysis.



Source: Null et al, 2010.

Figure 14: West-Slope Sierra Nevada Watersheds Studied

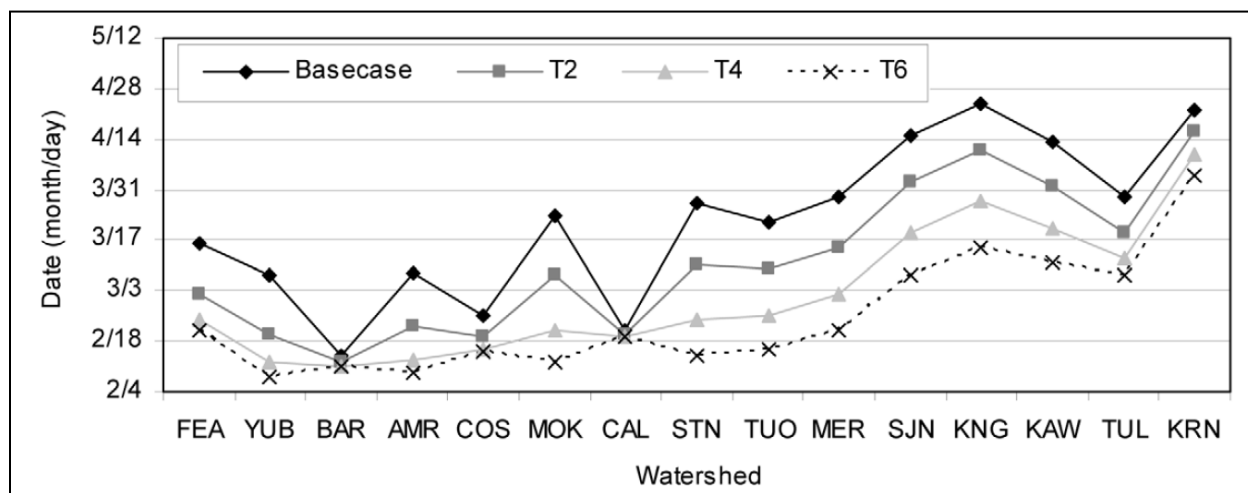
The study of hydrologic response and watershed sensitivity is based on a mechanistic hydrology model developed in WEAP21 (Water Evaluation and Planning model, developed by Stockholm Environmental Institute) to simulate intra-basin hydrologic dynamics given the climate variables. A weakness of the study is the fact that the precipitation used in the model is actual historical data as opposed to predicted precipitation from GCMs. The modeled period of 1981 to 2001, however, includes a wide range of climatic variability including the wettest year on record, the flood year of record and a prolonged drought, 1983, 1997, and 1988-1992, respectively. In terms of temperature, incremental climate warming alternatives were developed with uniform increases in air temperature of 2°C, 4°C, and 6°C (T2, T4 and T6, respectively) to evaluate impacts on regional water systems. For each scenario, the model produced simulated hydrology sequences and computed mean annual flow (MAF), centroid timing (CT) and low-flow duration (LFD) for each of the watersheds in the study.

Results of modeling the 15 watersheds indicated that increases in temperature generally result in lower MAF. A summary of the reduction in average annual flow for the relevant watersheds contributing flows to the Westside-San Joaquin Region is presented in Table 19. Reductions in MAF could have significant implication for the ability to meet demands for agricultural, urban and environmental water uses.

Table 19: Modeled Mean Annual Flow (MAF) for Watersheds and Temperature Scenarios

Watershed	Annual Average Flow (mcm)				Change from Base Case (%)		
	Base Case	T2	T4	T6	T2	T4	T6
Stanislaus	1,561	1,523	1,482	1,435	-2.4	-5.1	-8.1
Tuolumne	2,445	2,401	2,354	2,304	-1.8	-3.7	-5.8
Merced	1,348	1,308	1,272	1,237	-3.0	-5.6	-8.2
San Joaquin	2,294	2,265	2,235	2,201	-1.3	-2.6	-4.1
Kings	2,117	2,094	2,070	2,041	-1.1	-2.2	-3.6

In California climate change predictions, the timing of stream flows is consistently shown to be an element with considerable impact, affecting the management of surface water reservoirs for both flood control and water supply. The study by Null et. al. (2010) evaluated the runoff centroid timing (CT), which is the date at which the total annual runoff at the outlet of each watershed has passed. CT is mostly driven by snowmelt, which is of course driven by temperature. Results of the study for all of the 15 watersheds modeled are presented in Figure 15.



Source: Null et. al., 2010 – Figure 6, page 8

Base case – baseline scenario

T2 – 2°C temperature increase

T4 – 4°C temperature increase

T6 – 6°C temperature increase

FEA – Feather

YUB – Yuba

BAR – Bear

AMR – American

COS – Cosumnes

MOK – Mokelumne

CAL – Calaveras

STN – Stanislaus

TUO – Tuolumne

MER – Merced

SJN – San Joaquin

KNG – Kings

KAW – Kaweah

TUL – Tule

KRN – Kern

Figure 15: Average Centroid Timing by Watershed and Climate Scenario

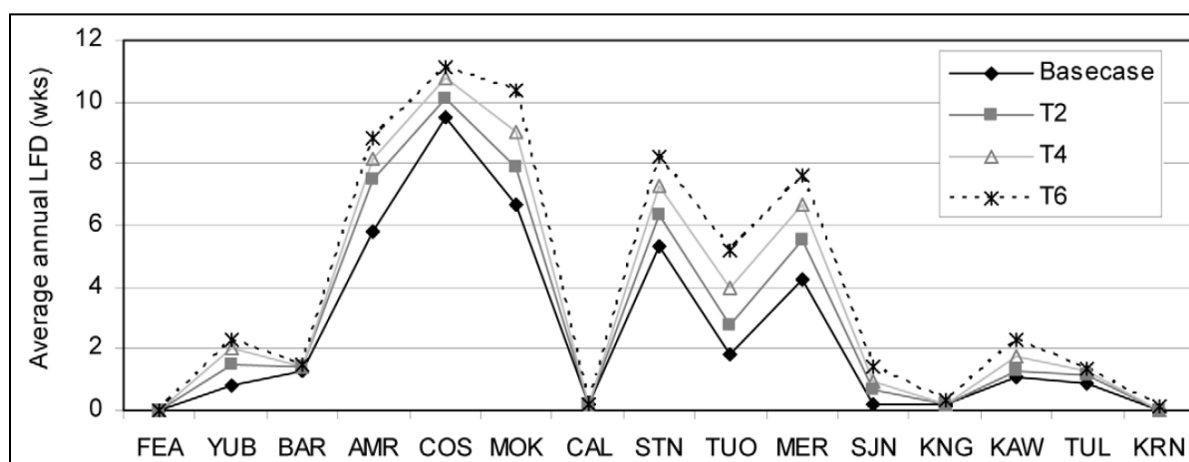
The results in Figure 15 are presented with the label for each watershed in the x-axis in the order of north to south. The y-axis presents the CT (date). The relevant watersheds for the Westside-San Joaquin Region are labeled as follows:

Stanislaus – STN
 Tuolumne – TUO
 Merced – MER
 San Joaquin – SJN
 Kings - KNG

The results show significant changes in CT as indicated by the separation of the lines from base case to T2, T4, and T6. The minimum difference in CT is for the scenario with a 2°C increase in temperature, which is about a 2-week change of in CT. The difference with T6 is over one month, indicating that the flows would arrive to the Region about more than a month earlier due to earlier snowmelt. This could have significant implications for water management in the Region. The watersheds of interest have very similar impacts in CT mostly due to the fact that they have similar proportion of areas of high and lower elevations. Areas of high elevations are more susceptible to hydrology changes due to temperature increase given that these are snowpack-driven watersheds.

A third variable simulated in the Null et. al. (2010) study is low flow duration (LFD). LFD is the number of weeks with “low flow” conditions and, in this case, “low flow” has been defined as periods of at least three weeks where weekly discharge divided by total discharge for the water year is less than 1%. Although this definition of low flow is not specifically related to a regulatory basis, it does represent a flow condition that can stress a water supply system and aquatic habitat.

The results of modeling simulating changes in CT are presented in Figure 16 with the label for each watershed in the x-axis in the order of north to south. The y-axis presents the number of weeks under low flow conditions (average over the hydrology years simulated).



Source: Null et. al., 2010 – Figure 8, page 9

Base case – baseline scenario

T2 – 2°C temperature increase

T4 – 4°C temperature increase

T6 – 6°C temperature increase

FEA – Feather

YUB – Yuba

BAR – Bear

AMR – American

COS – Cosumnes

MOK – Mokelumne

CAL – Calaveras

STN – Stanislaus

TUO – Tuolumne

MER – Merced

SJN – San Joaquin

KNG – Kings

KAW – Kaweah

TUL – Tule

KRN – Kern

Figure 16: Average Number of Low Flow Weeks by Watershed and Climate Scenario

For the relevant watersheds for the Westside-San Joaquin Region (Stanislaus, Tuolumne, Merced, San Joaquin and Kings), the results show changes in LFD for the Stanislaus, Tuolumne and Merced Rivers as indicated by the separation of the lines from base case to T2, T4, and T6. The minimum difference in LFD is for the scenario with a 2°C increase in temperature, which is about one more week of LFD. Changes are much less significant for the San Joaquin and Kings Rivers. It is also relevant to mention that the estimated LFD in this case are specifically for the rivers in a geographic location outside the Westside-San Joaquin Region. The low flows in these locations, however, will be likely correlated with lower flows downstream in areas within the Westside-San Joaquin Region.

Sea Level Rise (SLR)

Even though the Westside-San Joaquin Region is not a coastal region, it is dependent on the Central Valley Project (CVP) for water supply to a large extent. Disruptions in the overall operation of the CVP can result in impacts to all CVP contractors. This makes SLR a relevant, climate change-driven factor to consider in terms of vulnerability. The following section, where the vulnerability of the region is discussed, will include a description of the relevance of SLR to water supply for the Westside-San Joaquin Region. Table 20 presents assessments of potential SLR in the Delta region.

Table 20: Sea Level Rise Projections for San Francisco and Delta Region (2050)

Projection	Range
28.0 ± 9.2 cm	12.3-60.8 cm
11.0 ± 3.6 in	4.84-23.9 in

Source: NRC, 2012. Projected sea levels are increases in mean sea level for the year 2000

13.3 Westside-San Joaquin Region Vulnerability

The vulnerability of the Region has been assessed using the comprehensive characterization in the Region Description chapter of this plan, and using the studies referenced so far for California-wide predictions and specifically for areas relevant or within the Westside-San Joaquin Region. The different sectors of the water resources systems in the Region were assessed using the Department of Water Resources (DWR's) *Climate Change Handbook for Regional Water Planning* as a guideline. The following sections describe the areas of vulnerability that are also summarized in Table 21.

Table 21: Westside-San Joaquin Region Vulnerability to Climate Change

Area of Vulnerability	Summary
Water Demands	A large percentage of the water demand in the Westside-San Joaquin Region is driven by irrigation. Higher temperatures will drive evapotranspiration rates. This is applicable not only to agricultural demands (although that is the most significant impact), but also to outdoor demands in urban areas in the Region.
Water Supply	The Region is highly dependent on surface flows that are vulnerable to decreased precipitation and snowpack in the Sierra Nevada. The water management system in the Region, and intra-regionally, relies heavily in surface storage, including snowpack in the Sierras. The balance of water storage to snowpack is vulnerable with earlier snowmelt and more intense short-duration events. More extended and potentially more frequent droughts exacerbate vulnerability, compounding the supply vulnerability and resulting in expected higher demands in agricultural and urban areas.
Water Quality	Surface water quality is vulnerable due to several factors including the low flow duration, an expected reduction meadows and a potential increase in storm intensity with short-term turbidity effects. Groundwater quality can also be vulnerable due more pressure on aquifers to offset surface supply shortages creating overdraft conditions. Wildfires are expected to be more likely with post-event impacts to surface water quality.
Flood Management	Flood management is vulnerable to the changes in the balance of storage to streamflow triggered by earlier snowmelt. More intense storms are also predicted while meadow area may be reduced, eliminating a natural peak flow reduction mechanism.
Ecosystem and Habitat	Some terrestrial habitats will be vulnerable to increases in the frequency of wildfires, but the higher vulnerability may be in aquatic habitat due to changes in runoff timing and increased low flow periods and droughts. Higher water temperatures can also degrade water quality and stress aquatic species of interest.

These areas of vulnerability were discussed among the Westside-San Joaquin Region stakeholders and prioritized to help identify those areas members felt were important to address first. The ranking of these vulnerabilities were as follow:

High Priority (address first) – water supply, water quality and flood management vulnerabilities

Lower Priority (medium- to long-term solutions) – water demands and ecosystem/habitat vulnerabilities

Water Demands and Supply

The correlation between temperature and water demand for irrigation is well documented and understood. In the Westside-San Joaquin Region, about 800,000 acres are partially or solely irrigated with CVP water (depending on water availability conditions). Thus the largest percentage of the water demand is driven by agricultural irrigation, and higher temperatures will drive evapotranspiration rates, increasing demands. This is applicable not only to agricultural demands (although that is the most significant impact), but also to outdoor demands in urban areas in the region.

In terms of environmental demands, Section 3406(d)(1) of the CVPIA requires firm water supplies to be delivered to federal, state and some private wildlife refuges, as defined in the Central Valley Project

Improvement Act (CVPIA). Historically, the wetlands throughout the region received water from the San Joaquin River. Following development of the CVP, most of the refuges received irrigation tail water for much of their supply, until the CVPIA required firm water supplies of suitable quality to maintain and improve wetland habitat. This specific demand and other habitat-related demands may not increase, but will continue to stress water supply under climate change conditions.

Compounded with increases in demands is the fact that supply is projected to be vulnerable to climate change impacts. Reduced annual precipitation and the timing of that precipitation combined with higher temperatures will result in new seasonality of flows due to earlier snowmelt in the Sierra Nevada. Section 1.2 described the specific hydrology impacts for the Westside-San Joaquin Region.

Reduced surface water supplies could trigger a reduction in agricultural water use, resulting in a corresponding increase in groundwater use. This, in turn, may result in groundwater elevation declines such that infiltration from rivers to groundwater occurs, resulting in a groundwater-base flow disconnect. Many of the water users in the Region rely on groundwater on a permanent, seasonal or dry-year basis, and overall stresses in surface water make groundwater in the Tracy, Delta-Mendota and Westside subbasins susceptible to overdraft.

CVP Supply

Disruptions in the overall operation of the CVP can result in impacts to all CVP contractors, and some critical elements of the CVP are vulnerable to sea level rise in terms of salinity impacts. A rising sea level will impact the Delta by increasing the risk of overtopping and other forms of levee failure, and by increased saline/brackish tidal pressure, which if not countered by increases in freshwater outflows, will lead to higher salinity intrusion and higher salinity levels in the Delta.

The CVP's Jones Pumping Plant is located in the southwestern edge of the Delta and lifts water into the Delta-Mendota Canal, which travels southward to the Mendota Pool, supplying water along the way to other CVP reservoirs. Increased salinity levels at the plant due to a levee failure (with higher consequences exacerbated by SLR) could require a temporary stop in diversions to the CVP as, even though irrigation canals are not subject to drinking water regulations, agricultural users are sensitive to water quality, depending on the types of crop being grown. There are no set thresholds for salinity, bromide, or other constituents at which the Jones Pumping Plant would cease operations, but a significant increase in salinity in the vicinity of the pumping plants intakes could result in CVP disruption with impacts to the Westside-San Joaquin Region.

Water Quality

Surface water quality is vulnerable due to several factors, including larger periods of low flows, more frequent and intense droughts, and higher water temperature that can reduce dissolve oxygen concentrations. The vulnerability of meadows, even though the largest areas are geographically outside the Westside-San Joaquin Region, can have consequences in water quality since natural vegetation removes pollutants and/or prevent them from entering streams. Wildfires are expected to be more likely with post-event impacts to surface water quality also. A potential increase in storm intensity could also trigger short-term turbidity increases. These surface water negative impacts also affect habitat vulnerability, described below, by reducing or degrading suitable habitat.

Groundwater quality can also be vulnerable due more pressure on aquifers to offset surface supply shortages developing a need for deeper wells or shallower wells with lower water quality than currently produced. Overdraft conditions may persist for longer periods not allowing the basins to recover during periods of wet hydrology, with consequences for lower water quality. Increase pumping of deeper,

higher quality groundwater can result in increased vertical gradients, with poorer quality shallow groundwater migrating to and impacting the deeper zones.

Flood Management

A majority of the San Joaquin River's 100-year floodplain (in the stretch of the San Joaquin River at the geographic edge of the Westside-San Joaquin Region) is within the Region. The vulnerability of the region to floods is not just theoretical since there have been, in relatively recent past, critical flooding events with great consequences for the economy, infrastructure, assets and residents. These historical floods have been triggered by high peak flows due to high-intensity storms and/or rapid snowmelt at the Sierra Nevada foothills triggered by tropical storms. As described in Section 1.2, it is expected that more intense storms could result from climate change. The Westside-San Joaquin Region is vulnerable to changes in the balance of storage to streamflow triggered by earlier snowmelt under climate change conditions, and more intense storms are predicted while meadow area may be reduced, eliminating a natural peak flow attenuation mechanism.

Ecosystem and Habitat

There are a number of natural areas in the San Joaquin Valley that, while scattered throughout the region, provide concentrated areas of grasslands and habitats, such as freshwater marshes, valley sink scrub, and grassland vernal pool habitats. Some terrestrial habitats can be vulnerable to increase frequency of wildfires, but higher vulnerability exists for aquatic habitat due to changes in runoff timing and increased low flow periods and droughts. Increases in water demands and reductions in overall water supplies will add a significant water management challenge for the Region in protecting habitats under increased competition for limited supply, particularly in dry years. Higher water temperatures can also degrade water quality and stress aquatic species of interest.

Prioritizing Vulnerabilities

The Westside-San Joaquin Region has not coordinated an effort to explicitly and formally prioritize the vulnerabilities described above. The majority of the projects included in this WIWRP are related to, or have important components of, water supply, reflecting the Region's views on the importance of addressing water supply needs today and into the future. And while a key regional objective, this WIWRP also has strong statements relating to flood management and environmental stewardship.

13.4 Enhancing the Region's Adaptive Capacity

The Westside-San Joaquin Region has been collaborating on planning and program and project implementation efforts for many years. Regional planning has been the primary forum to address regional issues and conflicts, and this WIWRP is a new effort to address some urgent concerns. This WIWRP distinguishes itself from previous regional planning efforts in the Westside-San Joaquin Region in that a formal assessment of climate change impacts and vulnerability has been performed, and RMSs are discussed in the context of climate change adaptation and mitigation. It includes a discussion on climate change considerations for the strategies. In many cases, an RMS applicable to the Region has the potential to mitigate climate change impacts by reducing GHG emissions, and in many cases, the RMSs can be used to adapt to climate change impacts, reducing the Region's vulnerability. The RMSs are presented in Table 22 with references to the vulnerability areas in which they can increase the regions resiliency.

13.5 Plans for Future Data Gathering

The general strategy for climate change data gathering is to align this specific data collection need with the overall data management process for the Region. As part of IRWM project implementation, different types of data will be collected to track project performance and meet monitoring program requirements. Variables relevant to climate change will be combined with data collection processes and ongoing programs to minimize duplication of efforts.

Table 22: RMS Applicability to Climate Change Adaptation for Westside-San Joaquin Region

RMS	Vulnerability Area RMS Helps Support	RMS	Vulnerability Area RMS Helps Support
Agricultural Water Use Efficiency	WS, WD	Matching Quality to Use	WS, WD
Urban Water Use Efficiency	WS, WD	Pollution Prevention	WS, WQ, H
Conveyance – Delta		Salt and Salinity Management	WS, WQ, H
Conveyance – Regional/Local	WS, WD, WQ, FM, H	Urban Runoff Management	WS, FM, WQ, H
System Reoperation	WS, WQ	Agricultural Lands Stewardship	WD, WQ, H
Water Transfers	WS, WD	Economic Incentives (Loans, Grants, and Water Pricing)	WS, WD, WQ, FM, H
Conjunctive Management and Groundwater Storage	WS, WQ	Ecosystem Restoration	WQ, H
Desalination	WS, WQ	Forest Management	WS, WQ, H
Precipitation Enhancement	WS	Land Use Planning and Management	WS, WD, WQ, FM, H
Recycled Municipal Water	WS, WQ	Recharge Area Protection	SW, WQ, H
Surface Storage – CALFED		Water-Dependent Recreation	WQ, H
Surface Storage – Regional/Local	WS, FM, H	Watershed Management	WS, WD, WQ, FM, H
Drinking Water Treatment and Distribution	WS	Flood Risk Management	FM, H
Groundwater Remediation / Aquifer Remediation	WS, WQ	Outreach and Engagement	WS, WD, WQ, FM, H
Sediment Management	WQ, H	Water and Culture	WS, WD, WQ, FM, H

WS: Water Supply
 WD: Water Demand
 WQ: Water Quality
 FM: Flood Management
 H: Habitat

Appendix F
SB X7-7 VERIFICATION FORM

WUEdata Entry Exceptions

The data from the tables below will not be entered into WUEdata tables (the tabs for these tables' worksheets are colored **purple**). These tables will be submitted as separate uploads, in Excel, to WUEdata.

Process Water Deduction

SB X7-7 tables 4-C, 4-C.1, 4-C.2, 4-C.3, 4-C.4 and 4-D

A

supplier that will use the process water deduction will complete the appropriate tables in Excel, submit them as a separate upload to the WUE data tool, and include them in its UWMP.

Target Method 2

SB X7-7 tables 7-B, 7-C, and 7-D

A supplier that selects Target Method 2 will contact DWR (gwen.huff@water.ca.gov) for SB X7-7 tables 7-B, 7-C, and 7-D.

Target Method 4

These tables are only available online at

<http://www.dwr.water.ca.gov/wateruseefficiency/sb7/committees/urban/u4/ptm4.cfm>

A supplier

that selects Target Method 4 will save the tables from the website listed above, complete the tables, submit as a separate upload to WUE data, and include them with its UWMP.

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

(select one from the drop down list)

Million Gallons

**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	861	Million Gallons
	2008 total volume of delivered recycled water	0	Million Gallons
	2008 recycled water as a percent of total deliveries	0.0%	Percent
	Number of years in baseline period ¹	10	Years
	Year beginning baseline period range	2001	
	Year ending baseline period range ²	2010	
5-year baseline period	Number of years in baseline period	5	Years
	Year beginning baseline period range	2006	
	Year ending baseline period range ³	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 ending year must be between December 31, 2004 and December 31, 2010.			
³ The ending year must be between December 31, 2007 and December 31, 2010.			
NOTES:			

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

DWR recommends pre-review

NOTES:

SB X7-7 Table 3: Service Area Population

Year		Population
10 to 15 Year Baseline Population		
Year 1	2001	7,443
Year 2	2002	7,445
Year 3	2003	7,602
Year 4	2004	8,099
Year 5	2005	8,798
Year 6	2006	9,704
Year 7	2007	9,799
Year 8	2008	10,029
Year 9	2009	10,183
Year 10	2010	10,208
<i>Year 11</i>	<i>2011</i>	<i>10,474</i>
<i>Year 12</i>	<i>2012</i>	<i>10,546</i>
<i>Year 13</i>	<i>2013</i>	<i>10,626</i>
<i>Year 14</i>	<i>2014</i>	<i>10,695</i>
<i>Year 15</i>	<i>2015</i>	<i>10,753</i>
5 Year Baseline Population		
Year 1	2006	9,704
Year 2	2007	9,799
Year 3	2008	10,029
Year 4	2009	10,183
Year 5	2010	10,208
2015 Compliance Year Population		
2015		10,753
NOTES:		

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

Complete one table for each source.

Name of Source	Well 1R 1125 Fresno ST.			
This water source is:				
☒	The supplier's own water source			
☐	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	26.4	0.0	26.4
Year 2	2002	100.5	0.0	100.5
Year 3	2003	207.4	0.0	207.4
Year 4	2004	267.0	0.0	267.0
Year 5	2005	114.7	0.0	114.7
Year 6	2006	115.9	0.0	115.9
Year 7	2007	15.7	0.0	15.7
Year 8	2008	17.4	0.0	17.4
Year 9	2009	0.2	0.0	0.2
Year 10	2010	2.9	0.0	2.9
Year 11				
Year 12				
Year 13				
Year 14				
Year 15				
5 Year Baseline - Water into Distribution System				
Year 1	2006	115.9	0.0	115.9
Year 2	2007	15.7	0.0	15.7
Year 3	2008	17.4	0.0	17.4
Year 4	2009	0.2	0.0	0.2
Year 5	2010	2.9	0.0	2.9
2015 Compliance Year - Water into Distribution System				
2015		0.6	0.0	0.6
<i>* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document</i>				
NOTES:				

SB X7-7 Table 4-A: Volume Entering the Distribution				
Name of Source		Well 5 876 N ST.		
This water source is:				
☒	The supplier's own water source			
☐	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	209.9		209.9
Year 2	2002	157.4		157.4
Year 3	2003	75.5		75.5
Year 4	2004	107.3		107.3
Year 5	2005	105.7		105.7
Year 6	2006	135.9		135.9
Year 7	2007	142.7		142.7
Year 8	2008	142.4		142.4
Year 9	2009	76.8		76.8
Year 10	2010	148.2		148.2
Year 11				
Year 12				
Year 13				
Year 14				
Year 15				
5 Year Baseline - Water into Distribution System				
Year 1	2006	135.9		135.9
Year 2	2007	142.7		142.7
Year 3	2008	142.4		142.4
Year 4	2009	76.8		76.8
Year 5	2010	148.2		148.2
2015 Compliance Year - Water into Distribution System				
2015	88.5		88.5	
* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document				
NOTES:				

SB X7-7 Table 4-A: Volume Entering the Distribution				
Name of Source		Well 6 1002 T ST.		
This water source is:				
☒		The supplier's own water source		
☐		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	407.4		407
Year 2	2002	405.7		406
Year 3	2003	415.4		415
Year 4	2004	380.9		381
Year 5	2005	363.2		363
Year 6	2006	375.7		376
Year 7	2007	460.4		460
Year 8	2008	425.6		426
Year 9	2009	464.8		465
Year 10	2010	357.3		357
Year 11				
Year 12				
Year 13				
Year 14				
Year 15				
5 Year Baseline - Water into Distribution System				
Year 1	2006	375.7		376
Year 2	2007	460.4		460
Year 3	2008	425.6		426
Year 4	2009	464.8		465
Year 5	2010	357.3		357
2015 Compliance Year - Water into Distribution System				
2015	48.3		48	
* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document				
NOTES:				

SB X7-7 Table 4-A: Volume Entering the Distribution				
Name of Source		Well 8 1051 Barrington Ave.		
This water source is:				
☒		The supplier's own water source		
☐		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	0.0		0
Year 2	2002	0.0		0
Year 3	2003	0.0		0
Year 4	2004	0.0		0
Year 5	2005	249.1		249
Year 6	2006	237.4		237
Year 7	2007	303.5		303
Year 8	2008	275.9		276
Year 9	2009	243.7		244
Year 10	2010	214.7		215
Year 11				
Year 12				
Year 13				
Year 14				
Year 15				
5 Year Baseline - Water into Distribution System				
Year 1	2006	237.4		237
Year 2	2007	303.5		303
Year 3	2008	275.9		276
Year 4	2009	243.7		244
Year 5	2010	214.7		215
2015 Compliance Year - Water into Distribution System				
2015	481.0		481	
* Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document				
NOTES:				

☐

SB X7-7 Table 4-B: Indirect Recycled Water Use Deduction *(For use only by agencies that are deducting indirect recycled water)*

Baseline Year <i>Fm SB X7-7 Table 3</i>	Surface Reservoir Augmentation					Groundwater Recharge			Total Deductible Volume of Indirect Recycled Water Entering the Distribution System	
	Volume Discharged from Reservoir for Distribution System Delivery	Percent Recycled Water	Recycled Water Delivered to Treatment Plant	Transmission/ Treatment Loss	Recycled Volume Entering Distribution System from Surface Reservoir Augmentation	Recycled Water Pumped by Utility*	Transmission/ Treatment Losses	Recycled Volume Entering Distribution System from Groundwater Recharge		
10-15 Year Baseline - Indirect Recycled Water Use										
Year 1	2001	0	0%	0	0	0	0	0	0	0
Year 2	2002	0	0%	0	0	0	0	0	0	0
Year 3	2003	0	0%	0	0	0	0	0	0	0
Year 4	2004	0	0%	0	0	0	0	0	0	0
Year 5	2005	0	0%	0	0	0	0	0	0	0
Year 6	2006	0	0%	0	0	0	0	0	0	0
Year 7	2007	0	0%	0	0	0	0	0	0	0
Year 8	2008	0	0%	0	0	0	0	0	0	0
Year 9	2009	0	0%	0	0	0	0	0	0	0
Year 10	2010	0	0%	0	0	0	0	0	0	0
Year 11										
Year 12										
Year 13										
Year 14										
Year 15										
5 Year Baseline - Indirect Recycled Water Use										
Year 1	2006	0	0%	0	0	0	0	0	0	0
Year 2	2007	0	0%	0	0	0	0	0	0	0
Year 3	2008	0	0%	0	0	0	0	0	0	0
Year 4	2009	0	0%	0	0	0	0	0	0	0
Year 5	2010	0	0%	0	0	0	0	0	0	0
2015 Compliance - Indirect Recycled Water Use										
	2015	0	0%	0	0	0	0	0	0	0
*Suppliers will provide supplemental sheets to document the calculation for their input into "Recycled Water Pumped by Utility". The volume reported in this cell must be less than total groundwater pumped - See Methodology 1, Step 8, section 2.c.										
NOTES:										

SB X7-7 Table 4-C: Process Water Deduction Eligibility

(For use only by agencies that are deducting process water) Choose Only One

☐	Criteria 1- Industrial water use is equal to or greater than 12% of gross water use. Complete SB X7-7 Table 4-C.1
☐	Criteria 2 - Industrial water use is equal to or greater than 15 GPCD. Complete SB X7-7 Table 4-C.2
☐	Criteria 3 - Non-industrial use is equal to or less than 120 GPCD. Complete SB X7-7 Table 4-C.3
☒	Criteria 4 - Disadvantaged Community. Complete SB x7-7 Table 4-C.4

NOTES:

SB X7-7 Table 4-C.1: Process Water Deduction Eligibility
Criteria 1

Industrial water use is equal to or greater than 12% of gross water use

Baseline Year <i>Fm SB X7-7 Table 3</i>		Gross Water Use Without Process Water Deduction	Industrial Water Use	Percent Industrial Water	Eligible for Exclusion Y/N
10 to 15 Year Baseline - Process Water Deduction Eligibility					
Year 1	2001	644		0%	NO
Year 2	2002	664		0%	NO
Year 3	2003	698		0%	NO
Year 4	2004	755		0%	NO
Year 5	2005	833		0%	NO
Year 6	2006	865		0%	NO
Year 7	2007	922		0%	NO
Year 8	2008	861		0%	NO
Year 9	2009	786		0%	NO
Year 10	2010	723		0%	NO
Year 11	2011				
Year 12	2012				
Year 13	2013				
Year 14	2014				
Year 15	2015				
5 Year Baseline - Process Water Deduction Eligibility					
Year 1	2006	865		0%	NO
Year 2	2007	922		0%	NO
Year 3	2008	861		0%	NO
Year 4	2009	786		0%	NO
Year 5	2010	723		0%	NO
2015 Compliance Year - Process Water Deduction Eligibility					
2015		619		0%	NO
NOTES:					

SB X7-7 Table 4-C.2: Process Water Deduction Eligibility

Criteria 2

Industrial water use is equal to or greater than 15 GPCD

Baseline Year <i>Fm SB X7-7 Table 3</i>		Industrial Water Use	Population	Industrial GPCD	Eligible for Exclusion Y/N
10 to 15 Year Baseline - Process Water Deduction Eligibility					
Year 1	2001		7,443	0	NO
Year 2	2002		7,445	0	NO
Year 3	2003		7,602	0	NO
Year 4	2004		8,099	0	NO
Year 5	2005		8,798	0	NO
Year 6	2006		9,704	0	NO
Year 7	2007		9,799	0	NO
Year 8	2008		10,029	0	NO
Year 9	2009		10,183	0	NO
Year 10	2010		10,208	0	NO
Year 11					
Year 12					
Year 13					
Year 14					
Year 15					
5 Year Baseline - Process Water Deduction Eligibility					
Year 1	2006		9,704	0	NO
Year 2	2007		9,799	0	NO
Year 3	2008		10,029	0	NO
Year 4	2009		10,183	0	NO
Year 5	2010		10,208	0	NO
2015 Compliance Year - Process Water Deduction Eligibility					
2015			10,753	0	NO
NOTES:					

SB X7-7 Table 4-C.3: Process Water Deduction Eligibility
Criteria 3

Non-industrial use is equal to or less than 120 GPCD

Baseline Year <i>Fm SB X7-7 Table 3</i>	Gross Water Use Without Process Water Deduction <i>Fm SB X7-7 Table 4</i>	Industrial Water Use	Non-industrial Water Use	Population <i>Fm SB X7-7 Table 3</i>	Non-Industrial GPCD	Eligible for Exclusion Y/N
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10 to 15 Year Baseline - Process Water Deduction Eligibility

Year 1	2001	644		644	7,443	237	NO
Year 2	2002	664		664	7,445	244	NO
Year 3	2003	698		698	7,602	252	NO
Year 4	2004	755		755	8,099	255	NO
Year 5	2005	833		833	8,798	259	NO
Year 6	2006	865		865	9,704	244	NO
Year 7	2007	922		922	9,799	258	NO
Year 8	2008	861		861	10,029	235	NO
Year 9	2009	786		786	10,183	211	NO
Year 10	2010	723		723	10,208	194	NO
Year 11	2011						
Year 12	2012						
Year 13	2013						
Year 14	2014						
Year 15	2015						

5 Year Baseline - Process Water Deduction Eligibility

Year 1	2006	865		865	9,704	244	NO
Year 2	2007	922		922	9,799	258	NO
Year 3	2008	861		861	10,029	235	NO
Year 4	2009	786		786	10,183	211	NO
Year 5	2010	723		723	10,208	194	NO

2015 Compliance Year - Process Water Deduction Eligibility

2015	619		619	10,753	158	NO
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NOTES:

SB X7-7 Table 4-C.4: Process Water Deduction Eligibility**Criteria 4**

Disadvantaged Community

Use *IRWM DAC Mapping tool* http://www.water.ca.gov/irwm/grants/resources_dac.cfm

California Median Household Income	Service Area Median Household Income	Percentage of Statewide Average	Eligible for Exclusion? Y/N
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2015 Compliance Year - Process Water Deduction Eligibility

2010	\$61,489	\$4,893	8%	YES
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A "Disadvantaged Community" is a community with a median household income less than 80 percent of the statewide average.

NOTES:

SB X7-7 Table 4-D: Process Water Deduction - Volume*Complete a**separate table for each industrial customer with a process water exclusion*

Name of Industrial Customer		<i>Industrial Customer 1</i>				
Baseline Year <i>Fm SB X7-7 Table 3</i>	Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer	
10 to 15 Year Baseline - Process Water Deduction						
Year 1	2001				0	
Year 2	2002				0	
Year 3	2003				0	
Year 4	2004				0	
Year 5	2005				0	
Year 6	2006				0	
Year 7	2007				0	
Year 8	2008				0	
Year 9	2009				0	
Year 10	2010				0	
<i>Year 11</i>	2011				0	
<i>Year 12</i>	2012				0	
<i>Year 13</i>	2013				0	
<i>Year 14</i>	2014				0	
<i>Year 15</i>	2015				0	
5 Year Baseline - Process Water Deduction						
Year 1	2006				0	
Year 2	2007				0	
Year 3	2008				0	
Year 4	2009				0	
Year 5	2010				0	
2015 Compliance Year - Process Water Deduction						
2015					0	
NOTES:						

SB X7-7 Table 4-D: Process Water Deduction - Volume*Complete a**separate table for each industrial customer with a process water exclusion*

Name of Industrial Customer		<i>Industrial Customer 2</i>				
Baseline Year <i>Fm SB X7-7 Table 3</i>	Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer	
10 to 15 Year Baseline - Process Water Deduction						

Year 1	2001					0
Year 2	2002					0
Year 3	2003					0
Year 4	2004					0
Year 5	2005					0
Year 6	2006					0
Year 7	2007					0
Year 8	2008					0
Year 9	2009					0
Year 10	2010					0
Year 11	2011					0
Year 12	2012					0
Year 13	2013					0
Year 14	2014					0
Year 15	2015					0
5 Year Baseline - Process Water Deduction						
Year 1	2006					0
Year 2	2007					0
Year 3	2008					0
Year 4	2009					0
Year 5	2010					0
2015 Compliance Year - Process Water Deduction						
2015						0
NOTES:						

SB X7-7 Table 4-D: Process Water Deduction - Volume					Complete a
separate table for each industrial customer with a process water exclusion					
Name of Industrial Customer		Industrial Customer 3			
Baseline Year <i>Fm SB X7-7 Table 3</i>	Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer
10 to 15 Year Baseline - Process Water Deduction					
Year 1	2001				0
Year 2	2002				0
Year 3	2003				0
Year 4	2004				0
Year 5	2005				0
Year 6	2006				0
Year 7	2007				0
Year 8	2008				0
Year 9	2009				0
Year 10	2010				0
Year 11	2011				0

Year 12	2012					0
Year 13	2013					0
Year 14	2014					0
Year 15	2015					0
5 Year Baseline - Process Water Deduction						
Year 1	2006					0
Year 2	2007					0
Year 3	2008					0
Year 4	2009					0
Year 5	2010					0
2015 Compliance Year - Process Water Deduction						
2015						0
NOTES:						

SB X7-7 Table 4-D: Process Water Deduction - Volume						Complete a
separate table for each industrial customer with a process water exclusion						
Name of Industrial Customer			Industrial Customer 4			
Baseline Year <i>Fm SB X7-7 Table 3</i>	Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer	
10 to 15 Year Baseline - Process Water Deduction						
Year 1	2001				0	
Year 2	2002				0	
Year 3	2003				0	
Year 4	2004				0	
Year 5	2005				0	
Year 6	2006				0	
Year 7	2007				0	
Year 8	2008				0	
Year 9	2009				0	
Year 10	2010				0	
<i>Year 11</i>	2011				0	
<i>Year 12</i>	2012				0	
<i>Year 13</i>	2013				0	
<i>Year 14</i>	2014				0	
<i>Year 15</i>	2015				0	
5 Year Baseline - Process Water Deduction						
Year 1	2006				0	
Year 2	2007				0	
Year 3	2008				0	
Year 4	2009				0	
Year 5	2010				0	
2015 Compliance Year - Process Water Deduction						

2015					0
NOTES:					

SB X7-7 Table 4-D: Process Water Deduction - Volume *Complete a separate table for each industrial customer with a process water exclusion*

Name of Industrial Customer *Industrial Customer 5*

Baseline Year <i>Fm SB X7-7 Table 3</i>	Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer
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10 to 15 Year Baseline - Process Water Deduction

Year 1	2001				0
Year 2	2002				0
Year 3	2003				0
Year 4	2004				0
Year 5	2005				0
Year 6	2006				0
Year 7	2007				0
Year 8	2008				0
Year 9	2009				0
Year 10	2010				0
<i>Year 11</i>	2011				0
<i>Year 12</i>	2012				0
<i>Year 13</i>	2013				0
<i>Year 14</i>	2014				0
<i>Year 15</i>	2015				0

5 Year Baseline - Process Water Deduction

Year 1	2006				0
Year 2	2007				0
Year 3	2008				0
Year 4	2009				0
Year 5	2010				0

2015 Compliance Year - Process Water Deduction

2015					0
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NOTES:

SB X7-7 Table 4-D: Process Water Deduction - Volume *Complete a separate table for each industrial customer with a process water exclusion*

Name of Industrial Customer *Industrial Customer 6*

Baseline Year <i>Fm SB X7-7 Table 3</i>		Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer
10 to 15 Year Baseline - Process Water Deduction						
Year 1	2001					0
Year 2	2002					0
Year 3	2003					0
Year 4	2004					0
Year 5	2005					0
Year 6	2006					0
Year 7	2007					0
Year 8	2008					0
Year 9	2009					0
Year 10	2010					0
Year 11	2011					0
Year 12	2012					0
Year 13	2013					0
Year 14	2014					0
Year 15	2015					0
5 Year Baseline - Process Water Deduction						
Year 1	2006					0
Year 2	2007					0
Year 3	2008					0
Year 4	2009					0
Year 5	2010					0
2015 Compliance Year - Process Water Deduction						
2015						0
NOTES:						

SB X7-7 Table 4-D: Process Water Deduction - Volume						Complete a
separate table for each industrial customer with a process water exclusion						
Name of Industrial Customer		Industrial Customer 7				
Baseline Year <i>Fm SB X7-7 Table 3</i>		Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer
10 to 15 Year Baseline - Process Water Deduction						
Year 1	2001					0
Year 2	2002					0
Year 3	2003					0

Year 4	2004					0
Year 5	2005					0
Year 6	2006					0
Year 7	2007					0
Year 8	2008					0
Year 9	2009					0
Year 10	2010					0
Year 11	2011					0
Year 12	2012					0
Year 13	2013					0
Year 14	2014					0
Year 15	2015					0
5 Year Baseline - Process Water Deduction						
Year 1	2006					0
Year 2	2007					0
Year 3	2008					0
Year 4	2009					0
Year 5	2010					0
2015 Compliance Year - Process Water Deduction						
2015						0
NOTES:						

SB X7-7 Table 4-D: Process Water Deduction - Volume					Complete a
separate table for each industrial customer with a process water exclusion					
Name of Industrial Customer		Industrial Customer 8			
Baseline Year <i>Fm SB X7-7 Table 3</i>	Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer
10 to 15 Year Baseline - Process Water Deduction					
Year 1	2001				0
Year 2	2002				0
Year 3	2003				0
Year 4	2004				0
Year 5	2005				0
Year 6	2006				0
Year 7	2007				0
Year 8	2008				0
Year 9	2009				0
Year 10	2010				0
Year 11	2011				0
Year 12	2012				0
Year 13	2013				0
Year 14	2014				0

Year 15	2015					0
5 Year Baseline - Process Water Deduction						
Year 1	2006					0
Year 2	2007					0
Year 3	2008					0
Year 4	2009					0
Year 5	2010					0
2015 Compliance Year - Process Water Deduction						
2015						0
NOTES:						

SB X7-7 Table 4-D: Process Water Deduction - Volume						Complete a
separate table for each industrial customer with a process water exclusion						
Name of Industrial Customer			Industrial Customer 9			
Baseline Year Fm SB X7-7 Table 3	Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer	
10 to 15 Year Baseline - Process Water Deduction						
Year 1	2001				0	
Year 2	2002				0	
Year 3	2003				0	
Year 4	2004				0	
Year 5	2005				0	
Year 6	2006				0	
Year 7	2007				0	
Year 8	2008				0	
Year 9	2009				0	
Year 10	2010				0	
Year 11	2011				0	
Year 12	2012				0	
Year 13	2013				0	
Year 14	2014				0	
Year 15	2015				0	
5 Year Baseline - Process Water Deduction						
Year 1	2006				0	
Year 2	2007				0	
Year 3	2008				0	
Year 4	2009				0	
Year 5	2010				0	
2015 Compliance Year - Process Water Deduction						
2015					0	
NOTES:						

SB X7-7 Table 4-D: Process Water Deduction - Volume

Complete a

separate table for each industrial customer with a process water exclusion

Name of Industrial Customer

Industrial Customer 10

Baseline Year <i>Fm SB X7-7 Table 3</i>	Industrial Customer's Total Water Use	Total Volume Supplied by Water Agency	% of Water Supplied by Water Agency	Customer's Total Process Water Use	Volume of Process Water Eligible for Exclusion for this Customer
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10 to 15 Year Baseline - Process Water Deduction

Year 1	2001					0
Year 2	2002					0
Year 3	2003					0
Year 4	2004					0
Year 5	2005					0
Year 6	2006					0
Year 7	2007					0
Year 8	2008					0
Year 9	2009					0
Year 10	2010					0
Year 11	2011					0
Year 12	2012					0
Year 13	2013					0
Year 14	2014					0
Year 15	2015					0

5 Year Baseline - Process Water Deduction

Year 1	2006					0
Year 2	2007					0
Year 3	2008					0
Year 4	2009					0
Year 5	2010					0

2015 Compliance Year - Process Water Deduction

2015					0
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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	7,443	644	237
Year 2	2002	7,445	664	244
Year 3	2003	7,602	698	252
Year 4	2004	8,099	755	255
Year 5	2005	8,798	833	259
Year 6	2006	9,704	865	244
Year 7	2007	9,799	922	258
Year 8	2008	10,029	861	235
Year 9	2009	10,183	786	211
Year 10	2010	10,208	723	194
Year 11				
Year 12				
Year 13				
Year 14				
Year 15				
10-15 Year Average Baseline GPCD				239
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	9,704	865	244
Year 2	2007	9,799	922	258
Year 3	2008	10,029	861	235
Year 4	2009	10,183	786	211
Year 5	2010	10,208	723	194
5 Year Average Baseline GPCD				229
2015 Compliance Year GPCD				
2015		10,753	619	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	239
5 Year Baseline GPCD	229
2015 Compliance Year GPCD	158

NOTES:

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

Target Method		Supporting Documentation
☒	Method 1	SB X7-7 Table 7A
☐	Method 2	SB X7-7 Tables 7B, 7C, and 7D <i>Contact DWR for these tables</i>
☐	Method 3	SB X7-7 Table 7-E
☐	Method 4	Method 4 Calculator

NOTES:

SB X7-7 Table 7-A: Target Method 1
20% Reduction

10-15 Year Baseline	GPCD	2020 Target GPCD
239		191
NOTES:		

SB X7-7 Table 7-B: Target Method 2 Landscape Water Use	Target
Tables for Target Method 2 (SB X7-7 Tables 7-B, 7-C, and 7-D) are not included in the SB X7-7 Verification Form, but are still required for water suppliers using Target Method 2. These water suppliers should contact Gwen Huff at (916) 651-9672 or gwen.huff@water.ca.gov	

SB X7-7 Table 7-C: Target Method 2**Target CII Water Use**

Tables for Target Method 2 (SB X7-7 Tables 7-B, 7-C, and 7-D) are not included in the SB X7-7 Verification Form, but are still required for water suppliers using Target Method 2. These water suppliers should contact Gwen Huff at (916) 651-9672 or gwen.huff@water.ca.gov

SB X7-7 Table 7-D: Target Method 2 Summary

Tables for Target Method 2 (SB X7-7 Tables 7-B, 7-C, and 7-D) are not included in the SB X7-7 Verification Form, but are still required for water suppliers using Target Method 2. These water suppliers should contact Gwen Huff at (916) 651-9672 or gwen.huff@water.ca.gov

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

Agency May Select More Than One as Applicable	Percentage of Service Area in This Hydrological Region	Hydrologic Region	"2020 Plan" Regional Targets	Method 3 Regional Targets (95%)
☐		North Coast	137	130
☐		North Lahontan	173	164
☐		Sacramento River	176	167
☐		San Francisco Bay	131	124
☒	100%	San Joaquin River	174	165
☐		Central Coast	123	117
☐		Tulare Lake	188	179
☐		South Lahontan	170	162
☐		South Coast	149	142
☐		Colorado River	211	200
Target <i>(If more than one region is selected, this value is calculated.)</i>				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*	Calculated 2020 Target <i>Fm Appropriate Target Table</i>	Confirmed 2020 Target
229	217	191	191

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

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
191	239	215

NOTES:

SB X7-7 Table 9: 2015 Compliance

Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments <i>(in GPCD)</i>					2015 GPCD <i>(Adjusted if applicable)</i>	Did Supplier Achieve Targeted Reduction for 2015?
		Extraordinary Events	Weather Normalization	Economic Adjustment	TOTAL Adjustments	Adjusted 2015 GPCD		
158	215	<i>From Methodology 8 (Optional)</i>	<i>From Methodology 8 (Optional)</i>	<i>From Methodology 8 (Optional)</i>	0	158	158	YES

NOTES:

Appendix G
GROUNDWATER BULLETIN 118

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 Group ¹	Number of wells sampled ²	Number of wells with a concentration above an MCL ³
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)	Mineral, nutrient, & minor element.	
Department of Health Services (incl. Cooperators)	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. 1995. 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. 1989. *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 H
WATER CONSERVATION RESOLUTION

ORDINANCE NO. 2015-2

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF NEWMAN, CALIFORNIA, AMENDING TITLE 11 PUBLIC WAYS AND PROPERTY, ADDING CHAPTER 11.05A WATER CONSERVATION AND EDUCATION AND RESCINDING SECTION 11.05.230 IRRIGATION OF LAWNS AND LANDSCAPING OF THE NEWMAN CITY CODE COMPLYING WITH STATE EMERGENCY WATER CONSERVATION REGULATIONS

WHEREAS, in response to the Governor's January 17, 2014 drought emergency proclamation, the State Water Resources Control Board (SWRCB) at its July 15th, 2014 meeting approved emergency regulations to ensure water agencies, their customers, and state residents increase conservation in urban settings, with a specific emphasis on outdoor irrigation; and

WHEREAS, on April 1, 2015, Governor Brown signed Executive Order B-29-15, directing the State Water Board to impose restrictions to achieve a statewide 25 percent reduction in potable urban water usage through February 2016, as compared to the amount used in 2013.

WHEREAS, the SWRCB's emergency regulations require urban water suppliers to implement all requirements and actions of the stage of its water shortage contingency plan that imposes mandatory restrictions on outdoor irrigation and to submit monthly monitoring reports to the SWRCB that include the amount of potable water produced in the prior month, and the gallons of water used per capita in its service territory; and

WHEREAS, the City's new Water Conservation and Education ordinance specifies what actions the City may take in response to different stages of water shortage emergencies; and

WHEREAS, the new Water Conservation and Education ordinance provides flexibility in selecting the exact strategy to be used to respond to a particular water shortage situation; and

WHEREAS, the City's new Water Conservation and Education ordinance includes comparable requirements to those outlined in Section 11.05.230 Irrigation of lawns and landscaping of the Newman City Code thereby making Section 11.05.230 obsolete; and

WHEREAS, in order to comply with the SWRCB directive, it is recommended City Council adopt said Ordinance implementing the Water Conservation and Education Program; and

WHEREAS, the City of Newman held a Public Hearing on May 26, 2015 as noticed, to allow the City Council to hear and consider all protests and objections concerning the proposed Water Conservation and Education ordinances; and

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF NEWMAN DOES ORDAIN AS FOLLOWS:

SECTION 1

The recitals above are true and correct, and the City Council hereby makes the findings set forth herein

SECTION 2

That Section 11.05.230 Irrigation of lawns and landscaping of the Newman City Code be rescinded as follows:

11.05.230 — Irrigation of lawns and landscaping.

~~A. All outside watering, including lawns and landscaping, shall be prohibited between the hours of 1:00 p.m. and 6:00 p.m. It shall be unlawful for any person, firm or corporation to conduct outside watering during said times, unless approval, for good cause, has been granted by the Public Works Director.~~

~~B. Whenever landscaping or a landscape plan is required by this title, water efficient landscaping shall be required. Guidelines shall conform to the standards contained in the "Water Efficient Landscape Guidelines" as promulgated by the Public Works Director and adopted herein by reference.~~

C. Driveways, sidewalks, building exteriors and parking lots may be hosed down with the use of a quick-acting, shut-off hose nozzle.

D. Wastewater shall include the use of lawn sprinklers when it is raining and the watering of lawns, ground cover, shrubbery and trees in a manner or to an extent which allows substantial amounts of excess water to run off the area being watered.

E. Quick-acting shut-off hose nozzles shall be required for car washing.

F. Any violation of the provisions of this section shall constitute an infraction and shall be punished by a fine of \$25.00 for the first violation after a warning in writing, \$50.00 for a second violation within one year, and a fine of \$100.00 for each additional violation within one year. The City may, at its option, discontinue the service after the third violation after giving the customer written notice. (Ord. 93-2, 3-23-1993; Ord. 92-19, 12-8-1992)

(deletions as strikeouts)

SECTION 3

That Title 11 of the Newman City Code be amended to add Chapter 11.5A Water Conservation And Education as stated in Attachment "A", attached hereto and made a part hereof by this reference.

SECTION 4

All other sections and provisions of Title 11 shall remain in full force and effect.

SECTION 5

This Ordinance shall take effect 30 days after the date of its adoption, and prior to the expiration of 15 days from the passage thereof shall be published at least once in the West Side Index, a newspaper of general circulation, published and circulated in the City of Newman and thenceforth and thereafter the same shall be in full force and effect.

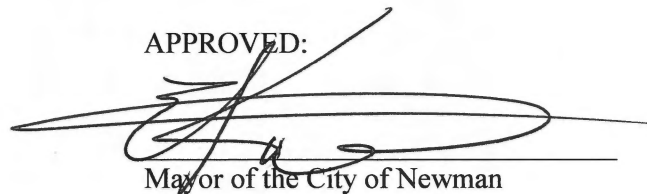
Introduced at a regular meeting of the City Council of the City of Newman held on the 12th day of May, 2015 by Council Member Martina and adopted at a regular meeting of said City Council held on the 26th day of May, 2015 by the following vote:

AYES: Graham, Candea, Martina and Mayor Katen.

NOES: None.

ABSENT: Davis.

APPROVED:



Mayor of the City of Newman

ATTEST:


City Clerk of the City of Newman

ATTACHMENT “A”
TITLE 11 PUBLIC WAYS AND PROPERTY
CHAPTER 11.5A WATER CONSERVATION AND EDUCATION

Article I. Purpose

11.5A.010 Purpose.

11.5A.020 Findings.

Article II. Education

11.5A.030 Education.

Article III. Water Conservation Schedule and Prohibitions

11.5A.040 Outdoor Landscape Watering.

11.5A.050 Prohibitions.

Article IV. Emergency Water Shortage Plan

11.5A.060 Title.

11.5A.070 Declaration of Policy: Purpose.

11.5A.080 City Manager: Authorized Action.

11.5A.090 Application.

11.5A.100 Water Conservation Stages.

11.5A.110 Mandatory Water Conservation Compliance Phase Implementation.

11.5A.120 Water Wasting Prohibited.

11.5A.130 Acts Constituting Water Wasting.

11.5A.140 Notice Of Acts Constituting Water Wasting.

11.5A.150 Penalty Fee Assessment For Water Wasting.

11.5A.160 Appeal.

11.5A.170 Appeal Hearing Request.

11.5A.180 Failure to Pay Penalty Fee.

Article I. Purpose

11.5A.010 Purpose.

The purpose and intent of the Council in enacting this Chapter is to protect the health, safety, welfare and interest of the public, and of patrons of establishments regulated by this Code by requiring that the patrons, establishments and persons conserve and not waste water by requiring that such establishments and persons conform to the water conservation procedures set forth in this chapter.

11.5A.020 Findings.

- A. As a result of the drought and the understanding that water is a precious resource, the City Council finds that any ordinance relating to the conservation of water is an urgency matter for the health, safety and general welfare of the public;
- B. The Constitution of the State of California and California Case Law provide that water shall not be wasted;
- C. To prevent the waste of water it is the intent of the City Council of the City of Newman to adopt reasonable rules regulating the use of water for outdoor landscape watering and other ancillary uses;
- D. The City Council is mindful of the importance of conserving water.

Article II. Education

11.5A.030 Education.

- A. The City Council, as part of supplementation of this Chapter, will provide information to the public through the City Manager and City departments regarding the proper use to minimize the volume of water needed for a given function.
- B. The Council, in an effort to carry out its findings and legislative purpose, sponsors this educational program with the intent that through proper education and implementation of water conservation procedures persons and establishments may continue to function with a significant savings in the volume of water.

Article III. Water Conservation Schedule and Prohibitions

11.5A.040 Outdoor Landscape Watering.

All users of water within the City limits of the City of Newman are subject to the following regulation:

- A. From March 1st to October 31st, all outside watering, including lawns and landscaping, shall be prohibited between the hours of 1:00 p.m. and 6:00 p.m. It shall be unlawful for any person, firm or corporation to conduct outside watering during said times, unless approval, for good cause, has been granted by the Public Works Director.

11.5A.050 Prohibitions.

- A. Newly planted lawns may be allowed daily watering only until the second mowing has been completed upon notification of the Public Works Department to planting.

- B. The washing down or hosing of recreational vehicles, sidewalks, gutters, outside structures, or other exterior surfaces without prior written consent of the City Manager or his designee is prohibited and a violation of this chapter. Sweeping or brushing is required unless prior approval for water use is obtained.
- C. The filling of wading pools is permitted, but "slip-n-slides" and other recreational activities requiring a constant flow of water are prohibited.
- D. The washing of vehicles at a residence is allowed only if a quick-acting automatic positive shut-off valve is used and in proper operating condition including the discharge of treated wash waters, and is limited to one (1) such washing per week per vehicle during designated watering days and times. This section is subject to the provisions of Newman Municipal Code Chapter 11.12 Storm Water management and Discharge Control.

Article IV. Emergency Water Shortage Plan

11.5A.060 Title.

There is hereby established the "City of Newman Emergency Water Shortage Plan."

11.5A.070 Declaration of Policy: Purpose.

- A. Declaration of policy. The City Council hereby declares that the general welfare requires that the water resources available to the City be put to the maximum beneficial use to the extent to which the City is capable, and that the waste of, unreasonable use of, or unreasonable method of use of water be prevented. The conservation of such water is to insure the reasonable and beneficial use thereof in the interests of the people of the City of Newman and for the public welfare.
- B. Purpose. The City Council finds and declares that consolidating the various provisions of Ordinance associated with water conservation into one readily accessible document shall provide a more professional and usable work product as well as promote a better public understanding of the various procedures and provisions of the Newman Emergency Water Shortage Plan. Additionally, adding provisions prohibiting water wasting and defining the acts which so constitute water wasting advances the purpose and policy of the Newman Emergency Water Shortage Plan.

11.5A.080 City Manager: Authorized Action.

The City Manager, or his or her designee, is hereby authorized and directed to implement the provisions of this chapter upon a determination that same is necessary to protect the public welfare and safety.

11.5A.090 Application.

The provisions of this chapter shall apply to all persons, customers and property served by the City of Newman.

11.5A.100 Water Conservation Stages.

A. STAGE 1 – MANDATORY WATER CONSERVATION.

Stage 1 calls for a low level of informational outreach and enforcement of the permanent water use ordinances. Customers of the City of Newman are hereby directed to limit the amount of water used on a year round basis. Due to the characteristics of the current City of Newman water system, additional water conservation is needed between March 1st and October 31st each year as established by Section 11.05A.040.

B. STAGE 2 – MANDATORY WATER CONSERVATION COMPLIANCE: WARNING.

Upon implementation of this chapter by the City Manager pursuant to Section 11.5A.080 of this Code, and publication of notice that Stage 2 Mandatory Conservation Compliance Measures are in effect, the following mandatory conservation compliance measures shall apply:

- (1) Outdoor landscape watering. Outdoor landscape watering shall be limited to three times per week on an odd-even basis in accordance with Section 11.5A.100 B(2). If the address ends in an even number, the water days shall be Tuesday, Thursday and Saturday. If the address ends in an odd number, the watering days will be Wednesday, Friday and Sunday.
- (2) Outdoor watering is prohibited between the hours of 1 p.m. and 6 p.m.
- (3) Large commercial landscapes and City parks shall have individual watering schedules approved by the Public Works Department.
- (4) Residential vehicle washing. Residents shall be allowed to wash their vehicles as established by Section 11.05A.050 D.

C. STAGE 3 – MANDATORY WATER CONSERVATION COMPLIANCE: WARNING.

Upon implementation of this Chapter by the City Manager pursuant to Section 11.5A.080 of this Code, and publication of notice that Stage 3 Mandatory Conservation Compliance Measures are in effect, the following Mandatory Water Conservation Compliance Measures shall apply:

- (1) Outdoor Landscaping Watering. Outdoor landscape watering shall be limited to two times per week in accordance with Section 11.5A.100 B(2). If the address ends in an even number, the watering days shall be Tuesday and Saturday. If the address ends in an odd number, the watering days shall be Wednesday and Sunday.
- (2) Large commercial landscapes and City parks shall also be limited to two days per week, as scheduled by the Public Works Department.
- (3) Residential vehicle washing. Residents shall be allowed to wash their vehicles as established by Section 11.05A.050 D.
- (4) Further use of decorative fountains or reflection ponds shall be disconnected until further notice.

D. STAGE 4 – MANDATORY WATER CONSERVATION COMPLIANCE: WARNING.

Upon implementation of this Chapter by the City Manager pursuant to Section 11.5A.080 and publication of notice that Stage 4 Mandatory Conservation Compliance Measures are in effect, the following mandatory conservation compliance measures shall apply:

- (1) Outdoor landscape watering shall be limited to one day per week. If the address ends in an even number, the watering day shall be Saturday. If the address ends in an odd number, the watering day shall be Sunday. Watering hours shall be in accordance with Section 11.05A.100 B(2). No outdoor landscaping watering Monday through Friday.
- (2) Large commercial landscaping and City parks shall be limited to one (1) day per week, as scheduled by the Public Works Department.

- (3) Filling newly constructed or drained swimming pools with City water shall be prohibited.
- (4) Construction water from City fire hydrants shall be banned but treated effluent water from the wastewater treatment plant may be made available for construction water purposes.
- (5) Further use of decorative fountains or reflection ponds shall be discontinued until further notice.
- (6) Washing of automobiles, trucks, trailers, boats, airplanes and other types of mobile equipment not occurring upon the immediate premises of commercial car washes and commercial service stations and not in immediate interest of the public health, safety, and welfare shall be prohibited.

E. STAGE 5 – MANDATORY WATER CONSERVATION COMPLIANCE: WARNING.

Upon implementation of this Chapter by the City Manager pursuant to Section 11.5A.080 of this Code, and publication of notice that Stage 5 Mandatory Conservation Compliance Measures are in effect, the following mandatory conservation compliance measures shall apply:

- (1) Outdoor landscape watering shall be prohibited. This includes multi-purpose commercial landscapes and City parks and median strips.
- (2) Industry and commercial businesses shall be required to curtail consumption in order to maintain adequate supplies of water for health and safety.
- (3) If there is total well failure, disaster relief from outside the City of Newman shall be required.

11.5A.110 Mandatory Water Conservation Compliance Phase Implementation.

- A. The Director of Public Works, or his or her designee, shall monitor the projected supply and demand for water by its customers, with heightened emphasis during the months of April through October;
- B. The Director of Public Works, or his or her designee, shall recommend to the City Manager the extent of the Conservation Compliance Stage required in order for the City to prudently plan for and supply water to its customers.
- C. The City Manager may order that the appropriate Stage of water conservation be implemented or terminated in accordance with the applicable provisions of this Chapter. When implementing Mandatory Water Conservation Compliance Stage 2, 3, and 4, said order shall be made by public announcement and shall be published a minimum of one (1) time in a daily newspaper of general circulation and shall become effective immediately upon such publication.

11.5A.120 Water Wasting Prohibited.

Water wasting, as defined by Section 11.5A.130 of this Code, is prohibited.

11.5A.130 Acts Constituting Water Wasting.

For the purposes of this title, acts constituting water wasting shall mean and include, but shall not be limited to, any of the following acts:

- A. Failure to comply with the City of Newman Emergency Water Shortage Plan, any conservation stage declared thereunder, and/or any guidelines or outdoor landscape watering schedules in effect pursuant thereto.
- B. Watering outdoor landscaping areas or gardens such that excess water leaves the property or area being watered.
- C. Watering outdoor landscaping while raining and within 48 hours following any measurable rainfall.
- D. Washing vehicles, boats, or equipment during restricted days or hours; and/or using an open hose not equipped with a quick-action automatic shut-off valve while so doing.
- E. Hosing down driveways, streets, sidewalks, parking lots, and building exteriors without the prior written consent of the Public Works Director or his designee. If consent is given, any restrictions on the frequency, timing or method would remain in effect unless a health or safety condition existed.
- F. Having leaky faucets, irrigation valves, sprinkler heads or plumbing fixtures on the premises.
- G. Operating evaporated coolers which are not equipped with a recirculating pump.

11.5A.140 Notice of Acts Constituting Water Wasting.

- A. Any utility customer, or person using the utilities with the consent of or actual or constructive knowledge of the customer, continue to commit acts which constitute the wasting of water, as provided in Section 11.5A.130 of this Code, shall be served Notice of Acts Constituting Water Wasting.
- B. This Notice of Acts Constituting Water Wasting shall serve as a first warning and first Notice of Acts Constituting Water Wasting shall:
 - (1) Identify the date, time and circumstances of the violation;
 - (2) State the amount of the potential penalty fee for water wasting;
 - (3) Advise the customer of his or her appeal rights as provided herein;
- C. The Notice of Acts Constituting Water Wasting shall be served to any utility customer, or person using the utilities with the consent of or actual or constructive knowledge of the customer, continue to commit acts which constitute the wasting of water, as provided in Section 11.5A.130.

11.5A.150 Penalty Fee Assessment For Water Wasting.

- A. A penalty fee in the sum of Twenty-five and no/100ths (\$25.00) Dollars shall be assessed to the utility customer's account for a first violation within one (1) year after being served with a Notice of Acts Constituting Water Wasting, pursuant to Section 11.5A.140 of this Code.
- B. A penalty fee in the sum of Fifty and no/100ths (\$50.00) Dollars shall be assessed to the utility customer's account for a second violation within said one (1) year after being served with a Notice of Acts Constituting Water Wasting, pursuant to Section 11.5A.140 of this Code.
- C. A penalty fee in the sum of One Hundred and no/100ths (\$100.00) Dollars shall be assessed to the utility customer's account for a third violation within said one (1) year after being served with a Notice of Intention to Impose a Penalty Fee for Water Wasting, pursuant to Section 11.5A.140 of this Code.
- D. The City may, at its option, discontinue the service after the third violation after giving the customer written notice.

11.5A.160 Appeal.

- A. A utility customer shall have the right to appeal to the City Manager, or his or her designee, the Notice of Acts Constituting Water Wasting, or any water wasting penalty fee assessed to his or her account.
- B. The appeal hearing shall be held before the City Manager, or his or her designee. After hearing all of the evidence presented, he or she shall make the final administrative determination regarding the matter.
- C. The customer shall be allowed to present such witnesses and evidence as he or she may desire.
- D. Such appeal hearing is an administrative hearing and the rules of evidence shall not apply.

11.5A.170 Appeal Hearing Request.

- A. The utility customer must request an appeal hearing in writing within fifteen (15) calendar days from the date of service of the Notice of Acts Constituting Water Wasting, or any water wasting penalty fee assessed to his or her account, unless the fifteenth day falls on a weekend day or City observed holiday.
- B. The request for hearing shall be addressed to the City Manager and shall be deemed served only when received by the City. Failure to properly serve the request for hearing within the fifteen (15) calendar day period shall be deemed a waiver of the right to appeal the matter and the penalty fee will be assessed against the customer's account unless the fifteenth day falls on a weekend day or City observed holiday.
- C. The hearing officer shall give written notice by mail to the utility customer of the date, time, and location of the appeal hearing, which hearing shall be held no sooner than ten (10) days from receipt of the request for hearing and no longer than thirty (30) days from receipt of such request.
- D. The decision of the hearing officer shall be final. If the Notice of Acts Constituting Water Wasting, or any water wasting penalty fee assessed to an account is upheld, the penalty fee shall be assessed to the customer's account.

11.5A.180 Failure to Pay Penalty Fee.

Failure of any utility customer to pay the penalty fees imposed pursuant to this article as required shall be grounds to discontinue utility service until compliance is obtained.

Appendix I
EMERGENCY RESPONSE PLAN



EMERGENCY/DISASTER RESPONSE PLAN 2003

Dated: February 2003

EMERGENCY/DISASTER RESPONSE PLAN

To continue minimum service levels and mitigate the public health risks from drinking water contamination that may occur during a disaster or other emergency events and in order to provide reliable water service and minimize public health risks from unsafe drinking water during those events, **the City of Newman's water** system proposes the following plan that defines how it will respond to emergencies and/or disasters that are likely to affect its operation.

Disaster/emergencies that are likely to occur in the water system's service area that are addressed are: earthquake, major fire emergencies, water outages due to loss of power, localized flooding, water contamination, and acts of sabotage.

- 1) **DESIGNATED RESPONSIBLE PERSONNEL:** For designated responsible personnel and chain of command and identified responsibilities, see the attached "Emergency and Disaster Personnel and Responsibilities".
- 2) **INVENTORY OF RESOURCES:** An inventory of system resources that are used for normal operations and available for emergencies; includes maps and schematic diagrams of the water system, lists of emergency equipment, equipment suppliers, and emergency contract agreements that are kept at the water system office.
- 3) **EMERGENCY OPERATIONS CENTER:** In case of an emergency **the City of Newman's Police Department located at 1200 Main St.** has been designated as the communication network emergency operations center. Emergency contact information for equipment suppliers is attached. The telephone and FAX will be the primary mode of communication in an emergency. In addition, the city has radio communication with the police department and local fire department should telephone communication be lost.

Agency	Address, City	Phone#	FAX#
City of Newman	938 Fresno Street, Second Floor Newman	(209) 862-3725	(209) 862-3199
Newman Fire Dept.	1162 N Street Newman	(209) 862-1716	(209) 862-1761
Newman Police Dept.	1200 Main Street Newman	(209) 862-2902	(209) 862-4151

- 4) **OTHER AGENCY COORDINATION:** Coordination procedures with governmental agencies for health and safety protection; technical, legal, and financial assistance, and public notification procedures are continually being developed and updated through regulation and experience and will be added as necessary to this plan. (See attached sheet.)
- 5) **RESPONSE PROCEDURE:** Personnel will, as quickly as possible, determine the status of other employees, assess damage to water system facilities, provide logistics for emergency repairs, monitor progress of repairs and restoration efforts, communicate with health officials and water users according to the "Emergency Notification Plan" on file with The Department of Health Services and The City of Newman, and document damage and repairs.
- 6) **RESUME NORMAL OPERATIONS:** The steps that will be taken to resume normal operations and to prepare and submit reports to appropriate agencies will include identifying the nature of the emergency (e.g., earthquake-causing water outage/leaks, fire or power outage causing water shortage/outage/sabotage resulting in facility destruction or water contamination).
- a. **Leaks or service interruption (Result of earthquake, etc.)**
 - i. Isolate leak. Turn power or flow off, if necessary, to control leak.
 - ii. Repair or isolate break to allow service to the maximum system population possible. Disinfect as per attached AWWA Standards; increase system disinfectant residual as precaution, until normal service is resumed.
 - iii. Do Bacteriological sampling until 3 good consecutive samples are confirmed.
 - iv. Reestablish normal service.
 - b. **Low pressure (Result of earthquake, fire, storm)**
 - i. Increase production, if possible, to provide maximum system output.
 - ii. Increase disinfectant residual as precaution to potential contamination.
 - c. **Power outage**
 - i. Generator will automatically go on line to provide continuous water pressure to system.
 - ii. Increase disinfectant residual as precaution to potential contamination.

d. Contamination

- i. Identify location and source of contamination.
- ii. If contamination is from system source, isolate or treat source.
- iii. If contamination is an act of sabotage, take appropriate action based on nature of contamination. Immediately contact Newman Police Department and the Department of Health Services. Actions should be taken in consultation with the Department of Health Services and could include shutting off water until all contaminants are identified.

e. Physical destruction of facility (Sabotage)

- i. Immediately contact Newman Police Department and the Department of Health Services for consultation.

All significant water outages (widespread and lasting more than eight hours) or disinfection failure will be reported to the Department of Health Services District Office by telephone or equally rapid means. All emergencies will be documented along with the action taken, and kept in the files at the City of Newman Water Department. Acts of sabotage will be reported to the City of Newman Police Department.

Emergency and Disaster Personnel and Responsibilities

[illegible]

Additional Mutual Assistance or Emergency Resources

Agency/Department City of Newman	Telephone (Day): (209) 862-3725 Telephone (After Hours) (209) 678-0352
Another Water Agency City of Gustine / City of Patterson	(209) 854-6206 / (209) 892-2041
City of Newman Fire Department	(209) 678-0657 / (209) 862-1238
City of Newman Police Department	(209) 862-2902 / 911
Stanislaus County Regional 911	(209) 552-3600
FBI Office – Modesto	(209) 543-7846
State Water Resources Control Board – Bhupinder Sahota	(800) 456-3825-001 (209) 368-3391
Department of Environmental Services Mary Kate Cook	(209) 525-6747
California Office of Emergency Services (24 Hrs.)	(916) 657-9903

Water system contact information:

Name: Koosun Kim

Address: 938 Fresno Street, Second Floor
Newman, CA 96360

Phone: (209) 862-4448

FAX: (209) 862-3199

E-mail kkim@cityofnewman.com

Emergency Contact Numbers and Operational Practices

- A. List of equipment on hand for emergency repairs
 - 1. Backhoe
 - 2. Compressor
 - 3. Emergency Water Pumps
 - 4. Repair Clamps
 - 5. Compressed Couplings
 - 6. Curb and Corp Stops
 - 7. 2", 4", 6", 8", 12", PVC Pipes and Fittings
 - 8. All materials required for Main Line Repairs
- B. List resources of technical support and contracted support
 - 1. Rocha Backhoe – (209) 854-2012
 - 2. Applegate Drilling & Backhoe – (209) 883-4915
 - 3. E & M Electric – (209) 862-3690
 - 4. United Rentals – (209) 632-7561
 - 5. Hawk Systems – (209) 529-4110
 - 6. Tesco Controls – (916) 395-8800
- C. List of Distributors or suppliers of replacement parts for system
 - 1. Groeniger – (209) 577-3333
 - 2. Hawk Systems – (209) 529-4110
 - 3. E & M Electric – (209) 862-3690

	Name	Phone (Day)	Phone (after hours)
Department of Health Svcs.	Brian Kidwell	(209) 948-3963	(209) 368-3391
Environmental Health Agency	Mary Kate Cook	(209) 525-6747	
Electrician	E & M Electric	(209) 862-3690	(209) 862-3690
Laboratory	Geo Analytical	(209) 669-0100	(209) 669-0100
Electric & Pump Repair Service	Hawk Systems	(209) 525-4110	(209) 524-4110
Chemical Disinfectant	Univar	(800) 659-5908	(509) 651-3739
Other Water Agency	City of Gustine City of Patterson	(209) 854-6206 (209) 892-2041	(209) 854-6206 (209) 892-2041
Newman Fire Department	Chief Keith Bowen	(209) 678-0357	(209) 678-0357 / (209) 862-1617
Newman Police Department	Chief Randy Richardson	(209) 862-2902	(209) 678-0109 / 911
Oakdale Police Department	Carrie Reed	(209) 847-2231	911

CITY OF NEWMAN

Local Notification List

Organization	Contact Name/Title	Telephone (Day)	Telephone (Night)
Fire Department	Keith Bowen Chief	(209) 678-0357	(209) 678-0357
Police Department	Randy Richardson - Chief	(209) 862-2902	(209) 678-0109
FBI Field Office	1150 9th St., Modesto	(209) 543-7846	
Health Department	Carl Carlucci - District Engineer	(559) 447-3132	(559) 280-6363
Primacy Agency	Michael Holland - City Manager	(209) 862-3725	(209) 678-6327
Local Hospital	Emanuel Hospital	(209) 667-4200	
Emergency Planning Committee	Michael Holland - City Manager	(209) 862-3725	
EMS	Stan. County Mountain Valley	(209) 529-5085	
Local Pharmacy (1)	Pioneer Drugs	(209) 862-1955	
Local Pharmacy (2)	Rite Aid	(209) 862-1208	
Local Nursing Home	San Luis Conv. Hospital	(209) 862-2862	
Local Schools	N.C.U.S.D.	(209) 862-2309	
Local Government Official	Robert Martina - Mayor	(209) 862-3725	(209) 678-7061
Local Hazmat Team	3800 Cornucopia Way, Suite C	(209) 525-6700	
Water System Operator	Garner R. Reynolds - Dir. Of Pub. Wks.	(209) 862-4448	(209) 678-0347
Neighboring Water System	City of Gustine	(209) 854-6206	
Neighboring Water System	City of Patterson	(209) 892-6786	

State Notification List

Organization	Contact Name/Title	Telephone (Day)	Telephone (Night)
Drinking Water Primacy Agency	Carl Carlucci - District Engineer	(559) 447-3132	(559) 280-6363
Dept. of Environmental Resources	Mary-Kate Cook	(209) 525-3747	(209) 656-6560
Department of Health	Carl Carlucci - District Engineer	(559) 447-3132	(559) 280-6363
Caltrans - District 10	Encroachment	(209) 948-7891	

Media Notification List

Organization	Contact Name/Title	Telephone (Day)	Telephone (Night)
Water System Spokes person	Koosun Kim	(209) 862-4448	(209) 678-0347
Local Newspaper	Mattos Newspaper	(209) 862-2222	
Regional Newspaper	Modesto Bee	(209) 521-7777	
Radio	KWNN - 98.3 FM	(209) 575-1230	
Radio	102.3 FM	(209) 551-1306	
Radio	KTRB News Radio	(209) 526-8600	
Television	KCRA Channel 3	(209) 523-6727	
Television	KQCA channel 58	(916) 447-5858	
Television	KMAX TV News Room	(916) 921-3019	

CITY OF NEWMAN

Service/Repair Notification List

Organization	Contact Name/Title	Telephone (Day)	Telephone (Night)
Electrician	E & M Elec. - Mailo	(209) 862-3690	(209) 837-4237
Pacific Gas & Electric Co.		(800) 743-5000	
Sewer - WWTP	Lance Perry - Chief Plant Op.	(209) 862-2625	(209) 678-0350
Telephone	Pacific Bell	(800) 750-2355	
Plumber	Dave's Drain	(209) 862-4750	(209) 321-2775
Pump Specialist	Howk Systems	(209) 529-4110	
"Dig Safe"	USA	(800) 798-9504 / 811	
Backhoe Operator	Rocha Backhoe	(209) 854-2012	
Equipment Rental	United Rentals	(209) 632-7561	
Radio / Telemetry Repair Service	Tesco - Alan Horikawa	(916) 395-8800	(916) 798-5626
Bottled Water Source	Arrowhead	(800) 950-9393	
Pump Supplier	Wallace & Tiernan	(559) 297-4880	
Pipe Suppliers	Groeniger	(209) 577-3333	
Chemical Supplier	Basic Chemicals	(800) 888-9405	
Analytical Laboratory	Geo Analytical	(209) 669-0100	
Traffic Monitoring Center	Change in Street Light Mode	(209) 948-7556 Or	(209) 948-7551

Public Works Personnel

Contact Name/Title	Telephone (Day)	Telephone (Night)
Koosun Kim	(209) 862-4448	(209) 678-0347
Perfecto Millan	(209) 678-0351	(209) 678-0351
Terry Barques	(209) 862-4448	(209) 678-0390
Greg Stonebarger - Water Department	(209) 678-0385	(209) 485-3935
Ernesto Garza- Water Dept.	(209) 678-0146	
Kamal Singh - Public Works	(209) 678-0356	
Dan Pardo - Senior Mant. Wkr.	(209) 3780344	(209) 862-2140
Jaime Sotelo - Public Works	(209) 678-0042	(209) 862-9921
Ivan Escatel - WWTP Operator	(209) 678-0119	
Rory Rocha - Water Department	(209) 678-0076	(209) 862-1147
Lance Perry - WWTP Superintendent	(209) 678-0350	(209) 678-0350
Chris Vargas - WWTP Operator	(209) 678-0353	(209) 862-2546
Pedro Garcia - Collection System	(209) 542-3028	

Appendix J
NOTICE OF PUBLIC HEARING

PROOF OF PUBLICATION

(2015.5 C.C.P.)

STATE OF CALIFORNIA

County of Stanislaus

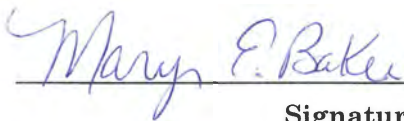
I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above-entitled matter. I am the printer, foreman or principal clerk of The West Side INDEX, a newspaper of general circulation, printed and published weekly in the City of Newman, County of Stanislaus, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Stanislaus, State of California, under the date of April 25, 1952, Case Number 46882; that the notice, of which the annexed is a printed copy (set in type not smaller than nonpareil), has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

April 28 and May 5

all in the year 2016.

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Dated at Newman, California, this 5th day of May, 2016.



Signature

This space is for the County Clerk's Filing Stamp

Proof of Publication of

Notice of Public Hearing

City of Newman 2015 Urban Water Management Plan

City of Newman Public Works

PUBLIC NOTICE • PUBLIC NOTICE

NOTICE OF PUBLIC HEARING FOR CITY OF NEWMAN 2015 URBAN WATER MANAGEMENT PLAN

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), urban water suppliers are required to prepare an Urban Water Management Plan (UWMP) and update it every five years. The City of Newman (City) has prepared its Draft 2015 UWMP and is now available for Public Review.

The City Council will hold a public hearing to receive and consider input regarding the proposed 2015 UWMP. The public hearing will be held on June 28, 2016, at 7:00 pm, in the City Council Chambers at 938 Fresno Street.

The Draft 2015 UWMP is available for public review at City Hall and on the City's website. Comments can be provided up until the date of the public hearing to:

Koosun Kim, PE, QSD
Public Works Director
City of Newman
938 Fresno Street
Newman, CA 95360
e-mail: kkim@cityofnewman.com

We invite your participation in this process.

Published: April 28; May 5, 2016

PROOF OF PUBLICATION

Appendix K
ADOPTING RESOLUTION

RESOLUTION NO. 2016-48

APPROVING AND ADOPTING THE 2015 URBAN WATER MANAGEMENT PLAN

WHEREAS, per the Urban Water Management Plan (UWMP) Act, every urban water supplier that either provides over 3,000 acre-feet of water annually or serves 3,000 or more connections is required to assess the reliability of its water sources over a 20-year planning horizon; and

WHEREAS, the purpose of this assessment is to ensure that water suppliers have adequate water supplies for existing and future water demands; and

WHEREAS, the 2015 UWMP is one of the requirements to be eligible for the future water grant and loan opportunities through Proposition 1 and other funding programs; and

WHEREAS, as required by the UWMP Act, the City has developed the 2015 UWMP to assure that the City has adequately planned to provide sufficient supplies of water for its users for the foreseeable future; and

WHEREAS, the City of Newman is prepared to implement the water conservation program in phases depending on the severity of the water shortage and/or drought; and

WHEREAS, the Council has conducted a public hearing and considered all comments to the 2015 UWMP.

NOW, THEREFORE, BE IT RESOLVED that the City Council of the City of Newman DOES HEREBY RESOLVE as follows:

1. **Approval of the 2015 UWMP:** The City Council hereby approves and adopts the 2015 Urban Water Management Plan for the City of Newman.

The foregoing resolution was introduced at a regular meeting of the City Council of the City of Newman held on the 28th day of June 2016 by Council Member Day, who moved its adoption which motion was duly seconded and was upon roll call carried and the resolution adopted by the following vote:

AYES: Candea, Day and Mayor Martina.

NOES: None.

ABSENT: Davis and Graham.

APPROVED:


Bob Martina, Mayor

ATTEST:


Mike Maier, City Clerk

Appendix L
UWMP COMPLETION CHECKLIST

Checklist Arranged by Subject

CWC Section	UWMP Requirement	Subject	Guidebook Location	UWMP Location
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	Sec. 2.2, Page 5
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	Sec. 2.5.2, Page 9
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	Appendix C
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	Sec. 3.1 Pages 11-12
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	Sec. 3.3. Pages 12-13
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	Sec. 3.4 Pages 13-14
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	Sec. 3.4 Pages 13-14
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	Sec. 3.4 Table 3-3 & Sec. 5.4 Table 5-1
10631(e)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System Water Use	Section 4.2	Sec. 4.3. Tables 4-1, 4-3 & 4-4
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	Sec. 4.4. Table 4-5
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	Sec. 4.6. Table 4-7

10608.20(b)	Retail suppliers shall adopt a 2020 water use target using one of four methods.	Baselines and Targets	Section 5.7 and App E	Sec. 5.7.1. Page 30 & App F
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 E	Ch. 5 & App F
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	Sec. 7.7.2. Table 5-5 & App. F
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	Sec. 5.7.3. Table 5-6 & App. F
1608.24(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	N/A
10608.36	Wholesale suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their retail water suppliers achieve targeted water use reductions.	Baselines and Targets	Section 5.1	N/A
10608.40	Retail suppliers shall report on their progress in meeting their water use targets. The data shall be reported using a standardized form.	Baselines and Targets	Section 5.8 and App E	Sec. 5.8. Table 5-8 & App. F
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	Ch. 6 Pages 34-52
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	Sec. 6.2. Page 34
10631(b)(1)	Indicate whether a groundwater management plan has been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System Supplies	Section 6.2.2	Sec. 6.2.2. Pages 36-37

10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	Sec. 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	Sec. 6.2.1. Page 36
10631(b)(2)	For adjudicated basins, indicate whether or not the department has identified the basin as over drafted, or projected to become over drafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	N/A
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	Sec. 6.2.4. Table 6-1
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	Sec. 6.2. & 6.9. Table 6-9
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	Sec. 6.7. Page 48
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	Sec. 6.8. Page 48
10631(i)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	Sec. 6.6. Page 47
10631(j)	Retail suppliers will include documentation that they have provided their wholesale supplier(s) – if any - with water use projections from that source.	System Supplies	Section 2.5.1	N/A
10631(j)	Wholesale suppliers will include documentation that they have provided their urban water suppliers with identification and quantification of the existing and planned sources of water available from the wholesale to the urban supplier during various water year types.	System Supplies	Section 2.5.1	N/A

10633	For wastewater and recycled water, coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	System Supplies (Recycled Water)	Section 6.5.1	Sec. 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	Sec. 6.5.2. Page 39
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	Sec. 6.5.2. Page 40
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	Sec. 6.5.4. Table 6-4
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	Sec. 6.5.4. Table 6-4
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	Sec. 6.5.4. Table 6-4
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	Sec. 6.5.5. Page 46
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	Sec. 6.5.5. Page 46
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	Sec. 7.4. Pages 55-57
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	Sec. 7.2. Pages 53-54

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	Sec. 7.3. Pages 54-57
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	Sec. 7.2. Pages 53-54
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	Sec. 7.2.1. Page 53
10635(a)	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years.	Water Supply Reliability Assessment	Section 7.3	Sec. 7.4. & 7.5 Pages 55-58
10632(a) and 10632(a)(1)	Provide an urban water shortage contingency analysis that specifies stages of action and an outline of specific water supply conditions at each stage.	Water Shortage Contingency Planning	Section 8.1	Sec. 8.2. Page 60
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	Sec. 8.10. Table 8-5
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	Sec. 8.9. Pages 68-69
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	Sec. 8.3. Table 8-2
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	Sec. 8.5. Table 8-3
10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	Sec. 8.4. Page 65
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	Sec. 8.7. Page 68

10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	Sec. 8.8. & App H
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	Sec. 8.6. Page 67
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	Sec. 9.3. Pages 74-75
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3	N/A
10631(j)	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	N/A
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	Sec. 10.3. Page 79
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	Sec. 10.2.1. Page 78
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	Sec. 10.4. Page 80
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	Sec. 10.4. Pages 80-81

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	Sec. 10.2.2., 10.3., & 10.5. & App J
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	Sec. 10.2.1. Page 78
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	Sec. 10.3.1. Page 79 & App K
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	Sec. 10.4.2. Page 81
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	Sec. 10.4.3. Page 81
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	Sec. 10.4.1. Page 80
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	Sec. 10.5. Page 81