

City of Fresno

2015 Urban Water Management Plan

June 2016



2015 URBAN WATER MANAGEMENT PLAN

**City of Fresno
June 2016**

Prepared for:
City of Fresno

Prepared by:

Provost & Pritchard Consulting Group

286 W. Cromwell Avenue, Fresno, California, 93711



Exp: June 30, 2018

Table of Contents

1	Introduction and Overview	1-1
1.1	Background and Purpose	1-1
1.1.1	Urban Water Management Planning Act	1-1
1.1.2	Previous Urban Water Management Plans.....	1-2
1.2	Plan Overview and Organization	1-3
1.2.1	Plan Organization	1-3
2	Plan Preparation	2-1
2.1	Basis for Preparing a Plan.....	2-1
2.2	Individual or Regional Planning and Compliance	2-2
2.3	Fiscal or Calendar Year and Units of Measure.....	2-3
2.4	Coordination and Outreach	2-3
2.4.1	Wholesale and Retail Coordination.....	2-4
2.4.2	Coordination with Other Agencies and the Community	2-4
2.4.3	Notice to Cities and Counties	2-5
2.5	Plan Adoption, Submittal, and Implementation.....	2-6
2.5.1	Inclusion of All 2015 Data	2-6
2.5.2	Notice of Public Hearing	2-6
2.5.3	Public Hearing and Adoption	2-7
2.5.4	Plan Submittal	2-8
2.5.5	Public Availability.....	2-8
2.5.6	California Environmental Quality Act Compliance	2-8
3	System Description	3-1
3.1	General Description.....	3-1
3.1.1	History and Governance	3-1
3.1.2	Service Area	3-2
3.1.3	Significant Water Uses	3-3
3.1.4	Water System	3-3
3.2	Service Area Climate.....	3-4
3.3	Service Area Population and Demographics	3-5
3.3.1	Service Area Population	3-6
3.3.2	Other Demographic Factors	3-7
4	System Water Use	4-1
4.1	Historical Water Production	4-1
4.2	Historical, Current, and Future Demands	4-3
4.2.1	Historical and Current Water Use	4-3
4.2.2	Future Water Use	4-5

4.2.3	Demand Sectors in Addition to Those Listed in Water Code	4-6
4.3	Distribution System Water Losses.....	4-8
4.4	Estimating Future Water Savings	4-9
4.5	Water Use for Lower Income Households	4-10
5	SB X7-7 Baselines and Targets	5-1
5.1	Updating Calculations from 2010 UWMP	5-1
5.1.1	Update of Target Method.....	5-1
5.2	Service Area Population	5-2
5.2.1	Required Use of 2010 U.S. Census Data	5-2
5.3	Gross Water Use	5-5
5.3.1	Gross Water Use	5-5
5.4	Baseline Daily Per Capita Water Use	5-6
5.4.1	Baseline Periods.....	5-6
5.4.2	Determination of the 10-15 Year Baseline Period (Baseline GPCD).....	5-7
5.4.3	Determination of the 5-Year Baseline Period (Target Confirmation).....	5-7
5.5	2015 and 2020 Targets	5-8
5.5.1	Selection of Target Method.....	5-9
5.5.2	Development of 2015 and 2020 Urban Water Use Targets	5-9
5.5.3	5–Year Baseline – 2020 Target Confirmation	5-9
5.5.4	Baselines and Targets Summary.....	5-10
5.6	2015 Compliance Daily per Capita Water Use (GPCD).....	5-10
5.6.1	Meeting the 2015 Target.....	5-10
5.6.2	2015 Adjustments to 2015 Gross Water Use.....	5-11
5.7	SB X7-7 Verification Form	5-12
6	System Supplies	6-1
6.1	Groundwater.....	6-1
6.1.1	Basin Description.....	6-1
6.1.2	Groundwater Management	6-3
6.1.3	Overdraft Conditions.....	6-5
6.1.4	Groundwater Quality	6-6
6.1.5	Estimated Groundwater Yield	6-6
6.1.6	Historical Groundwater Pumping	6-9
6.2	Surface Water.....	6-10
6.2.1	Surface Water Supplies through FID Agreement.....	6-10
6.2.2	Surface Water Supplies through USBR Contract	6-11
6.3	Storm Water	6-12
6.4	Wastewater and Recycled Water	6-13
6.4.1	Recycled Water Coordination	6-13
6.4.2	Wastewater Collection, Treatment, and Disposal	6-15

6.4.3	Recycled Water System	6-19
6.4.4	Recycled Water Beneficial Uses.....	6-20
6.4.5	Actions to Encourage and Optimize Future Recycled Water Use..	6-24
6.5	Desalinated Water Opportunities.....	6-25
6.6	Exchanges or Transfers	6-26
6.6.1	Exchange and Transfer Opportunities	6-26
6.6.2	Emergency Interties.....	6-26
6.7	Future Water Projects.....	6-27
6.7.1	Expand Water Conservation Program	6-27
6.7.2	Expand Surface Water Treatment Capacity	6-27
6.7.3	Expand Recycled Water Treatment Capacity	6-28
6.7.4	Expand Groundwater Recharge Capacity	6-28
6.8	Summary of Existing and Planned Sources of Water	6-29
7	Water Supply Reliability Assessment.....	7-1
7.1	Constraints on Water Sources.....	7-1
7.1.1	Constraints on Surface Water Supplies	7-1
7.1.2	Constraints on Groundwater Supplies	7-3
7.1.3	Constraints on Recycled Water Supplies.....	7-3
7.2	Reliability by Type of Year.....	7-4
7.2.1	Types of Years	7-4
7.2.2	Agencies with Multiple Sources of Water.....	7-6
7.3	Supply and Demand Assessment.....	7-8
7.4	Regional Supply Reliability	7-12
8	Water Shortage Contingency Planning	8-1
8.1	Stages of Action	8-1
8.2	Prohibitions on End Uses	8-4
8.3	Penalties, Charges, Other Enforcement of Prohibitions	8-7
8.4	Consumption Reduction Methods.....	8-8
8.4.1	Categories of Consumption Reduction Methods	8-8
8.5	Determining Water Shortage Reductions	8-10
8.6	Revenue and Expenditure Impacts.....	8-10
8.6.1	Drought Rate Structures and Surcharges.....	8-11
8.6.2	Use of Financial Reserves	8-11
8.6.3	Other Measures	8-12
8.7	Resolution or Ordinance.....	8-12
8.8	Catastrophic Supply Interruption	8-12
8.9	Minimum Supply Next Three Years	8-13
9	Demand Management Measures	9-1
9.1	DMMs and Implementation Over the Past Five Years.....	9-1

9.1.1	Water waste prevention ordinances.....	9-1
9.1.2	Metering.....	9-2
9.1.3	Conservation Pricing.....	9-3
9.1.4	Public Education and Outreach	9-3
9.1.5	Programs to Assess and Manage Distribution System Real Loss ...	9-5
9.1.6	Water Conservation Program Coordination and Staffing Support ...	9-6
9.1.7	Other Demand Management Measures.....	9-7
9.2	Planned Implementation to Achieve Water Use Targets	9-7
9.3	Members of the California Urban Water Conservation Council	9-7

List of Figures

Figure 3-1 Water Service Area	3-8
Figure 3-2 Existing Water Distribution System	3-9
Figure 3-3 City of Fresno Water Service Area Population Projections	3-10
Figure 4-1: Historic Per Capita Water Use	4-12
Figure 5-1: Baseline Period for Target Calculation.....	5-13
Figure 6-1: Kings Groundwater Subbasin	6-32
Figure 6-2: Idealized East-West Geologic Cross-Section.....	6-33
Figure 6-3: Historic Average Groundwater Depth and Groundwater Pumped.....	6-34
Figure 7-1: FID’s Historic Annual Kings River Water Supply.....	7-14
Figure 7-2: USBR CVP – Friant Division Water Reliability	7-15

List of Tables

Table 1-1: Changes to the Water Code Since 2010 UWMPs.....	1-2
Table 2-1: Public Water Systems	2-2
Table 2-2: Plan Identification.....	2-2
Table 2-3: Agency Identification	2-3
Table 2-4: Water Supplier Information Exchange.....	2-4
Table 2-5: Coordination with Agencies.....	2-5
Table 2-6: Notification to Cities and Counties (DWR Table 10-1)	2-6
Table 3-1: Customer Meter Connections.....	3-3
Table 3-2: Climate Characteristics	3-5
Table 3-3: Population – Current and Projected (DWR Table 3-1)	3-7
Table 4-1: Historical Water Production.....	4-2
Table 4-2: Demands for Potable and Raw Water – Actual.....	4-4
Table 4-3: Demands for Potable and Raw Water – Actual (DWR Table 4-1)	4-5

Table 4-4: Demands for Potable and Raw Water – Projected (DWR Table 4-2).....	4-6
Table 4-5: Total Water Demands (DWR Table 4-3)	4-7
Table 4-6: Retail: 12 Month Water Loss Audit Reporting (DWR Table 4-4)	4-8
Table 4-7: Lower Income Household Projected Water Demands.....	4-11
Table 4-8: Inclusion in Water Projections (DWR Table 4-5)	4-11
Table 5-1 City of Fresno Historic Water Service Area Population	5-4
Table 5-2: 10-Year Baseline Daily Per Capita Water Use	5-8
Table 5-3: 5-Year Baseline Daily Per Capita Water Use	5-8
Table 5-4: 2015 Interim and 2020 Final Water Use Targets.....	5-9
Table 5-5: 2020 Target Confirmation.....	5-10
Table 5-6: Baselines and Targets Summary (DWR Table 5-1)	5-10
Table 5-7: 2015 Compliance (DWR Table 5-2)	5-12
Table 6-1: Summary of Groundwater Pump Tests within the City of Fresno.....	6-3
Table 6-2: Fresno Area Regional Groundwater Management Plan Adopting Agencies	6-4
Table 6-3: Components to Groundwater Yield for Normal Years	6-8
Table 6-5: Projected Allocation of FID’s Kings River Water for City of Fresno in Normal Years.....	6-11
Table 6-6: Wastewater Collected Within Service Area in 2015 (DWR Table 6-2)	6-17
Table 6-7: Wastewater Treatment and Discharge Within Service Area in 2015 (DWR Table 6-3).....	6-18
Table 6-8: Recycled Water Used Within Service Area	6-20
Table 6-9: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area (DWR Table 6-4)	6-23
Table 6-10: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual (DWR Table 6-5)	6-24
Table 6-11: Methods to Expand Future Recycled Water Use (DWR Table 6-6)	6-25
Table 6-12: Expected Future Water Supply Projects or Programs (DWR Table 6-7).	6-29
Table 6-13: Water Supplies – Actual (DWR Table 6-8).....	6-30
Table 6-14: Water Supplies – Projected (DWR Table 6-9).....	6-31

Table 7-1: Basis of Water Year Data for FID Kings River Water Supply (DWR Table 7-1a).....	7-6
Table 7-2: Basis of Water Year Data for USBR CVP-Friant Division Water Supply (DWR Table 7-1b).....	7-7
Table 7-3: Basis of Water Year Data for Recycled Water Supply (DWR Table 7-1c)...	7-7
Table 7-4: Basis of Water Year Data for Groundwater Supply (DWR Table 7-1d)	7-8
Table 7-5: Normal Year Supply and Demand Comparison (DWR Table 7-2)	7-9
Table 7-6: Single Dry Year Supply and Demand Comparison (DWR Table 7-3)	7-9
Table 7-7: Multiple Dry Year Water Supply, af	7-10
Table 7-8: Multiple Dry Year Water Demands, af	7-11
Table 7-9: Multiple Dry Years Supply and Demand Comparison (DWR Table 7-4), af	7-12
Table 8-1: Stages of Water Shortage Contingency Plan	8-3
Table 8-2: Restrictions and Prohibitions on End Uses	8-6
Table 8-3: Penalties for Water Wastage.....	8-7
Table 8-4: Stages of WSCP – Consumption Reduction Methods (DWR Table 8-3)	8-9
Table 8-5: Minimum Supply Next Three Years (DWR Table 8-4).....	8-14
Table 9-1: Current Water Rate Structure.....	9-3
Table 9-2: Public Education and Outreach.....	9-4
Table 9-3: Interior and Exterior Surveys.....	9-5
Table 9-4: Rebate Program Results	9-5

List of Appendices

Appendix A	DWR UWMP Checklist
Appendix B	City Council Resolution Adopting 2015 UWMP
Appendix C	Agency Notices for UWMP Preparation
Appendix D	AWWA Water Audit Tool Results
Appendix E	Copies of City Ordinance & Act
Appendix F	DWR Population Tool Results
Appendix G	DWR SBX7-7 Verification Tables
Appendix H	Fresno Area Regional Groundwater Management Plan
Appendix I	Water Supply Contract and Agreement
Appendix J	Schedule of Current and Proposed Schedule of Rates, Fees, and Charges for Public Water Service
Appendix K	Draft Resolution for the Implementation of the Water Shortage Contingency Plan

Abbreviations

af	acre-feet
af/yr	acre-feet per year
AWWA	American Water Works Association
BMPs	Best Management Practices
CEQA	California Environmental Quality Act
CDPH	State of California Department of Public Health
CIMIS	California Irrigation Management Information System
City	City of Fresno
COG	Council of Governments
CSUF	California State University, Fresno
CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project
Department	City of Fresno Department of Public Utilities
DBCP	1,2-dibromo-3-chloropropane
DDW	State of California State Water Resource Control Board-Division of Drinking Water
DMM	demand management measures
DOF	State of California Department of Finance
DWR	State of California Department of Water Resources
EDB	ethylene dibromide
ETo	EvapoTranspiration
FARGMP	Fresno Area Regional Groundwater Management Plan
ft/yr	feet per year
FID	Fresno Irrigation District
FMFCD	Fresno Metropolitan Flood Control District
Friant Division	United States Bureau of Reclamation Central Valley Project - Friant Division
FY	fiscal year
GIS	Geographical Information System
GSP	Groundwater Sustainability Plan
gpcd	gallons per capita day
gpm	gallons per minute
GMP	Groundwater Management Plan
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
IGSM	Integrated Groundwater and Surface Water Model
IRWM	Integrated Regional Water Management
MCL	maximum contaminant level
MEIR	Master Environmental Impact Report
MFR	multi-family residential
mg	million gallons
mgd	million gallons per day

mg/L	milligrams per liter
MWRMP	City of Fresno Metropolitan Water Resources Management Plan
MTBE	methyl tertiary butyl ether
NESWTF	Northeast Surface Water Treatment Facility
NFWRF	North Fresno Wastewater Reclamation Facility
PCE	tetrachloroethylene
Plan	Urban Water Management Plan
PRV	pressure relief valve
PSV	pressure sustaining valve
RWQCB	Regional Water Quality Control Board
RWMP	Recycled Water Master Plan
RWRF	Regional Wastewater Reclamation Facility
SB	Senate Bill
SCADA	Supervisory Control and Data Acquisition
SDWA	Safe Drinking Water Act
SEDA	Southeast Development Area
SESWTF	Southeast Surface Water Treatment Facility
SFR	single-family residential
SGMA	Sustainable Groundwater Management Act
SOI	Sphere of Influence
sq mi	square mile
SWP	State Water Project
SWTF	surface water treatment facility
TCE	trichloroethylene
TCP	trichloropropane
TDS	total dissolved solids
USBR, Bureau	United States Bureau of Reclamation
USGS	United States Geological Survey
UWMP	Urban Water Management Plan
VOCs	volatile organic compounds
WSA	Water Supply Assessment
WRF	Wastewater Reclamation Facility
WTF	Water Treatment Facility

1 Introduction and Overview

1.1 Background and Purpose

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

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

As of the close of the 2015 calendar year, the City of Fresno (City) has over 133,000 residential, commercial, industrial, and institutional water service connections and produced over 111,000 acre-feet of water. As a result, the City is required to prepare and adopt an UWMP, and submit it to Department of Water Resources (DWR) by the July 1, 2016 due date.

1.1.1 Urban Water Management Planning Act

In 1983, SB797 altered Division 6 of the CWC by producing the UWMPA. Since 1983, several amendments to the original document have increased the requirements of the UWMPs submitted today.

Perhaps one of the more significant recent prior legislative amendments was the Water Conservation Act of 2009 (a.k.a. SBX7-7) after the 2007-2009 drought in which governor called for a 20% statewide reduction of water use by the year 2020. This legislation required retail water suppliers to establish water use targets for 2015 and 2020 as the State's effort to assure each supplier attains the mandated reductions.

Since the 2010 UWMP was completed, various new amendments to the UWMPA have been made to require a discussion of passive water savings; reporting on a reduced number of demand management measures; confirmation of attaining the 2015 Target from the 2010 UWMP; performing water audits of the distribution system; and voluntary reporting of passive water savings and energy intensity.

Additionally, with the 2015 UWMP, retailers must submit an SBX7-7 Verification Form and a GIS map of their service area.

Table 1-1: Changes to the Water Code Since 2010 UWMPs

Bill	Topic	CWC Section	Requirements
AB2067 Weber 2014	Demand Management Measures	10631(f)(1) and (2)	Requires water suppliers to provide narratives describing their water demand management measures. 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.
	Submittal Date	10621(d)	Requires each urban water supplier to submit its 2015 plan to DWR by July 1, 2016.
	Defining Water Features	10632	Requires urban water suppliers to analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.
SB1420 Wolk 2014	Submittal Format	10644(a)(2)	Requires the plan, or amendments to the plan, to be submitted electronically to the department.
	Standardized Forms	10644(a)(2)	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)	Requires a plan to quantify and report on distribution system water loss.
	Voluntary Reporting of Passive Savings	10631(e)(4)	Provides for water use projections to display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans, when that information is available and applicable to an urban water supplier.
SB 1036 Pavley 2014	Voluntary Reporting of Energy Intensity	10631.2(a) and (b)	Provides for an urban water supplier to include certain energy-related information, including, but not limited to, an estimate of the amount of energy used to extract or divert water supplies.

1.1.2 Previous Urban Water Management Plans

The City has previously prepared both 2005 and 2010 UWMPs in 2008 and 2012, respectively. Both plans were approved and adopted by the City Council. Following

adoption, the 2005 and 2010 UWMPs were submitted to and approved by DWR. Copies of these UWMPs reside in the State Library.

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

1.2 Plan Overview and Organization

This 2015 UWMP describes the City’s water demands and supplies, reliability and water conservation strategies. The 2015 UWMP includes data covering the years from 2011 to 2015. The 2015 UWMP has been prepared to include the recommended chapters, discussions and data reporting required by the CWC and is based on the 2015 UWMP Guidebook provided by DWR. A checklist demonstrating compliance with applicable codes and legislations is included as Appendix A.

The 2015 UWMP was adopted by the City of Fresno, City Council on June 23, 2016; a copy of the resolution is included in Appendix B.

1.2.1 Plan Organization

This 2015 UWMP is organized into the following chapters.

Chapter 1: Introduction and Overview

This chapter provides a discussion of the purpose and content of the 2015 UWMP and the extent of the City’s water management planning efforts.

Chapter 2: Plan Preparation and Adoption

This chapter provides information on the City’s development of the 2015 UWMP including the basis for plan preparation, planning type, data format and coordination and outreach to nearby agencies. This chapter also details the steps taken by the City to adopt the 2015 UWMP and make it available to the public and the City’s plan to implement the 2015 UWMP.

Chapter 3: System Description

This chapter provides a description of the City’s water system including service area maps, climate information and service population and demographic information.

Chapter 4: System Water Use

This chapter describes the City's current and historic water uses, system losses, estimated water savings, and water use by lower income households.

Chapter 5: Baselines and Targets

This chapter includes a description of the City's chosen method for calculating their baseline, calculated baseline water use and 2015 interim and 2020 ultimate targets, compliance with 2015 interim target. This chapter also includes an explanation on how the City plans to reach their 2020 target.

Chapter 6: System Supplies

This chapter includes a discussion of the City's water system supplies including groundwater, surface water, wastewater and recycled water, the City's future water projects and a summary of existing and future water sources.

Chapter 7: Water Supply Reliability Assessment

This chapter describes the reliability of the City's water supply including a supply and demand assessment and regional reliability.

Chapter 8: Water Shortage Contingency Planning

This chapter provides a description of the City's Water Shortage Contingency Plan including stages of action, prohibitions, penalties, reduction methods, and catastrophic supply interruption.

Chapter 9: Demand Management Measures

This chapter explains the City's existing and historic efforts to promote water conservation and the City's plans to use Demand Management Measures to achieve their 2020 water use targets.

2 Plan Preparation

2.1 Basis for Preparing a Plan

Legal Requirements:

CWC §10617

"Urban water supplier" means a supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers. This part applies only to water supplied from public water systems...

CWC §10620

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

CWC §10621

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

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

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 Fresno provides water service to a variety of customer sector types within the City limits, inclusive of several encompassed historic County Waterworks Districts (county islands) which have been incorporated into the City's water system. The City's public water system identification, number of connections, and volume of water supplied for Calendar Year 2015 are shown in Table 2-1.

Table 2-1: Public Water Systems

Public Water System Number	Public Water System Name	Number of Municipal Connections 2015	Volume of Water Supplied 2015 (af)
1010007	City of Fresno	133,615	111,706
Total		133,615	111,706
Note: Data provided by City of Fresno Water Division.			

The City has an aggregate of about 133,000 service connections and provides approximately 145,900 af¹ of potable water annually. Comparison of both the number of connections and annual water deliveries illustrates the City meets the threshold identified in the CWC to be classified as an urban water supplier and in the California Health and Safety Code as a public water system. Further, the City provides water directly to its customers and does not wholesale water to any other agencies for potable uses and is therefore required to prepare and update a Retail UWMP every five years. As discussed in Chapter 1, the deadline for submitting the 2015 UWMP update has been legislatively adjusted from being December 31, 2015 to July 1, 2016.

2.2 Individual or Regional Planning and Compliance

The City has historically been proactive in participating in regional water resource management related efforts, a couple of which include the Fresno Area Regional Groundwater Management Plan and the Kings Basin Integrated Regional Water Management (IRWM) Plan. The City has also developed its own long-term water resource management plan which has the objective to attain sustainable water use by the year 2025². The City considered preparation of either an individual or regional plan, but due to the stringent timeline and additional coordination required to prepare a regional plan, as well as the City’s intent to utilize the UWMP update for internal purposes, the City elected to prepare an individual UWMP for this update cycle.

Table 2-2: Plan Identification

Select One	Plan Type
✓	Individual UWMP
	Regional UWMP

¹ Average production quantity for the period from 2006 through 2015.

² City of Fresno Metropolitan Water Resources Management Plan; Final Report, adopted by City Council on June 19, 2014. Prepared by West Yost Associates, January 2011.

2.3 Fiscal or Calendar Year and Units of Measure

Legal Requirements:

CWC §1608.20

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

This report was prepared on a calendar year basis to maintain consistency with other reporting to the DWR. Additionally, per the 2015 UWMP Guidebook, the UWMP is required to provide data on the entire calendar year of 2015; calendar year reporting facilitates this data presentation.

The City tracks and reports water use in acre-feet and will utilize the same units for the purposes of completing this plan update.

Table 2-3: Agency Identification

Type of Agency (select one or both)	
	Agency is a wholesaler
✓	Agency is a retailer
Fiscal or Calendar Year (select one)	
✓	UWMP Tables are in Calendar Years
	UWMP Tables are in Fiscal Years
Units of Measure Used in UWMP	
Unit	af
Note: af – acre-feet	

2.4 Coordination and Outreach

Legal Requirements:

CWC §10631

(j) An urban water supplier that relies upon a wholesale agency for a source of water shall provide the wholesale agency with water use projections from that agency for that source of water in five-year increments to 20 years or as far as data is available. The wholesale agency shall provide information to the urban water supplier for inclusion in the urban water supplier's plan that identifies and quantifies, to the extent practicable, the existing and planned sources of water as required by subdivision (b), available from the wholesale agency to the urban water supplier over the same five-year increments, and during various water-year types in accordance with subdivision (c). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (c).

The City has water supply contracts with the United States Bureau of Reclamation and the Fresno Irrigation District. Each of these water suppliers has been notified of the plan update and provided water supply projections for the time period covered by this plan. Additionally, the preparation of this 2015 UWMP was coordinated with other appropriate agencies to ensure regional stakeholders had the opportunity to provide input to this plan.

2.4.1 Wholesale and Retail Coordination

The City has informed the following wholesale suppliers of projected water use in accordance with CWC §10631.

Table 2-4: Water Supplier Information Exchange

The retail supplier has informed the following wholesale supplier(s) of projected water use in accordance with CWC 10631.
Wholesale Water Supplier Name
United States Bureau of Reclamation
Fresno Irrigation District

2.4.2 Coordination with Other Agencies and the Community

Legal Requirements:

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...

The City has coordinated preparation of the 2015 UWMP with the agencies indicated in Table 2-5. The City solicited participation and comments from or notified the agencies as shown.

Table 2-5: Coordination with Agencies

Agency	Participated in Developing the Plan	Notified 60 days Prior to Public Hearing	Was Contacted for Assistance	Sent Notice of Intention to Adopt ¹
Bakman Water Company	✓	✓		✓
City of Clovis	✓	✓		✓
County of Fresno	✓	✓		✓
Fresno Irrigation District	✓	✓	✓	✓
Fresno Metropolitan Flood Control District	✓	✓	✓	✓
Friant Water Authority	✓	✓		✓
Garfield Water District	✓	✓		✓
Malaga County Water District	✓	✓		✓
Pinedale County Water District	✓	✓		✓
U.S. Bureau of Reclamation	✓	✓		✓

¹ These agencies were also notified of the availability of the Draft 2015 UWMP on the City's website.

2.4.3 Notice to Cities and Counties

Legal Requirements:

CWC §10621

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

The City has notified the County of Fresno, the only city or county in which the City provides water, of its intent to review their UWMP and consider changes to the plan. The City also notified the City of Clovis of plan preparation. Both of these governmental entities as well as a host of local water purveyors and agencies were encouraged to participate in the development of this plan update.

2.5 Plan Adoption, Submittal, and Implementation

2.5.1 Inclusion of All 2015 Data

This UWMP update has been prepared on a calendar year basis and includes all water use and planning data for the 2015 calendar year. Additional details are provided in the subsequent sections.

2.5.2 Notice of Public Hearing

2.5.2.1 Notice to Cities and Counties

Legal Requirements:

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 water 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.

As discussed above, the City notified the only county in which it supplies water of the intent to modify the plan, as required by the CWC. The City has also notified nearby agencies of the intent to hold a public hearing and adopt the updated UWMP, as indicated in the following table. Copies of the notification letters are included in Appendix C.

Table 2-6: Notification to Cities and Counties (DWR Table 10-1)

Names of Cities and Counties	60 Day Notice	Notice of Public Hearing
City of Clovis	☒	☒
County of Fresno	☒	☒

2.5.2.2 Notice to the Public

Legal Requirements:

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 hearings 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.

Consistent with the legislative requirements for public noticing, the City published two notices in the Fresno Bee and the Business Journal, at least five days apart over a two week period, providing the date and time of the public hearing. The notices were published on May 11, 2016, and May 18, 2016.

2.5.3 Public Hearing and Adoption

Legal Requirements:

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 wateruse target.

CWC §10642

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

The City held a public hearing and adopted the 2015 UWMP on June 23, 2016. A copy of the adopting resolution is included in Appendix B. Prior to the public hearing notices were published notifying the public of the date of time of the hearing.

2.5.4 Plan Submittal

Legal Requirements:

CWC §10621

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

CWC §10644

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

CWC §10635

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

Once the 2015 UWMP has been adopted, a copy of the 2015 UWMP and any subsequent amendments will be submitted to DWR, the State Library, and the County of Fresno.

2.5.5 Public Availability

Legal Requirements:

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.

Once the plan has been adopted, a hardcopy will be made available for public review at the City of Fresno Department of Public Utilities office at City Hall (located at 2600 Fresno Street) and the Water Division office (located at 1910 E. University Avenue). Additionally, an electronic copy will be uploaded to the City of Fresno webpage (www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/importantdocuments.htm) and available for public reference.

2.5.6 California Environmental Quality Act Compliance

Legal Requirements:

CWC §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 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.

This 2015 UWMP has been prepared in conformance with legislative requirements and pursuant to California Water Code Section 10652 the preparation and adoption of this plan along with the implementation of the Water Shortage Contingency Plan, are exempt from the California Environmental Quality Act (CEQA). This plan does however present projects that comprise the City's long-term water supply strategy. These projects are presently either under construction or nearly ready for construction and have been or will be evaluated consistent with CEQA requirements.

3 System Description

3.1 General Description

Legal Requirements:

<i>§10631(a) Describe the service area of the supplier.</i>

3.1.1 History and Governance

The original Fresno water system began operations in 1876 as a non-profit organization inaugurated by a group of public-minded citizens. Initially, the water system consisted of one pumping station composed of small pumps and two storage tanks located above the second floor of one of the early store buildings. This building was located on Fresno Street between "J" and "K" Streets, presently known as Broadway and Fulton.

By 1888, the town had grown to a small city, which demanded an improved water distribution system. This was necessary because of several large fires, including the destruction of the first permanent courthouse. In 1888, the first pumping station and water tower, of a permanent nature, were constructed at Fresno and "O" Street. These facilities were designed to be an integral part of a larger and continually expanding water system. This No. 1 station was in continuous use until 1959, when it was retired having served its useful purpose. Today, this building is known as the "Water Tower" and has been declared a historic structure.

Between the years of 1887 and 1890, 4-inch and 2½-inch cast iron pipe, as well as 4-inch wrought iron water mains were laid out. Most of these original "permanent pipes" have since been replaced in the present water supply system. The owner and operator of the system in 1888 was the Fresno Water Company. In 1904, the Fresno Water Company was purchased by Balch, Kerckhoff & Wishon, and was reorganized as the Fresno City Water Company. In 1926, the plant and distribution system was purchased by the California Water Service Company. This Company then sold the water system to the City of Fresno in 1931, which operated as a municipal utility. It was first managed under an appointed water board, but currently is a Division of the Department of Public Utilities.

Historically, the City's supply of water consisted of direct pumping from wells drilled into the underground aquifer. Today, groundwater remains the City's primary water supply source, and there are presently about 260 active municipal groundwater wells located

throughout the City. In the 1960s, the City purchased surface water made available from the United States Bureau of Reclamation (USBR). The City contracted with USBR for 60,000 acre-feet of water per year from the Friant Division (Millerton Lake) and developed a system to recharge the groundwater basin by “intentional recharge,” percolating the imported surface water supplies in constructed recharge basins. The City’s USBR supplies are conveyed to the City via Fresno Irrigation District (FID) canals. In 1976, the City signed a contract with the FID for delivery of surface water supplies from the Kings River based on the City’s pro rata share of FID’s water entitlements. The City also obtains surface water from FID for groundwater recharge purposes and treated for potable use.

In 2004, the City also began treating surface water supplies for direct potable use at its first surface water treatment facility located in northeast Fresno (NESWTF). For the period of 2005 through 2014 this 30 million gallons per day (mgd) rated facility provided 10% to 15% of the City’s potable water supplies. For the 2015 Calendar Year this facility produced 25% of the City’s potable water supply, an increase largely attributed to transmission system improvements which permitted conveying water further into the City’s distribution system and the City’s lower overall system demands. Also in 2015, the City commenced operations of its new T-3 Water Storage and modular Surface Water Treatment Facility in southeast Fresno. In January 2013 the City completed the installation of meters on all single-family residences. In March 2016 the City commenced construction of its new 54 mgd surface water treatment facility in southeast Fresno (SESWTF) and large diameter water mains that will service nearly one-half of the City. Production from this facility may ultimately be 80 mgd with the City demonstrating to DDW the facility is capable of safely running at higher loading rates.

3.1.2 Service Area

In 1989, the City Water Division acquired numerous county waterworks districts and began serving customers previously served by Fresno County. This added a significant number of customers to the City’s water service area. With the exception of the Bakman Water Company, Pinedale County Water District (Pinedale), Park Van Ness Mutual Water Company (Park Van Ness), California State University Fresno (CSUF), and private groundwater users located within County islands, the City currently serves the entire area encompassed by its City Limits and will eventually serve out to the Sphere of Influence (SOI) boundary. The SOI is coincident with the General Plan boundary (adopted on December 18, 2014) and therefore, includes all lands planned to be annexed by the City at the projected 2056 buildout of the General Plan.

The City of Fresno presently covers an area of approximately 128 sq mi consisting largely of single-family residential development (41 sq mi) and multi-family development

(5 sq mi). Commercial/Office/Public Facilities make up the next significant portion of the City's landscape covering approximately 23 sq mi, while industrial land use makes up 11 sq mi. The remainder of the landscape is composed of Open Space at 19 sq mi and Other at about 29 sq mi. The 2035 General Plan Update Master Environmental Impact Report (MEIR) states that the incorporated area is 72,244 acres (112.9 sq mi). Figure 3-1 shows the water system service area, and the excluded areas that are served by other water purveyors.

3.1.3 Significant Water Uses

In 2015, the City had approximately 133,615 water service connections. The water service connection types vary widely, and approximately 85 percent of these connections are single-family residential. Table 3-1 below contains a list of different service connection types and their corresponding counts.

Table 3-1: Customer Meter Connections

Land Use Type	Number of Service Connections in 2015	Percent of Total Connections
Single-Family Residential	113,510	84.95%
Multi-Family Residential	5,712	4.27%
Commercial/Institutional	8,184	6.13%
Industrial	89	0.07%
Landscape Irrigation	3,389	2.54%
Other	0	0.00%
Fire Service	2,731	2.04%
Total Connections	133,615	100.0%

Note: Data provided by City of Fresno Water Division.

3.1.4 Water System

The City's existing water system consists of about 1,799 miles of transmission and distribution pipelines, 260 active municipal groundwater wells, 224 of which registered flows in the past year, 2 surface water treatment facilities of rated capacities of 2 and 30 mgd, 3 water storage facilities, and 4 booster pump facilities. The distribution system was previously divided into four quasi-pressure zones to help regulate and optimize system pressures as there is an approximate 120 feet of elevation decrease running across the city from the northeast to the southwest. The "Highway 41 Gate System" became inactive as the closed distribution main valves that made-up the gate system were opened in 2015, leaving only three pressure zones. Figure 3-2 shows the major components of City's water transmission, distribution and production systems.

3.2 Service Area Climate

Legal Requirements:

CWC Section 10631 (a)

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

The City of Fresno's service area is located in California's San Joaquin Valley in Fresno County along Highway 99. The climate of the area is best described as Mediterranean, characterized by hot dry summers and cool winters. Precipitation in the area averages around 11 inches per year, as shown in Table 3-2, which also shows the average monthly temperature and rainfall. Average evapotranspiration (ET_o) is based on data taken from a monitoring station located at CSUF, while precipitation and temperature data were taken from a station at the Fresno Yosemite International Airport.

Table 3-2: Climate Characteristics

Month	Standard Monthly Average ETo (inches)(a)	Monthly Average Rainfall (inches)(b)	Monthly Average Temperature (°F)(b)	
			Min.	Max.
January	1.14	2.09	37.6	54.6
February	1.92	1.90	40.7	61.5
March	3.68	1.89	43.8	67.0
April	5.36	1.03	48.0	74.4
May	7.34	0.36	54.3	83.5
June	8.32	0.16	60.5	91.7
July	8.71	0.01	65.7	98.3
August	7.74	0.01	64.0	96.4
September	5.62	0.15	59.7	90.8
October	3.62	0.53	51.2	79.7
November	1.79	1.13	42.4	65.3
December	1.07	1.64	37.3	54.7
Annual Total/Average	56.31	10.89	50.4	76.5

(a) Source: CIMIS Website: <http://www.cimis.water.ca.gov>, Station 80 Fresno State (1988 to 2015) Monthly Average ETo Report, December 2015 (downloaded January 12, 2016)
 (b) Source: Data from Western Regional Climate Center (<http://www.wrcc.dri.edu>) for Fresno WSO AP, California Period of Record 01/01/1948 to 01/20/2015 (downloaded January 12, 2016)

The City’s water use in the summer months is significantly higher than in the winter, reflecting increased water use for irrigation purposes during the hot, dry summers.

3.3 Service Area Population and Demographics

Legal Requirements:

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.

3.3.1 Service Area Population

The City was founded in 1885 in the heart of the nation's richest agricultural county and has historically been one of the fastest growing cities in the United States. According to the U.S. Census, the City's population was 354,282 in 1990, 427,652 in 2000, and 494,665 in 2010. The water service area does not completely coincide with the City's annexed boundaries due to the previously mentioned water purveyors and the acquisition of old County of Fresno waterworks districts. The Water Division developed a service area population tracking spreadsheet around 2002 based on 2000 census tract data and projected population growth based on Department of Finance annual increases for the City. The tracking spreadsheet had service area populations of 438,381 in 2000, and 503,127 in 2010.

In the future, the population of the City's water service area will continue to grow as additional development and redevelopment occurs within the City's SOI. The City recently updated its General Plan which anticipates build-out will occur in 2056. The basis of population growth that was accounted for in the General Plan Update was largely from projections from the San Joaquin Valley Demographic Forecasts 2010 to 2050 prepared for the Fresno Council of Governments (Fresno COG). The General Plan Update assumed the City's population would be 60 percent of these county-wide population projections. The City's 2035 General Plan Update MEIR projects the City of Fresno population will be 824,400 in 2040. This projected population equates to an average annual growth rate of approximately 1.85%.

To ensure statewide consistency of reported service area populations DWR developed the DWR Population Tool. This tool utilizes shapefiles of the water purveyor's service area for the periods that align with years the U.S. Census is conducted. For this 2015 UWMP update shapefiles were obtained for the periods of 1990, 2000, and 2010 to reconcile service area populations. The resultant 2000 and 2010 population values were very consistent with those previously developed by the Water Division. The 2015 service area population was 517,748, which based on correspondence with DWR³ correlates to the population as of April 1, 2015. An adjustment was then applied to project the end of year 2015 population value. The projected future year populations were then developed to be consistent with the Fresno COG 2040 projection and are presented in Table 3-3 below. Figure 3-3 also provides a graphical representation of the City's historical tracking, and the new DWR derived and Fresno COG based future population projections.

³ Email correspondence with Gwen Huff, Department of Water Resources, to clarify effective date of derived population values from the DWR Population Tool, dated February 8, 2016.

Table 3-3: Population – Current and Projected (DWR Table 3-1)

Population Served	2015	2020	2025	2030	2035	2040
	525,575	575,034	629,146	688,351	753,128	824,000
¹ Population data was correlated to the 2035 General Plan and the 2035 General Plan MEIR						
² Population projections are based on Fresno COG Regional Transportation Plan						

3.3.2 Other Demographic Factors

Legal Requirements:

CWC 10631 (a)

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

A significant demographic factor that has contributed to water use for the service area has been the non-use of meters and volumetric rates. Prior to January 2013, except for a very small portion, nearly all of the City's single-family residential water customers had been billed on a monthly flat rate structure and they were unaware of the water they actually used and had no real incentive to conserve water. This undoubtedly has contributed somewhat to the high water demands experienced by the City in past years, especially in the summer months. As of January 2013, the City has completed its residential water meter program, involving the installation of approximately 113,000 water meters for single-family homes. With the completion of this program, all of the City's water service connections are now metered, and the City and its customers are able to work more closely together to optimize water use. Since completion of the project residential water demands have dramatically decreased. The correlation of the completed water meter installation program to the recent realized water conservation is difficult to determine due to the heightened State mandated water conservation measures that were imposed from June 2015 through October 2016 to address the current sustained drought. The use of nearly real-time meter data however has been instrumental in guiding the City in its efforts to work with the community to attain desired water use reductions.

The City also has a number of food processing facilities that use large amounts of water throughout the year, particularly in the summer when fruits and vegetables are being harvested and processed.

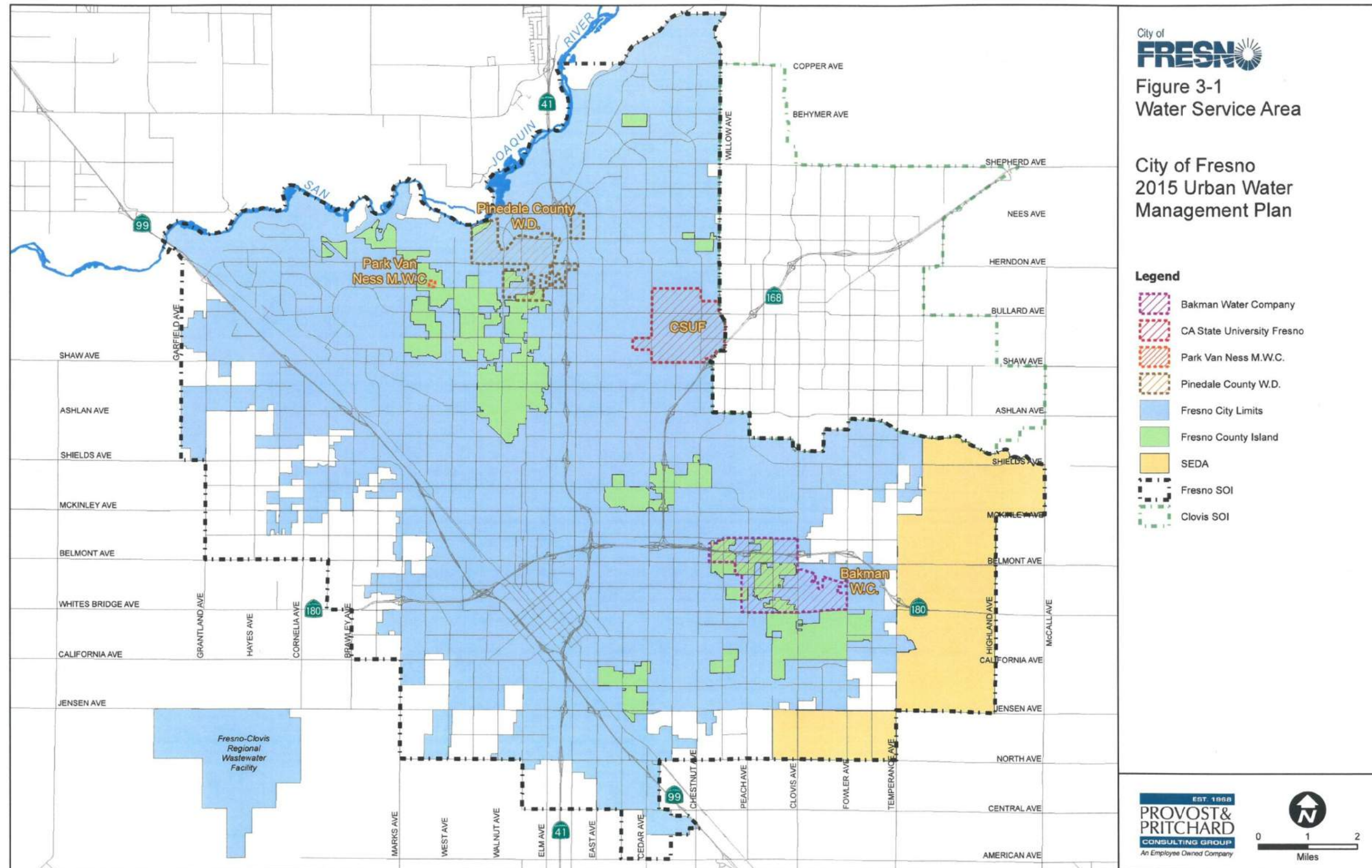


Figure 3-1 Water Service Area

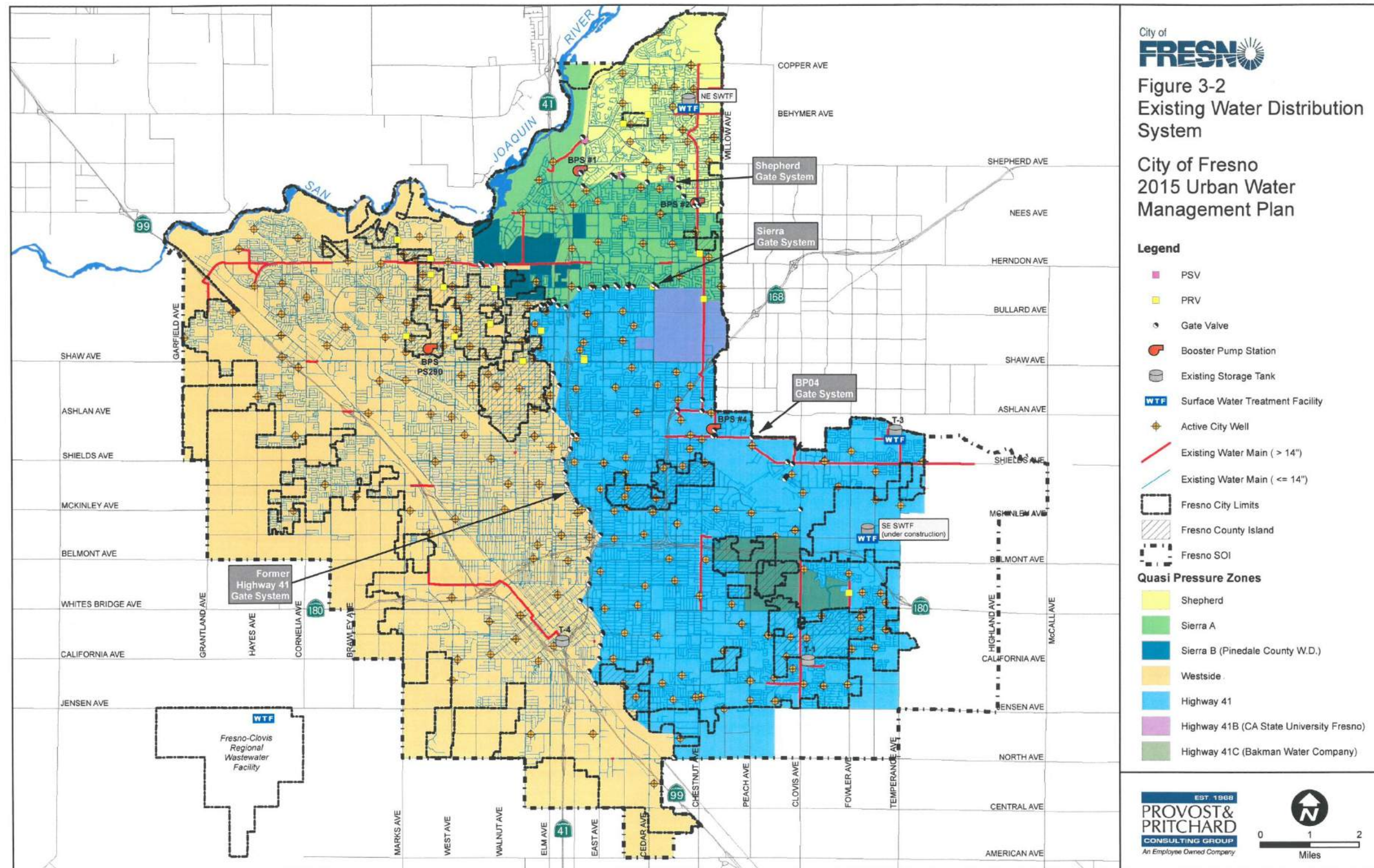


Figure 3-2 Existing Water Distribution System

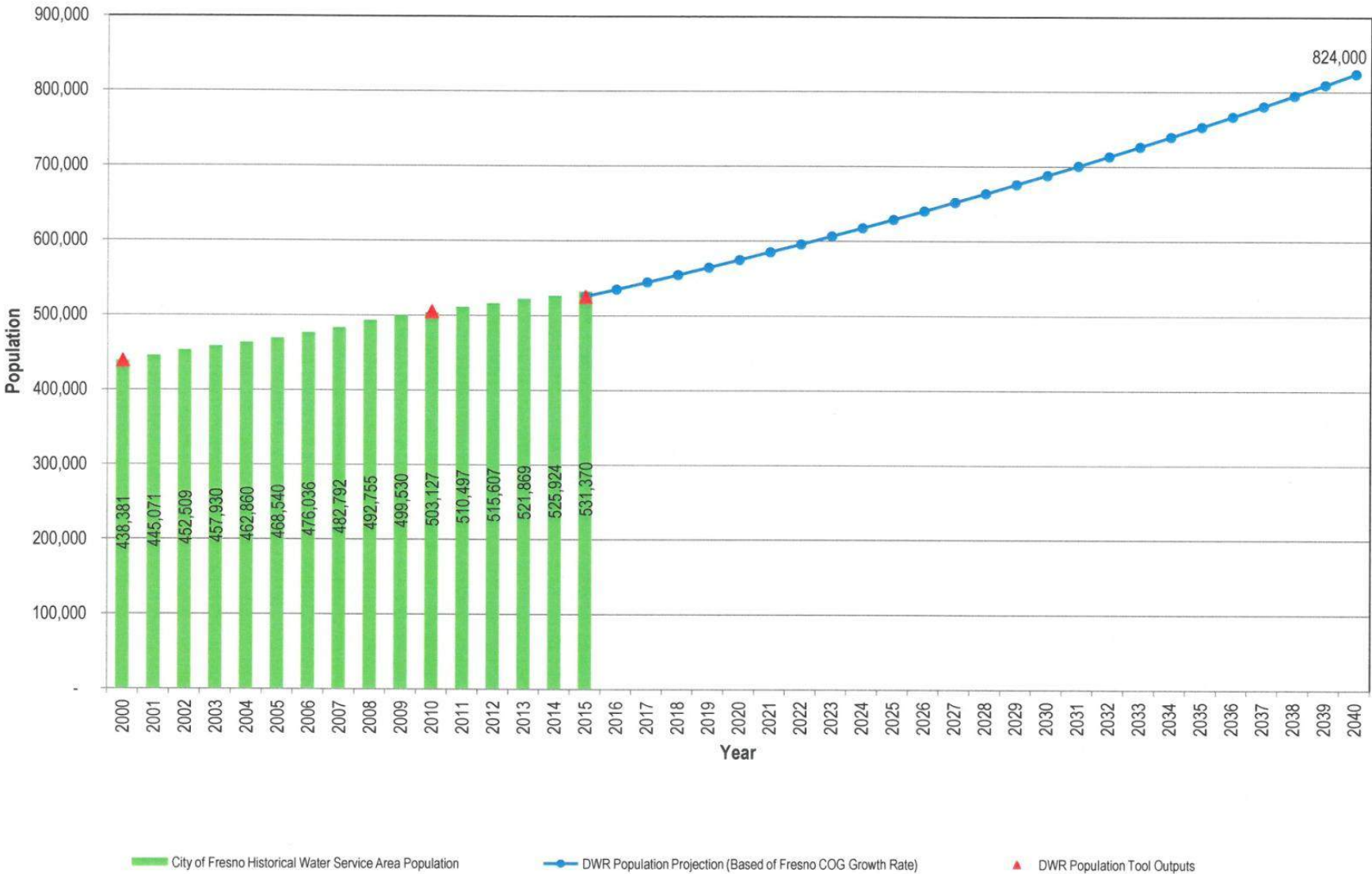


Figure 3-3 City of Fresno Water Service Area Population Projections

4 System Water Use

4.1 Historical Water Production

The City's historical water production for the 130-year period prior to the commissioning of the City's first surface water treatment facility was entirely from groundwater wells. In 2004 the City commissioned the Northeast Surface Water Treatment Facility, its first such facility, followed by the T-3 Water Storage and Surface Water Treatment Facility in 2015. Today water production is composed of the combined quantities of groundwater and treated surface water. Water consumption in the City is characterized by the typical demand sectors of residential, commercial, industrial, and irrigation. The difference between production and consumption is losses, which may be attributed to system leaks, meter inaccuracies, fire flows, and other contributing factors. This chapter will review prior year water utilization and forecast future demands.

The City has historically tracked water consumption of commercial, industrial, multi-family, and irrigation by metered accounts. Single-family residential water consumption was typically determined by subtracting total metered amounts from total production and assuming a percentage for unaccounted-for-water. As of January 2013, the City has become fully metered and can account for all consumptive uses. Water production is tracked by meters on groundwater wells and the surface water treatment facilities.

Potable water production for the period from 1990 to 2015 is presented in Table 4-1. As is apparent in this table water production peaked in 2008 with 168,122 af, which was a 42% increase over 1990 production. The high seen in 2008 is representative of the strong economy leading up to this point and just prior to the economic downturn. Following 2008 water consumption has declined due to the recession that led to vacant homes, closed businesses, and in part an overall lower consumptive use. The decline in water production has continued as the City has heightened efforts to encourage the public to reduce consumption and the State has required every city to meet mandated reductions. The State Water Resources Control Board (SWRCB) is requiring the City to reduce its water production 28% below its 2013 water production for the period from June 2015 through October 2016.

The City has been successful in transitioning away from total reliance on groundwater to building a water portfolio based on conjunctive use and utilizing surface water supplies. Since the first SWTF came online in 2004 the City on average has offset groundwater pumping 10% to 15%. In 2015, the noted 25% offset is somewhat skewed by the dramatic reduction of overall production. Although there were water distribution system improvements which permitted increased production from the Northeast SWTF, and the

utilization of the new supplemental T-3 SWTF commenced operation in 2015, the higher percentage of treated surface water in 2015 is exaggerated by the overall reduction in production for this period.

Table 4-1: Historical Water Production

Calendar Year	Groundwater (af)	Treated Surface Water (af)	Total Production (af)	Percent Groundwater	Percent Surface Water
1990	118,808	0	118,808	100%	0%
1991	117,562	0	117,562	100%	0%
1992	118,303	0	118,303	100%	0%
1993	119,521	0	119,521	100%	0%
1994	128,992	0	128,992	100%	0%
1995	130,389	0	130,389	100%	0%
1996	138,389	0	138,389	100%	0%
1997	148,670	0	148,670	100%	0%
1998	135,546	0	135,546	100%	0%
1999	151,806	0	151,806	100%	0%
2000	156,487	0	156,487	100%	0%
2001	164,049	0	164,049	100%	0%
2002	165,542	0	165,542	100%	0%
2003	165,177	0	165,177	100%	0%
2004	160,047	4,060	164,108	98%	2%
2005	141,471	15,807	157,278	90%	10%
2006	136,050	19,701	155,750	87%	13%
2007	145,148	20,650	165,798	88%	12%
2008	148,006	20,116	168,122	88%	12%
2009	138,254	19,563	157,817	88%	12%
2010	128,578	18,474	147,052	87%	13%
2011	119,813	20,216	140,029	86%	14%
2012	115,615	19,980	135,595	85%	15%
2013	128,510	18,089	146,599	88%	12%
2014	110,313	20,115	130,428	85%	15%
2015	83,360	28,347	111,706	75%	25%

Strong conservation efforts during 2015 and the associated overall lower production have lead to a substantial reduction of groundwater use. It is anticipated that once

mandated water use restrictions are lifted the community will continue conserving water, although it may not be to the level as has been observed during the current state imposed restrictions.

4.2 Historical, Current, and Future Demands

Legal Requirements:

CWC Section 10631 (e)

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).

4.2.1 Historical and Current Water Use

Historically, the City had to back-calculate single-family residential water use since these services were not equipped with meters. To ensure adequate consideration of all demand contributions, the City assumed some level of water loss. Water losses within the City's distribution system may stem from a number of different causes that range from distribution system leaks, to unmetered water usage (firefighting, main flushing, etc.). Unaccounted for water use was typically estimated to be approximately 10% of overall system water use. The estimation of 10% loss was primarily due to the age of the existing system and the condition of the older pipelines that are in use.

Table 4-2 provides the breakdown of actual water use by sector type for 2010.

The City of Fresno does not use any water for saline water intrusion barriers, wetlands, or wildlife habitats, so they are not applicable to this report. The amount allocated for groundwater storage and recharge is a portion of the surface water the City obtains from the United States Bureau of Reclamation (USBR) and the Fresno Irrigation District (FID). Water that is presently not used for treatment and delivery to the customers is directed to City owned and Fresno Metropolitan Flood Control District (FMFCD) ponding basins for groundwater recharge purposes. Over the period from 2000 to 2013 the City attained an average of approximately 50,000 af/yr of groundwater recharge. As is evident in the Table 4-3, the groundwater recharged in 2015 was significantly below

normal year values. This is directly related to limited surface water supplies and the focus to treat as much of the surface supply as possible to meet municipal demands.

Actual water use, by water use sector, for 2015 is summarized in Table 4-3.

Table 4-2: Demands for Potable and Raw Water – Actual

Use Type	2010 Actual		
	General Description of 2010 Uses <i>(if needed)</i>	Level of Treatment	Volume (af)
Single Family		Drinking Water	74,403
Multi-Family		Drinking Water	21,087
Commercial	See Note 1	Drinking Water	20,754
Industrial		Drinking Water	6,660
Institutional/Governmental	See Note 1		-
Landscape		Drinking Water	9,286
Groundwater recharge/storage/banking	Groundwater recharge	Raw Water	53,586
Saline water intrusion barrier			-
Agricultural irrigation			-
Wetlands or wildlife habitat			-
Wholesale demand			-
Other (temporary fire hydrant connections)	Travel Meters	Drinking Water	157
Losses	See Note 2	Drinking Water	13,235
		<i>Total</i>	199,168
<i>Notes:</i>			
1. Institutional and Governmental water usage is included in Commercial.			
2. The City has historically assumed Losses of 10%, due to the lack of full system metering.			

Table 4-3: Demands for Potable and Raw Water – Actual (DWR Table 4-1)

Use Type	2015 Actual		
	Additional Description (as needed)	Level of Treatment	Volume (af)
Single Family		Drinking Water	54,189
Multi-Family		Drinking Water	17,522
Commercial	See Note 1	Drinking Water	17,469
Industrial		Drinking Water	5,618
Institutional/Governmental	See Note 1		-
Landscape		Drinking Water	7,359
Groundwater recharge/storage/banking	Groundwater recharge	Raw Water	19,778
Saline water intrusion barrier			-
Agricultural irrigation			-
Wetlands or wildlife habitat			-
Wholesale demand			-
Other (define)	Travel Meters	Drinking Water	152
Losses	AWWA Audit results (see Section 4.3)	Drinking Water	10,757
		<i>Total</i>	132,844
<i>Notes: 1. Institutional and Governmental water usage is included in Commercial.</i>			

Prior to the installation of single-family residential (SFR) meters water consumption among this sector was relatively high. An example of this was seen in 2000 when the SFR demand was 85,900 af and the City's overall daily per capita usage was 314 gpcd. In late 2008, the City initiated advanced construction work in preparation of the citywide single-family residential meter installation program. This work was to modify existing water services and make them ready to receive a water meter. As this work was carried out the citizens of Fresno began to realize meters were to become a reality and water usage would be measured. Now that the City has successfully installed water meters at every single-family residential service, it can now with a greater degree of certainty quantify total water usage for all water use sectors. As is seen in Figure 4-1, overall water use began a dramatic decline commencing immediately after 2008 and has continued through 2015, except for a small anomaly in 2013. It is also noteworthy to mention this same period is coincident with the economic recession, so not all of the water usage reduction may be completely attributed to meter installations.

4.2.2 Future Water Use

The development of the future water demands was largely based on land-use demand factors. The forecast period is based on a review of land-based unit demands factors for

2013 through 2015⁴, and holding the City’s General Plan land use acreages at buildout. The approach taken is analogous to the approach encouraged in Appendix K of the 2015 UWMP Guidebook. The presented future demand forecasts, based on developed potable water sector demands, will attain population-derived final per capita water use targets for years beyond 2020. Full discussion of the interim and final targets can be found in Chapter 5.

Table 4-4: Demands for Potable and Raw Water – Projected (DWR Table 4-2)

Use Type	Additional Description (as needed)	Projected Water Use (af)				
		2020	2025	2030	2035	2040
Single Family		81,200	85,700	87,000	91,200	92,100
Multi-Family		23,000	25,100	26,800	28,900	30,400
Commercial	See Note 1	24,800	28,800	32,800	36,800	38,800
Industrial		6,600	6,900	6,400	6,600	6,900
Institutional/Governmental	See Note 1					
Landscape		11,200	11,700	12,200	12,700	13,100
Groundwater recharge/storage/banking	GW recharge	55,800	58,500	61,100	63,800	66,500
Saline water intrusion barrier						
Agricultural irrigation						
Wetlands or wildlife habitat						
Wholesale demand						
Other (define)	Travel Meters	200	200	200	200	200
Losses		11,700	12,700	13,200	14,100	14,500
	Total	214,500	229,600	239,700	254,300	262,500

Notes:1. Institutional and Governmental water usage is included in Commercial.

4.2.3 Demand Sectors in Addition to Those Listed in Water Code

4.2.3.1 Exchanges

The City has a water exchange agreement with FID. The City currently directs a significant portion of its secondary wastewater effluent to percolation ponds. The agreement allows the percolated water to be extracted and pumped into FID canals for delivery to downstream customers. In return, the agreement states that FID will provide surface water from either its Kings River entitlement or its USBR contract “insofar as is feasible and practical” water “for agricultural use and for ground water replenishment in the eastern portion of the District.” The quantity of surface water that FID is required to

¹ Shapefiles downloaded 3/10/16 from the City’s Website: Existing Land Use dated 10/16/15, and Planned Land Use (General Plan) dated 8/18/15.

provide is limited to 46 percent of the groundwater that the City pumps into FID's delivery canal, and the contract limits the annual quantity that can be pumped into FID's canals to 30,000 af/yr, or 100,000 af over a 10-year period (contract limit can be increased with approval from the FID Board). Based on historical operations, the City should be able to obtain 13,800 af/yr of Kings River water from FID through this exchange agreement. Although this exchange provides a regional benefit, the City may desire to renegotiate this agreement so it may more directly benefit from this exchange. This exchange water has not been counted as contributing to the City's water supply portfolio.

4.2.3.2 Transfers

The exchanges and transfers that the City participates in are discussed in the previous section.

4.2.3.3 Wetlands of Wildlife Habitat

The City does not allocate any water for Wetlands or Wildlife Habitats.

Table 4-5 below shows the overall water demands for the community along with potable and recycled water demands.

Table 4-5: Total Water Demands (DWR Table 4-3)

Description	2015	2020	2025	2030	2035	2040
Potable and Raw Water From DWR Tables 4-1 and 4-2 (af)	132,844	214,500	229,600	239,700	254,300	262,500
Recycled Water Demand From DWR Table 6-4 (af)	8,762	21,200	34,400	34,400	38,600	38,600
Total Water Demand (af)	141,606	235,700	264,000	274,100	292,900	301,100

4.3 Distribution System Water Losses

Legal Requirements:

CWC 10631

(e)(1) Quantify, to the extent records are available, past and current water use over the same five-year increments described in subdivision (a), and projected water use, identifying the uses among water use sectors, including, but not necessarily limited to, all of the following uses...

(J) Distribution system water loss.

CWC 10631 (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.

As was mentioned earlier, now that the City is fully metered as of January 1, 2013, it is now possible for the City to quantify all water production, consumption, and losses. Real Losses, as defined in the American Water Works Association (AWWA) Water Audit tool are: *“Physical water losses from the pressurized system (water mains and customer service connections) and the utility’s storage tanks, up to the point of customer consumption. In metered systems this is the customer meter, in unmetered situations this is the first point of consumption (stop tap/tap) within the property. The annual volume lost through all types of leaks, breaks and overflows depends on frequencies, flow rates, and average duration of individual leaks, breaks and overflows.”* For the “recent 12-month period,” taken to be the 2015 Calendar Year, the AWWA Water Audit resulted with *Real Losses* of 10,757 af and a score of “70 out of 100” (see Table 4-6). The AWWA Tool suggests audit accuracy may be improved by addressing volume from own sources, unauthorized consumption, and systematic data handling errors. The results of the AWWA Water Audit Tool are provided in Appendix D.

Table 4-6: Retail: 12 Month Water Loss Audit Reporting (DWR Table 4-4)

Reporting Period Start Date (mm/yyyy)	Volume of Water Loss (af)
01/2015	10,757
Notes: Obtained using AWWA Water Audit Tool	

The overall consumption of water in the system was generalized into four different categories:

- Billed Metered Usage
- Billed Unmetered Usage

- Unbilled Metered Usage
- Unbilled Unmetered Usage

The water losses for the system were found by determining the difference between the overall amount of water supplied to the community and the apparent system losses. The losses this system experienced includes many different possible uses such as hydrant flushing/testing, construction, firefighting, system leaks, and water main breaks. The calculated loss of 10,757 af is approximately 8% of the overall system production, which is fairly good considering the infrastructure age in Fresno. Prior to the installation of single-family residential meters, the City assumed a loss rate of 10%. Although this is better than previously thought, there is still room for improvement to reduce water losses.

4.4 Estimating Future Water Savings

Legal Requirements:

CWC §10631

(e)(4)(A) If available and applicable to an urban water supplier, water use projections may display and account for the water savings estimated to result from adopted codes, standards, ordinances, or transportation and land use plans identified by the urban water supplier, as applicable to the service area.

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

Over the course of the last two years the City has adopted an updated General Plan, enacted revisions to ordinances, and adopted a Water Conservation Act; all to encourage the reduction of water wasting and the installation of more efficient water devices. These proactive measures are supportive of the Water Conservation Act of 2009 (SBx7-7) which provided the regulatory framework to encourage the statewide reduction in urban per capita water use of 20% by 2020.

The City's updated General Plan, adopted in December 2014, stresses the need for sustainability and the conservation of resources. Within the Resource Conservation and Resilience chapter of the General Plan, is *Objective RC-7: Promote water conservation through standards, incentives and capital investments*. The policies listed under this objective support reducing water use through activities, such as but not limited to: improving new development landscape standards, developing tiered water rates, retrofitting existing facilities, and public education.

To address the ongoing severe drought the City adopted Ordinance No. 2015-13 on May 21, 2015, that amended and updated an existing municipal code section to clarify and improve enforceability of the code. This improvement permitted the City's Water Division to better enforce water restrictions and impose associated fines for water wasting. Although this action is largely focused on actions to be taken during periods of drought, it will nonetheless help conserve water over the long run. A copy of this ordinance is provided in Appendix E.

The City of Fresno Water Conservation Act was adopted on October 29, 2014, and lays out policies to "promote and encourage water conservation." Objectives of this act desire to reduce water consumption, establish a water conservation rebate fund, improve irrigation systems on City owned properties, establish residential and commercial landscape development standards as set out in Assembly Bill 1881, and evaluate water service pricing alternatives. A copy of this ordinance is provided in Appendix E.

The City has taken into consideration the above noted adopted code, ordinance, and land use plan when considering future water savings and projecting overall water use. As such, passive savings have been included when projecting overall water savings.

4.5 Water Use for Lower Income Households

Legal Requirements:

CWC 10631.1(a)

- (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.*

Fresno County's Council of Governments (COG) prepared an update to the Regional Housing Needs Allocation (RHNA) to cover the period of January 1, 2013 through December 31, 2023. The RHNA was adopted by the COG on July 14, 2014. Based on the projections developed and adopted by the COG, the City will develop 8,955 housing units for extremely-low, very-low, and low income levels⁵. The City's General Plan Housing Element, was amended on April 28, 2016, and aligns with these projections. As noted in the updated Housing Element, headway has already been made in attaining

⁵ City of Fresno Draft Housing Element, 2015, Table 3-2 Credit Towards the RHNA, pg. 3-3.

the target numbers with 548 lower income units approved or permitted over the period of January 1, 2013 through October 31, 2015. The remaining number of lower income units needed over the RHNA 2013-2023 period is 8,407.

The Housing Element reviewed the General Plan and determined 2,466.23 acres are developable for 15,577 single-family units and 475.97 acres for 7,121 multi-family units to meet the RHNA forecast for Extremely Low, Very Low, Low, Moderate, and Above Moderate income levels⁶. Using the aggregate acres and units for single family land use densities results in 6.3 dwelling units/acre, while the aggregate for multi-family land use yields 15.0 dwelling units/acres. Projected Lower Income water demands are presented in Table 4-7.

Table 4-7: Lower Income Household Projected Water Demands

Lower Income Water Demands	2020	2025	2030	2035	2040
Single Family Residential ¹ (af)	530	530	512	512	493
Multi-Family Residential ² (af)	205	205	201	201	197
Total (af)	735	735	713	713	690

¹ SFR is based on 182.8 acres per five year period is developed.
² MFR is based on 35.3 acres per five year period is developed.

In that the housing units and associated population are included in the adopted General Plan, the demands for these units, that occur within the water service area boundaries, are included in the future water demands presented in this plan⁷.

Table 4-8: Inclusion in Water Projections (DWR Table 4-5)

Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook)	Yes
If "Yes" to above, state the section or page number, in the cell to the right, where citations of the codes, ordinances, etc... utilized in demand projections are found.	Cited on page 9 of this Plan; applied to projections in Table 4-4 on page 6.
Are Lower Income Residential Demands Included In Projections	Yes

⁶ City of Fresno Draft Housing Element, 2015, Table 3-4 Site Inventory Summary Table, pg. 3-9.

⁷ Email correspondence with Sofia Pagoulatos, City of Fresno, Development and Resources Management, dated March 11, 2016.

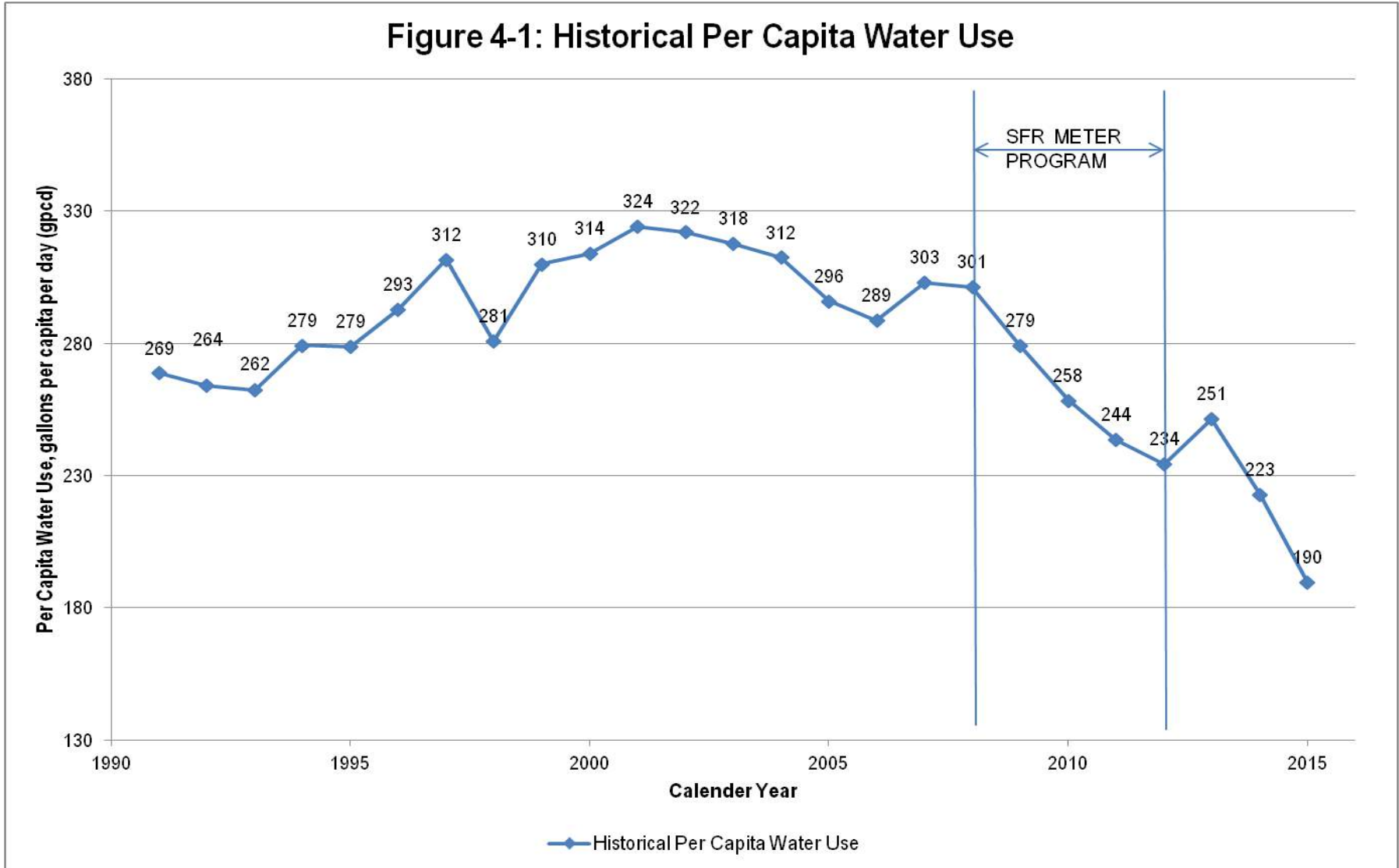


Figure 4-1: Histroic Per Capita Water Use

5 SB X7-7 Baselines and Targets

5.1 Updating Calculations from 2010 UWMP

This chapter documents a process for updating service area populations and per capita usage, establishing baseline per capita water use, and future per capita targets to satisfy State conservation requirements according to SB X7-7.

Legal Requirements:

CWC 10608.20

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

Methodologies DWR 2011, 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.

Preparation of the City’s 2010 UWMP utilized service area population values that were anchored to the 2000 U.S. Census and maintained on an annual basis using California Department of Finance tracked and reported annual population changes. The Department of Water Resources (DWR) 2015 UWMP Guidebook stipulates retail agencies that did not previously use 2010 U.S. Census data “must recalculate their baseline population for the 2015 UWMPs.” The following sections will review the previous population projections and compare them to those as developed through the use of the DWR Population Tool, as well as review updating the City’s 2015 Interim and 2020 Final target values.

5.1.1 Update of Target Method

In response to the onset of a severe drought and rapidly declining water supplies the State Legislature passed four bills to drive statewide water use reductions. The Water Conservation Act of 2009 (SBx7-7) was one of the four policy bills enacted as part of the November 2009 Comprehensive Water Package. SBx7-7 provided the regulatory framework required to engage water purveyors in attaining statewide reductions in urban per capita water use described in the 20x2020 Water Conservation Plan. This bill also addresses agricultural water and commercial, industrial, and institutional (CII) water use.

Per SBx7-7, each urban retail water supplier must determine and report its existing baseline water consumption and establish either its own or cooperative reduction targets. This 2015 UWMP will incorporate the 2010 U.S. Census data and review the previous selected methodology and developed targets presented in the 2010 UWMP.

For the 2010 UWMP, the City developed its baseline and target per capita water uses on an individual basis, and did not participate in a regional alliance. This 2015 UWMP update is also developed on an individual basis.

5.2 Service Area Population

Legal Requirements:

CWC 10608.20

(e) An urban retail water supplier shall include in its urban water management plan due in 2010...the baseline 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.

CWC10644

(a)(2) The plan...shall include any standardized forms, tables or displays specified by the department.

5.2.1 Required Use of 2010 U.S. Census Data

As mentioned earlier, the City has been tracking service area populations based on a detailed review of the 2000 U.S. Census block and tract level data and developed a base population for its service area for Calendar Year 2000. Building off this 2000 base population, the City annually updated the service area population using California Department of Finance tracked population values published in their annual Report E-4 for the City of Fresno. The water system service area does not completely align with the City's annexed boundaries as it also includes several county islands that were acquired in 1989, and excludes areas served by Bakman Water Company, Pinedale County Water District, Park Van Ness Mutual Water Company, and California State University Fresno, as shown in Figure 3-1.

As required of the 2015 UWMP Guidebook, the previous population values were updated using the DWR Population Tool consistent with DWR Methodology 2 (Service Area Population)⁸. For this effort Provost & Pritchard obtained GIS shapefiles from the City that represented its annexed boundaries, and served county islands, for the three

⁸ Methodology 2: Service Area Population, is described in the Department of Water Resources final draft publication entitled "Methodologies for Calculating Baseline and Compliance Per Capita Water Use". DWR, February 2013.

periods coincident with the U.S. Census years of 1990, 2000, and 2010. These shapefiles were loaded into the DWR Population Tool along with available residential service connection numbers to develop service area populations for the corresponding census years. The output from the DWR Population Tool is provided in Appendix F. The population values long carried by the City and those adjusted using the DWR Population Tool output are shown in Table 5-1.

Historical and future population projections were estimated for the City's annexed boundaries and utilized data sourced from the City of Fresno General Plan population information, California Department of Finance, and the DWR's Population Tool. The DWR tool provides a population based on decadal acquired census data and published effective as of April 1 of the census year. The annual population changes are based on data obtained from the California Department of Finance which publishes values of change for each city and is referenced to January 1st. Therefore, the baseline populations presented in this report have been recalculated to ensure consistency to the 2000 and 2010 U.S. Census and California Department of Finance data.

As can be seen in Table 5-1, the revised 1990, 2000, 2010 population values that are based on the DWR Population Tool outputs are somewhat higher than those the City had historically estimated. For 1990 and 2000, the DWR Population Tool based populations are about 6,300 and 6,700 people higher, respectively, than City's service area population estimates. For 2010, the DWR Population Tool based value is about 4,900 people higher than the City's estimate. For 2015 however, the DWR tool based value is about 5,800 people lower than the City estimate. Looking at the population fluctuations on a percentage difference basis of old to new, the new values are: 1.7% higher for 1990; 1.5% higher for 2000; 0.97% higher for 2010; and 1.1% lower for 2015. Overall, it would appear the two population estimates are fairly close, however, the DWR Population Tool based values will be used for this plan update.

See Section 3.3 for a full discussion on population projections from 2015 through 2040.

Table 5-1 City of Fresno Historic Water Service Area Population

Year	City of Fresno Population (per California Department of Finance Report E-4 and E-5) ¹	Annual Percentage Change in City of Fresno Population (per California Department of Finance Report E-4)	City of Fresno Population (per City's population tracking spreadsheet)	City of Fresno Population (per DWR Population Tool Outputs for U.S. Census Years) ⁴
1990	366,209	-	370,268	376,544³
1991	379,823	3.72%	384,033	390,477
1992	389,144	2.45%	393,457	399,994
1993	395,649	1.67%	400,034	406,613
1994	401,317	1.43%	405,765	412,369
1995	406,338	1.25%	410,842	417,459
1996	410,813	1.10%	415,366	421,987
1997	414,597	0.92%	419,192	425,803
1998	419,629	1.21%	424,280	430,900
1999	425,778	1.47%	430,497	437,142
2000	433,575	1.83%	438,381	445,073³
2001	440,192	1.53%	445,071	451,621
2002	447,548	1.67%	452,509	458,919
2003	452,910	1.20%	457,930	464,165
2004	457,786	1.08%	462,860	468,908
2005	463,404	1.23%	468,540	474,405
2006	470,817	1.60%	476,036	481,732
2007	477,499	1.42%	482,792	488,304
2008	487,353	2.06%	492,755	498,111
2009	494,054	1.37%	499,530	504,686
2010	497,611	0.72%	503,127	508,044³
2011	504,901	1.46%	510,497	513,358
2012	509,955	1.00%	515,607	516,355
2013	516,148	1.21%	521,869	520,467
2014	520,159	0.78%	525,924	522,346
2015	-	1.04% ²	531,370 ²	525,575³

¹ Population for each calendar year is based on the January 1 population for the following year (e.g. 2005 population is based on January 1, 2006).

² Since the Report E-4 isn't published until May of the following year, the average of the previous five years was used to project an interim 2015 population value. (Data from the May 2015 Report E-4 was used to for these calculations)

³ The populations provided by the DWR Population Tool correlate to U.S. Census effective date of April 1 for that year. The values presented in the table have been adjusted according to the California Department of Finance annual change for the City of Fresno to reflect the population on December 31 of the subject year.

⁴ Holding the census derived population outputs from the DWR Population Tool (adjusted per Note 3) separate annual adjustment factors were applied to the decadal periods to adjust the annual increases published by the California Department of Finance for use in developing population values between the Census years. For the period from 1991 to 2000 an adjustment factor of 0.9998343 was applied; for the period from 2001 to 2010 an adjustment factor of 0.99945767 was applied; and for the period from 2011 to 2015 an adjustment factor of 0.99587018 was applied.

5.3 Gross Water Use

Legal Requirements:

CWC 10608.12

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

- (1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.
- (2) The net volume of water that the urban retail water supplier places into long term storage.
- (3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.
- (4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.

California Code of Regulations Title 23, Division 2 Chapter 5.2 Article

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

5.3.1 Gross Water Use

The City’s gross water use is comprised of surface water purchased from the United States Bureau of Reclamation (USBR) and the Fresno Irrigation District (FID), and groundwater produced by its 260 municipal wells from the Kings Sub-basin, which is a part of the greater San Joaquin Valley Groundwater Basin. Table 4-1 provides the City’s historic water production for a period of sufficient duration to facilitate the establishment of a baseline period as discussed further in Section 5.4 below. The basis of gross water use are the meters installed at the City’s NESWTF and T-3 Water Storage and Treatment Facility, and each of its municipal groundwater wells which are equipped with flow meters. DWR Methodology 1 (Gross Water Use)⁹ provides the opportunity to make adjustments and deductions in the reported gross water use for factors such as: meter errors, changes in distribution storage, indirect recycled water use, agricultural water use, and process water use. The City’s gross water use however has not been adjusted for any of these factors. The City installs flow meters on its municipal water wells and has a maintenance program to keep them appropriately calibrated, and as such meter error is considered to be negligible. Also, there have not been any adjustments made for changes in storage as the City has limited water storage reservoirs and tanks throughout its water system, and although there may be fluctuations in storage stemming from diurnal changes, these facilities are predominantly maintained at consistent levels throughout the year. Lastly, deductions

⁹ Methodology 1: Gross Water Use, is described in the Department of Water Resources final draft publication entitled Methodologies for Calculating Baseline and Compliance Per Capita Water Use. DWR, February 2013.

were not made for indirect recycled water use, agricultural water use, or process water use, as these uses do not apply to the City. Based on the foregoing explanation, the historical water use shown in Table 4-1 is the City's gross water use.

5.4 Baseline Daily Per Capita Water Use

5.4.1 Baseline Periods

Legal Requirements:

CWC 10608.20

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

(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).

In the preparation of the City's 2010 UWMP, baseline periods were determined utilizing gross water use and water service area populations, which were based on the best information available at the time. Based on this information the City selected the 10-year baseline period of 1996-2005, and a five-year baseline period of 2003-2007. Selection of these periods resulted with a Base Daily Per Capita Water Use of 313 gallons per capita per day (gpcd). As provided by the California Water Code, CWC 10608.20 (g), this plan update will review the prior selection of the base daily per capita water use and the 2020 Final target to ensure they are appropriate.

Due to the revision of historic population values (discussed in Section 5.2.1) the per capita water use values have changed slightly from those developed in the 2010 UWMP. The changes, though not significant, were enough to justify consideration of changing the 10-year baseline period as discussed further below in Section 5.4.2.

5.4.2 Determination of the 10-15 Year Baseline Period (Baseline GPCD)

Legal Requirements:

CWC 10608.12

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

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

(2) For an urban retail water supplier that meets at least 10 percent of its 2008 measures 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 determination of whether an urban water retailer uses a 10-year or 10-15 year baseline period is dependent on whether or not that retailer used at least 10% recycled water for their total water deliveries in the year 2008. As the City had negligible recycled water use in 2008, it will utilize a 10-year baseline period (as stipulated in Water Code Section 10608.20). As was mentioned in the previous section, the subtle change in populations associated to the DWR Population Tool outputs has also resulted in subtle changes to the per capita water use values. The continuous time period that will be used in this 2015 UWMP for the 10-year baseline period is 1999-2008, which has an associated average daily per capita water use¹⁰ of 309 gpcd. See Figure 5-1 for a depiction of the selected baseline period and per capita water use values, and Table 5-2 for the calculation for the 10-year baseline period per capita water use.

5.4.3 Determination of the 5-Year Baseline Period (Target Confirmation)

Legal Requirements:

CWC 10608.12

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

The 5-year baseline period will be used later in this chapter as part of a confirmation, which is required to demonstrate that the calculated 2020 Final target meets a minimum five percent reduction of the defined 5-year baseline period. The continuous time period

¹⁰ The average daily per capita water use values for both the 10-year and 5-year baseline periods were carried-out per Methodology 3: Base Daily Per Capita Water Use, as described in the Department of Water Resources final draft publication entitled Methodologies for Calculating Baseline and Compliance Per Capita Water Use. DWR, February 2013.

that will be used in this 2015 UWMP for the 5-year target confirmation baseline period is 2003-2007, which has an associated average daily per capita water use of 304 gpcd. See Table 5-3 for the calculation for the 5-year baseline period per capita water use.

Table 5-2: 10-Year Baseline Daily Per Capita Water Use

Baseline Period		Service Area Population	Gross Water Use, gpd	Daily Per Capita Water Use, gpcd
Sequence Year	Calendar Years			
Year 1	1999	437,142	135,514,430	310
Year 2	2000	445,073	139,693,072	314
Year 3	2001	451,621	146,443,531	324
Year 4	2002	458,919	147,776,305	322
Year 5	2003	464,165	147,450,476	318
Year 6	2004	468,908	146,495,306	312
Year 7	2005	474,405	140,399,184	296
Year 8	2006	481,732	139,036,059	289
Year 9	2007	488,304	148,004,831	303
Year 10	2008	498,111	150,079,423	301
Baseline Daily Per Capita Water Use ¹				309

(1) Average of annual daily per capita water use for the 10-year period from 1999 to 2008.

Table 5-3: 5-Year Baseline Daily Per Capita Water Use

Baseline Period		Service Area Population	Gross Water Use, gpd	Daily Per Capita Water Use, gpcd
Sequence Year	Calendar Years			
Year 1	2003	464,165	147,450,476	318
Year 2	2004	468,908	146,495,306	312
Year 3	2005	474,405	140,399,184	296
Year 4	2006	481,732	139,036,059	289
Year 5	2007	488,304	148,004,831	303
Baseline Daily Per Capita Water Use ¹				304

(1) Average of annual daily per capita water use for the 5-year period from 2003 to 2007.

5.5 2015 and 2020 Targets

Legal Requirements:

CWC 10608.20

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

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

5.5.1 Selection of Target Method

Each urban water supplier must set 2015 Interim and 2020 Final water use targets using one of four methods defined by SBx7-7 and DWR. For its 2010 UWMP the City selected Target Method 1 for determining its 2015 Interim and 2020 Final urban water use targets. This selection was made after reviewing the four alternative methods available. Rather than duplicating the previous evaluation for this plan update, the reader is directed to the City’s 2010 UWMP Appendix I for details, as the previous City adopted evaluation is still applicable and results with the same target method selection.

5.5.2 Development of 2015 and 2020 Urban Water Use Targets

As mentioned in the preceding section, the City utilized Target Method 1 which was available in the SBx7-7 legislation, Water Code Section 10608.20 (b)(1). Per this cited section, Method 1 is described as being “*Eighty percent of the urban retailer water supplier’s baseline per capita daily water use.*”

Thus, in accordance with the cited water code section and the DWR SBX7-7 Verification Form Table 7-A (provided in Appendix G), the 2020 Final Target is established as being 80% of the City’s 10-year baseline period (1999-2008), and the 2015 Interim Target GPCD is established as being the value halfway between the City’s 10-year baseline period (1999-2008) and the confirmed 2020 Target. The calculation for the target water use values are shown in Table 5-4 below.

Table 5-4: 2015 Interim and 2020 Final Water Use Targets

Target Description	10-Year Baseline Period (gpcd)	Target Level	Target Value (gpcd)
2015 Interim Target	309	90%	278
2020 Final Target	309	80%	247

5.5.3 5-Year Baseline – 2020 Target Confirmation

Legal Requirements:

CWC 10608.22

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

The 5-Year Baseline - 2020 Target Confirmation verifies the calculated and selected 2020 water use target will reduce the agencies water use by a minimum of 5% from the

5-year baseline period for the year 2020. Utilizing the previously selected 5-year baseline period of 2003-2007 the calculation of the confirmation target is shown in Table 5-5 below.

Table 5-5: 2020 Target Confirmation

Target Description	5-Year Baseline Period (gpcd)	Target Level	Target Value (gpcd)
2020 Target Confirmation	304	95%	288

The Method 1 - 2020 Final Target water use of 247 gpcd, as derived in Section 5.5.2 above, is lower than the minimum 2020 Target Confirmation target of 288 gpcd calculated above (and in SBX7-7 Table 7-F, see Appendix G), and is therefore an acceptable target value. As a result, the 2020 Target will be 247 gpcd.

5.5.4 Baselines and Targets Summary

Provided in Table 5-6 below is a summary of the selected baseline periods and water use targets that have been developed in the preceding sections.

Table 5-6: Baselines and Targets Summary (DWR Table 5-1)

Baseline Period	Start Year	End Year	Average Baseline GPCD (gpcd)	2015 Interim Target (gpcd)	Confirmed 2020 Target (gpcd)
10 Year	1999	2008	309	278	247
5 Year	2003	2007	304		

5.6 2015 Compliance Daily per Capita Water Use (GPCD)

Legal Requirements:

CWC 10608.12

(e) "Compliance daily per-capita water use" means the gross water use during the final year of the reporting period...

CWC 10608.24

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

CWC 10608.20

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

5.6.1 Meeting the 2015 Target

The determination of 2015 Target compliance is based on gross water use for the 2015 calendar year as developed in accordance with Methodology 1, and the service area

population as developed in accordance with Methodology 2. For calendar year 2015, the City had a gross water use of 111,706 af (see Table 4-1) and a service area population of 525,575 (see Table 5-1). The City did not make any adjustments to the gross water use as is permissible in Water Code Section 10608.24 and discussed further in Section 5.6.2 below. Utilizing the noted gross water use and service area population values, the resultant actual per capita water use for the City in calendar year 2015 was 190 gpcd. As such, the City has met and exceeded the 2015 Interim target of 278 gpcd.

The overall water usage patterns of the City have been greatly reduced due to the drought and the conservation measures it has enacted. Attainment of the 2015 Interim Target has been influenced by: the completion of the City's single-family residential meter installation program; aggressive and proactive education and outreach to the citizens by the City's Department of Public Utilities; and by the mandated water use reductions from the State Water Resources Control Board. All of these factors have played a significant role in the City's ability to meet the 2015 Interim Target and actually surpass the proposed 2020 Final Target value. As is evident in Figure 5-1, the City has demonstrated an ability to meet the 20x2020 Water Conservation Plan water use reduction goal. Looking to the future, the City will need to remain diligent in monitoring water use and continuing incentive programs to further reduce water consumption. These efforts are necessary so when the current strict reduction requirements are lifted all water users remain diligent in avoiding unnecessary use of water and upgrade fixtures to eliminate water wasting.

5.6.2 2015 Adjustments to 2015 Gross Water Use

Legal Requirements:

CWC 10608.24

(d)(1) When determining compliance daily per capita water use, an urban retail water supplier may consider the following factors:

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

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

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

(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.

No extraordinary events or economic adjustments have taken place that would cause any adverse effects with regards to overall water usage. As was previously mentioned, the City did not make any adjustments to the 2015 gross water use as is permissible with Water Code 10608.24 cited above.

5.7 SB X7-7 Verification Form

The detailed reporting of baselines and targets has been performed in the DWR SBX7-7 Verification Form spreadsheet (SBX7-7 Tables 7-A & 7-F are included in Appendix G). Completion of this chapter and the Verification Form has demonstrated that the City of Fresno satisfactorily met the 2015 Interim water use target. Provided in Table 5-7 below is the final form of the DWR Verification Form showing the City achieved the target 2015 reduction. The City of Fresno therefore has met its 2015 Interim Target and is compliant with the requirements of SBX7-7.

Table 5-7: 2015 Compliance (DWR Table 5-2)

Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments to 2015 GPCD Enter "0" for adjustments not used From Methodology 8					Adjusted 2015 GPCD	2015 GPCD (Adjusted if Applicable)	Did Supplier Achieve Targeted Reduction for 2015? Y/N
		Extraordinary Events	Economic Adjustment	Weather Normalization	TOTAL Adjustments				
190	278	0	0	0	0	190	190	Yes	
All values are in Gallons per Capita per Day (gpcd)									

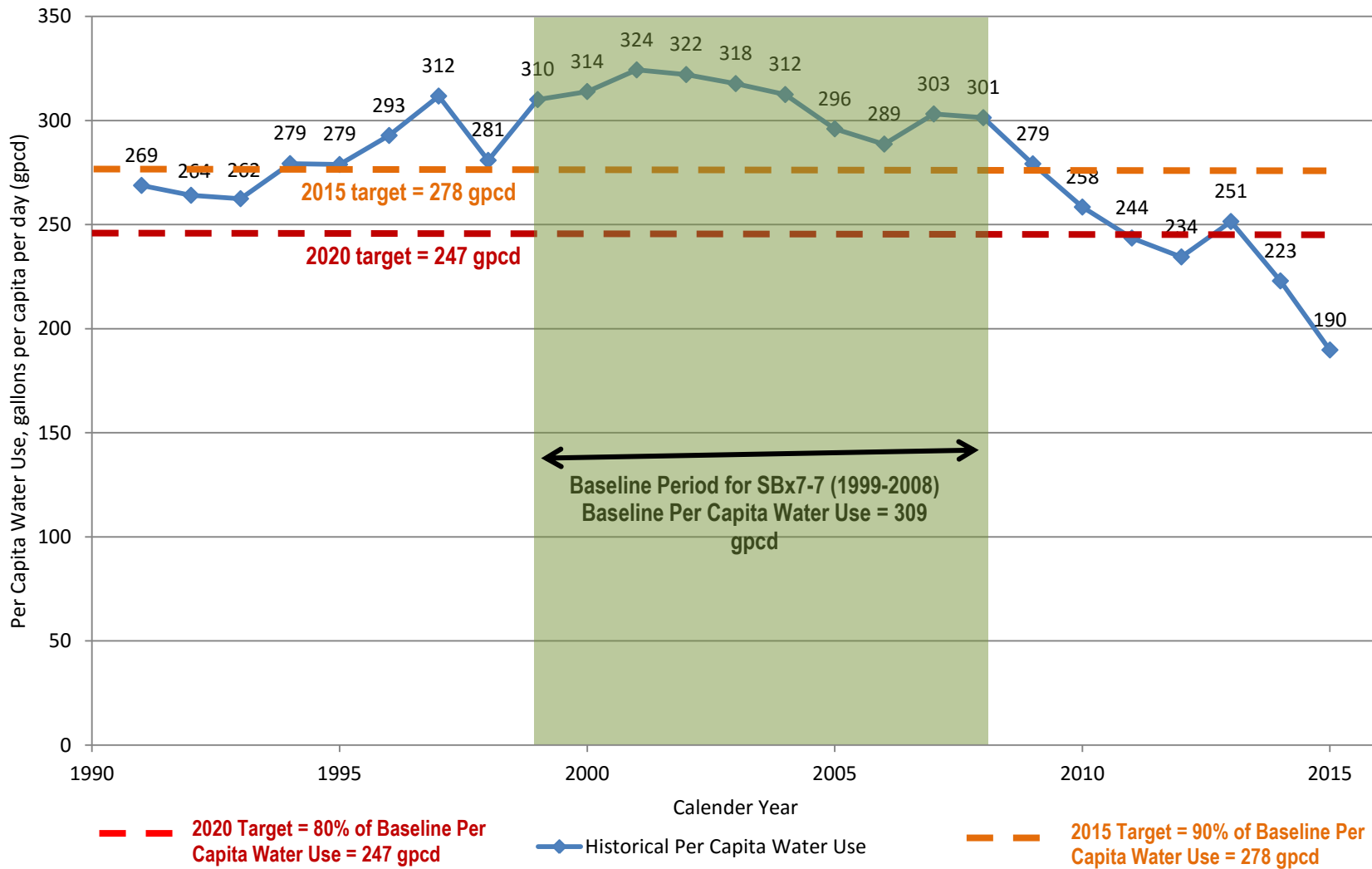


Figure 5-1: Baseline Period for Target Calculation

6 System Supplies

This chapter provides a description and quantification of each water supply used by the City. This discussion will address quantities available under normal water year conditions, water quality, and projects to meet future demands.

6.1 Groundwater

Groundwater has come to the forefront of the State's water supply concerns due to rapidly declining groundwater levels and storage, land subsidence, seawater intrusion, and degradation of groundwater quality. The severity of the issue ultimately led to legislature drafting three bills which were signed by the Governor on September 16, 2014, and laid the foundation of the Sustainable Groundwater Management Act (SGMA). As required by SGMA, each groundwater basin is to develop a Groundwater Sustainability Agency(ies) (GSA), and a Groundwater Sustainability Plan (GSP), and attain sustainability within twenty years. The statewide use of groundwater supplies will inevitably change over the next few years, as GSP guidelines are developed and GSA's create plans to fit their unique circumstances. The information provided in this 2015 UWMP is provided as the best available information known at the time of this plan preparation. It is acknowledged however, more refined information will be accumulated through monitoring and reporting for each GSA. As the GSA's incorporate and assimilate gathered data, they will employ adaptive management measures based on measured objectives. This process will be a continual one permitting the refinement of each agency's understanding of how their actions influence the groundwater basin. The City of Fresno is committed to the success of the SGMA, and anticipates new information will be forthcoming which may influence the values presented in this plan. The City reserves the right to make changes to the presented values in this plan and will do so through the submittal of an amendment to the DWR should changes in values be sufficient to warrant such a plan amendment.

6.1.1 Basin Description

Legal Requirements:

CWC 10631

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

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

The California Department of Water Resources (DWR) has partitioned the State into ten major hydrologic regions (also referred to as “basins”) and then further divided each basin into subbasins. In this manner DWR is better able to specifically address the individual basins and account for their unique characteristics in various reports prepared by them. As shown in the California Water Plan Update 2013¹¹ (2013 CWP), the City of Fresno is located in the Kings Subbasin (DWR Subbasin 5-22.08) which is in the greater Tulare Lake hydrologic region (DWR Basin 5.22), and also within the larger San Joaquin Valley Groundwater Basin. The Kings Subbasin covers approximately 1,530 square miles.

6.1.1.1 Basin Location

The Kings Subbasin, as depicted in the 2013 CWP, is generally bounded: on the north by the San Joaquin River; on the west by the Fresno Slough; on the south by the Kings River and Cottonwood Creek; and on the east by the Sierra foothills. DWR classified the Kings Basin as being in a state of critical overdraft in its Bulletin 118-80. Figure 6-1 shows the City’s location relative to the Kings Subbasin boundaries.

6.1.1.2 Area Geology

The upper several hundred feet within the Kings Subbasin generally consists of highly permeable, coarse-grained deposits, which are termed older alluvium. Coarse-grained stream channel deposits, associated with deposits by the ancestral San Joaquin and Kings Rivers, underlie much of the northwest portions of the City. Additionally, a recent study completed in 2004 indicated the presence of a laterally extensive clay layer, at an average depth of approximately 250 feet below the ground surface, beneath most of the south and southeastern portions of the City.

Below the older alluvium to depths ranging from about 600 to 1,200 feet below ground surface, the finer-grained sediments of the Tertiary-Quaternary continental deposits are typically encountered. Substantial groundwater has been produced and utilized from these depths by the City; however, deeper deposits located in the southeastern and northern portions of the City have produced less groundwater.

There are also reduced deposits in the northern and eastern portions of the City, at depths generally below 700 or 800 feet, which are associated with high concentrations of iron, manganese, arsenic, hydrogen sulfide, and methane gas. Groundwater at these depths does not generally provide a significant source for municipal supply wells.

¹¹ California Water Plan Update 2013, Bulletin 160-13, Investing in Innovation & Infrastructure, Volume 1, Chapter 3, Pages 15 & 16, Department of Water Resources, 2013.

Figure 6-2 presents an idealized geologic cross-section that illustrates the general depth of various lithologic features within the Kings Subbasin near the City.

6.1.1.3 Aquifer Characteristics

Transmissivity indicates the ability of an aquifer to transmit groundwater, while the specific capacity indicates the ability of a particular well to produce that water; hence, any future groundwater wells should be located in areas of higher transmissivity. As part of the City’s recent Metro Plan Update, aquifer test data (pump tests) were reviewed to evaluate available transmissivity and specific capacity data.

Table 6-1 summarizes the pump test data by general geographic location within the City (i.e., North, South, East, and West Fresno). As shown in Table 6-1, the northwestern and southwestern portions of the City have wells with higher transmissivities and higher specific capacities.

Table 6-1: Summary of Groundwater Pump Tests within the City of Fresno

Area of City	Date Range	Range of Pumping Rates, gpm	Range of Transmissivities, gpm/ft	Range of Specific Capacities, gpm/ft
North Fresno	1979 to 2005	500 to 2,450	10,000 to 179,000	6 to 57
Northwest Fresno	1969 to 1995	570 to 2,735	66,000 to 298,000	43 to 134
Southwest Fresno	1995 to 2006	1,510 to 2,515	57,000 to 369,000	26 to 92
Southeast Fresno	1987 to 2005	340 to 1,790	15,000 to 135,000	4 to 54
East Fresno	1987 to 2005	450 to 1,740	3,500 to 109,000	2 to 38

¹ All data from Kenneth D. Schmidt & Associates.

6.1.2 Groundwater Management

Legal Requirements:

CWC 10631

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

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

(2)...For basins that a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree.

As part of a partnership of local municipal water purveyors, irrigation districts, a flood control district, and the overlying county, the Fresno Area Regional Groundwater Management Plan (FARGMP) was prepared in conformance with AB3030 and SB 1938. The City of Fresno and the other participating agencies subsequently adopted the groundwater management plan in 2006 as detailed in Table 6-2.

Table 6-2: Fresno Area Regional Groundwater Management Plan Adopting Agencies

Agency	Adoption Date
Fresno Irrigation District	01/25/2006
Fresno Metropolitan Flood Control District	02/08/2006
City of Clovis	02/13/2006
Malaga County Water District	02/14/2006
City of Kerman	03/01/2006
Bakman Water Company	03/13/2006
City of Fresno	04/18/2006
County of Fresno	07/18/2006
Pinedale County Water District	09/20/2006
Garfield Water District	11/01/2006

The FARGMP boundaries generally coincide with the Fresno Irrigation District (FID), but also include a small area northeast of FID. The objectives of the FARGMP have been developed to monitor, protect, and sustain groundwater within the region. Specific objectives include the following:

- Preserve and enhance the existing quality of the area's groundwater;
- Correct the overdraft and stabilize groundwater levels at the highest practical beneficial levels;
- Preserve untreated groundwater as the primary source of domestic water;
- Maximize the available water supply, including conjunctive use of surface water and groundwater;
- Conserve the water resource for long-term beneficial use and assure an adequate supply for the future;
- Manage groundwater resources to the extent necessary to ensure reasonable, beneficial, and continued use of the resource;
- Monitor groundwater quality and quantity to provide the requisite information for establishing groundwater policies, goals, and recommended actions; and
- Improve coordination and consistency among agencies responsible for the monitoring and management of groundwater in the Plan Area.

Although FID led the development of the FARGMP, the October 2005 Memorandum of

Understanding between the participating agencies makes it clear that each participating agency retains authority and responsibility for groundwater management within its own jurisdiction. A copy of the FARGMP is provided in Appendix H of this UWMP.

6.1.3 Overdraft Conditions

Legal Requirements:

CWC 10608.12

(b)(2) For basins that have not been adjudicated, (provide) information as to whether the department has identified the basin or basins as over drafted or has projected that the basin will become over drafted 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 Kings Sub-basin groundwater aquifer supplies the City, other municipalities, agriculture, and rural residential areas with a consistent source of water. According to the DWR 118-80 Bulletin, this sub-basin however has been classified as ‘critically overdrafted’ and the future of the groundwater basin has been projected to see continued overdraft conditions. Like much of the Kings Subbasin, groundwater levels beneath the City were relatively shallow at 25 feet below ground surface (ft bgs) in 1940¹² for example, prior to the start of World War II. After the war, the State, including the City, began growing at a rapid rate. For the period from 1959 to 1968 it was reported groundwater levels declined at a rate of 2.8 ft/yr (feet per year)¹³. The water supply utilized to meet the demands from this growth was groundwater which was readily available from the underlying seemingly abundant and productive aquifer. The City continued to rely on the groundwater aquifer for decades, monitoring groundwater levels continuously. Groundwater levels since 1990 have declined from less than 0.5 ft/yr in the southwest portion of the downtown area, to a rate of 1.5 ft/yr for northern and southern areas of town, to a maximum of 3 ft/yr in the northeastern area, adjacent to the City of Clovis. Figure 6-3 provides a depiction of the City’s average depth to groundwater from 1980 through 2015.

The City is limited with its current surface water treatment capacities. Therefore, one of the primary objectives for the City is to maximize the use of available surface water treatment supplies to reduce overall reliance on groundwater and bring its use into balance by the year 2025. As has been mentioned earlier in the report, the City began operations of its first surface water treatment facility in 2004. Of noteworthy importance of trends shown in Figure 6-3 is the reduction to the rate of groundwater decline since

¹² Average groundwater depth for City wells as recorded on log entitled: Well Data Summary Sheet, Engineering Dept, Fresno City Water, 1940.

¹³ Report on Water Resources City of Fresno, page 6-17, John Carollo Engineers, 1969.

2004 when the NESWTF came online and when renewed focus on intentional groundwater recharge operations regained momentum. Figure 6-3 shows that around the 2004 timeframe groundwater levels stabilized and have since then generally held level over the last ten years.

Figure 6-3 also shows the monumental reduction seen in 2015 which is at a level that hasn't been seen since before 1984. To facilitate the further reduction of its reliance on groundwater the City has started construction on a new 80 mgd SWTF in southeast Fresno (SESWTF). The combination the NESWTF and SESWTF will maximize the use of available surface water and afford the City with greater water supply reliability, increase operational flexibility, and decrease the City's dependency on groundwater supplies.

6.1.4 Groundwater Quality

Groundwater within the Kings Subbasin generally meets primary and secondary drinking water standards for municipal water use, and is described as being a bicarbonate-type water, including calcium, magnesium, and sodium as the dominant ions. Generally, total dissolved solids (TDS) concentrations rarely exceed 600 mg/L, and typically range from 200 to 700 mg/L. However, the groundwater basin is threatened by chemical contaminants that affect the City's ability to fully use the groundwater basin resources without some type of wellhead treatment in certain areas. Many different types of chemical pollutants have contaminated portions of the Kings Subbasin underlying the City's water service area. Some of the major contaminant plumes include 1,2-Dibromo-3-Chloropropane (DBCP), ethylene dibromide (EDB), trichloropropane (TCP), other volatile organic compounds (VOCs) such as trichloroethylene (TCE) and tetrachloroethylene (PCE), methyl tertiary butyl ether (MTBE), nitrate, manganese, radon, chloride, and iron. The City has received settlements in a number of lawsuits related to these contaminants and has constructed wellhead treatment systems and implemented blending plans for a number of wells.

6.1.5 Estimated Groundwater Yield

As part of the preparation of a hydrologic groundwater and surface water model that was prepared for the Upper Kings Basin Integrated Regional Water Management Authority, the City contributed additional funding to the effort so the model would be more refined for its service area, and capable of assisting in the development of the City's 50-year water supply plan. The Kings Basin Integrated Groundwater and Surface Water Model¹⁴ (IGSM) was completed in 2007 and provided outputs specific to the City

¹⁴ The Integrated Groundwater and Surface Water Model prepared for the Kings Basin Integrated Regional Water Management Authority was developed by WRIME, 2007.

Sphere of Influence (SOI). The IGSM was developed and calibrated utilizing data for the period of 1964-2004. Building-off the calibrated IGSM, additional modeling was conducted in 2008 to evaluate the City's proposed water supply plan and its ability to attain the balanced use of groundwater by the year 2025. Based on the modeling efforts values were developed for the various natural elements of the underlying aquifer and enabled the estimation of the anticipated yield of the groundwater system within the City's SOI.

6.1.5.1 Natural Recharge

As a result of the IGSM effort, the long-term average deep percolation from rainfall and irrigation applied water for the period of 1964-2004 was found to be 42,700¹⁵ af/yr for the entire SOI. The City's Metropolitan Water Resources Management Plan (MPWRMP) Phase 1 Report¹⁶ states that as urbanization continues within the SOI the amount of deep percolation will decline. For 2005 it was estimated deep percolation would be about 37,000 af/yr, and will reduce annually ultimately declining to and remaining at 27,000 af/yr by 2025 and beyond. It should be noted that the ultimate 2025 value was based on the previous projected point for which the prior General Plan forecasted the SOI buildout. The new General Plan now anticipates SOI buildout will occur in 2056. Holding the 2005 value of 37,000 af/yr and extending the 27,000 af/yr to 2056, intermediate values were straight-line interpolated. Additionally, as cited in Chapter 3, the City currently covers 72,244 acres of the 100,249 acres within its SOI, representing 72% urbanization of the SOI, which would approximate the City's water system service area. However, to better account for the other water purveyors providing water service to small portions of City areas and County island areas within the SOI, a more detailed analysis was performed. Using GIS information, the total annexed City area was determined, excluding Bakman Water Company, Pinedale County Water District, and CSU Fresno, and then added in the County islands serviced by the City. This area compared to the overall SOI area yielded 71.5% coverage for the City's water service area of the SOI. The two values for all practical purposes are equal, warranting the 72% value used for calculating the proportionate coverage. Table 6-3 shows estimated deep percolation out through 2040.

6.1.5.2 Net Subsurface Inflow

Again utilizing information developed from the IGSM, average net subsurface inflow into the SOI was characterized as being 64,800 af annually for the period of 1964-2004. Applying the previously described 72% proportioning factor, developed SOI area to

¹⁵ City of Fresno Metropolitan Water Resources Management Plan, Phase 1 Report, pg. 7-9, West Yost Associates, 2007. Adopted by City Council in 2014.

¹⁶ City of Fresno Metropolitan Water Resources Management Plan, Phase 1 Report, pg. 7-9, West Yost Associates, 2007. Adopted by City Council in 2014.

overall SOI area, approximately 46,700 af/yr would be attributed to the City's water service area. This value will increase in future years until the SOI is builtout, excluding areas associated to Bakman Water Company, Pinedale County Water District, and CSUF. Table 6-3 shows the estimated subsurface inflows for future years. The City has historically benefitted from the net subsurface inflows and requires these flows in perpetuity for replenishment necessary to maintain the safe and sustainable yield of the groundwater aquifer system.

6.1.5.3 Intentional Groundwater Recharge

The City has long made efforts towards offsetting the decline of groundwater levels and minimizing overdraft conditions through an active intentional recharge program that started in 1971¹⁷. Through cooperative agreements with the FMFCD and FID, the City has access to not only City owned basins, but also those of these two agencies. Utilizing available surface water supplies the City has typically been able to recharge approximately 50,000 af/yr for the period of 2000-2013; however, with the reduction in available surface water supplies intentional recharge declined to 34,700 af in 2014 and 19,800 af in 2015. The maximum annual recharge attained during this period was 62,000¹⁸ af/yr in 2003. The City's MPWRMP (2014) outlined developing additional intentional recharge activities to attain a total of 75,100 af/yr. By attaining this level of intentional recharge the City would optimize the use of available supplies, and further improve groundwater conditions as declines in natural recharge are anticipated to occur within the SOI due to urbanization, as described earlier. The goal is to attain the additional new recharge at the time of SOI buildout as reflected in Table 6-3.

Table 6-3: Components to Groundwater Yield for Normal Years

Groundwater Component	Quantity (af/yr)					
	2015	2020	2025	2030	2035	2040
Natural Recharge	25,400	25,700	25,900	26,000	26,100	26,200
Net Subsurface Inflow	47,100	48,900	50,700	52,600	54,400	56,200
Safe Yield	72,500	74,600	76,600	78,600	80,500	82,400
Intentional Recharge	53,100	55,800	58,500	61,100	63,800	66,500
Total Estimated Groundwater Yield	125,600	130,400	135,100	139,700	144,300	148,900

Attainment of the projected additional recharge capacity will require new facilities which may be through either the individual efforts of the City or through the development of cooperative projects with agencies such as FMFCD and FID. A prime example of a

¹⁷ City of Fresno Metropolitan Water Resources Management Plan, Phase 1 Report, Volume II of II, Appendix B Hydrogeologic Conditions in the FCMA, pg. 22. CH2MHill, January 1992.

¹⁸ City of Fresno Recharge records spreadsheet "TotalFresnoRchge2000-2015a.xlsx."

cooperative project is the joint use of new storm water basins that are constructed to serve new city areas that are developed.

6.1.6 Historical Groundwater Pumping

Legal Requirements:

CWC 10631

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

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

The City of Fresno currently relies on a combination of surface water and groundwater supplies to meet the demands of its citizens and businesses within its service area. For many years, the needs of the community were solely met through the use of groundwater, but as time has passed the City has recognized the importance of preserving and maximizing groundwater supplies within the boundary of its SOI. A cone of depression has developed within the City and groundwater replenishment efforts have yet been able to offset the effect of groundwater extraction. The falling groundwater levels are evidence of overdraft. The volume of groundwater pumped by the City can be seen below in Table 6-4.

Table 6-4: Groundwater Volume Pumped (DWR Table 6-1)

Groundwater Type	Location or Basin Name	Groundwater – Volume Pumped (af/yr)				
		2011	2012	2013	2014	2015
Alluvial Basin	San Joaquin Groundwater Basin: Kings Subbasin	119,813	115,615	128,510	110,313	83,360
Total		119,813	115,615	128,510	110,313	83,360

As can be seen in the above table, the overall reliance on groundwater as a principle source of water has decreased over the years and is now supplemented with surface water. The substantial reductions in 2014 and 2015 are attributed to mandatory water reductions imposed by the State to protect limited supplies as the severe drought has continued. The shift in reliance away from groundwater supplies has allowed intentional recharge programs to be more effective and has reduced groundwater overdraft conditions that the City has historically experienced. To put this into perspective, the City had a high in groundwater pumping of 165,540 af in 2002, prior to the NESWTF

going online in 2004. Comparatively, groundwater production in 2015 has dropped to one-half of this value.

6.2 Surface Water

The City of Fresno has contracts for surface water supplies. Contracts for surface water supplies include the following:

- FID Agreement for Kings River water;
- USBR CVP – Friant Division Contract for San Joaquin River water.

The cumulative supply these contracts bring to the City provide the opportunity to construct surface water treatment facilities and optimize the use of these supplies. This conjunctive use approach continues the process of allowing the groundwater system to recover. Each of the surface water supplies is summarized in the following paragraphs.

6.2.1 Surface Water Supplies through FID Agreement

The Fresno Irrigation District is one of 28 agencies that receive an entitlement of water from the Kings River through the Kings River Water Association (KRWA). Water entitlements for KRWA contract members is determined based on a methodology that was initially developed in 1917-1919 to established entitlements for early claimed right's holders. The methodology was based on historic mean daily natural flow conditions at Piedra, which is approximately 3 miles downstream from the then yet to be build Pine Flat Dam, and "at the heart of Kings River uses, regulation, and stream control and storage."¹⁹

In May of 1976 the City of Fresno and FID executed an agreement that stipulated that as land is annexed to the City, the City will receive a pro rata share of FID's Kings River entitlement. The agreement was specific that FID's USBR Class 2 water was excluded and that the City could not store allocated water behind Pine Flat Dam. The pro rata share is based on the area annexed to the City, and within FID's boundaries, as compared to the total area of FID's water service area. The agreement stipulates the allocation amount will be reviewed each year by the two agencies to address new annexations to the City. So, as the City annexes new areas the allocation will increase. Utilizing GIS, there will be approximately 71,925 acres of land within the SOI and within FID's water service boundaries at SOI buildout, excluding Bakman Water Company, Pinedale County Water District, CSU Fresno, and County islands. Projected future percentages of water allocations available to the City are shown in Table 6-5 below.

¹⁹ The Kings River Handbook, pg. 7, Kings River Water Association and Kings River Conservation District, Fourth Printing, June 2003.

Kings River Water made available through the agreement with FID is of extremely good quality as it originates as snowmelt from the high sierras and has not been detrimentally impacted.

Table 6-5: Projected Allocation of FID’s Kings River Water for City of Fresno in Normal Years

Year	2010 ¹	2015 ¹	2020	2025	2030	2035	2040
Projected City Allocation, %	25.41%	25.94%	27.23%	28.51%	29.80%	31.09%	32.37%
Projected Water Quantity to City in Normal Year, af/yr	108,200	110,500	116,000	121,500	126,900	132,400	137,900
Actual Allocation for City, af	125,543	42,935	-	-	-	-	-
(1) Allocations for 2010 and 2015 were provided by FID. Allocation for all other years is based on interpolation between 2015 and SOI buildout at 2056. With General Plan Update SOI buildout has shifted from 2025 to 2056 as reflected here. (2) Projected City Allocation (%) x 426,000 af/yr (estimated normal year diversion by FID, see discussion in Chapter 7).							

6.2.2 Surface Water Supplies through USBR Contract

The City, through an agreement originally executed in January of 1961, secured a surface water supply from USBR CVP - Friant Division. This agreement, for an annual water supply of 60,000 af of Class 1 water, was last renewed in 2010 as a Section 9(d) Contract that provides water from the San Joaquin River in perpetuity. A copy of the renewed contract is provided in Appendix I of this UWMP. The USBR CVP - Friant Division facilities generally include: Friant Dam (Millerton Reservoir); the Friant-Kern Canal; and the Madera Canal. The Friant-Kern Canal is maintained and operated by the Friant Water Authority. The USBR water supply is a wholesale supply.

Construction of Friant Dam was completed in 1947 and began making diversions to the Friant-Kern Canal in 1949. Full operations of the CVP - Friant Division didn't commence until the Madera Canal was completed in 1951. Class 1 water was intended to be a supply that would be dependable in practically every year, regardless of the type of hydrologic water year. Class 2 water is essentially excess water available as determined by USBR and less reliable than Class 1 water. Class 1 water has historically been very reliable until the San Joaquin River Restoration Settlement and more recently by the restrictions on diversions from the Delta due to concerns over the declining health of Delta ecosystem. Restrictions on exports from the Delta have hindered the USBR from making deliveries to the Exchange Contractors²⁰ via the Delta-Mendota Canal. As a result of the reduced deliveries from the Delta, the Exchange Contractor's have called on their historic claim of water from the San Joaquin River, which was exchanged for the Delta-Mendota supply and enabled the CVP - Friant Division projects to be developed. As a subsequent result of the Exchange Contractor's

²⁰ The Exchange Contractors are the benefactors of the historic pre-1914 water rights established by Miller and Lux. These contracts include: Central California Irrigation District; San Luis Canal Company; Firebaugh Canal Water District; and Columbia Canal Company, per website <http://www.sjrecwa.net/history.html> on April 6, 2016.

calling on their historic right water supply, the CVP - Friant Division contractors have been faced with zero allocations of Class 1 water for the last two years. The impacts of these recent events on availability and reliability are discussed further in Chapter 7.

In addition to the Class 1 water available to the City, the USBR contract also makes available to the City water classified as: Recovered Water Account water; Section 215 water; unreleased restoration flows, unreleased recirculation flows, and uncontrolled season flows. The complexities of each water type are beyond the scope of this report, but are mentioned here to reflect the other water acquisition opportunities afforded the City through this contract.

The San Joaquin River water supply has excellent water quality as it originates from snowmelt from the high Sierras and has not been detrimentally impacted.

6.3 Storm Water

The Fresno-Clovis Metropolitan Area and surrounding rural environs are covered by the boundaries of the FMFCD which has primary responsibility for managing the local storm water flows. Most storm water in the City drains to urban storm water basins where the water is retained for the purpose of recharge, or pumped to local irrigation canals for conveyance away from the municipal areas. FMFCD's operation of storm water basins is predicated on maintaining storage capacity for rain events which limits the amount of storm water that is recharged during the rainy season. FMFCD estimates the amount of storm water that is recharged each wet season; however, recharge attained with the FMFCD basins largely occurs in May through October when limited storage capacity is required. Dry-season recharge is accomplished by diverting surface waters, from the Kings River and Millerton Reservoir, using City-allocated surface water. FMFCD estimates that storm water recharge in urban basins during the winter months may be from 7,800 af/yr to 22,200 af/yr²¹. It is difficult to verify these values however, as there is no physical measurement of storm water flows into the basins, and infiltration rates can vary with water elevation and degree of siltation in the basin. Historically, this infiltration has not been accounted for separately as it is considered an integral component of the cumulative elements that make up natural recharge as previously discussed in Section 6.1.5.1.

²¹ Email correspondence from Brent Sunamoto on March 30, 2016, provided graphical representation of estimated storm water infiltration quantities for 2006-2014.

6.4 Wastewater and Recycled Water

Excerpt from recent City of Fresno City Council Agenda Item²²:

“In 2009, the State of California adopted a recycled water policy establishing a mandate to increase the use of recycled water in California by 200,000 acre-feet per year by 2020 and by an additional 300,000 acre-feet per year by 2030. The Recycled Water Master Plan prepared by the Department of Public Utilities’ Wastewater Management Division identifies opportunities to assist with compliance of this law by reducing groundwater pumping and replacing groundwater with recycled water for non-potable purposes (i.e. outdoor irrigation, dust control, fountains, etc.). The Division’s long-term goal is to produce and deliver 25,000 acre-feet of recycled water to the City’s service area to reduce groundwater over drafting. On April 11, 2013, the City Council adopted the Recycled Water Master Plan and associated environmental documents.”

6.4.1 Recycled Water Coordination

Legal Requirements:

CWC 10633

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

As the State grapples with the current prolonged drought and dwindling water supplies, many water purveyors are dealing with the realization new supplies need to be developed. In June of 2014, the Fresno’s City Council adopted the City’s Metropolitan Water Resources Management Plan (MWRMP) that outlined the required infrastructure for the immediate-term, near-term, and long-term, which is needed to meet projected water demands. An instrumental component of this plan is the development of 25,000 af/yr of recycled water by the year 2025.

While the MWRMP was being prepared, the Wastewater Division began efforts on the development of the Recycle Water Master Plan (RWMP), which was adopted by the City Council in April of 2013. This plan outlines the development of projects to optimize the use of recycled water, which will be discussed later in this chapter.

The coordination with other water agencies and potential consumers within the planning area is inherently within the purview of the City’s Department of Public Utilities (DPU) as this department provides both water and wastewater services. DPU has been on the forefront of numerous water supply preservation, enhancement, and development

²² Report to the City Council, *Action Pertaining to the Recycled Water Transmission Main, Southwest Quadrant, Project SW1A*; City of Fresno, September 10, 2015.

projects and programs for decades. The concept of multiagency coordination is fully embraced by the department as is evident with the previously discussed joint agency agreements and the commitment to constructing new infrastructure to further develop new resources. The endeavor to develop recycled water as a resource was actually a requirement of a development in north Fresno, where the developer was conditioned to have a net zero impact on water resources. The fundamental component of this development was the construction and dedication of the North Fresno Wastewater Reclamation Facility to the City.

There are only a few agencies, besides the City, that have wastewater collection and treatment facilities within and immediately adjacent to the plan area. These agencies are as follows:

- City of Clovis
- Malaga County Water District
- Pinedale County Water District
- Pinedale Public Utility District

6.4.1.1 City of Clovis

The Fresno/Clovis Regional Wastewater Reclamation Facility (RWRF) was developed under a joint powers authority agreement executed in 1977 between the City of Fresno the City of Clovis, and the County of Fresno. Both of the cities contribute to the cost of operations and maintenances and capital expenditures for the RWRF based on formulas in the agreement. This facility provides service for most of Clovis' sewer flows.

The City of Clovis has recently constructed its own wastewater treatment facility that produces tertiary level effluent which is distributed in a dedicated purple pipe system within portions of its service area.

6.4.1.2 County of Fresno

The County of Fresno, like the City of Clovis, is a party to the Joint Power Authority for the RWRF, which provides treatment for flows from unincorporated areas encompassed by the City's service area.

6.4.1.3 Malaga County Water District

Malaga County Water District provides water and sewer service to an unincorporated county area of about 2.25 square miles, which covers a small portion of the City's SOI. The district provides wastewater collection and treatment for residential and non-residential customers.

6.4.1.4 Pinedale County Water District

Pinedale County Water District provides water, sewer, and solid waste service to an area of about 2 square miles, which service area covers an unincorporated county island and a portion of the City. The district provides wastewater collection to an area of

about 699 acres and diverts the flow to the City's collection system for treatment at the RWRf.

6.4.1.5 Pinedale Public Utility District

Pinedale Public Utility District provides wastewater, street lighting, street sweeping, and landscape maintenance. The district services an area of approximately 362 acres in the northern portion of the City, serving both an unincorporated county island and portions of the City. The collected wastewater is discharged to the City's collection system for treatment at the RWRf.

As the City is the primary responsible agency for wastewater collection and treatment for its annexed areas and certain County islands, it has taken the lead role of developing and implementing recycled water facilities to serve the same area.

6.4.2 Wastewater Collection, Treatment, and Disposal

Legal Requirements:

CWC 10633

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

CWC 10633

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

6.4.2.1 Wastewater Collected Within Service Area

The City of Fresno's wastewater collection system was originally developed in 1891 with the installation of a 24-inch outfall sewer that discharged to a 40 acre sewer farm located southwest of town. The amount of land and facilities at this location continued to be expanded as the City grew over the years. Today, the City's wastewater collection system consists of about 1,500 miles of pipes ranging in size from 4-inches in diameter to 84-inches in diameter. This collection system also utilizes 15 lift stations throughout the City, ranging in pumping capacity from 0.25 mgd to 2.2 mgd.

6.4.2.2 Wastewater Treatment and Discharge Within Service Area

The City is served by two wastewater treatment plants. Each of these facilities is briefly described in the following sections.

6.4.2.2.1 Fresno/Clovis Regional Wastewater Reclamation Facility

As mentioned above, the Fresno/Clovis RWRf has developed from what was once a sewer farm to what is now a state-of-the-art 80 mgd wastewater treatment facility. In

1966 the City of Fresno was appointed the sewerage agency for the local metropolitan region and shortly after began long-range planning and construction of new facilities to handle increasing flows and regulatory requirements. The RWRf treats flows from not only the City, but also sewerage County areas (some county areas remain unsewered), the City of Clovis, Pinedale County Water District, and Pinedale Public Utility District. Flows received at this facility range from a high of 80,800 af in 2006 to a recent low of 62,600 af in 2015. The RWRf was last expanded in 1998 and currently is rated at 80 mgd and treats received flows to secondary undisinfected levels. The effluent is discharged to percolation ponds, with some flow also being directed to irrigation of non-food crops. The discharged effluent is within the City boundaries and located just southwest of the metropolitan area. The treated effluent percolation ponds are within the City's SOI and hydrologic sphere that benefit the City's overall regional water budget. See Figure 6-1 for a depiction of the facility's location relative to the metropolitan area. The 2015 treated quantity from this facility is noted in Tables 6-6 and 6-7.

6.4.2.2.2 North Fresno Wastewater Reclamation Facility

The North Fresno Wastewater Reclamation Facility (NFWRF) was constructed as part of a residential, commercial, and golf course master planned development located in the northern portion of the City. As a condition of the planned community, the developer was required to construct a wastewater treatment facility that would produce tertiary level effluent that would be used within the development to ensure the overall project had a net zero impact on water resources. This facility is presently rated at 0.71 mgd (average monthly flow) and 1.07 mgd (maximum daily flow). This facility is expandable to 1.25 mgd (average monthly flow). The disinfected tertiary effluent from the plant is largely used to irrigate the Copper River Ranch Golf Course. Of the 203 af of wastewater treated in 2015, 62 af was used for irrigation of turf. The treated flows are noted in Tables 6-6 and 6-7.

Table 6-6: Wastewater Collected Within Service Area in 2015 (DWR Table 6-2)

100	Percentage of 2015 service area covered by wastewater collection system (optional)					
100	Percentage of 2015 service area population covered by wastewater collection system (optional)					
Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated?	Volume of Wastewater Collected in 2015 (af)	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>Add additional rows as needed</i>						
City of Fresno	Metered	62,552	City of Fresno	RWRF	Yes	No
City of Fresno	Metered	203	City of Fresno	NFWRF	Yes	No
Total Wastewater Collected from Service Area in 2015 (af):		62,755				
NOTES:						

Table 6-7: Wastewater Treatment and Discharge Within Service Area in 2015 (DWR Table 6-3)

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 (af)			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
<i>Add additional rows as needed</i>										
RWRF	Treatment site	Onsite Percolation ponds		Percolation Ponds; irrigation of non-edible crops	Yes	Secondary, undisinfected	62,552	53,864	8,688	22,602
NFWRF	Treatment site	Onsite pond		Turf irrigation	No	Tertiary, disinfected	203	141	62	0
Total							62,755	54,005	8,750	22,602
NOTES:										

6.4.3 Recycled Water System

Legal Requirements:

CWC 10633

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

6.4.3.1 Fresno/Clovis Wastewater Reclamation Facility

6.4.3.1.1 Undisinfected Secondary Level Recycled Water

As mentioned earlier in Section 6.4.2.2.1, the City's RWRf diverts a portion of the undisinfected secondary effluent to irrigate non-food crops grown adjacent to this facility. The practice of using the secondary effluent to irrigate non-food crops has been carried-out for decades and is expected to continue for the foreseeable future. The City owns nearly 3,300 acres of land for and around the RWRf, consisting of percolation ponds (1,750 acres) and other land available to farm non-food crops. The agricultural land directly receives the undisinfected secondary effluent and is applied to these crops. Table 6-8 provides the annual quantities of recycled water applied to these crops for the period from 2010-2015.

6.4.3.1.2 Soil Aquifer Treated Recycled Water

Located at the Fresno/Clovis RWRf is a series of 15 groundwater wells which are used to extract previously percolated effluent groundwater from beneath this facility. The extracted groundwater has the potential to be used for higher beneficial use if it can be demonstrated this water has attained a level of treatment satisfactory to meet disinfected tertiary levels. To substantiate to State regulatory agencies this was in fact the case for the operations at the City's RWRf, the City embarked on a joint project with the WaterReuse Research Foundation. The culmination of this study is presented in a final report entitled "Demonstration of Filtration and Disinfection Compliance Through Soil-Aquifer Treatment"²³ which was completed in 2013. This study concluded, based on the documented sampled water quality data, that the extracted groundwater did in fact meet requirements for classification as disinfected tertiary level recycled water. The City has received preliminary acknowledgement from the SWRCB Division of Drinking Water the water meets the stated classification and the City is making plans for its use as part of its recycled water production and distribution system. The combined rated production yield of the fifteen wells, if run year-round, would be approximately 32,000 af/yr. The City plans to blend the recycled extraction well water with the disinfected tertiary level recycled water produced from the new 5 mgd wastewater reclamation to feed the new recycled water distribution system located in southwest Fresno. As new sales grow for the recycled water, additional recycled extraction well water will be utilized to feed this southwest recycled water system. It is anticipated soil aquifer treated recycled water wells will be incorporated into the recycled water system at a rate

²³ WaterReuse Research Foundation, ISBN: 978-934183-92-2, 2013.

of two wells per five-year increment to align with future sales projections and demands for this water.

6.4.3.2 North Fresno Wastewater Reclamation Facility

As described earlier in Section 6.4.2.2.2, the City has an existing recycled water plant in the northern portion of the City that receives and treats sewer from the residential, commercial, and golf course planned community. The NFWRF was constructed in 2008 but wasn't fully operational until 2009 due to the inability to properly run at extremely low flow conditions. Subsequent modifications were made to the plant permitting it to run on a regular basis in 2010, with further modifications in 2014 for UV approval. This explains why there were no recorded flows in Table 6-8 for this facility. The disinfected tertiary effluent is conveyed in a dedicated pipeline to an adjacent golf course for irrigation purposes. The quantities used for irrigation purposes are shown in Table 6-8 for the period from 2010-2015.

Table 6-8: Recycled Water Used Within Service Area

Recycle Water Facility	Quantity (af/yr)					
	2010	2011	2012	2013	2014	2015
NFWRF	25	57	58	46	0	62
RWRF	9,591	10,072	8,655	9,406	10,245	8,688
Total	9,616	10,129	8,713	9,452	10,245	8,750

6.4.4 Recycled Water Beneficial Uses

Legal Requirements:

CWC 10633

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

CWC 10633

(e) *(Describe) the projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years and a description of the actual use of recycled water in comparison to uses previously projected pursuant to this subdivision.*

In the development of the City's Recycled Water Master Plan (RWMP), an exhaustive analysis was performed to identify specific uses and customers for recycled water. The following sections review existing and future opportunities for the use of recycled water.

6.4.4.1 Current and Planned Uses of Recycled Water

At present, the City provides recycled water for the irrigation of non-food crops to land farmed immediately adjacent to the RWRF, and to a golf course adjacent to the

NFWRF. Recognizing the opportunity to expand uses and the market for recycled water, the City has proactively developed a RWMP to identify potential uses and users and analyze the most cost-effective production and distribution system to optimize this presently untapped market opportunity. Implementation of such a program would provide a direct potable water offset, and would stretch pristine groundwater and raw surface water resources for highest and most beneficial uses.

As outlined in the City's RWMP, the recommended planned major users considered in the selection of distribution system alignments include:

- Airport (Chandler),
- Artificial Lakes, make-up water
- Baseball Stadium, turf irrigation
- Cemeteries, turf irrigation
- City Hall & County Court House, turf irrigation
- Fairgrounds, turf irrigation
- Golf Courses, turf irrigation
- Highways, landscape irrigation
- Hospital, cooling and turf irrigation
- Industries, irrigation, boiler, cooling, wash water, process, toilet flushing
- Laundries, laundry washing
- Parks, turf irrigation
- Schools, turf irrigation
- Universities (public & private), turf irrigation

The cumulative demand from the identified existing water users amount to 9,780 af/yr and requires approximately 91 miles of transmission and distribution pipeline. The City has already started construction of conveyance pipeline and a 5 mgd tertiary treatment facility at the RWRf which should be complete by June of this year. Table 6-9 shows current and planned beneficial uses for recycled water.

In addition to the above noted urban orientated beneficial uses, the RWMP also considered groundwater recharge projects as another prime opportunity. The utilization of recycled water is slowly becoming more accepted by the public and regulatory agencies, and provides communities the opportunity to enhance groundwater replenishment with an essentially drought-proof source. There are conditions on the use of recycled water that need to be addressed, such as, blending requirements depending on the level of treatment of the recycled water, and demonstrating that travel time of the percolated recycled water is six months to the nearest drinking water well. The incorporation of groundwater recharge would provide the ability to utilize recycled water in the winter months when landscape irrigation demands are nearly diminished.

Recognizing the value of this opportunity, the City has budgeted funding to carry-out engineering and hydrogeologic studies for siting, permitting, and constructing a dedicated recharge basin for this purpose. Preliminarily, a recharge basin that had been designed for intentional recharge purposes is being considered to be repurposed for the use of recycled water recharge. Projected recharge utilization is shown in Table 6-9.

Lastly, another use for recycled water is the expansion of agricultural irrigation. The City already provides secondary effluent for restricted agricultural irrigation and could expand this market by increasing deliveries of secondary effluent and the newly reclassified tertiary equivalent water from the onsite extraction wells for irrigation purposes. Expanded agricultural irrigation is reflected in Table 6-9.

6.4.4.2 Planned Versus Actual Use of Recycled Water

Legal Requirements:

CWC 10633

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

As previously reported in the 2010 UWMP, it was anticipated that 750 af/yr of recycled water would be produced and utilized from the NFWRF; however, as shown in Table 6-8 above, only 25 af/yr to 62 af/yr has been used. Infrastructure in this area is being considered for extension and in the future will allow for a higher use of the recycled water available from this facility.

Recycled water utilized adjacent to the RWRf was not previously included in the 2010 UWMP. It is anticipated that historic use of undisinfected secondary effluent for irrigation of non-food crops will continue for the foreseeable future.

Reported in Table 6-10 are the projected and actual quantities used for 2015.

Name of Agency Producing (Treating) the Recycled Water:		City of Fresno						
Name of Agency Operating the Recycled Water Distribution System:		City of Fresno						
Supplemental Water Added in 2015		0						
Source of 2015 Supplemental Water		N/A						
Beneficial Use Type	General Description of 2015 Uses	Level of Treatment	2015	2020	2025	2030	2035	2040 (opt)
Agricultural irrigation ¹ (af)	Irrigate non-food crops	secondary	8,700	10,000	10,000	10,000	10,000	10,000
Agricultural irrigation ² (af)	Irrigate limited food crops	tertiary equivalent		4,200	8,400	8,400	12,600	12,600
Landscape irrigation ³ (af)	Schools, cemeteries, parks	tertiary	62	4,300	7,200	7,200	7,200	7,200
Commercial use (af)	-	-	-	-	-	-	-	-
Industrial use ⁴ (af)	Laundries, boilers, cooling	tertiary		1,400	2,600	2,600	2,600	2,600
Recreational impoundment (af)	-	-	-	-	-	-	-	-
Groundwater recharge (IPR) ⁵ (af)		tertiary		1,300	6,200	6,200	6,200	6,200
Surface water augmentation (IPR) (af)	-	-	-	-	-	-	-	-
Direct potable reuse (af)	-	-	-	-	-	-	-	-
Other (af)	Type of Use	-	-	-	-	-	-	-
			Total (af)	8,762	21,200	34,400	34,400	38,600
IPR - Indirect Potable Reuse								
<p>(1) Applied recycled water is representative of long-term use of undisinfected secondary effluent from RWRf for irrigation of non-food crops adjacent to said facility.</p> <p>(2) Recycled water is from recently reclassified extraction wells at RWRf (reclassified as tertiary equivalent) and will be applied to nearby limited food crops.</p> <p>(3) Recycled water will be distributed to and applied to large landscaped turf areas as identified in the City of Fresno Recycled Water Master Plan.</p> <p>(4) Recycled water will be distributed to and delivered to various industries as identified in the City of Fresno Recycled Water Master Plan.</p> <p>(5) Recycled water will be delivered to permit approved facilities for blending with other sources and incorporated as part of the City's intentional groundwater recharge program.</p>								

Table 6-9: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area (DWR Table 6-4)

Table 6-10: 2010 UWMP Recycled Water Use Projection Compared to 2015 Actual (DWR Table 6-5)

Use Type		2010 Projection for 2015 (af)	2015 actual use (af)
Agricultural irrigation		-	8,700
Landscape irrigation (excludes golf courses)			
Golf course irrigation		750	62
Commercial use			
Industrial use			
Recreational impoundment			
Groundwater recharge (IPR)			
Surface water augmentation (IPR)			
Direct potable reuse			
Other	Required for this use		
Total		750	8,762

6.4.5 Actions to Encourage and Optimize Future Recycled Water Use

Legal Requirements:

CWC 10633

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

CWC 10633

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

As identified in the RWMP, it is imperative that the City adopt an ordinance to establish recycled water policy and criteria for its use within the City's SOI. The focus of the ordinance would be to accomplish the following:

- Establish Administrative Authority
- Establish approved uses of recycled water
- Define areas of potential eligibility for recycled water service
- Specify mandatory and voluntary uses of recycled water, depending on user classifications
- Require installation of transmission and distribution infrastructure
- Encourage the use of voluntary retrofits for existing users that may not be addressed in the ordinance

- Require the City of Fresno to prepare Rules and Regulations
- Provide enforcement and severability clauses

On July 14, 2014, the Recycled Water Ordinance was adopted by the City Council laying the foundation for the expanded use of recycled water within the City.

Efforts to further the use of recycled water include the requirement that new developments within planned major recycled water distribution mains to install purple pipe. Then, as the City's capital projects construct distribution infrastructure, these segments will be in-place to facilitate connections to new customers and reduce program costs by avoiding digging up new street improvements and disruption to vehicular traffic.

The initial leg of the recycled water distribution system from the RWRP is presently under construction and will pass in proximity to CalTrans highway irrigation infrastructure. City staff has had conversations with CalTrans and they have expressed interest in utilizing recycled water for landscape irrigation purposes. The City is continuing to coordinate with CalTrans to identify connection points and flow requirements to meet highway irrigation demands.

Table 6-11: Methods to Expand Future Recycled Water Use (DWR Table 6-6)

Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use (af)
Build Infrastructure	RWRP Tertiary Plant	FY16	5,600
Build Infrastructure	Satellite Plant near FYI ¹	FY18-FY19	9,000
Total			14,600
¹ FYI – Fresno Yosemite International Airport			

6.5 Desalinated Water Opportunities

Legal Requirements:

CWC 10631

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

As the City is located in the central San Joaquin Valley, seawater desalination is not applicable to the City. Additionally, the groundwater that exists within the immediate area of the City is not brackish in nature and does not require desalination treatment. As long-range planning efforts continue to ensure an adequate water supply is available for existing and new demands, the City will explore options that may include some sort

of cost sharing arrangement with another agency that would yield a pro rata beneficial exchange supply for the City. It is possible that such an arrangement may occur should the need arise.

6.6 Exchanges or Transfers

Legal Requirements:

CWC 10631

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

6.6.1 Exchange and Transfer Opportunities

The City has an existing exchange agreement with FID that allows the City to pump groundwater, which was developed through the percolation of treated wastewater, into FID's canals. This water is transported through the FID canals and is delivered to downstream customers. In exchange, FID will apply surface water from its Kings River entitlement or its Class 2 USBR water to agricultural areas east of the metropolitan area. The agreement is structured such that FID will provide 0.46 af for every 1 af of groundwater that the City pumps into FID's delivery canals. As a future opportunity for an exchange, the City could renegotiate the terms of this arrangement and receive the exchange water directly for use at the surface water treatment facilities or for recharge purposes.

The City has in the past been a recipient party to water transfers which permitted new services to be provided for areas outside the City's service area. The transferred surface water supply in this case was from a party located in the nearby Garfield Water District whose well was going dry. The transfer of a like amount of water to be supplied to the new service was a crucial element to ensure existing rate payers were not burdened with negative supply impacts due to the new connection. This approach will be followed as the City's water system is extended to serve Disadvantaged Communities.

6.6.2 Emergency Interties

The Cities of Fresno and Clovis have entered in to an agreement for a joint project to construct an intertie pipeline between their two systems, which will permit the conveyance of water supplies from one system to another. The intertie is composed of a dedicated 1.5 mile long 16-inch diameter pipeline that starts at the southern edge of the City of Clovis, at the Gould Canal and Leonard Avenue, and then runs south to East Shields Avenue, and then west towards the City to North Locan Avenue, connecting to

a booster pump and valve station. Under normal operating system pressures flow from the City of Clovis can be conveyed to the City of Fresno without a booster pump and simply controlled by automated valves. The intertie is also capable of conveying water from Fresno to Clovis with the use of a booster pump, which is needed due to the elevation difference between the two systems. The 16-inch diameter pipeline was sized to permit transferring water at a rate up to 3,500 gpm. Construction of the intertie was just recently completed with equipment programming underway. The intertie is anticipated to be operational by June 2016.

6.7 Future Water Projects

Legal Requirements:

CWC 10631

(g) ...The urban water supplier shall include a detailed description of expected future water 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.

At this time the City is in the midst of carrying-out one of the largest and most ambitious capital improvement programs in its history. As outlined in its MWRMP (2014), and reported in the 2010 UWMP, the City's future for a safe, reliable, and sustainable water supply was envisioned to consist of expanded water conservation, expanded surface water treatment, expanded recycled water treatment, and expanded groundwater recharge.

6.7.1 Expand Water Conservation Program

As of January 2013, the City completed the installation of nearly 110,000 single-family residential water meters. Completion of this project has seen the benefit of reduced demands from this sector of water users. Efforts will continue with tracking water use and working with residents to address excessive water utilization and to encourage reduced water use. Completion of the meter installation project has seen marked improvement in reduced water consumption. Education, outreach, and enforcement remain a significant focus for current and future efforts.

6.7.2 Expand Surface Water Treatment Capacity

A key component to the success of the City's ability to reverse the long time overreliance on groundwater is to construct additional surface water treatment facilities which will allow it to optimize the use of available surface water supplies. In

conformance with the objectives and timeline established in the MWRMP (2014), the City has purchased land, designed the facility and associated large diameter transmission pipelines, and has recently awarded a contract for the construction of the 80 mgd SESWTF. Initially this facility will operate at a permitted capacity of 54 mgd, but with the subsequent rerating of the finish filters will be capable of operating at a rated capacity of 80 mgd. This project, including the construction of the transmission pipelines, is slated for completion in Fiscal Year 2018.

The NESWTF is presently sized at a 30 mgd capacity. As growth within the City increases demands, this facility will be expanded by another 30 mgd for a total capacity of 60 mgd. The timing for this expansion is anticipated to occur by approximately 2035; however, the City will monitor system demands and adjust the schedule for this project as is required to meet projected water system demands and maintain the sustainable use of available water resources.

6.7.3 Expand Recycled Water Treatment Capacity

Another key component of the MWRMP (2014) was the incorporation of 25,000 af of recycled water into the City's water portfolio by the year 2025. The attainment of such a lofty goal requires the initiation of planning, designing, and construction of substantial infrastructure. To that end, the City has completed the development of the recycled water master plan, the adoption of a recycled water ordinance, designed, and initiated construction of a second tertiary level wastewater treatment facility capable of producing 5 mgd. This effort is budgeted for further expansion with the design of another tertiary level reclamation facility to be constructed in the FY18-FY19 timeframe.

6.7.4 Expand Groundwater Recharge Capacity

Lastly, with the acknowledgement the groundwater aquifer is and will remain an integral resource for the City, it will be working on the development of either new dedicated intentional recharge facilities and/or joint projects for basins with the FMFCD, and potentially the FID. Land has already been acquired for a new recharge facility in west Fresno, and design is substantially complete. It is anticipated this facility will be constructed by the end of FY17 and will be capable of recharging approximately 1,200 af/yr. The target for recharge expansion is to ultimately attain an annual rate of 75,100 af/yr, which would optimize use of available surface water supplies in normal years.

Table 6-12: Expected Future Water Supply Projects or Programs (DWR Table 6-7)

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 (af)
	Yes or No	Agency Name				
Expansion of Tertiary Recycled Water Treatment Capacity	No	n/a	-	2016 & 2021	Average Year Single Dry Year Multi-Dry Year	14,600
Expansion of Surface Water Treatment Capacity	No	n/a	-	2018 & 2035	Average Year Single Dry Year Multi-Dry Year	103,000 ¹
Expansion of Groundwater Recharge Program	No	n/a	-	Ongoing	Average Year Single Dry Year	See Note 2.

(1) Expansion of surface water treatment capacity does not directly provide a new supply, but allows the City to utilize the supply for direct use rather than just for groundwater recharge purposes.

(2) Expansion of groundwater recharge program does not directly provide a new supply, but allows the City to utilize the surface water supplies to make groundwater use sustainable.

6.8 Summary of Existing and Planned Sources of Water

Legal Requirements:

CWC 10631

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

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

A summary of the above discussed existing and planned sources of water are provided in Tables 6-13 and 6-14 below.

Table 6-13: Water Supplies – Actual (DWR Table 6-8)

Water Supply	Additional Detail on Water Supply	2015		
		Actual Volume (af)	Water Quality	Total Right or Safe Yield (af)
Groundwater		83,360	Drinking Water	72,500 ¹
Surface Water – USBR CVP		0	Raw Water	60,000
Surface Water – FID Contract		41,525	Raw Water	101,200
NFWRF ²		203	Recycled Water	203
Purchased ³		3,000	Raw Water	0
Total		128,088		233,903

¹ Provided value is the Safe Yield. Higher pumping volumes are permissible by accounting for intentional recharge volumes.

² This volume is dependent on facility operation and subsequent expansion.

³ This water is a onetime purchase and has no associated right.

Table 6-14: Water Supplies – Projected (DWR Table 6-9)

Water Supply	Additional Detail on Water Supply	Projected Water Supply (af)									
		2020		2025		2030		2035		2040 (opt)	
		Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)	Reasonably Available Volume	Total Right or Safe Yield (optional)
Groundwater ¹	Kings Subbasin	130,400		135,100		139,700		144,300		148,900	
Surface Water ²	FID – Agmt.	106,200		111,200		116,200		121,200		126,200	
Surface Water ³	USBR - CVP	52,600		52,600		52,600		52,600		52,600	
Recycled ⁴	Tertiary, disinfected	7,000		16,000		16,000		16,000		16,000	
Recycled ⁵	Secondary, undisinfected	10,000		10,000		10,000		10,000		10,000	
Recycled ⁶	Tertiary, disinfected	2,500		5,000		7,500		10,000		12,500	
Total		308,700	0	329,900	0	342,000	0	354,100	0	366,200	0

(1) The value for “Reasonably Available Volume” includes the Safe Yield which increases as the City’s SOI expands as discussed in Sections 6.1.5.1 & 6.1.5.2 and in Table 6-3. Additionally, this value includes water from prior year(s) operation of intentional recharge as shown in Table 6-3 for the same year.
(2) The City’s surface water supply from FID grows as the City’s annexed city limits expand as discussed in Section 6.2.1.
(3) The City’s USBR CVP Friant Division contract is for 60,000 af of Class 1 water. The 52,600 af/yr value is the historic average allocated value for the City per Figure 7-2 (rounded to nearest 100).
(4) The 2020 value of 7,000 af/yr is based on the RWRF’s 5 mgd facility; the subsequent increase to 16,000 af/yr reflects the satellite WRF (8 mgd) being constructed and operational shortly after 2025.
(5) The annual 10,000 af is the current amount presently directed to farm irrigation of non-food crops adjacent to the RWRF.
(6) The City recently had extraction wells at the RWRF reclassified as providing “soil aquifer treated” recycled water. The projected values reflect the incorporation of this water into the flows returned to the metropolitan area and used for purposes as shown in Table 6-9.

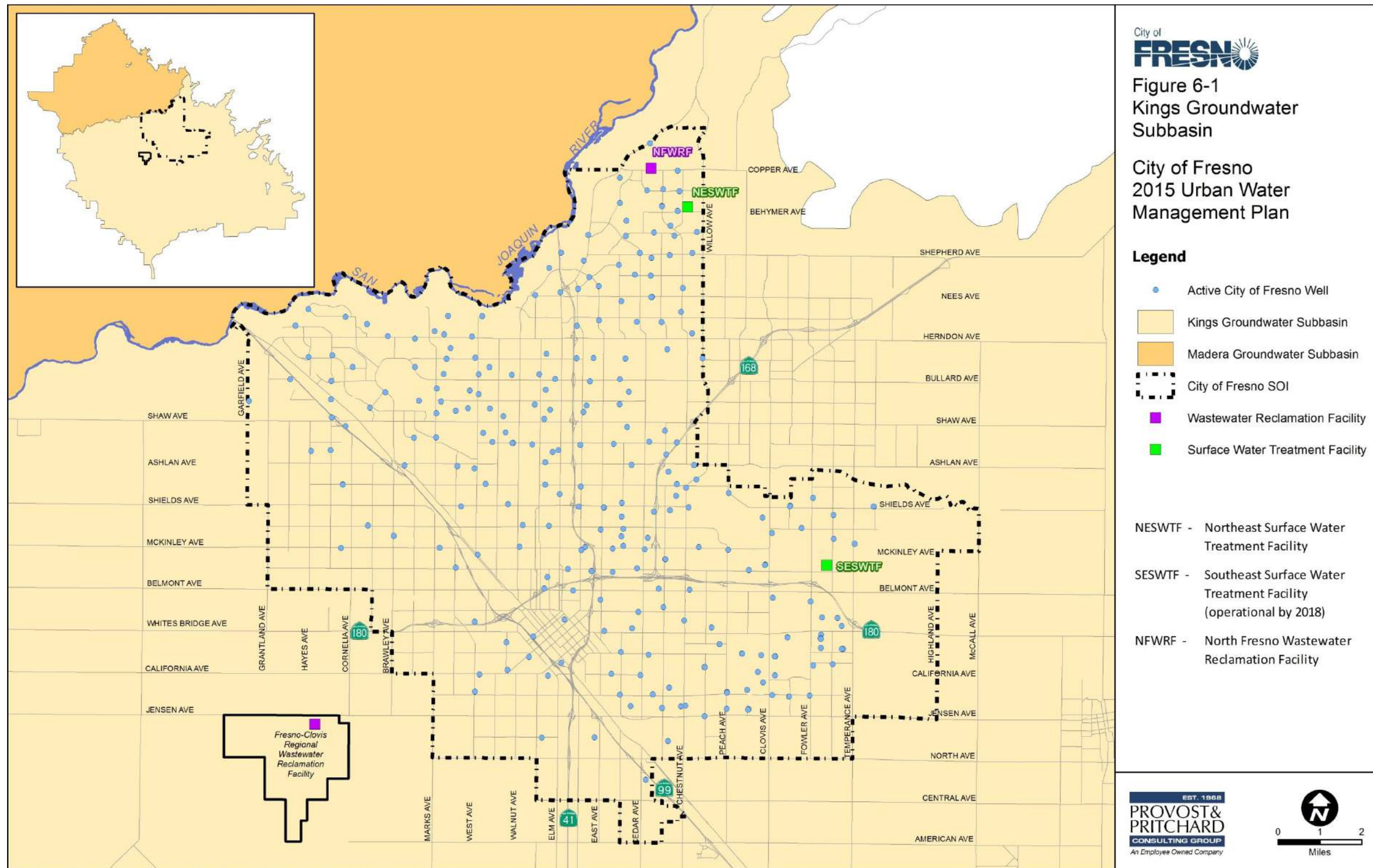


Figure 6-1: Kings Groundwater Subbasin

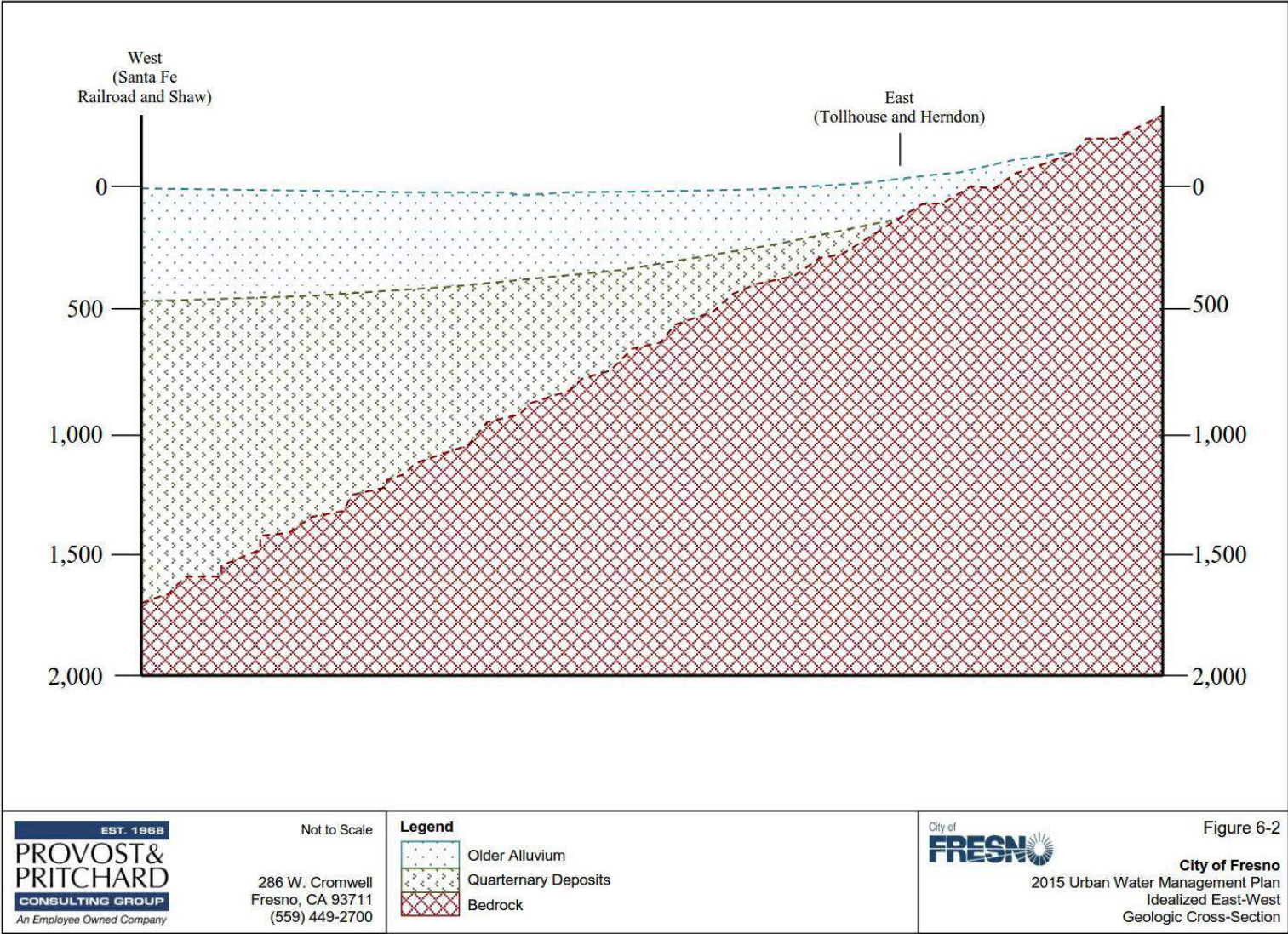


Figure 6-2: Idealized East-West Geologic Cross-Section

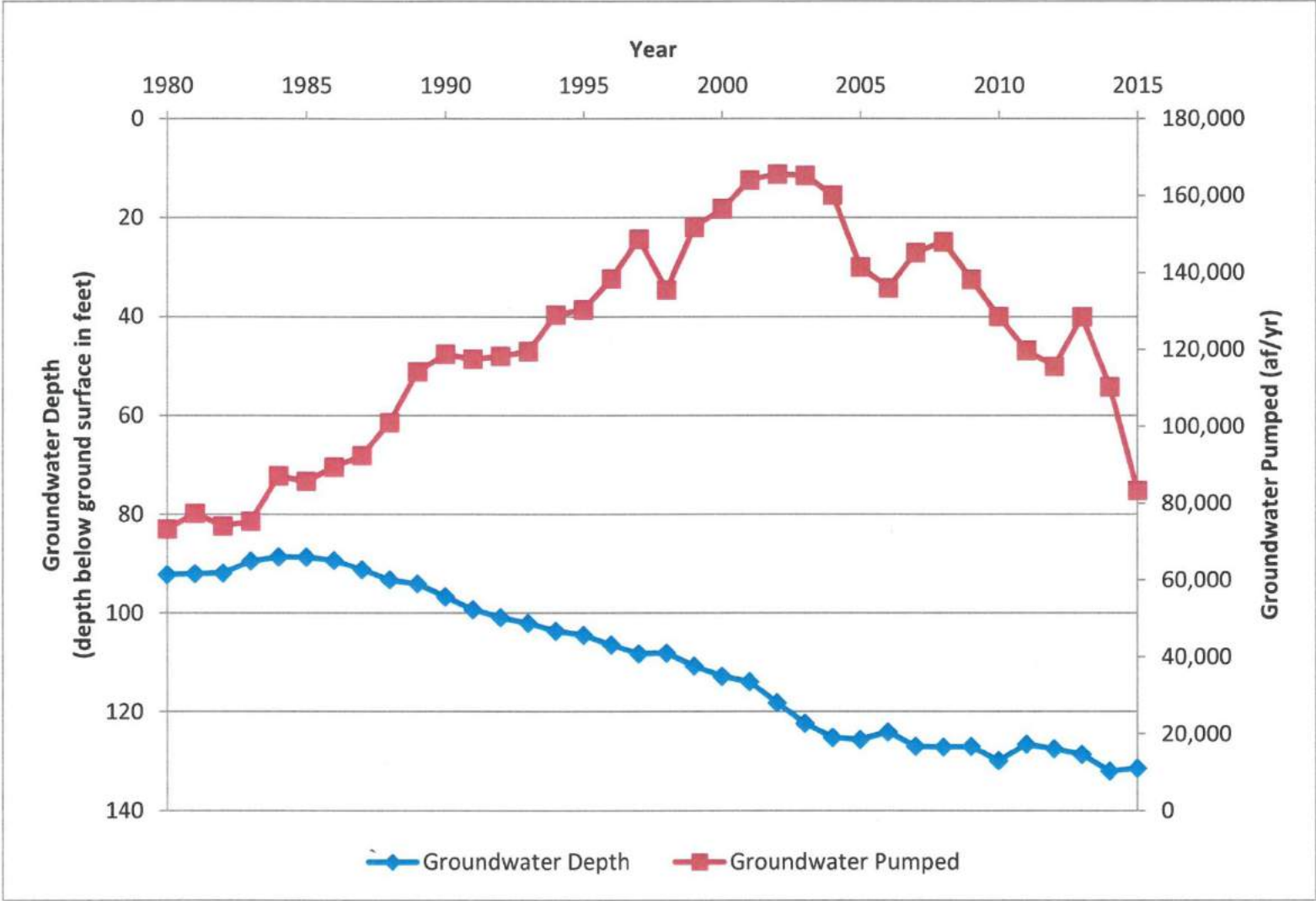


Figure 6-3: Historic Average Groundwater Depth and Groundwater Pumped

7 Water Supply Reliability Assessment

7.1 Constraints on Water Sources

Legal Requirements:

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.

This Section discusses the long-term reliability of surface and groundwater supplies for the City of Fresno. A comparison is made of anticipated supplies and demands up to the year 2040 for normal, single-dry and multiple-dry years. Shorter term reliability planning that may require immediate action, such as drought or catastrophic supply interruption, is addressed in Chapter 8 – Water Shortage Contingency Planning.

7.1.1 Constraints on Surface Water Supplies

7.1.1.1 Constraints on Surface Water Supplies for the FID

As discussed in Section 6.2.1, the City has an agreement with the Fresno Irrigation District (FID) providing the City an allocation of approximately 110,000 af/yr of Kings River water in normal-year conditions. Water supplied from the FID contract is most susceptible to annual hydrologic conditions. The City's annual FID supply allocation is subject to annual precipitation, Sierra Nevada mountain snowpack, and natural river flow conditions. Based on the foregoing data, FID receives an annually adjusted entitlement, the delivery of which will fluctuate throughout the irrigation delivery season. The City in turn receives its pro rata allocation based on the foregoing entitlement determination. The annual variability of precipitation, snowpack, and river flow conditions will then influence, and may constrain, the City's allocation from this source.

Another factor that may constrain the availability of Kings River water supply is scheduled maintenance of FID's vast canal network. FID typically terminates water deliveries to the City's water treatment facilities in the months of November and/or December so they may perform necessary infrastructure repairs and maintenance. These annual shutdowns prevent the City from operating the treatment facilities during

these periods, as well as, limit intentional recharge activities at the City's dedicated recharge facilities. In order to ensure the consistent delivery of water to the new SESWTF, a raw water pipeline is being constructed. The pipeline will originate just downstream of FID's canal system headworks at the Kings River and will then run 13 miles west and terminate at the SESWTF. Once the raw water pipeline is complete, the SESWTF will be capable of year-round operation, providing availability of this supply. This water source, as previously mentioned in Section 6.2.1, is of excellent quality and will be protected as such with the new pipeline for deliveries to the SESWTF. Deliveries to intentional recharge facilities will continue to be supplied through the FID canal system.

7.1.1.2 Constraints on Surface Water Supplies from the USBR Contract

As discussed in Section 6.2.2, the City has a contract for 60,000 af/yr of Class 1 water with the USBR. Water supplies provided by the USBR's CVP - Friant Division have been the focus of protracted litigation that challenged how the USBR operated the facility and prevented seasonal flows from running down the San Joaquin River. The Natural Resources Defense Council filed a suit against the USBR in 1988 on this matter on the grounds their operations were in violation of state and federal environmental laws. After 18 years of litigation a settlement was reached with the USBR and the impacted CVP - Friant Division contractors. The 2006 San Joaquin River Settlement is based on ensuring flows downstream of the dam for varying hydrologic conditions. The required downstream flows constrain surface water supplies available to the CVP - Friant Division contractors, such as the City of Fresno.

Another constraint that affects the consistency of this supply are the restrictions that have been imposed on water diversions from the Delta as discussed earlier in Section 6.2.2. The resulting impacts associated with the Exchange Contractor's calling on their historic water right has been more detrimental to water supplies for the CVP - Friant Division contractors than the above discussed settlement, as the later has resulted in two years of zero allocations for the CVP - Friant Division contractors.

Delivery of the CVP water at times can be restrictive as this supply is delivered to the NESWTF via the FID canal system, through a cooperative agreement between the City and FID. In order to maintain canal facilities at optimal flow capacities, FID will typically terminate deliveries in the month of November, and on occasion will extend into the month of December, for scheduled maintenance work. During these periods when deliveries are discontinued the City is unable to operate its surface water treatment facilities. To improve delivery reliability and to protect the source water from deleterious impacts from environmental and other malicious acts, the City has just awarded a contract to complete the 5.6 mile long raw water pipeline that will permit the delivery of USBR water from the Friant-Kern Canal directly to the NESWTF. Once the raw water

pipeline is complete, the NESWTF will be capable of year-round operation. This water source, as previously mentioned in Section 6.2.2, is of excellent quality and will be protected as such with completion of the new raw water pipeline.

7.1.2 Constraints on Groundwater Supplies

Groundwater has long been the primary water supply source for the City. The continued use of groundwater is key to the sustainable use of all supplies, which is inclusive of surface water and recycled water. The groundwater supply has declined over the last eighty years, requiring new deeper wells and the lowering of pumps in existing wells. A constraint here is the limited depth of numerous municipal water wells. If the declining groundwater trend isn't reversed, it may cause a reduction in pumping capacity of the City's water system. As part of the City's adopted MWRMP (2014) the goal is to use the groundwater resource sustainably by the year 2025. As was mentioned in Section 6, the City and other regional stakeholders are in the process of forming a Groundwater Sustainability Agency (GSA) to address the requirements of the Sustainable Groundwater Management Act (SGMA). Once a GSA and a Groundwater Sustainability Plan (GSP) is developed, the City will be better positioned to specifically address the policies and goals of the regionally developed and focused plan.

Another constraint to the use of groundwater stems from the negative impacts from contamination as discussed in Section 6.1.4. To ensure the continued beneficial use of the groundwater supply, the City will have to remain proactive in pursuing responsible parties so the proper remediation is conducted to preserve the groundwater system as a viable and sustainable resource in perpetuity. Largely the City has been able to rely on the relatively good quality of this resource.

7.1.3 Constraints on Recycled Water Supplies

At present the largest constraint for recycled water use is the lack of infrastructure to produce and distribute the water to end-users. The City has recently initiated construction of both production and distribution for recycled water, which will enable the expanded use of this resource in the near term. The reliability of this supply is nearly 100% as it is significantly based on indoor water use which is subject to only minimal reductions in drought conditions.

7.2 Reliability by Type of Year

Legal Requirements:

CWC 10631

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

- (A) An average water year*
- (B) A single dry water year,*
- (C) Multiple dry water years*

7.2.1 Types of Years

The establishment of average water year, single-dry water year, and multiple-dry water year periods was made based on historic water allocations for surface water supplies, historic municipal water well pumping for groundwater, and historic utilization for recycled water. Examination of these records compared to State recognized droughts²⁴ and the recent 2012-2015 drought provided a correlative basis in selecting the specific years and associated quantities for each supply source reported on in this chapter.

7.2.1.1 Average Year

Average year water supplies are for the most part fairly stable for the City of Fresno. See Figures 7-1 and 7-2 for graphical depictions of historic availability and long-term average of the Kings River and San Joaquin River supplies. For average year conditions the combined surface water supplies from FID and the USBR are suitable to meet the operational needs of surface water treatment facilities (SWTF) and intentional recharge activities. The continuous operation of the SWTFs and the intentional recharge program permit the replenishment of the groundwater supply for a higher level of reliance in drier years. As the availability of supplies varies seasonally, such as surface water from FID, the City is able to meet demands utilizing groundwater supplies. As the City brings new recycled water production and distribution infrastructure online, the reliability of average supplies will become greater. Maintaining intentional recharge activities will ensure the groundwater supply will be very reliable. Data for each water supply for the average year condition is provided in Tables 7-1 through 7-4.

²⁴ Drought in California, California Department of Water Resources, Natural Resources Agency, State of California, 2012.

7.2.1.2 Single Dry Year

With the 2012-2015 drought, the City of Fresno has experienced the largest and most dramatic reduction to surface water supplies than it ever has historically. For the San Joaquin River supply from the CVP-Friant Division, the City received a zero allocation. From the FID agreement the City received an allocation of only 42,935 af. To stretch supplies intentional recharge operations were drastically reduced and exceptional water use restrictions were imposed to reduce water consumption. Through this combined approach of supply optimization and demand reduction the City was able to maintain satisfactory levels of service and did not have to over-pump the groundwater aquifer. The supplies most susceptible to seasonal vulnerability are the surface water supplies, which for the FID supply is delivered consistent to recorded historic stream flow for the Kings River. The controlling factor for this supply is the daily calculated natural runoff versus the daily entitlement tables used to allocate the water as related to historic pre-dam river flows. This established methodology, especially in dry years, will affect the availability and delivery to the City's facilities. The USBR supply, in years when water is available, has more flexibility in delivery through advanced scheduling with the Bureau. The groundwater supply is virtually unaffected by seasonal variation and with continued intentional recharge program will remain very reliable supply. As was mentioned for average supplies, as the City adds new recycled water infrastructure to its portfolio it will be better equipped to manage the single dry year condition. Data for each water supply for the single dry year condition is provided in Tables 7-1 through 7-4.

7.2.1.3 Multiple-dry Year Period

The vulnerability of water supplies to the multiple-dry year condition has changed dramatically with the 2012-2015 drought as compared to past drought occurrences. The most significant vulnerability highlighted by this recent drought is the susceptibility of the San Joaquin River supply to the impacts of the drought beyond the immediate hydrologic region, and influenced by measures being taken to preserve the ecological health of the Delta region. As the State endured several years of dry periods, the lack of sufficient stored water in the northern portion of the state has affected the operations of state and federal projects' pumping water from the Delta. This in turn reduced the flows delivered to the Exchange Contractors causing them to call on their historic water right of San Joaquin River water for the first time in seventy years. The result of this chain reaction was that the USBR CVP-Friant Division contractors received no water allocations for two years (2014 and 2015). This was an unprecedented occurrence and has brought a heightened level of immediacy to completing capital infrastructure projects which will allow the City to fully execute and implement the water supply plan outlined in its MWRMP (2014). The need for the City to diversify its water supply portfolio and remain diligent in managing resources couldn't be made more apparent than it was through this historic drought period.

Despite severe reductions of surface water supplies, sufficient good quality water was available to permit the NESWTF to operate. As mentioned in the previous section, there is some seasonal vulnerability with surface water availability in dry years which needs to be closely coordinated with surface water suppliers to minimize impacts to the City's SWTF operations. Groundwater supplies, with intentional recharge augmentation remain reliable in all hydrologic conditions.

7.2.1.4 Sources for Water Data

Kings River water supply data was obtained from the Kings River Water Association and FID. USBR CVP-Friant Division data was obtained from the USBR website, the City of Fresno, and FID. Groundwater and recycled water supply data was obtained from the City of Fresno.

7.2.2 Agencies with Multiple Sources of Water

Table 7-1: Basis of Water Year Data for FID Kings River Water Supply (DWR Table 7-1a)

Year Type	Base Year	Available Supplies if Year Type Repeats	
		Agency may provide volume only, percent only, or both ¹	
		Volume Available	% of Average Supply
Average Year	2008	-	100%
Single-Dry Year	2015	-	41.4%
Multiple-Dry Years 1st Year	2012	-	69.8%
Multiple-Dry Years 2nd Year	2013	-	72.8%
Multiple-Dry Years 3rd Year	2014	-	59.7%
Multiple-Dry Years 4th Year	2015	-	41.4%

Note: As discussed in Section 6.2.1, the City's surface water allocation from FID is based on the amount of city annexed land within FID's service area which changes annually. The presented percentages are based on FID's actual entitlement for the noted years from the Kings River. Based on annexed area the City will receive a pro rata share of yearly FID entitlement.

Table 7-2: Basis of Water Year Data for USBR CVP-Friant Division Water Supply (DWR Table 7-1b)

Year Type	Base Year	Available Supplies if Year Type Repeats	
		Agency may provide volume only, percent only, or both	
		Volume Available (af)	% of Average Supply
Average Year	1987	53,300	100%
Single-Dry Year	2015	0	0%
Multiple-Dry Years 1st Year	2012	30,000	56.3%
Multiple-Dry Years 2nd Year	2013	37,200	69.8%
Multiple-Dry Years 3rd Year	2014	0	0%
Multiple-Dry Years 4th Year	2015	0	0%

(1) Reported volumes are rounded to the nearest 100.

Table 7-3: Basis of Water Year Data for Recycled Water Supply (DWR Table 7-1c)

Year Type	Base Year	Available Supplies if Year Type Repeats	
		Agency may provide volume only, percent only, or both	
		Volume Available (af)	% of Average Supply
Average Year	2013	-	100%
Single-Dry Year	2015	-	100%
Multiple-Dry Years 1st Year	2012	-	100%
Multiple-Dry Years 2nd Year	2013	-	100%
Multiple-Dry Years 3rd Year	2014	-	100%
Multiple-Dry Years 4th Year	2015	-	100%

Note: Recycled water supplies are largely derived from indoor use and subsequently drought resilient. Subsequent reporting will utilize values from Table 6-14.

Table 7-4: Basis of Water Year Data for Groundwater Supply (DWR Table 7-1d)

Year Type	Base Year	Available Supplies if Year Type Repeats	
		Agency may provide volume only, percent only, or both	
		Volume Available (af)	% of Average Supply
Average Year ¹	1998	135,500	100%
Single-Dry Year ²	2001	164,000	121%
Multiple-Dry Years 1st Year	2012	115,600	85.3%
Multiple-Dry Years 2nd Year	2013	128,500	94.8%
Multiple-Dry Years 3rd Year	2014	110,300	81.4%
Multiple-Dry Years 4th Year	2015	83,400	61.5%

¹ Representative average groundwater pumpage for the period from 1990 through 2015.
² Groundwater Pumpage in Single Dry Years is higher than in Normal Years due to limited surface water supplies.
³ Reported volumes are rounded to the nearest 100.

7.3 Supply and Demand Assessment

Legal Requirements:

CWC 10635

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

Normal Year and Single Dry Year supply and demand comparisons are provided in Tables 7-5 and 7-6.

Table 7-5: Normal Year Supply and Demand Comparison (DWR Table 7-2)

	2020	2025	2030	2035	2040
Supply totals (af) (DWR Table 6-9)	308,700	329,900	342,000	354,100	366,200
Demand totals (af) (DWR Table 4-3)	235,700	264,000	274,100	292,900	301,100
Difference (af)	73,000	65,900	67,900	61,200	65,100
Reported volumes are rounded to the nearest 100.					

Table 7-6: Single Dry Year Supply and Demand Comparison (DWR Table 7-3)

	2020	2025	2030	2035	2040
Supply totals ¹ (af)	198,000	216,400	225,800	235,200	244,500
Demand totals ² (af)	179,900	205,400	212,900	229,100	234,500
Difference (af)	18,100	11,000	12,900	6,100	10,000
¹ Supply Totals are derived in Table 7-7 for the Fourth Dry Year. ² Demand Totals are derived in Table 7-8 for the Fourth Dry Year. ³ Reported volumes are rounded to the nearest 100.					

The development of Multiple Dry Year water supplies and demands are presented in Tables 7-7 and 7-8, respectively. The overall comparison of Multiple Dry Year water supply and demand is presented in Table 7-9.

Table 7-7: Multiple Dry Year Water Supply, af

Multiple-dry year first year supply	Dry Period Beginning				
	2020	2025	2030	2035	2040
Groundwater ¹	130,400	135,100	139,700	144,300	148,900
Surface Water – FID ²	80,952	84,757	88,592	92,427	96,232
Surface Water – USBR ³	30,000	30,000	30,000	30,000	30,000
Recycled - RWRF Tertiary ⁴	7,000	16,000	16,000	16,000	16,000
Recycled - RWRF Secondary ⁴	10,000	10,000	10,000	10,000	10,000
Recycled Wells, Tertiary ⁴	2,500	5,000	7,500	10,000	12,500
Total Supply	260,852	280,857	291,792	302,727	313,632
Multiple-dry year second year supply					
Groundwater ¹	130,400	135,100	139,700	144,300	148,900
Surface Water – FID ²	84,439	88,408	92,408	96,408	100,377
Surface Water – USBR ³	37,200	37,200	37,200	37,200	37,200
Recycled - RWRF Tertiary ⁴	7,000	16,000	16,000	16,000	16,000
Recycled - RWRF Secondary ⁴	10,000	10,000	10,000	10,000	10,000
Recycled Wells, Tertiary ⁴	2,500	5,000	7,500	10,000	12,500
Total Supply	271,539	291,708	302,808	313,908	324,977
Multiple-dry year third year supply					
Groundwater ¹	130,400	135,100	139,700	144,300	148,900
Surface Water – FID ²	69,250	72,505	75,786	79,066	82,322
Surface Water – USBR ³	0	0	0	0	0
Recycled - RWRF Tertiary ⁴	7,000	16,000	16,000	16,000	16,000
Recycled - RWRF Secondary ⁴	10,000	10,000	10,000	10,000	10,000
Recycled Wells, Tertiary ⁴	2,500	5,000	7,500	10,000	12,500
Total Supply	219,150	238,605	248,986	259,366	269,722
Multiple-dry year fourth year supply					
Groundwater ¹	130,400	135,100	139,700	144,300	148,900
Surface Water – FID ²	48,063	50,322	52,599	54,876	57,135
Surface Water – USBR ³	0	0	0	0	0
Recycled - RWRF Tertiary ⁴	7,000	16,000	16,000	16,000	16,000
Recycled - RWRF Secondary ⁴	10,000	10,000	10,000	10,000	10,000
Recycled Wells, Tertiary ⁴	2,500	5,000	7,500	10,000	12,500
Total Supply	197,963	216,422	225,799	235,176	244,535
¹ Groundwater supply values from Table 6-3. ² FID supply determined based on Table 6-5 and Table 7-1. ³ USBR supply taken from Table 7-2. ⁴ Recycled water supplies taken from Table 6-14.					

Table 7-8: Multiple Dry Year Water Demands, af

Demand Type	Dry Period Beginning				
	2020	2025	2030	2035	2040
Multiple-dry year first year demand					
Water Consumption ¹	146,930	158,300	165,270	176,360	181,400
Groundwater Recharge ²	33,900	12,400	16,400	0	0
System Losses ³	11,740	12,650	13,210	14,100	14,500
Recycled Water ⁴	21,200	34,400	34,400	38,600	38,600
Total Demand	213,770	217,750	229,280	229,060	234,500
Multiple-dry year second year demand					
Water Consumption ¹	146,930	158,300	165,270	176,360	181,400
Groundwater Recharge ²	45,200	23,800	28,000	2,700	6,900
System Losses ³	11,740	12,650	13,210	14,100	14,500
Recycled Water ⁴	21,200	34,400	34,400	38,600	38,600
Total Demand	225,070	229,150	240,880	231,760	241,400
Multiple-dry year third year demand					
Water Consumption ¹	146,930	158,300	165,270	176,360	181,400
Groundwater Recharge ²	0	0	0	0	0
System Losses ³	11,740	12,650	13,210	14,100	14,500
Recycled Water ⁴	21,200	34,400	34,400	38,600	38,600
Total Demand	179,870	205,350	212,880	229,060	234,500
Multiple-dry year fourth year demand					
Water Consumption ¹	146,930	158,300	165,270	176,360	181,400
Groundwater Recharge ²	0	0	0	0	0
System Losses ³	11,740	12,650	13,210	14,100	14,500
Recycled Water ⁴	21,200	34,400	34,400	38,600	38,600
Total Demand	179,870	205,350	212,880	229,060	234,500
¹ Water Consumption Demands are taken from DWR Table 4-2. ² Groundwater Recharge quantities are limited to available surface water supplies after meeting SWTF needs. ³ System Losses are taken from DWR Table 4-2. ⁴ Recycled Water Demands are taken from DWR Table 6-4.					

Table 7-9: Multiple Dry Years Supply and Demand Comparison (DWR Table 7-4), af

		2020	2025	2030	2035	2040
First year	Supply totals	260,900	280,900	291,800	302,700	313,600
	Demand totals	213,800	217,800	229,300	229,100	234,500
	Difference	47,100	63,100	62,500	73,600	79,100
Second year	Supply totals	271,500	291,700	302,800	313,900	325,000
	Demand totals	225,100	229,200	240,900	231,800	241,400
	Difference	46,400	62,500	61,900	82,100	83,600
Third year	Supply totals	219,200	238,600	249,000	259,400	269,700
	Demand totals	179,900	205,400	212,900	229,100	234,500
	Difference	39,300	33,200	36,100	30,300	35,200
Fourth year	Supply totals	198,000	216,400	225,800	235,200	244,500
	Demand totals	179,900	205,400	212,900	229,100	234,500
	Difference	18,100	11,000	12,900	6,100	10,000

Note: Reported volumes are taken from Tables 7-7 & 7-8 and rounded to the nearest 100.

7.4 Regional Supply Reliability

Legal Requirements:

CWC 10620

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

As mentioned earlier, the City of Fresno is in the midst of constructing significant infrastructure which will permit it to optimize the use of all regional supplies it has access to. Presently, a new 54 mgd surface water treatment facility (SESWTF; capable of 80 mgd with finish water filter rerating) is under construction which is slated for completion in FY 2018 and will permit the maximum use of surface water supplies available to the City. Completion of this project will allow the City to fully utilize surface

water supplies in average years for both: treatment for direct potable use and replenishment of groundwater via intentional recharge.

The City is also expanding recycled water use and is presently constructing a 5 mgd tertiary wastewater treatment facility and associated transmission and distribution facilities. These facilities are anticipated to be complete and operational in FY 2016. Also, budgeted for FY 2018-19 is the design and construction of a 8 mgd satellite tertiary wastewater treatment facility to be located in southeast Fresno. This facility will enable the City to provide direct potable water offset to this region of the City and further stretch the use of pristine supplies for the best and most beneficial uses.

Upon completion of the projects presently under construction, and those already existing, the City will have transitioned from a system that relied 100% on groundwater to meet potable water demands in the Year 2000, to one that will be comprised of about 46% groundwater, 50% surface water, and 4% recycled water in the Year 2020. This transition demonstrates regional leadership in an area where water purveyors have relied almost entirely on groundwater for a century. The reversal away from the strict reliance on groundwater will permit the sustainable utilization of the groundwater system through preservation, replenishment, and sound resource management.

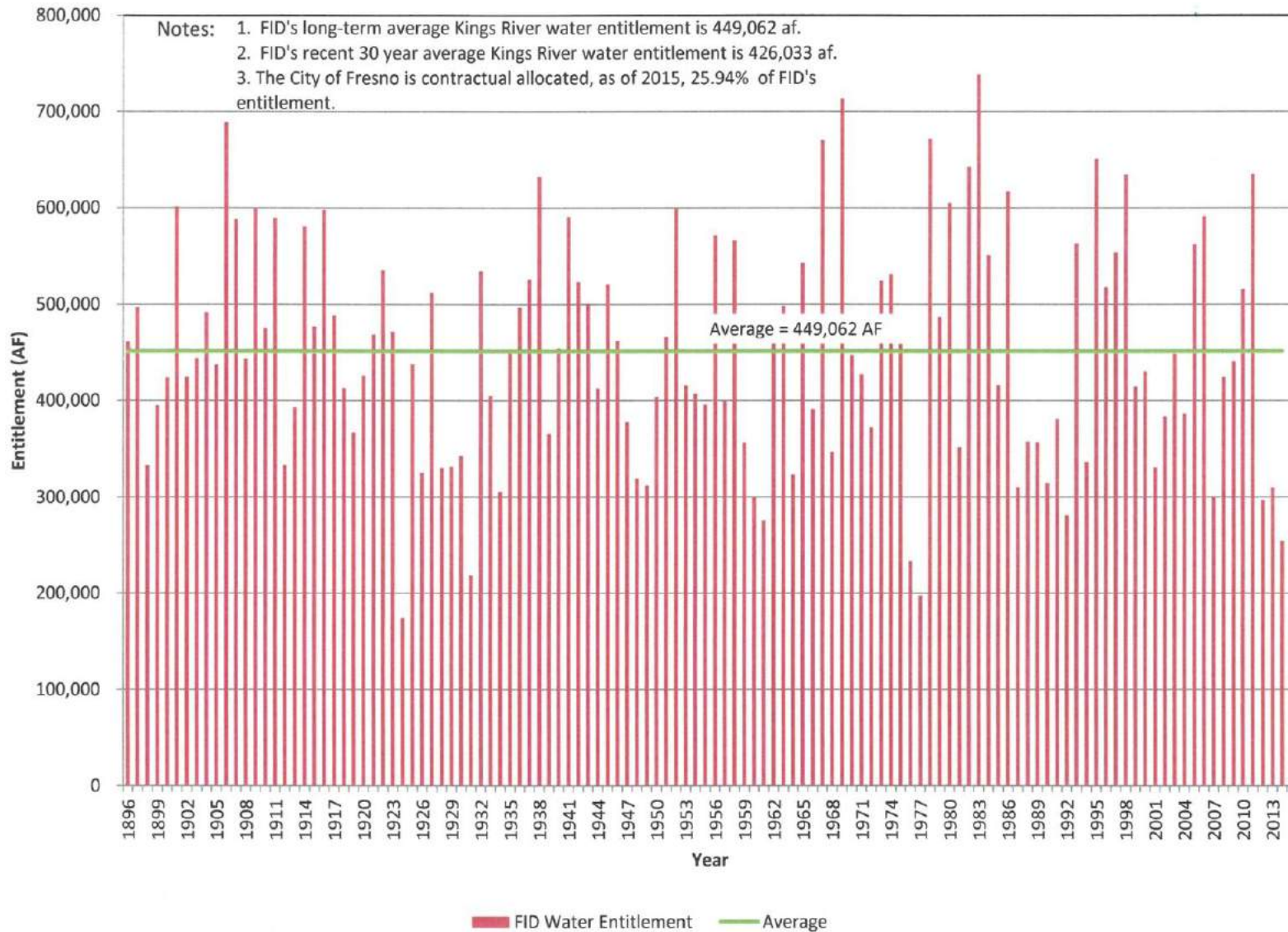


Figure 7-1: FID's Historic Annual Kings River Water Supply

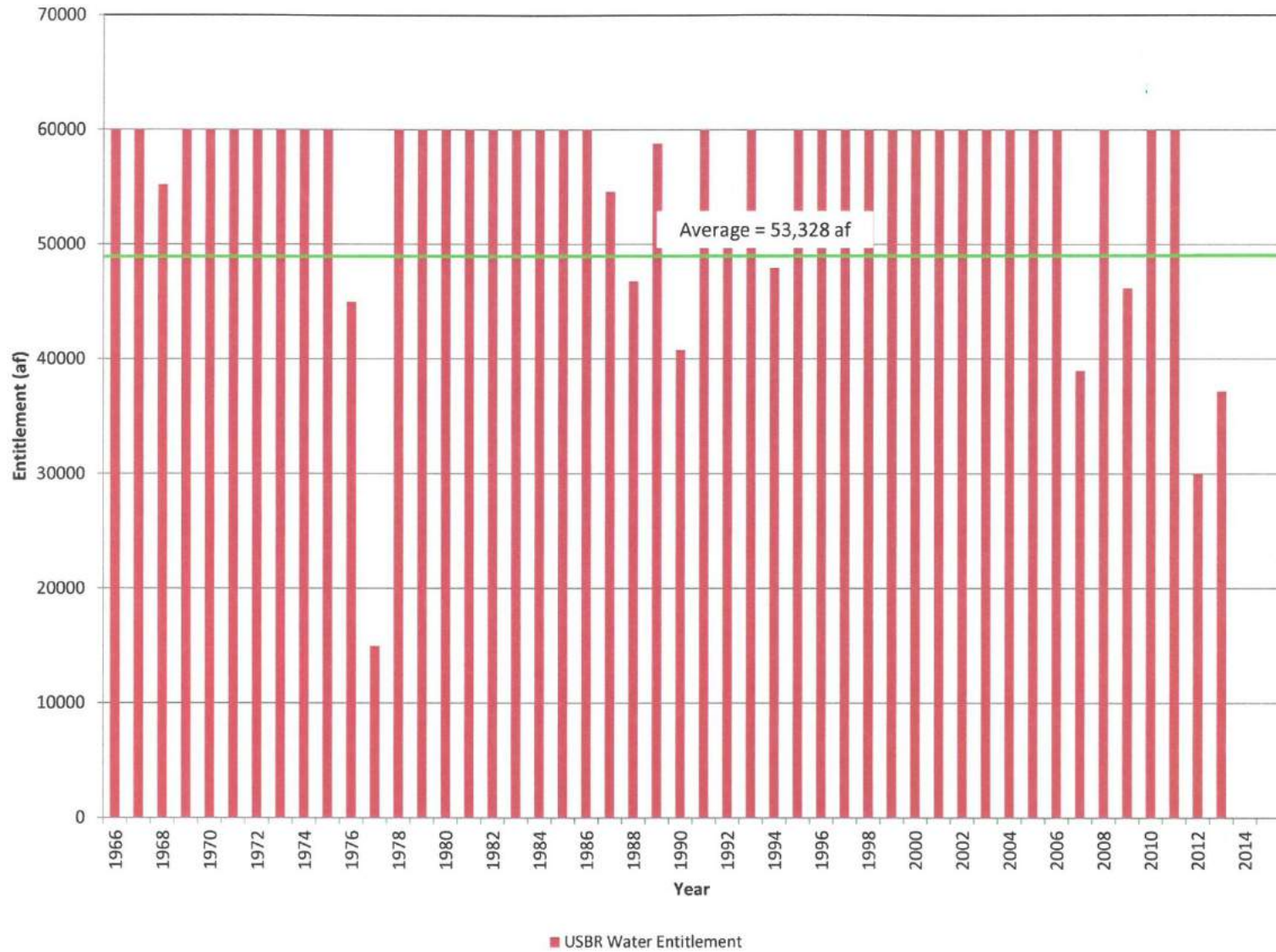


Figure 7-2: USBR CVP – Friant Division Water Reliability

8 Water Shortage Contingency Planning

Water purveyor planning for possible water supply shortages has become an increasingly important subject in light of the drought conditions over the last several years. The City of Fresno has had a Water Shortage Contingency Plan (WSCP) in place for many years; the following discussion modifies the WSCP to allow for a more streamlined approach in the eventuality of more drought conditions in the coming years.

This chapter includes a discussion regarding measures that may be taken during water shortage conditions. The WSCP is the primary focus of the chapter; however, discussion is also presented concerning minimum water supplies needed for the City.

The City initially developed a WSCP in 1993, which was adopted in 1994, in response to the 1991 Assembly Bill 11X, which mandated all water purveyors with more than 3,000 connections develop a WSCP. The WSCP was revised as part of the 2005 UWMP Update and adopted by the City in 2008.

The WSCP is being further refined in this 2015 UWMP, but is still based on the original 1994 plan. The revisions are intended to streamline the plan's usefulness and enable the City to manage the necessary conservation measures to be enacted if a water shortage condition exists. The updated WSCP will be reviewed and adopted in conjunction with this 2015 UWMP.

The WSCP consists of four stages allowing the City to ultimately reduce its water demand to a level commensurate with the water supplies available to a maximum reduction of 50 percent. Financial impacts of a water shortage will also be discussed at the end of the chapter.

8.1 Stages of Action

Legal Requirements:

CWC 10632 (a)(1) *Stages of action to be undertaken by the urban water supplier in response to water supply shortages, including up to a 50 percent reduction in water supply, and an outline of specific water supply conditions which are applicable to each stage.*

The City's WSCP includes a staged plan to reduce water demands based on the type of water shortage the City is experiencing. Any water shortage, whether long or short term may trigger any stage of the plan to enable the City to manage its water supply responsibly and provide, at a minimum, for the health and safety of its residents.

The stages are constructed to provide for a range of water shortages from 10 to 50 percent. Stage 1 is triggered at a 10 percent reduction in water supply, Stage 2 at 10-25 percent, Stage 3 at 25-35 percent, and Stage 4 is triggered at a 35-50 percent reduction in supply. The stages and specific conditions effecting water supply are discussed in more detail in Table 8-1.

Any stage listed within the WSCP may be enacted by the City Manager as deemed appropriate based on water shortage conditions.

Table 8-1: Stages of Water Shortage Contingency Plan

Stage	Percent Supply Reduction	Water Supply Condition
1	10%	<p>Stage 1 of the Water Shortage Contingency Plan may be triggered by any of the following conditions:</p> <ul style="list-style-type: none"> • In the second of two consecutive years, the volume of surface water available to the City through USBR and FID is projected to be less than the long-term average and the reduction in supply, averaged over the consecutive years, is equal to 10% or greater, or • Groundwater contamination conditions exists (DDW required the City to shut down wells) or a large-scale infrastructure failure occurs that results in a 10% loss in water production capacity, or • Localized groundwater cones of depression develop exceeding historic low water levels and, to avoid possible litigation with responsible parties of point source contaminant plumes, the City must shut down existing wells that result in a 10% loss in groundwater production capacity, or • A combination of the above mentioned circumstances or a disaster reduced the City's overall water supply or production capabilities by 10% or more. • After having been in a Stage 2 classification, the following water year results in a declaration by the jurisdictional authority in determining entitlements for the respective surface water supply of normal or above normal water deliveries; or the original trigger for a previous higher stage classification has been rectified to a point that is consistent with the above conditions for this stage.
2	10 - 25%	<p>Stage 2 of the Water Shortage Contingency Plan may be triggered by any of the following conditions:</p> <ul style="list-style-type: none"> • In the third of three consecutive years, the projected volume of surface water available to the City through USBR or FID is less than the long term average and the reduction in supply, averaged over the three consecutive years equals 10% or greater, or • The volume of surface water available to the City through FID is reduced by 25% of the long-term average, or • The volume of surface water available to the City through USBR is reduced by 25% of the long-term average, or • One-year change in average groundwater level in 30 key City wells exceeds 3 feet or two-year change in average groundwater level in 30 key City wells exceeds 6 feet and exceeds historic low groundwater levels, or • Groundwater contamination condition exists (DDW requires the City to shut down wells) or a large-scale infrastructure failure occurs that results in a 25% loss in water production capacity, or • A combination of the above mentioned circumstances or disaster reduces the City's overall water supply or production capabilities by 25% or more. • After having been in a Stage 3 classification, the following water year results in a declaration by the jurisdictional authority in determining entitlements for the respective surface water supply of normal or above normal water deliveries on the Friant-Kern system; or the original trigger for a previous higher stage classification has been rectified to a point that is consistent with the above conditions for this stage.
3	25 to 35%	<p>Stage 3 of the Water Shortage Contingency Plan may be triggered by any of the following conditions:</p> <ul style="list-style-type: none"> • In the fourth of four consecutive years, the projected volume of surface water available to the City through USBR or FID is less than the long term average and the reduction in supply, averaged over the four consecutive years equals 10% or greater, or • The volume of surface water available to the City through FID is reduced by 35% of the long-term average, or • The volume of surface water available to the City through USBR is reduced by 35% of the long-term average, or • One-year change in average groundwater level in 30 key City wells exceeds 5 feet or two-year change in average groundwater level in 30 key City wells exceeds 10 feet and exceeds historic low groundwater levels, or • Groundwater contamination condition exists (DDW requires the City to shut down wells) or a large-scale infrastructure failure occurs that results in a 35% loss in water production capacity, or • A combination of the above mentioned circumstances or disaster reduces the City's overall water supply or production capabilities by 35% or more. • After having been in a Stage 4 classification, the following water year results in a declaration by the jurisdictional authority in determining entitlements for the respective surface water supply of normal or above normal water deliveries on the Friant-Kern system; or the original trigger for a previous higher stage classification has been rectified to a point that is consistent with the above conditions for this stage.
4	35 - 50%	<p>Stage 4 of the Water Shortage Contingency Plan may be triggered by any of the following conditions:</p> <ul style="list-style-type: none"> • In the fifth of five consecutive years, the projected volume of surface water available to the City through USBR or FID is less than the long term average and the reduction in supply, averaged over the five consecutive years equals 10% or greater, or • The volume of surface water available to the City through FID is reduced by 50% of the long-term average, or • The volume of surface water available to the City through USBR is reduced by 50% of the long-term average, or • One-year change in average groundwater level in 30 key wells exceeds 7.5 feet or two-year change in average groundwater level in 30 key City wells exceeds 12 feet and exceeds historic low groundwater levels, or • Groundwater contamination condition exists (DDW requires the City to shut down wells) or a large-scale infrastructure failure occurs that results in a 50% loss in water production capacity, or • A combination of the above mentioned circumstances or disaster reduces the City's overall water supply or production capabilities by 50% or more.

8.2 Prohibitions on End Uses

Legal Requirements:

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.

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 of Fresno has adopted a set of restrictions on water usage that help promote water conservation and overall water usage reduction. The City Municipal Code contains sections on water and wastewater conservation that are to take place under normal water supply conditions. These water conservation measures will be discussed below and can be seen in Table 8-2.

Regulations in place under normal water supply conditions encourage smart water use and help the City manage their water supply. Some of those regulations include year round outdoor water schedule, turf type restrictions, turf irrigation methods, willful or negligent water wasting, flood irrigating, washing hardscape with potable water, and frequent draining of pools. Additional details of these regulations can be found in Section 6-520(a) of the City's Municipal Code.

All of the above restrictions are mandated year round by the City and must be observed. In addition to the restrictions on water usage that are mandated by the City year round, an additional list has been created that has extended the prohibitions that exist during a period of water shortage. These prohibitions correlate with the different stages of water reduction that were discussed in the preceding section. The stage that each of the prohibitions is associated with is referenced on the left hand side of Table 8-2. It should be noted that all prohibitions listed for Stage 1 will apply to Stage 2, likewise, all restrictions that apply to Stages 1-3 will also be applied to Stage 4.

One other mechanism that is used to reduce overall water loss is to reduce the overall system pressure by approximately 5 psi. Reducing the overall water pressure helps minimize leaks and any water waste that may occur. The SCADA system that the City has adopted can be used to change the zone pressure settings.

Table 8-2 lists all of the restrictions that are applicable to the Water Use Reduction Plan and the consequences associated with not complying with these restrictions can be seen as well.

Table 8-2: Restrictions and Prohibitions on End Uses

Stage	Restrictions and Prohibitions	Additional Explanation or Reference	Penalty, Charge or Other Enforcement
1-3	Landscape - Limit landscape irrigation to specific times	Stage 1: Summer – 3 days/wk; Winter – 1 day/wk Stage 2: Summer – 2 days/wk; Winter – 1 day/wk Stage 3: Summer – 1 days/wk; Winter – 1 day/wk	Yes See Section 8.3
1-3	Other	Prohibit car washing except with a bucket only (a hose equipped with a shut off nozzle may be used for a quick rinse)	Yes See Section 8.3
1-4	Other - Prohibit use of potable water for washing hard surfaces	Prohibit use of potable water to wash sidewalks, walkways, driveways, parking lots, open ground or other hard surfaced areas except where necessary for public health or safety.	Yes See Section 8.3
4	Landscape - Prohibit certain types of landscape irrigation	Prohibit outdoor irrigation year-round	Yes See Section 8.3
4	Other	Prohibit car washing	Yes See Section 8.3
4	CII - Restaurants may only serve water upon request	No restaurant, hotel, café, cafeteria, or other public place where food is sold is served or offered for sale, shall serve drinking water to any customer unless expressly requested.	No
4	Water Features - Restrict water use for decorative water features, such as fountains	Prohibit use of potable water to clean, fill or maintain decorative fountains, lakes, or ponds unless such water is reclaimed.	Yes See Section 8.3
4	Other - Prohibit use of potable water for construction and dust control	Prohibit use of potable water for construction, compaction, dust control, street or parking lot sweeping, building wash down where non-potable or recycled water is sufficient.	Yes See Section 8.3
4	Other	Prohibit use of potable water for sewer system maintenance or fire protection training without prior approval by the City Manager.	No
4	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Prohibit allowing potable water to escape from breaks within the customer's plumbing system for more than twenty-four (24) hours after the customer is notified or discovers the break	Yes See Section 8.3
4	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	Prohibit washings cars, boats, trailers, aircraft, or other vehicles except to wash such vehicles at commercial or fleet vehicle washing facilities using water recycling equipment	Yes See Section 8.3
4	Pools and Spas - Require covers for pools and spas	Require covers for swimming pools when not in use	No
4	Other	Prohibit Use of Outdoor Misters	No

8.3 Penalties, Charges, Other Enforcement of Prohibitions

Legal Requirements:

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

The City has penalties for violation of the water use restrictions that were mentioned above in Table 8-2. The fines noted in Table 8-2 are based on City Municipal Code, Section 6-520(e) and are discussed in further specific detail in the below Table 8-3.

Table 8-3: Penalties for Water Wastage

Incident	Penalty Fee	Deferral Conditions
1	\$45	Fee shall be deferred for a period of two years conditioned upon the customer not having a fourth incident of water wastage within a two-year period. If the customer does not have such fourth incident of water wastage within two years such deferral shall become permanent. However, such fee shall be due and owing by the customer if a fourth incident of water wastage occurs within two years.
2	\$45	Fee shall be deferred for customers who attend a course in water conservation. The deferral shall be conditioned upon the customer's successful completion of a water conservation course provided by the Department of Public Utilities and the customer not having a third incident of water wastage within a two-year period. The deferred fee shall be collected if a third incident of water wastage occurs within a two-year period.
3	\$45 plus fee from 2 nd violation	A customer shall have the option of submitting proof of implementation of retrofit measures of no less value than the fee imposed for such third incident of water wastage in lieu of that fee. Retrofit measures of a value less than that fee shall be credited toward payment of the fee.
4	\$45 plus fee from 1 st violation	None
After 4	\$45 per incident	None

If a customer has more than four incidents of water wastage within a two-year period, the City may implement any or all of the following measures:

- Require the customer to get a landscape evaluation, lawn water audit, and water budget, as appropriate, in order to learn efficient water use. This work shall be completed at the customer's expense by landscape irrigation auditors certified by the Irrigation Association.
- Require a customer to repair any defects in the watering system of such customers within fourteen days of notice by the City to repair.

- Installation by the City of flow restrictors or termination of water service for exterior use.
- Termination of all water service to a customer unless in the opinion of the Director of Public Utilities such termination would result in an unreasonable risk to the health and safety of persons.
- Require restoration of water service after termination be contingent on an agreement by the customer to adhere to the provisions of Section 6-520(e) of the City's Municipal Code.

8.4 Consumption Reduction Methods

Legal Requirements:

CWC 10632 (a)(5) *Consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.*

The City of Fresno is employing a variety of different techniques to encourage community members to be more involved and educated about water conservation. The following section will discuss the measures taken to ensure that the overall consumption is reduced. The primary methods being employed by the City are as follows:

- Expanded Public Information Campaign
- Improved Customer Billing
- Increased Meter Frequency Reading
- Rebate Programs
- Landscape Irrigation Efficiency Programs
- Decreased Line Flushing
- Reduced System Water Loss
- Increased Water Waste Patrols

8.4.1 Categories of Consumption Reduction Methods

The water consumption reduction methods discussed in the preceding section can be seen and are discussed in detail in Table 8-4 below.

Table 8-4: Stages of WSCP – Consumption Reduction Methods (DWR Table 8-3)

Stage	Consumption Reduction Methods by Water Supplier	Additional Explanation or Reference
1	Expand Public Information Campaign	The City of Fresno has placed a lot of emphasis on doing community outreach that includes classroom presentations, outreach educational information, and water tours.
1	Improve Customer Billing	The City of Fresno has designated new water meter rates so that consumers who are using less water will see savings in their water bills, while those using more will have a larger water bill.
1	Offer Water Use Surveys	The City of Fresno uses water leak surveys to all community members.
1	Provide Rebates on Plumbing Fixtures and Devices	The City offers rebates on a variety of plumbing fixtures that are high-efficiency such as washers, toilets, and urinals.
1	Provide Rebates for Landscape Irrigation Efficiency	The City offers rebates for Micro Irrigation Conversions, Soil Moisture Sensors, Smart Irrigation Controller, and Rain Sensors to improve efficiencies.
1	Provide Rebates for Turf Replacement	The City provides rebates for community members who wish to replace their turf with a drought resistant garden.
2	Decrease Line Flushing	The City decreases the frequency and duration of water system flushing maintenance activities.
2	Reduce System Water Loss	The City increases efforts to correct water system losses, including repairing leaks and eliminating illicit connections.
2	Increase Water Waste Patrols	The City conducts more frequent patrols to discourage water wasting and correct water wasting practices in the community.
3	Increase Frequency of Meter Reading	The City may increase frequency of meter reading to better track services that may have leaks or unusually high water consumption
4	Moratorium or Net Zero Demand Increase on New Connections	The City will temporarily limit or ban new water service connections within the service area.

8.5 Determining Water Shortage Reductions

Legal Requirements:

CWC 10632 (a)(9) *A mechanism for determining and actual reductions in water use pursuant to the urban water shortage contingency analysis.*

The City of Fresno has assessed its overall water reduction by evaluating the water usage trends that were discussed in SBX7-7 in conjunction with the AWWA water loss calculator. See Chapters 5 and 4, respectively, for additional information.

The overall decrease of water use per capita and compliance with the 2015 Interim Water Conservation target indicate that the reduction measures have been effective in the community. Future water savings from conservation measures will be similarly determined through meter reading data from production and consumption meters.

8.6 Revenue and Expenditure Impacts

Legal Requirements:

CWC 10632 (a)(7) *An analysis of the impacts of each of the actions and conditions described in paragraphs (1) to (6), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.*

The City has completed its metering program and all water service connections are now metered resulting in 100 percent of the City's revenues from water charges being derived from the City's established metered water rates based on actual water consumption.

The mandatory conservation measures implemented in 2012 through 2015 as a result of implementing the WSCP and Executive Orders issued in 2013, 2014 and 2015 resulted in a decrease of water consumption and the related revenues. The mandatory conservation goal for the City in 2015 was 28%. As the City worked to meet the conservation goal, its revenue reductions were less than the 28% water reduction mandate. This is explained by the fact that the City has a two component water rate structure that includes the fixed 'water meter service charge' for all service connections and a volumetric based 'water quantity charge.' Therefore, the reduction in revenues was affected by a lesser percentage than the overall total reduction in water use.

8.6.1 Drought Rate Structures and Surcharges

At present the City does not have in place a drought rate structure. The City has however just hired a consultant to review existing water rates and, if appropriate, develop new future water rates. As an additional task to this effort, the consultant will review, develop, and recommend a drought rate structure for the City's consideration. With such a rate structure in place, should a water shortage take place, the City will be able to institute an alternate water rate structure that may apply and change depending on the stage of drought that the community is experiencing. At this time there are no details as to how the rate structure will be developed, but conceptually each of the four stages specified in the WSCP would have a water rate increase associated with it.

The use of this type of structure during a drought will minimize expenditure impacts that are incurred during a drought. The effects of the decrease in revenue due to the drought, with a corresponding increase in expenditure, will allow for the City to function without going into debt.

8.6.2 Use of Financial Reserves

The City of Fresno Water System maintains two reserve funding sources that can be used to meet a portion of the utility's revenue requirements during emergency or drought conditions. They are as follows:

- Water Operating Reserves – This is a cash set aside in the Water Enterprise Fund that provides a “rainy day savings account” for unexpected cash flow shortages and large unexpected expenses or losses. Normally, these reserves are not intended to be used to make up income shortfalls. However, in an emergency situation, they can be transferred to the Water Rate Stabilization Fund (see below) for transfer back to the Water Enterprise Fund to meet revenue requirements, including debt coverage ratios.
- Water Rate Stabilization Fund - Indentures from previous bond issuances required the establishment of the Water Rate Stabilization Fund. These funds can be drawn on to meet a portion of the utility's revenue requirements through unexpected low-revenue periods and may be applied to debt coverage ratios calculations to help avoid technical default of bond covenants and loan agreements.

In addition, the City maintains funding in the Emergency Reserve Fund for the purpose of meeting unforeseen emergencies (see Section 1212 of the City's Municipal Code for more information). This funding may be used by an affirmative vote of at least five

members of the City Council upon presentation of a statement declaring the reason for use of the funding. This funding would be used only if the Water System reserves were insufficient to meet revenue requirements.

8.6.3 Other Measures

If the funding mentioned above is not sufficient to compensate for loss of revenue during a water shortage, the City may elect to temporarily suspend components of its operations and maintenance activities.

8.7 Resolution or Ordinance

Legal Requirements:

CWC 10632 (a)(8) *A draft water shortage contingency resolution or ordinance.*

The City's updated WSCP was developed in conjunction with the City's 2015 UWMP and will be approved with the 2015 UWMP approval. The resolution providing the Mayor or City Manager with authority to enact each stage of the WSCP is included in Appendix B of this document. A draft resolution to implement the WSCP is provided in Appendix K.

8.8 Catastrophic Supply Interruption

Legal Requirements:

CWC 10632 (a)(3) *Actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.*

In addition to responding to drought conditions, the City's WSCP can be used to respond to emergency or catastrophic conditions that impact the availability of the City's water supplies, and/or the ability to deliver water within the City's service area. Potential events are listed below:

- Loss of Surface Water Supply
- Loss of Groundwater Supply
- Area-Wide Electrical Power Failure
- Natural Disaster – Earthquake or Flood

In the event of a supply interruption, there are several measures that could be taken that would mitigate the overall negative impacts of a water shortage. The following discussion indicates possible events and counteractions to maintain water service to the service area.

The City has an agreement with the City of Clovis that discusses an intertie system between the two cities that could be used by either entity during an emergency. Completion of construction of this intertie is anticipated in Fiscal Year 2017. Activation of the intertie with the City of Clovis would supplement the City's water supply.

The City also cooperates with the County of Fresno's Office of Emergency Services and the WSCP is included in the County's Disaster Plan. The goal during any emergency scenario is to maintain water supply such that the health and safety of the community is protected.

In the event of contamination, either of the surface or ground water supplies, the non-impacted water supply could be utilized more heavily or the intertie with the City of Clovis could be activated. Additionally, overall demand reduction, and the use of other wells or treated surface water would help meet demands.

If a regional power outage were to occur, the City could utilize backup power generators to operate wells. This measure in conjunction with demand reduction could supply sufficient water for health and safety purposes. The City has more than 35 wells with backup power sources. The City has budgeted for the installation of a backup generator for the NESWTF. The new SESWTF, currently under construction, will also be equipped with a backup power generator.

If a natural disaster occurs, in addition to the actions discussed above, the City would isolate any areas of the system that were compromised for emergency repairs and potentially use of the intertie with the City of Clovis. Implementing the WSCP could also occur to reduce demands.

8.9 Minimum Supply Next Three Years

Legal Requirements:

CWC 10632 (a)(2) *An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.*

As discussed in Chapter 4, the City currently has the following sources of supply:

- Groundwater,

- Surface water from FID (Kings River),
- Surface water from the USBR (CVP-Friant Division, San Joaquin River),
- Recycled water supply from the RWRf and North Fresno WRF.

The driest historical three-year period was 2013, 2014, and 2015, which is the latter part of the 2012-2015 drought. This has been the driest three consecutive hydrologic years in the last one-hundred years. For purposes of this evaluation, it has been assumed that the minimum water supply for the next three years is based on these three consecutive years of severe drought water supply conditions. Under these conditions, surface water deliveries from FID and USBR would be reduced significantly. Table 8-5 presents the estimated minimum water supply for the next three years.

Table 8-5: Minimum Supply Next Three Years (DWR Table 8-4)

Available Water Supply	Multiple Dry Year Supply, af/yr		
	Year 2016	Year 2017	Year 2018
Groundwater ¹	126,600	127,500	128,500
Surface Water – FID ²	81,200	67,300	47,100
Surface Water – USBR ³	37,200	0	0
Recycled – RWRf Tertiary ⁴	7,000	7,000	7,000
Recycled – RWRf Secondary ⁴	10,000	10,000	10,000
Recycled – Extraction Wells, Tertiary ⁴	2,500	2,500	2,500
Total	264,500	214,300	195,100
(1) Groundwater Supply based on interpolation for specific years using data taken from Table 6-3. (2) FID surface water allocation entitlement based on interpolation for specific years using data taken from Table 6-5 and applying percentage reductions from Table 7-1. (3) USBR surface water supply values taken from Table 7-2 for second, third, and fourth year multiple dry year supplies. (4) Recycled water supply values taken from Table 7-7 for second, third, and fourth year multiple dry year supplies.			

The minimum supplies shown above for the next three years are adequate to meet projected demands for similar multiple dry years conditions as shown in Table 7-9 for 2020 for the second, third, and fourth years of an extended dry period.

9 Demand Management Measures

9.1 DMMs and Implementation Over the Past Five Years

Legal Requirements:

CWC 10631

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

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

(i) Water waste prevention ordinances

(ii) Metering

(iii) Conservation Pricing

(iv) Public Education and Outreach

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

(vi) Water conservation program coordination and staffing support

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

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

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

The City employs a number of water conservation programs, in excess of State-mandated restrictions, to promote conservation and reduce the water supply demand. These measures help reduce overdraft of the groundwater aquifer that the City utilizes and will aid in the City's attainment of the urban water use reduction targets discussed in Chapter 5. The following sections provide a description of the Demand Management Measures (DMM), including the nature and extent of each.

9.1.1 Water waste prevention ordinances

The City prohibits water waste through implementation of the Wastage of Water ordinance (see Section 6-520 of the City Municipal Code). The ordinance includes such prohibitions as not washing hardscapes, using a nozzle controlled hose, irrigation practices and others. Chapter 8 contains a more in-depth discussion of these prohibitions and consequences associated with them.

The City employs four staff persons year-round to manage and monitor the water conservation programs in place. Two of the positions require Spanish and Hmong languages. During the summer or periods of drought, the City hires additional temporary staff persons to assist with the higher volume of calls and requests.

9.1.2 Metering

Legal Requirements:

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 of the following:*
- (1) *Install water meters on all municipal and industrial service connections located within its service area on or before January 1, 2025.*

In 2010, the City embarked on an aggressive project to install meters on all single-family residential service connections throughout their service area. The water meter project was completed at the end of 2012. The City already had water meters on all existing multi-family residential, commercial, industrial, landscape irrigation and fire services.

With completion of the metering project, the City can now monitor water use more closely and provide its customers an understanding of water use (and its fiscal impacts), which has led to reducing water consumption by approximately 23%. The City will continue to monitor the water use through the metering data and using the data to analyze demand trends and plan for future water shortages.

As part of the analysis of the meter data and through customer complaints or comments, the City is able to identify meters that are not working properly. Once identified, the City can have a maintenance crew visit the property and evaluate whether to repair or replace the meter.

The City routinely has tested and calibrated the top 20 commercial meters on a regular basis. Now that all of the City's residential water services are fitted with meters, the City has initiated a program to test about 10% of these meters annually. The program may include selecting a sample of varying sizes and types of meters from around the City. Each year thereafter, a new sample will be selected and tested to determine variance

from optimal performance. Meters that do not meet performance criteria will be replaced.

9.1.3 Conservation Pricing

The City's customers are subject to the water rate structure adopted by the City Council through the Proposition 218 process. The approved rate structure has a base price designated by meter size and a volumetric rate for water usage. Table 9.1 shows the rate structure.

Table 9-1: Current Water Rate Structure

Meter Size	Base Rate		Usage Charges	
	Domestic	Irrigation	100 cubic feet (HCF)	1,000 gallons
¾" or smaller	\$9.30	\$7.40	\$1.09 (per each HCF)	\$1.46 (per each 1,000 gallons)
1"	\$12.30	\$9.30		
1.5"	\$14.40	\$10.50		
2"	\$24.40	\$16.70		
3"	\$36.40	\$24.10		
4"	\$55.00	\$36.00		
6"	\$105.00	\$66.00		
8"	\$487.00	\$301.00		
10"	\$768.00	\$474.00		
12"	\$1,009.00	\$622.00		

The City will investigate the utilization of alternative rate structures in the future, which could have specific charges for usage to provide a fiscal incentive for customers to conserve water. This approach would permit customers to directly see the impact of water use reduction each month. Provided in Appendix J is the 5-Year water rate structure with effective dates from March 30, 2015, through July 1, 2018.

The City also reserves the right to implement a drought rate structure. Additional details on this program can be seen in Section 8.6.1 of this report.

9.1.4 Public Education and Outreach

From the early 1980s, the City has worked diligently to connect with and educate the community it serves. Those efforts include an emphasis on water conservation techniques and the importance of reducing overall water demand, both specifically to the resident (in terms of fiscal impacts) and to the overall water supply. The City's varied programs to incentivize water savings are frequently discussed, including the following items:

- Water Wise Landscape Consultation
- Irrigation Efficiency Audit
- Assist with Setting Irrigation Controllers
- Interior/Exterior Water Leak Surveys
- Water Meter Use Information
- Water use Rebates, Coupons, and Permits
- Lawn to Garden Rebates
- Water Conservation Hotlines

9.1.4.1 Education and Outreach Efforts

The City conducted outreach to the community in some form over nearly 3,100 times between 2010 and 2015. In 2014, with the extreme drought conditions in the area, the education and outreach efforts increased. Table 9-2 quantifies the number and types of education and outreach activities conducted.

Table 9-2: Public Education and Outreach

Description/Year	2010	2011	2012	2013	2014	2015	Total
Event Booth	19	22	15	24	76	17	170
Education Event	24	27	47	63	149	17	325
Newsletters	17	41	47	112	448	126	763
Media	58	58	69	68	153	112	500
School Event	36	27	33	87	89	44	315
Social Media	27	41	55	81	212	168	556
Workshop & Speakers	50	55	38	52	132	61	380
Totals	231	271	304	487	1259	545	3097
Notes:							

The City also maintains a water conservation webpage²⁵ on their website with links to many of the flyers and rebates mentioned above.

9.1.4.2 Water Surveys

The City conducted over 20,000 interior and exterior surveys between 2010 and 2015. The City noted a dramatic increase in interior audits in 2015, largely in response to the mandatory water reductions issued by the State and imposed on the individual users. Table 9-3 quantifies the number and types of surveys conducted.

²⁵ <http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/Conservation/default.htm>

Table 9-3: Interior and Exterior Surveys

Description/Year	2010	2011	2012	2013	2014	2015	Total
Exterior Surveys							
Landscape Consultation	58	145	103	140	264	605	1315
Landscape Survey	678	1171	1678	885	1054	952	6408
Large Turf Survey	0	162	80	56	157	1	456
Timer Tutorial	0	0	1086	1676	705	1644	5111
Interior Surveys							
Interior Audit	2165	1734	785	901	326	835	6746
Totals	2901	3212	3732	3658	2506	4027	20,036

9.1.4.3 Rebate Programs

The City operates 14 rebate programs. Some of those that were active and utilized during the 2010-2015 reporting period are summarized below:

Table 9-4: Rebate Program Results

Description/ Year	Lawn to Garden		High Flow Toilet		Washing Machine	
	Quantity	Cost	Quantity	Cost	Quantity	Cost
2010			480	\$24,000	2030	\$101,500
2011			380	\$19,000	1988	\$99,400
2012			444	\$22,200	1934	\$96,700
2013			206	\$10,300	1578	\$78,900
2014			171	\$8,550	734	\$36,700
2015	134	\$31,940	301	\$15,050	358	\$17,900
Totals	134	\$31,940	1982	\$99,100	8622	\$431,100

9.1.5 Programs to Assess and Manage Distribution System Real Loss

The City has historically assumed a water system loss of approximately 10% of the overall system production. As discussed in Chapter 4, the calculated loss was determined to be 8%, illustrating the City's conservative approach in the past. With completed system metering, the City is able to more closely track and understand where possible losses are occurring and correct them as necessary.

The AWWA Water Audit Tool suggested the areas the City could improve to reduce system losses include: calibration of source meters, unauthorized consumption, and data handling errors.

The following measures are in place or are being developed to improve the system losses:

- The City is developing a plan to install the remaining source meters on the wells within the system (approximately 25 wells are unmetered) and anticipate this work being complete by 2017.
- The City has a source meter calibration plan in place. However, the City will be revising the calibration plan in 2017 and expect to have the revised plan in operation by 2017.
- As of Calendar Year 2016, the City has initiated a new program to begin testing of its new residential water system service meters. This program will start with testing 10% of all residential meters. This is discussed in more detail in Section 9.1.2.
- The City has an online tool as well as a telephone hotline available for the public to report water leaks, either on their property or within the public rights-of-way. This helps reduce detection time and limits the water loss from leaks.
- The City conducted a leak survey on 100 miles of the water system in January 2016. Eight total leaks were pinpointed, one on the main, two on hydrants, two on water service lines, and one at a water meter. The City conducted a previous small scale survey in 2011 and plans to conduct another leak survey in 2020.
- The City uses the meter data to identify any meters not functioning correctly so that they can be repaired or replaced. This helps reduce unaccounted for water consumption.
- Unauthorized consumption can be determined, at times, through the meter data also. If a meter shows no usage the City can note the address and schedule a site visit to determine any possible issues.

9.1.6 Water Conservation Program Coordination and Staffing Support

The City employs four staff persons year-round to manage and monitor the water conservation programs in place. During the summer or periods of drought, the City hires additional temporary staff persons to assist with the higher volume of calls and requests.

The Water Conservation staff can be reached at: (559) 621-5300, (559) 621-5480 or (559) 621-CITY for after-hours emergencies. Online forms are also available to the public. Their office is located at 1910 E. University Avenue, Fresno, CA 93703. The Water Conservation Supervisor is Nora Laikam.

9.1.7 Other Demand Management Measures

In addition to the water conservation programs, the City has also enacted watering schedules for the community that specify days and times that customers are allowed to water, based on odd or even street addresses. The City has also created a program called the “20 Gallon Challenge” that provides community members with easy ways to save 20 gallons of water every day.

9.2 Planned Implementation to Achieve Water Use Targets

Legal Requirements:

CWC 10631

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

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

As discussed in Chapter 5, the City has met its 2015 interim water use target and is well positioned to meet the 2020 water use target. However, the City also realizes a portion of the observed conservation is due to the strict water use restrictions imposed during the drought. If those restrictions are lifted, the City will be diligent in continuing use of the above described DMMs.

The completion of the metering program, replacement of turf, and the replacement of over 10,000 high water use appliances (toilets and washing machines) over the last several years will help the City to maintain overall lower water consumption.

9.3 Members of the California Urban Water Conservation Council

Legal Requirements:

CWC 10631

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

The City has been a signatory agency to the California Urban Water Conservation Council's (CUWCC) Memorandum of Understanding (MOU) since December 11, 1991.

The MOU is concerned with urban water conservation in California, with an overall purpose to expedite the implementation of water conservation measures in urban areas throughout the State and to develop assumptions for use in estimating future water conservation savings.

The City is in compliance with the provisions in the most current MOU, dated December 10, 2008. The City submitted its 2014 annual report on September 22, 2015, which was approved on December 1, 2015. As of the filing of this 2015 UWMP with DWR, the City will have submitted its 2015 annual report.

Appendix A

DWR UWMP Checklist

UWMP 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	Chap. 2 Section 2.1 & Table 2-1
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	Chap. 2 Section 2.4.1 & 2.4.2 & 2.4.3
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	Chap. 2 Section 2.5.2.2 & 2.5.3
10631(a)	Describe the water supplier service area.	System Description	Section 3.1	Chap. 3 Section 3.1.2
10631(a)	Describe the climate of the service area of the supplier.	System Description	Section 3.3	Chap. 3 Section 3.2
10631(a)	Provide population projections for 2020, 2025, 2030, and 2035.	System Description	Section 3.4	Chap. 3 Section 3.3.1 & Chap 5 5.2.1
10631(a)	Describe other demographic factors affecting the supplier's water management planning.	System Description	Section 3.4	Chap. 3 Section 3.3.2
10631(a)	Indicate the current population of the service area.	System Description and Baselines and Targets	Sections 3.4 and 5.4	Chap. 3 Section 3.3.1.1, Table 3-3, Chap. 5 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	Chap. 4 Section 4.2.1, Tables 4-2 & 4-3
10631(e)(3)(A)	Report the distribution system water loss for the most recent 12-month period available.	System Water Use	Section 4.3	Chap. 4 Section 4.3

				& Table 4-6
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	Chap. 4 Section 4.5 & 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	Chap. 5 Section 5.5.2 & Table 5-4
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	Chap. 5 Section 5.4.1, 5.4.2, 5.4.3, 5.6, Table 5-7
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	Chap. 5 Section 5.5.3, Table 5-5
10608.24(a)	Retail suppliers shall meet their interim target by December 31, 2015.	Baselines and Targets	Section 5.8 and App E	Chap. 5 Section 5.6.1, 5.7 & Table 5-7
10608.24(d)(2)	If the retail supplier adjusts its compliance GPCD using weather normalization, economic adjustment, or extraordinary events, it shall provide the basis for, and data supporting the adjustment.	Baselines and Targets	Section 5.8.2	No adjustment made, Chap. 5 Section 5.6.2
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	Chap. 5 Section 5.6.1
10631(b)	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, 2030, and 2035.	System Supplies	Chapter 6	Chap. 6 section 6.1, 6.2, 6.4, Table 6-14
10631(b)	Indicate whether groundwater is an existing or planned source of water available to the supplier.	System Supplies	Section 6.2	Chap. 6 Section 6.1, 6.8, Table 6-14
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.	System Supplies	Section 6.2.2	Chap. 6 Section 6.1.2 &

	Include a copy of the plan or authorization.			Table 6-2
10631(b)(2)	Describe the groundwater basin.	System Supplies	Section 6.2.1	Chap. 6 Section 6.1
10631(b)(2)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the supplier has the legal right to pump.	System Supplies	Section 6.2.2	Basin is not adjudicated Chap. 6 Section 6.1.1
10631(b)(2)	For unadjudicated basins, indicate whether or not the department has identified the basin as overdrafted, or projected to become overdrafted. Describe efforts by the supplier to eliminate the long-term overdraft condition.	System Supplies	Section 6.2.3	Chap. 6 Section 6.1.3, 6.1.5.3, 6.1.6 & 6.7
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	Chap. 6, Section 6.1.6 & Table 6-4
10631(b)(4)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System Supplies	Sections 6.2 and 6.9	Chap. 6 Section 6.1.5 & Table 6-3
10631(d)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System Supplies	Section 6.7	Chap. 6 Section 6.6.1
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	Chap. 6 Section 6.7, 6.7.1 thru 6.7.4 & Table 6-12
10631(h)	Describe desalinated water project opportunities for long-term supply.	System Supplies	Section 6.6	Chap. 6 Section 6.5
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	Chap. 2 Section 2.4.1 and Table 2-4
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	Chap. 6 Section 6.4.1, 6.4.1.1 thru 6.4.1.5
10633(a)	Describe the wastewater collection and treatment systems in the supplier's service	System Supplies (Recycled	Section 6.5.2	Chap. 6 Section

	area. Include quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	Water)		6.4.2, 6.4.2.1 thru 6.4.2.2, Tables 6-6 & 6-7
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	Chap. 6 Section 6.4.3 & Table 6-7
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	Chap. 6 Section 6.4.3.1 thru 6.4.3.2 & Table 6-8
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	Chap. 6 Section 6.4.4, 6.4.4.1
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	Chap. 6 Section 6.4.4.2 & Table 6-9
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	Chap. 6 Section 6.4.5 & Table 6-11
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	Chap. 6 Section 6.4.5
10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water Supply Reliability Assessment	Section 7.4	Chap. 7 Section 7.4
10631(c)(1)	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage.	Water Supply Reliability Assessment	Section 7.1	Chap. 7 Section 7.2, 7.1.1 thru 7.1.3, 7.2.1.1 thru 7.2.1.3
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	Chap. 7 Section 7.2.2 Tables 7-1 thru 7-4
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	Chap. 7 Section 7.1.1
10634	Provide information on the quality of existing sources of water available to the supplier and the manner in which water quality affects water management strategies and	Water Supply Reliability Assessment	Section 7.1	Chap. 7 Section 7.1, 7.1.1 thru

	supply reliability			7.1.3
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	Chap. 7 Section 7.3 Tables 7-5 thru 7-9
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	Chap. 8 Section 8.1 & Table 8-1
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	Chap. 8 Section 8.9 & 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	Chap. 8 Section 8.8
10632(a)(4)	Identify mandatory prohibitions against specific water use practices during water shortages.	Water Shortage Contingency Planning	Section 8.2	Chap. 8 Section 8.2 & Table 8-2
10632(a)(5)	Specify consumption reduction methods in the most restrictive stages.	Water Shortage Contingency Planning	Section 8.4	Chap. 8 Section 8.4 & Table 8-4
10632(a)(6)	Indicated penalties or charges for excessive use, where applicable.	Water Shortage Contingency Planning	Section 8.3	Chap. 8 Section 8.3 & Table 8-3
10632(a)(7)	Provide an analysis of the impacts of each of the actions and conditions in the water shortage contingency analysis on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts.	Water Shortage Contingency Planning	Section 8.6	Chap. 8 Section 8.6, 8.6.1 thru 8.6.3
10632(a)(8)	Provide a draft water shortage contingency resolution or ordinance.	Water Shortage Contingency Planning	Section 8.7	Chap. 8 Section 8.7 Appendix K
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	Chap. 8 Section 8.5
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	Chap. 9 Section 9.1, 9.1.1 thru 9.1.4, Tables 9-1 thru 9-4
10631(f)(2)	Wholesale suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and supplier assistance program.	Demand Management Measures	Sections 9.1 and 9.3	N.A.
10631(i)	CUWCC members may submit their 2013-	Demand	Section 9.5	Chap. 9

	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.	Management Measures		Section 9.3
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	Chap. 2 Section 2.5, 2.5.3 & 5.5.1
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	Chap. 2 Section 2.4.3, 2.52, Table 2-6, & Appendix C
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	Chap. 2 Section 2.5.3 Appendix B
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	Chap. 2 Section 2.5.4 & Appendix B
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	Chap. 2 Section 2.5.2.2, 2.5.3, Appendix B Appendix C
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	Chap. 2 Section 2.5.2.1 & Appendix C
10642	Provide supporting documentation that the plan has been adopted as prepared or modified.	Plan Adoption, Submittal, and Implementation	Section 10.3.1	Chap. 2 Section 2.5.3 Appendix B
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	Chap. 2 Section 2.5.4
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	Chap. 2 Section 2.5.4
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	Chap. 2 Section 2.5.4

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	Chap. 2 Section 2.5.5
-------	---	--	--------------	----------------------------------

Appendix B

City Council Resolution Adopting 2015
UWMP



RESOLUTION NO. 2016-124

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF
FRESNO, CALIFORNIA, TO ADOPT AN UPDATE TO THE
URBAN WATER MANAGEMENT PLAN

WHEREAS, the Urban Water Management Planning Act, codified at California Water Code Sections 10610, *et seq.*, requires every urban water supplier to prepare and adopt an Urban Water Management Plan and update said plan at least once every five years; and

WHEREAS, the City adopted its current Urban Water Management Plan on November 8, 2012; and

WHEREAS, an Urban Water Management Plan is to generally describe: (1) the existing and projected water supply and demand; (2) water conservation measures, including a schedule for implementation and means for evaluating effectiveness; and (3) water supply reliability and water shortage contingency measures over a twenty-year planning horizon; and

WHEREAS, as an urban water supplier, the City of Fresno has prepared an update to the Urban Water Management Plan ("UWMP") that complies with the requirements of the Urban Water Management Planning Act; and

WHEREAS, the primary goals of the UWMP are to identify a long-term water supply, implement demand management measures and balance the City's groundwater usage (eliminate overdraft) by 2025, and if successful, will constitute a customer-wide reduction of water usage by 20%; and

1 of 4

Date Adopted: 06/23/2016
Date Approved: 06/23/2016
Effective Date: 06/23/2016

Resolution No. 2016-124



WHEREAS, to achieve the goals identified by the UWMP the City will significantly reduce its reliability on groundwater requiring the construction of a recycled water system, expansion of the existing surface water treatment facility and construction of an additional facility in southeast Fresno, significant expansion of the groundwater recharge program, and expansion of the existing water conservation program; and

WHEREAS, the City Council on November 8, 2012, adopted its 2010 UWMP setting interim and final water use targets which comply with the requirements of the Water Conservation Act of 2009 (Senate Bill x7-7) which was enacted in November 2009 and requires that urban retail water suppliers, such as the City, develop per capita water use targets to be met of 282 gallons per capita per day (gpcd) by 2015 and 250 gpcd by 2020; and

WHEREAS, the City of Fresno water customers, in 2015, used approximately 190 gpcd and through the implementation of the Demand Management Measures, it is expected that the water usage will be maintained below approximately 247 gpcd by the year 2020; and

WHEREAS, the City consulted with, and requested comments from, regional water related agencies such as the County of Fresno, Fresno Irrigation District, the City of Clovis, Friant Water Users Authority, etc., as required by Water Code Section 10641; and

WHEREAS, prior to the public hearing the City made the draft 2015 UWMP available for public inspection and placed copies for public review at the City of Fresno Clerk's office and the City of Fresno Department of Public Utilities office at City Hall, the City of Fresno Public Utilities Department-Water Division office, and the County of



Fresno Main Library, as well as making electronic copies available to agencies and the public, as required by Water Code Section 10642; and

WHEREAS, on May 11, 2016, and May 18, 2016, respectively, the City published notices in the Fresno Bee and in the Business Journal that on June 23, 2016, at 10:00 a.m. a public hearing regarding the draft 2015 UWMP would be held in Council Chambers at which public comment on the plan would be received, as required by Water Code Section 10642; and

WHEREAS, on June 23, 2016, at 10:00 a.m. the public hearing was conducted in Council Chambers at which the public was provided the opportunity to comment on the 2015 UWMP.

NOW THEREFORE, BE IT RESOLVED by the Council of the City of Fresno as follows:

1. The City hereby updates the Urban Water Management Plan and adopts the 2015 Urban Water Management Plan.
2. The City Manager is hereby authorized and directed to file the City of Fresno 2015 Urban Water Management Plan with the California Department of Water Resources, the California State Library, and the County of Fresno within 30 days after adoption.
3. The Mayor or the City Manager is hereby authorized to declare the appropriate drought stages outlined in the Water Shortage Contingency Plan section of the 2015 Urban Water Management Plan.

* * * * *



CLERK'S CERTIFICATION

STATE OF CALIFORNIA)
COUNTY OF FRESNO) ss.
CITY OF FRESNO)

I, YVONNE SPENCE, CMC, City Clerk of the City of Fresno, certify that the forgoing resolution was adopted by the Council of the City of Fresno, at a regular meeting held on the 23rd day of June, 2016.

AYES : Baines, Brand, Brandau, Olivier, Quintero, Soria, Caprioglio
NOES : None
ABSENT : None
ABSTAIN : None

YVONNE SPENCE, CMC
City Clerk

BY: Cindy Bruer
Deputy

APPROVED AS TO FORM:

DOUGLAS T. SLOAN
City Attorney

BY: Brandon M. Collet 6/27/16
Deputy Date

Appendix C

Agency Notices for UWMP Preparation



Department of Public Utilities

Water Division- Program Management and Engineering
2101 G. Street, Bldg. A
Fresno, California 93706
559-621-8600 – FAX 559-498-4126



Providing Life's Essential Services

November 9, 2015

Tim Bakman
Bakman Water Company
PO Box 7965, Fresno, CA 93747

Subject: Notice of Preparation for City of Fresno 2015 Urban Water Management Plan

Dear Mr. Tim Bakman:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City is currently reviewing their previous UWMP and other available water supply planning documents for preparation of the 2015 UWMP. We invite your agency's participation in this update process. A draft of the updated 2015 UWMP will be made available for public review, and a public hearing will be scheduled in mid-2016 to hear public comments, and discuss and consider adoption of the 2015 UWMP.

In the meantime, if you would like more information regarding the City of Fresno 2015 UWMP, please contact Mr. Paul Amico at:

City of Fresno
Department of Public Utilities, Water Division
2101 G Street
Fresno, CA 93706-1620
Phone: (559) 621-1602
Email: paul.amico@fresno.gov

Sincerely,

Michael Carbajal
Division Manager



A Nationally Accredited Public Utility Agency



Department of Public Utilities

Water Division- Program Management and Engineering
2101 G. Street, Bldg. A
Fresno, California 93706
559-621-8600 – FAX 559-498-4126



Providing Life's Essential Services

November 9, 2015

Lisa Koehn
City of Clovis Public Utilities
155 N. Sunnyside Ave, Clovis, CA 93611

Subject: Notice of Preparation for City of Fresno 2015 Urban Water Management Plan

Dear Ms. Lisa Koehn:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City is currently reviewing their previous UWMP and other available water supply planning documents for preparation of the 2015 UWMP. We invite your agency's participation in this update process. A draft of the updated 2015 UWMP will be made available for public review, and a public hearing will be scheduled in mid-2016 to hear public comments, and discuss and consider adoption of the 2015 UWMP.

In the meantime, if you would like more information regarding the City of Fresno 2015 UWMP, please contact Mr. Paul Amico at:

City of Fresno
Department of Public Utilities, Water Division
2101 G Street
Fresno, CA 93706-1620
Phone: (559) 621-1602
Email: paul.amico@fresno.gov

Sincerely,

Michael Carbajal
Division Manager



A Nationally Accredited Public Utility Agency



Department of Public Utilities

Water Division- Program Management and Engineering
2101 G. Street, Bldg. A
Fresno, California 93706
559-621-8600 – FAX 559-498-4126



Providing Life's Essential Services

November 9, 2015

Gary Serrato
Fresno Irrigation District
2907 South Maple Ave, Fresno, CA 93725

Subject: Notice of Preparation for City of Fresno 2015 Urban Water Management Plan

Dear Mr. Gary Serrato:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City is currently reviewing their previous UWMP and other available water supply planning documents for preparation of the 2015 UWMP. We invite your agency's participation in this update process. A draft of the updated 2015 UWMP will be made available for public review, and a public hearing will be scheduled in mid-2016 to hear public comments, and discuss and consider adoption of the 2015 UWMP.

In the meantime, if you would like more information regarding the City of Fresno 2015 UWMP, please contact Mr. Paul Amico at:

City of Fresno
Department of Public Utilities, Water Division
2101 G Street
Fresno, CA 93706-1620
Phone: (559) 621-1602
Email: paul.amico@fresno.gov

Sincerely,

Michael Carbajal
Division Manager



A Nationally Accredited Public Utility Agency



Department of Public Utilities

Water Division- Program Management and Engineering
2101 G. Street, Bldg. A
Fresno, California 93706
559-621-8600 – FAX 559-498-4126



Providing Life's Essential Services

November 9, 2015

Allen Hoffman
Fresno Metropolitan Flood Control District
5469 East Olive Ave, Fresno, CA 93727

Subject: Notice of Preparation for City of Fresno 2015 Urban Water Management Plan

Dear Mr. Allen Hoffman:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City is currently reviewing their previous UWMP and other available water supply planning documents for preparation of the 2015 UWMP. We invite your agency's participation in this update process. A draft of the updated 2015 UWMP will be made available for public review, and a public hearing will be scheduled in mid-2016 to hear public comments, and discuss and consider adoption of the 2015 UWMP.

In the meantime, if you would like more information regarding the City of Fresno 2015 UWMP, please contact Mr. Paul Amico at:

City of Fresno
Department of Public Utilities, Water Division
2101 G Street
Fresno, CA 93706-1620
Phone: (559) 621-1602
Email: paul.amico@fresno.gov

Sincerely,

Michael Carbajal
Division Manager



A Nationally Accredited Public Utility Agency



Department of Public Utilities

Water Division- Program Management and Engineering
2101 G. Street, Bldg. A
Fresno, California 93706
559-621-8600 – FAX 559-498-4126



Providing Life's Essential Services

November 9, 2015

Alan Weaver
Fresno County Public Works
2220 Tulare St, 6th Fl, Fresno, CA 93721

Subject: Notice of Preparation for City of Fresno 2015 Urban Water Management Plan

Dear Mr. Alan Weaver:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City is currently reviewing their previous UWMP and other available water supply planning documents for preparation of the 2015 UWMP. We invite your agency's participation in this update process. A draft of the updated 2015 UWMP will be made available for public review, and a public hearing will be scheduled in mid-2016 to hear public comments, and discuss and consider adoption of the 2015 UWMP.

In the meantime, if you would like more information regarding the City of Fresno 2015 UWMP, please contact Mr. Paul Amico at:

City of Fresno
Department of Public Utilities, Water Division
2101 G Street
Fresno, CA 93706-1620
Phone: (559) 621-1602
Email: paul.amico@fresno.gov

Sincerely,

Michael Carbajal
Division Manager



A Nationally Accredited Public Utility Agency



Department of Public Utilities

Water Division- Program Management and Engineering
2101 G. Street, Bldg. A
Fresno, California 93706
559-621-8600 – FAX 559-498-4126



Providing Life's Essential Services

November 9, 2015

Eric. R. Quinley
Friant Water Authority
4969 E. McKinley Avenue, Ste 201, Fresno, CA 93727

Subject: Notice of Preparation for City of Fresno 2015 Urban Water Management Plan

Dear Mr. Eric. R. Quinley:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City is currently reviewing their previous UWMP and other available water supply planning documents for preparation of the 2015 UWMP. We invite your agency's participation in this update process. A draft of the updated 2015 UWMP will be made available for public review, and a public hearing will be scheduled in mid-2016 to hear public comments, and discuss and consider adoption of the 2015 UWMP.

In the meantime, if you would like more information regarding the City of Fresno 2015 UWMP, please contact Mr. Paul Amico at:

City of Fresno
Department of Public Utilities, Water Division
2101 G Street
Fresno, CA 93706-1620
Phone: (559) 621-1602
Email: paul.amico@fresno.gov

Sincerely,

Michael Carbajal
Division Manager



A Nationally Accredited Public Utility Agency



Department of Public Utilities

Water Division- Program Management and Engineering
2101 G. Street, Bldg. A
Fresno, California 93706
559-621-8600 – FAX 559-498-4126



Providing Life's Essential Services

November 9, 2015

Paul Woodworth
Garfield Water District
PO Box 337, Clovis, CA 93613

Subject: Notice of Preparation for City of Fresno 2015 Urban Water Management Plan

Dear Mr. Paul Woodworth:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City is currently reviewing their previous UWMP and other available water supply planning documents for preparation of the 2015 UWMP. We invite your agency's participation in this update process. A draft of the updated 2015 UWMP will be made available for public review, and a public hearing will be scheduled in mid-2016 to hear public comments, and discuss and consider adoption of the 2015 UWMP.

In the meantime, if you would like more information regarding the City of Fresno 2015 UWMP, please contact Mr. Paul Amico at:

City of Fresno
Department of Public Utilities, Water Division
2101 G Street
Fresno, CA 93706-1620
Phone: (559) 621-1602
Email: paul.amico@fresno.gov

Sincerely,

Michael Carbajal
Division Manager



A Nationally Accredited Public Utility Agency



Department of Public Utilities

Water Division- Program Management and Engineering
2101 G. Street, Bldg. A
Fresno, California 93706
559-621-8600 – FAX 559-498-4126



Providing Life's Essential Services

November 9, 2015

Russ Holcomb
Malaga County Water District
3580 South Frank Street, Fresno, CA 93725-2511

Subject: Notice of Preparation for City of Fresno 2015 Urban Water Management Plan

Dear Mr. Russ Holcomb:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City is currently reviewing their previous UWMP and other available water supply planning documents for preparation of the 2015 UWMP. We invite your agency's participation in this update process. A draft of the updated 2015 UWMP will be made available for public review, and a public hearing will be scheduled in mid-2016 to hear public comments, and discuss and consider adoption of the 2015 UWMP.

In the meantime, if you would like more information regarding the City of Fresno 2015 UWMP, please contact Mr. Paul Amico at:

City of Fresno
Department of Public Utilities, Water Division
2101 G Street
Fresno, CA 93706-1620
Phone: (559) 621-1602
Email: paul.amico@fresno.gov

Sincerely,

Michael Carbajal
Division Manager



A Nationally Accredited Public Utility Agency



Department of Public Utilities

Water Division- Program Management and Engineering
2101 G. Street, Bldg. A
Fresno, California 93706
559-621-8600 – FAX 559-498-4126



Providing Life's Essential Services

November 9, 2015

Jason Franklin
Pinedale County Water District
480 West Birch Ave, Pinedale, CA 93650

Subject: Notice of Preparation for City of Fresno 2015 Urban Water Management Plan

Dear Mr. Jason Franklin:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City is currently reviewing their previous UWMP and other available water supply planning documents for preparation of the 2015 UWMP. We invite your agency's participation in this update process. A draft of the updated 2015 UWMP will be made available for public review, and a public hearing will be scheduled in mid-2016 to hear public comments, and discuss and consider adoption of the 2015 UWMP.

In the meantime, if you would like more information regarding the City of Fresno 2015 UWMP, please contact Mr. Paul Amico at:

City of Fresno
Department of Public Utilities, Water Division
2101 G Street
Fresno, CA 93706-1620
Phone: (559) 621-1602
Email: paul.amico@fresno.gov

Sincerely,

Michael Carbajal
Division Manager



A Nationally Accredited Public Utility Agency



Department of Public Utilities

Water Division- Program Management and Engineering
2101 G. Street, Bldg. A
Fresno, California 93706
559-621-8600 – FAX 559-498-4126



Providing Life's Essential Services

December 21, 2015

Michael P. Jackson, PE
United States Bureau of Reclamation
South-Central California Area Office
1243 N Street, Fresno, CA 93721-1813

Subject: Notice of Preparation for City of Fresno 2015 Urban Water Management Plan

Dear Mr. Michael Jackson:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City is currently reviewing their previous UWMP and other available water supply planning documents for preparation of the 2015 UWMP. We invite your agency's participation in this update process. A draft of the updated 2015 UWMP will be made available for public review, and a public hearing will be scheduled in mid-2016 to hear public comments, and discuss and consider adoption of the 2015 UWMP.

In the meantime, if you would like more information regarding the City of Fresno 2015 UWMP, please contact Mr. Paul Amico at:

City of Fresno
Department of Public Utilities, Water Division
2101 G Street
Fresno, CA 93706-1620
Phone: (559) 621-1602
Email: paul.amico@fresno.gov

Sincerely,

Michael Carbajal
Division Manager



A Nationally Accredited Public Utility Agency

5/9/2016

Paul Woodworth
Garfield Water District
PO Box 337
Clovis, CA 93613

Subject: Review of Draft for City of Fresno 2015 Urban Water Management Plan

Dear Paul Woodworth,

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City the Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City has completed its draft 2015 UWMP and has scheduled a public hearing for the review of the 2015 UWMP on Thursday, June 23, 2016, at 10:00 A.M. at the City Council Chambers at the City of Fresno City Hall located at 2600 Fresno Street. It is anticipated that the 2015 UWMP will be formally adopted that day as well.

At this time we invite your agency to review the draft 2015 UWMP, located at City Hall, at the City Clerk's office and at the Department of Public Utilities (2600 Fresno Street), the City of Fresno Department of Public Utilities-Water Division office (1910 East University Avenue), the Fresno County Public Library (2420 Mariposa Street) and at <http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/importantdocuments.htm>, and forward your comments to me no later than 2:00 P.M. on Monday, June 13, 2016, at:

City of Fresno
Department of Public Utilities-Water Division
2101 G Street, Building A
Fresno, CA 93706
Phone: (559) 621-1620
Email: Dejan.Pavic@fresno.gov

Sincerely,



Dejan Pavic, P.E.
Project Manager

5/9/2016

Steven White
Fresno County Public Works
2220 Tulare St.
Fresno, CA 93721

Subject: Review of Draft for City of Fresno 2015 Urban Water Management Plan

Dear Paul Woodworth,

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City has completed its draft 2015 UWMP and has scheduled a public hearing for the review of the 2015 UWMP on Thursday, June 23, 2016, at 10:00 A.M. at the City Council Chambers at the City of Fresno City Hall located at 2600 Fresno Street. It is anticipated that the 2015 UWMP will be formally adopted that day as well.

At this time we invite your agency to review the draft 2015 UWMP, located at City Hall, at the City Clerk's office and at the Department of Public Utilities (2600 Fresno Street), the City of Fresno Department of Public Utilities-Water Division office (1910 East University Avenue), the Fresno County Public Library (2420 Mariposa Street) and at <http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/importantdocuments.htm>, and forward your comments to me no later than 2:00 P.M. on Monday, June 13, 2016, at:

City of Fresno
Department of Public Utilities-Water Division
2101 G Street, Building A
Fresno, CA 93706
Phone: (559) 621-1620
Email: Dejan.Pavic@fresno.gov

Sincerely,



Dejan Pavic, P.E.
Project Manager

5/9/2016

Russ Holcomb
Malaga County Water District
3580 South Frank Street
Fresno, CA 93725-2511

Subject: Review of Draft for City of Fresno 2015 Urban Water Management Plan

Dear Paul Woodworth,

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City the Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City has completed its draft 2015 UWMP and has scheduled a public hearing for the review of the 2015 UWMP on Thursday, June 23, 2016, at 10:00 A.M. at the City Council Chambers at the City of Fresno City Hall located at 2600 Fresno Street. It is anticipated that the 2015 UWMP will be formally adopted that day as well.

At this time we invite your agency to review the draft 2015 UWMP, located at City Hall, at the City Clerk's office and at the Department of Public Utilities (2600 Fresno Street), the City of Fresno Department of Public Utilities-Water Division office (1910 East University Avenue), the Fresno County Public Library (2420 Mariposa Street) and at <http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/importantdocuments.htm>, and forward your comments to me no later than 2:00 P.M. on Monday, June 13, 2016, at:

City of Fresno
Department of Public Utilities-Water Division
2101 G Street, Building A
Fresno, CA 93706
Phone: (559) 621-1620
Email: Dejan.Pavic@fresno.gov

Sincerely,



Dejan Pavic, P.E.
Project Manager

5/9/2016

Tim Bakman
Bakman Water Company
PO Box 7965
Fresno, CA 93747

Subject: Review of Draft for City of Fresno 2015 Urban Water Management Plan

Dear Paul Woodworth,

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City the Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City has completed its draft 2015 UWMP and has scheduled a public hearing for the review of the 2015 UWMP on Thursday, June 23, 2016, at 10:00 A.M. at the City Council Chambers at the City of Fresno City Hall located at 2600 Fresno Street. It is anticipated that the 2015 UWMP will be formally adopted that day as well.

At this time we invite your agency to review the draft 2015 UWMP, located at City Hall, at the City Clerk's office and at the Department of Public Utilities (2600 Fresno Street), the City of Fresno Department of Public Utilities-Water Division office (1910 East University Avenue), the Fresno County Public Library (2420 Mariposa Street) and at <http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/importantdocuments.htm>, and forward your comments to me no later than 2:00 P.M. on Monday, June 13, 2016, at:

City of Fresno
Department of Public Utilities-Water Division
2101 G Street, Building A
Fresno, CA 93706
Phone: (559) 621-1620
Email: Dejan.Pavic@fresno.gov

Sincerely,



Dejan Pavic, P.E.
Project Manager

5/9/2016

Lisa Koehn
City of Clovis Public Utilities
155 N. Sunnyside Ave.
Clovis, CA 93611

Subject: Review of Draft for City of Fresno 2015 Urban Water Management Plan

Dear Paul Woodworth,

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City has completed its draft 2015 UWMP and has scheduled a public hearing for the review of the 2015 UWMP on Thursday, June 23, 2016, at 10:00 A.M. at the City Council Chambers at the City of Fresno City Hall located at 2600 Fresno Street. It is anticipated that the 2015 UWMP will be formally adopted that day as well.

At this time we invite your agency to review the draft 2015 UWMP, located at City Hall, at the City Clerk's office and at the Department of Public Utilities (2600 Fresno Street), the City of Fresno Department of Public Utilities-Water Division office (1910 East University Avenue), the Fresno County Public Library (2420 Mariposa Street) and at <http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/importantdocuments.htm>, and forward your comments to me no later than 2:00 P.M. on Monday, June 13, 2016, at:

City of Fresno
Department of Public Utilities-Water Division
2101 G Street, Building A
Fresno, CA 93706
Phone: (559) 621-1620
Email: Dejan.Pavic@fresno.gov

Sincerely,



Dejan Pavic, P.E.
Project Manager



Department of Public Utilities - Water Division
Program Management and Engineering Office
2101 G Street, Building A
Fresno, CA 93706
www.fresno.gov



5/9/2016

Gary Serrato
Fresno Irrigation District
2907 South Maple Ave.
Fresno, CA 93725

Subject: Review of Draft for City of Fresno 2015 Urban Water Management Plan

Dear Paul Woodworth,

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City has completed its draft 2015 UWMP and has scheduled a public hearing for the review of the 2015 UWMP on Thursday, June 23, 2016, at 10:00 A.M. at the City Council Chambers at the City of Fresno City Hall located at 2600 Fresno Street. It is anticipated that the 2015 UWMP will be formally adopted that day as well.

At this time we invite your agency to review the draft 2015 UWMP, located at City Hall, at the City Clerk's office and at the Department of Public Utilities (2600 Fresno Street), the City of Fresno Department of Public Utilities-Water Division office (1910 East University Avenue), the Fresno County Public Library (2420 Mariposa Street) and at <http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/importantdocuments.htm>, and forward your comments to me no later than 2:00 P.M. on Monday, June 13, 2016, at:

City of Fresno
Department of Public Utilities-Water Division
2101 G Street, Building A
Fresno, CA 93706
Phone: (559) 621-1620
Email: Dejan.Pavic@fresno.gov

Sincerely,

Dejan Pavic, P.E.
Project Manager



A Nationally Accredited Public Utility Agency



Department of Public Utilities - Water Division
Program Management and Engineering Office
2101 G Street, Building A
Fresno, CA 93706
www.fresno.gov



5/9/2016

Allen Hoffman
Fresno Metropolitan Flood Control District
5469 East Olive Ave.
Fresno, CA 93727

Subject: Review of Draft for City of Fresno 2015 Urban Water Management Plan

Dear Paul Woodworth,

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City has completed its draft 2015 UWMP and has scheduled a public hearing for the review of the 2015 UWMP on Thursday, June 23, 2016, at 10:00 A.M. at the City Council Chambers at the City of Fresno City Hall located at 2600 Fresno Street. It is anticipated that the 2015 UWMP will be formally adopted that day as well.

At this time we invite your agency to review the draft 2015 UWMP, located at City Hall, at the City Clerk's office and at the Department of Public Utilities (2600 Fresno Street), the City of Fresno Department of Public Utilities-Water Division office (1910 East University Avenue), the Fresno County Public Library (2420 Mariposa Street) and at <http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/importantdocuments.htm>, and forward your comments to me no later than 2:00 P.M. on Monday, June 13, 2016, at:

City of Fresno
Department of Public Utilities-Water Division
2101 G Street, Building A
Fresno, CA 93706
Phone: (559) 621-1620
Email: Dejan.Pavic@fresno.gov

Sincerely,

Dejan Pavic, P.E.
Project Manager



A Nationally Accredited Public Utility Agency



Department of Public Utilities - Water Division
Program Management and Engineering Office
2101 G Street, Building A
Fresno, CA 93706
www.fresno.gov



5/9/2016

Jason Franklin
Pinedale Water District
480 West Birch Ave.
Pinedale, CA 93650

Subject: Review of Draft for City of Fresno 2015 Urban Water Management Plan

Dear Paul Woodworth,

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City the Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City has completed its draft 2015 UWMP and has scheduled a public hearing for the review of the 2015 UWMP on Thursday, June 23, 2016, at 10:00 A.M. at the City Council Chambers at the City of Fresno City Hall located at 2600 Fresno Street. It is anticipated that the 2015 UWMP will be formally adopted that day as well.

At this time we invite your agency to review the draft 2015 UWMP, located at City Hall, at the City Clerk's office and at the Department of Public Utilities (2600 Fresno Street), the City of Fresno Department of Public Utilities-Water Division office (1910 East University Avenue), the Fresno County Public Library (2420 Mariposa Street) and at <http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/importantdocuments.htm>, and forward your comments to me no later than 2:00 P.M. on Monday, June 13, 2016, at:

City of Fresno
Department of Public Utilities-Water Division
2101 G Street, Building A
Fresno, CA 93706
Phone: (559) 621-1620
Email: Dejan.Pavic@fresno.gov

Sincerely,

Dejan Pavic, P.E.
Project Manager



A Nationally Accredited Public Utility Agency



Department of Public Utilities - Water Division
Program Management and Engineering Office
2101 G Street, Building A
Fresno, CA 93706
www.fresno.gov



5/9/2016

Eric R. Quinley
Friant Water Authority
4969 E. McKinley Ave. Suite 201
Fresno, CA 93727

Subject: Review of Draft for City of Fresno 2015 Urban Water Management Plan

Dear Paul Woodworth,

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City has completed its draft 2015 UWMP and has scheduled a public hearing for the review of the 2015 UWMP on Thursday, June 23, 2016, at 10:00 A.M. at the City Council Chambers at the City of Fresno City Hall located at 2600 Fresno Street. It is anticipated that the 2015 UWMP will be formally adopted that day as well.

At this time we invite your agency to review the draft 2015 UWMP, located at City Hall, at the City Clerk's office and at the Department of Public Utilities (2600 Fresno Street), the City of Fresno Department of Public Utilities-Water Division office (1910 East University Avenue), the Fresno County Public Library (2420 Mariposa Street) and at <http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/importantdocuments.htm>, and forward your comments to me no later than 2:00 P.M. on Monday, June 13, 2016, at:

City of Fresno
Department of Public Utilities-Water Division
2101 G Street, Building A
Fresno, CA 93706
Phone: (559) 621-1620
Email: Dejan.Pavic@fresno.gov

Sincerely,

Dejan Pavic, P.E.
Project Manager



A Nationally Accredited Public Utility Agency



Department of Public Utilities - Water Division
Program Management and Engineering Office
2101 G Street, Building A
Fresno, CA 93706
www.fresno.gov



5/9/2016

Michael P. Jackson, P.E.
United States Bureau of Reclamation, South-Central California Area Office
1243 N Street
Fresno, CA 93721-1813

Subject: Review of Draft for City of Fresno 2015 Urban Water Management Plan

Dear Paul Woodworth,

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10656), the City the Fresno (City) is required to update its Urban Water Management Plan (UWMP) to meet the California Department of Water Resources (DWR) requirements for a 2015 UWMP. The City's last UWMP was adopted in November 2012.

The City has completed its draft 2015 UWMP and has scheduled a public hearing for the review of the 2015 UWMP on Thursday, June 23, 2016, at 10:00 A.M. at the City Council Chambers at the City of Fresno City Hall located at 2600 Fresno Street. It is anticipated that the 2015 UWMP will be formally adopted that day as well.

At this time we invite your agency to review the draft 2015 UWMP, located at City Hall, at the City Clerk's office and at the Department of Public Utilities (2600 Fresno Street), the City of Fresno Department of Public Utilities-Water Division office (1910 East University Avenue), the Fresno County Public Library (2420 Mariposa Street) and at <http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/importantdocuments.htm>, and forward your comments to me no later than 2:00 P.M. on Monday, June 13, 2016, at:

City of Fresno
Department of Public Utilities-Water Division
2101 G Street, Building A
Fresno, CA 93706
Phone: (559) 621-1620
Email: Dejan.Pavic@fresno.gov

Sincerely,

Dejan Pavic, P.E.
Project Manager



A Nationally Accredited Public Utility Agency

PROOF OF PUBLICATION

COUNTY OF FRESNO STATE OF CALIFORNIA

The undersigned states:

McClatchy Newspapers in and on all dates herein stated was a corporation, and the owner and publisher of The Fresno Bee. The Fresno Bee is a daily newspaper of general circulation now published, and on all-the-dates herein stated was published in the City of Fresno, County of Fresno, and has been adjudged a newspaper of general circulation by the Superior Court of the County of Fresno, State of California, under the date of November 28, 1994, Action No. 520058-9.

The undersigned is and on all dates herein mentioned was a citizen of the United States, over the age of twenty-one years, and is the principal clerk of the printer and publisher of said newspaper; and that the notice, a copy of which is hereto annexed, marked Exhibit A, hereby made a part hereof, was published in The Fresno Bee in each issue thereof (in type not smaller than nonpareil), on the following dates.

May 11, 2016, May 18, 2016

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

Dated May 19, 2016

Halley Zanata

PUBLIC NOTICE
#2443237
NOTICE OF PUBLIC HEARING
CITY OF FRESNO
URBAN WATER MANAGEMENT PLAN

The City of Fresno (City) will hold a public hearing at 10:00 A.M. on Thursday, June 23, 2016, at the City Council Chambers at the City of Fresno City Hall located at 2600 Fresno Street, to receive public comments on the City's Draft 2015 Urban Water Management Plan (2015 UWMP) dated May 2016. The Draft 2015 UWMP addresses current and projected water supply availability and reliability and provides a comparison with current and projected water demands through the year 2040. The Draft 2015 UWMP also describes the City's current and planned water conservation programs, compliance with the Water Conservation Act of 2009 and more recent drought-related State of California legislative actions, and provides a water shortage contingency plan in the event of a severe water shortage or water supply emergency.

Interested citizens are invited to make public comments on the Draft 2015 UWMP at the public hearing. The 30-day public comment period begins on May 13, 2016, and ends on June 13, 2016. A copy of the Draft 2015 UWMP can be found at City Hall, at the City Clerk's office and at the Department of Public Utilities (2600 Fresno Street), the City of Fresno Department of Public Utilities-Water Division office (1910 East University Avenue), and the Fresno County Public Library (2420 Mariposa Street). A copy of the Draft 2015 UWMP is also on the Department of Public Utilities-Water Division-Important Documents page of the City of Fresno website. Click on <http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/importantdocuments.htm>. Comments may be submitted by calling the Water Division at (559) 621-1620, by writing to Mr. Dejan Pavic, P.E., Project Manager, City of Fresno Water Division, 1910 East University Avenue, Fresno, CA 93703, or by emailing at dejan.pavic@fresno.gov. All comments must be received by no later than June 13, 2016, at 2:00 P.M.

THE BUSINESS JOURNAL

FRESNO | KINGS | MADERA | TULARE

P.O. Box 126
Fresno, CA 93707
Telephone (559) 490-3400

(Space Below for use of County Clerk only)

IN THE COUNTY OF FRESNO, STATE OF CALIFORNIA

NOTICE OF PUBLIC HEARING
CITY OF FRESNO
URBAN WATER MANAGEMENT PLAN

DATE AND TIME OF PUBLIC
HEARING:
JUNE 23, 2016 AT 10:00 A.M.

DECLARATION OF PUBLICATION (2015.5 C.C.P.)

MISC. NOTICE

STATE OF CALIFORNIA

COUNTY OF FRESNO

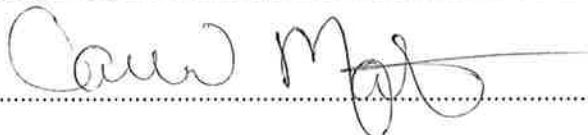
I am a citizen of the United States and a resident of the County aforesaid; I am over the age of eighteen years, and not a party to or interested in the above entitled matter. I am the principal clerk of **THE BUSINESS JOURNAL** published in the city of Fresno, County of Fresno, State of California, Monday, Wednesday, Friday, and which newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Fresno, State of California, under the date of March 4, 1911, in Action No.14315; that the notice of which the annexed is a printed copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to wit:

MAY 11, 18, 2016

I declare under penalty of perjury that the foregoing is true and correct and that this declaration was executed at Fresno, California,

MAY 18, 2016

ON



NOTICE OF PUBLIC HEARING CITY OF FRESNO URBAN WATER MANAGEMENT PLAN

The City of Fresno (City) will hold a public hearing at 10:00 A.M. on Thursday, June 23, 2016, at the City Council Chambers at the City of Fresno City Hall located at 2600 Fresno Street, to receive public comments on the City's Draft 2015 Urban Water Management Plan (2015 UWMP) dated May 2016. The Draft 2015 UWMP addresses current and projected water supply availability and reliability and provides a comparison with current and projected water demands through the year 2040. The Draft 2015 UWMP also describes the City's current and planned water conservation programs, compliance with the Water Conservation Act of 2009 and more recent drought-related State of California legislative actions, and provides a water shortage contingency plan in the event of a severe water shortage or water supply emergency. Interested citizens are invited to make public comments on the Draft 2015 UWMP at the public hearing. The 30-day public comment period begins on May 13, 2016, and ends on June 13, 2016. A copy of the Draft 2015 UWMP can be found at City Hall, at the City Clerk's office and at the Department of Public Utilities (2600 Fresno Street), the City of Fresno Department of Public Utilities-Water Division office (1910 East University Avenue), and the Fresno County Public Library (2420 Mariposa Street). A copy of the Draft 2015 UWMP is also on the Department of Public Utilities-Water Division-Important Documents page of the City of Fresno website. Click on <http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/importantdocuments.htm>. Comments may be submitted by calling the Water Division at (559) 621-1620, by writing to Mr. Dejan Pavic, P.E., Project Manager, City of Fresno Water Division, 1910 East University Avenue, Fresno, CA 93703, or by emailing at dejan.pavic@fresno.gov. All comments must be received by no later than June 13, 2016, at 2:00 P.M.
05/11/2016, 05/18/2016

AWWA Free Water Audit Software v5.0

American Water Works Association Copyright © 2014. All Rights Reserved.

This spreadsheet-based water audit tool is designed to help quantify and track water losses associated with water distribution systems and identify areas for improved efficiency and cost recovery. It provides a "top-down" summary water audit format, and is not meant to take the place of a full-scale, comprehensive water audit format.

Auditors are strongly encouraged to refer to the most current edition of AWWA M36 Manual for Water Audits for detailed guidance on the water auditing process and targeting loss reduction levels.

The spreadsheet contains several separate worksheets. Sheets can be accessed using the tabs towards the bottom of the screen, or by clicking the buttons below.

Please begin by providing the following information

Name of Contact Person:

Email Address:

Telephone | Ext.:

Name of City / Utility:

City/Town/Municipality:

State / Province:

Country:

Year:

Audit Preparation Date:

Volume Reporting Units:

PWSID / Other ID:

The following guidance will help you complete the Audit

All audit data are entered on the [Reporting Worksheet](#)

Value can be entered by user

Value calculated based on input data

These cells contain recommended default values

Use of Option (Radio) Buttons:

Pct: Value:

Select the default percentage by choosing the option button on the left

To enter a value, choose this button and enter a value in the cell to the right

The following worksheets are available by clicking the buttons below or selecting the tabs along the bottom of the page

Instructions

The current sheet. Enter contact information and basic audit details (year, units etc)

Reporting Worksheet

Enter the required data on this worksheet to calculate the water balance and data grading

Comments

Enter comments to explain how values were calculated or to document data sources

Performance Indicators

Review the performance indicators to evaluate the results of the audit

Water Balance

The values entered in the Reporting Worksheet are used to populate the Water Balance

Dashboard

A graphical summary of the water balance and Non-Revenue Water components

Grading Matrix

Presents the possible grading options for each input component of the audit

Service Connection Diagram

Diagrams depicting possible customer service connection line configurations

Definitions

Use this sheet to understand the terms used in the audit process

Loss Control Planning

Use this sheet to interpret the results of the audit validity score and performance indicators

Example Audits

Reporting Worksheet and Performance Indicators examples are shown for two validated audits

Acknowledgements

Acknowledgements for the AWWA Free Water Audit Software v5.0

If you have questions or comments regarding the software please contact us via email at: wic@awwa.org



AWWA Free Water Audit Software: Reporting Worksheet

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

- ? Click to access definition
- + Click to add a comment

Water Audit Report for: City of Fresno (1010007)
Reporting Year: 2015 1/2015 - 12/2015

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

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

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

WATER SUPPLIED

← Enter grading in column 'E' and 'J' →

Volume from own sources:	5	27,162,780	MG/Yr		
Water imported:	10	9,236,840	MG/Yr		
Water exported:	10	23,170	MG/Yr		

Master Meter and Supply Error Adjustments

	5	-5.00%	<input checked="" type="radio"/>	<input type="radio"/>		MG/Yr	
	10	0.00%	<input checked="" type="radio"/>	<input type="radio"/>		MG/Yr	
	10	0.00%	<input checked="" type="radio"/>	<input type="radio"/>		MG/Yr	

WATER SUPPLIED: 37,806.070 MG/Yr

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

AUTHORIZED CONSUMPTION

Billed metered:	8	33,313,920	MG/Yr
Billed unmetered:	n/a	0.000	MG/Yr
Unbilled metered:	n/a	0.000	MG/Yr
Unbilled unmetered:	?	472,576	MG/Yr

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

AUTHORIZED CONSUMPTION: 33,786.496 MG/Yr

Click here: ?
for help using option
buttons below

	1	125%	<input checked="" type="radio"/>	<input type="radio"/>	MG/Yr

Use buttons to select
percentage of water
supplied
OR
value

WATER LOSSES (Water Supplied - Authorized Consumption)

4,019.574 MG/Yr

Apparent Losses

Unauthorized consumption: 94.516 MG/Yr

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

Customer metering inaccuracies: 336.504 MG/Yr

Systematic data handling errors: 83.285 MG/Yr

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

Apparent Losses: 514.304 MG/Yr

	0	25%	<input checked="" type="radio"/>	<input type="radio"/>	MG/Yr

1.00%	<input checked="" type="radio"/>	<input type="radio"/>	MG/Yr
0.25%	<input checked="" type="radio"/>	<input type="radio"/>	MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 3,505.270 MG/Yr

WATER LOSSES: 4,019.574 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 4,492.150 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	8	1,799	miles
Number of active AND inactive service connections:	7	142,689	
Service connection density:	?	79	conn/mile main

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

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

Average operating pressure: 7 50.0 psi

COST DATA

Total annual cost of operating water system:	8	\$61,443,435	\$/Year
Customer retail unit cost (applied to Apparent Losses):	8	\$1.46	\$/1000 gallons (US)
Variable production cost (applied to Real Losses):	7	\$636.00	\$/Million gallons <input type="checkbox"/> Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 70 out of 100 ***

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

PRIORITY AREAS FOR ATTENTION:

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

1: Volume from own sources

2: Unauthorized consumption

3: Systematic data handling errors



Water Audit Report for: **City of Fresno (1010007)**
Reporting Year: **2015** **1/2015 - 12/2015**

***** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 70 out of 100 *****

System Attributes:

Apparent Losses:	514,304	MGYr
+ Real Losses:	3,505,270	MGYr
= Water Losses:	4,019,574	MGYr
Unavoidable Annual Real Losses (UARL):	568.23	MGYr
Annual cost of Apparent Losses:	\$750,884	
Annual cost of Real Losses:	\$2,229,352	

Valued at **Variable Production Cost**
Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial:	Non-revenue water as percent by volume of Water Supplied:	11.9%
	Non-revenue water as percent by cost of operating system:	5.3%
Operational Efficiency:	Apparent Losses per service connection per day:	9.87 gallons/connection/day
	Real Losses per service connection per day:	67.30 gallons/connection/day
	Real Losses per length of main per day*:	N/A
	Real Losses per service connection per day per psi pressure:	1.35 gallons/connection/day/psi
From Above, Real Losses = Current Annual Real Losses (CARL):		
	Infrastructure Leakage Index (ILI) [CARL/UARL]:	6.17

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



**AWWA Free Water Audit Software:
User Comments**

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

Use this worksheet to add comments or notes to explain how an input value was calculated, or to document the sources of the information used.

General Comment:	Prepared by Brock D. Buche, Provost & Pritchard Engineering Group, March 2016
Audit Item	Comment
Volume from own sources	Well Production from City's DWR Report No. 38 for 2015 Reporting.
Vol. from own sources, Master meter error adjustment	Assumed to be 5%.
Water imported	Water Imported and Treated at City's Surface Water Treatment Plant from City's DWR Report No. 38 for 2015 Reporting.
Water imported, master meter error adjustment	
Water exported	This represents water delivered to the Beran Tract's as shown on the H.T.E. Revenue report.
Water exported, master meter error adjustment	
Billed metered	Taken from H.T.E. Revenue Report - 2015. (33,337.09 - 23.17 = 33,313.92)
Billed unmetered	Assumed to be none.
Unbilled metered	Assumed to be none.
Unbilled unmetered	Used default percentage, 1.25%
Unauthorized consumption	Used default percentage, 0.25%
Customer metering inaccuracies	Estimate, 1%
Systematic data handling errors	Used default percentage, 0.25%
Length of mains	Miles of pipeline from Water System Statistical Report January 2016.
Number of active AND inactive service connections	Number of services from query of City's GIS system "IView" and noted as being current as of January 01, 2016
Average length of customer service line	
Average operating pressure	Estimate based on typical telemetry control settings.
Total annual cost of operating water system	This value was provided from Henry McLaughlin, Water Division Chief Financial Accountant, per telephone conversation in February 2016.
Customer retail unit cost (applied to Apparent Losses)	This is the present rate charged for water per the City of Fresno Master Fee Schedule.
Variable production cost (applied to Real Losses)	Total CY2015 Production Cost (\$24,045,744) divided by Total Water Supplied (37,806 MG)

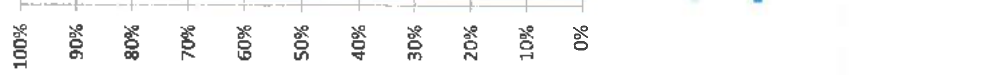
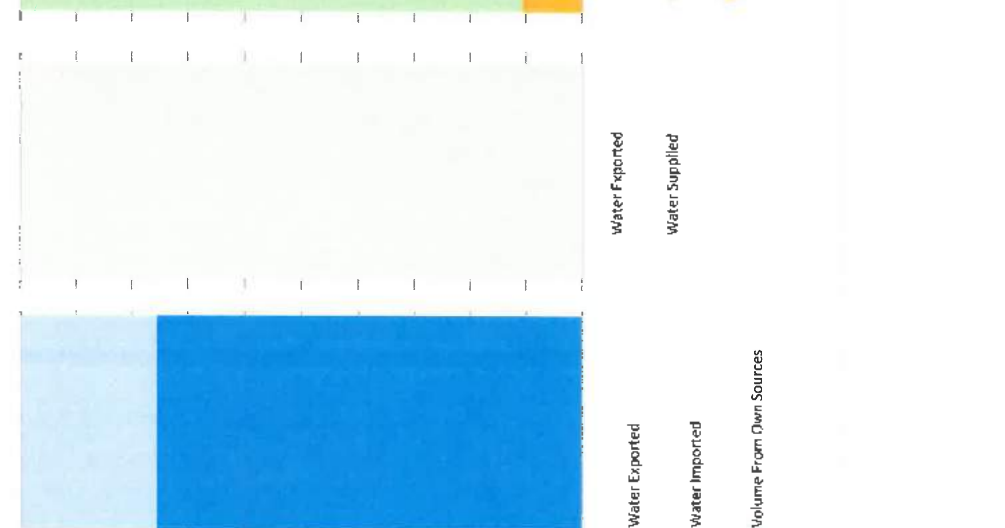
Water Audit Report for: City of Fresno (1010007)	
Reporting Year: 2015	1/2015 - 12/2015
Data Validity Score: 70	

		Billed Water Exported		Revenue Water		
Water Exported	23,170	Billed Metered Consumption (water exported is removed)	33,313.920	33,313.920		
Own Sources (Adjusted for known errors)	28,592.400	Authorized Consumption	33,313.920	Non-Revenue Water (NRW)		
		33,786.496	Billed Unmetered Consumption		0.000	
Water Supplied	37,806.070	Water Losses	Unbilled Metered Consumption	0.000		
			4,019.574	Unbilled Unmetered Consumption	472.576	
		Water Imported	9,236.840	Apparent Losses	514.304	4,492.150
				Real Losses	3,505.270	
				Leakage on Transmission and/or Distribution Mains	Not broken down	
				Leakage and Overflows at Utility's Storage Tanks	Not broken down	
		Leakage on Service Connections	Not broken down			
		Customer Metering Inaccuracies	94.515			
		Systematic Data Handling Errors	83.285			

Water Audit Report for: **City of Fresno (1010007)**
 Reporting Year: **2015**
 Data Validity Score: **70**

Show me the VOLUME of Non-Revenue Water
 Show me the COST of Non-Revenue Water

Total Cost of NRW = \$3,280,794





**AWWA Free Water Audit Software:
Determining Water Loss Standing**

WAS v5.0

American Water Works Association
Copyright © 2014. All Rights Reserved.

Water Audit Report for: **City of Fresno (1010007)**
 Reporting Year: **2015** | **1/2015 - 12/2015**
 Data Validity Score: **70**

Water Loss Control Planning Guide

Functional Focus Area	Water Audit Data Validity Level / Score				
	Level I (0-25)	Level II (26-50)	Level III (51-70)	Level IV (71-90)	Level V (91-100)
Audit Data Collection	Launch auditing and loss control team; address production metering deficiencies	Analyze business process for customer metering and billing functions and water supply operations. Identify data gaps.	Establish/revise policies and procedures for data collection	Refine data collection practices and establish as routine business process	Annual water audit is a reliable gauge of year-to-year water efficiency standing
Short-term loss control	Research information on leak detection programs. Begin flowcharting analysis of customer billing system	Conduct loss assessment investigations on a sample portion of the system: customer meter testing, leak survey, unauthorized consumption, etc.	Establish ongoing mechanisms for customer meter accuracy testing, active leakage control and infrastructure monitoring	Refine, enhance or expand ongoing programs based upon economic justification	Stay abreast of improvements in metering, meter reading, billing, leakage management and infrastructure rehabilitation
Long-term loss control		Begin to assess long-term needs requiring large expenditure: customer meter replacement, water main replacement program, new customer billing system or Automatic Meter Reading (AMR) system.	Begin to assemble economic business case for long-term needs based upon improved data becoming available through the water audit process.	Conduct detailed planning, budgeting and launch of comprehensive improvements for metering, billing or infrastructure management	Continue incremental improvements in short-term and long-term loss control interventions
Target-setting			Establish long-term apparent and real loss reduction goals (+10 year horizon)	Establish mid-range (5 year horizon) apparent and real loss reduction goals	Evaluate and refine loss control goals on a yearly basis
Benchmarking			Preliminary Comparisons - can begin to rely upon the Infrastructure Leakage Index (ILI) for performance comparisons for real losses (see below table)	Performance Benchmarking - ILI is meaningful in comparing real loss standing	Identify Best Practices/ Best in class - the ILI is very reliable as a real loss performance indicator for best in class service

For validity scores of 50 or below, the shaded blocks should not be focus areas until better data validity is achieved.

Once data have been entered into the Reporting Worksheet, the performance indicators are automatically calculated. How does a water utility operator know how well his or her system is performing? The AWWA Water Loss Control Committee provided the following table to assist water utilities in gauging an approximate Infrastructure Leakage Index (ILI) that is appropriate for their water system and local conditions. The lower the amount of leakage and real losses that exist in the system, then the lower the ILI value will be.

Note: this table offers an approximate guideline for leakage reduction target-setting. The best means of setting such targets include performing an economic assessment of various loss control methods. However, this table is useful if such an assessment is not possible.

**General Guidelines for Setting a Target ILI
(without doing a full economic analysis of leakage control options)**

Target ILI Range	Financial Considerations	Operational Considerations	Water Resources Considerations
1.0 - 3.0	Water resources are costly to develop or purchase; ability to increase revenues via water rates is greatly limited because of regulation or low ratepayer affordability.	Operating with system leakage above this level would require expansion of existing infrastructure and/or additional water resources to meet the demand.	Available resources are greatly limited and are very difficult and/or environmentally unsound to develop.
>3.0 -5.0	Water resources can be developed or purchased at reasonable expense; periodic water rate increases can be feasibly imposed and are tolerated by the customer population.	Existing water supply infrastructure capability is sufficient to meet long-term demand as long as reasonable leakage management controls are in place.	Water resources are believed to be sufficient to meet long-term needs, but demand management interventions (leakage management, water conservation) are included in the long-term
>5.0 - 8.0	Cost to purchase or obtain/treat water is low, as are rates charged to customers.	Superior reliability, capacity and integrity of the water supply infrastructure make it relatively immune to supply shortages.	Water resources are plentiful, reliable, and easily extracted.
Greater than 8.0	Although operational and financial considerations may allow a long-term ILI greater than 8.0, such a level of leakage is not an effective utilization of water as a resource. Setting a target level greater than 8.0 - other than as an incremental goal to a smaller long-term target - is discouraged		
Less than 1.0	If the calculated Infrastructure Leakage Index (ILI) value for your system is 1.0 or less, two possibilities exist. a) you are maintaining your leakage at low levels in a class with the top worldwide performers in leakage control. b) A portion of your data may be flawed, causing your losses to be greatly understated. This is likely if you calculate a low ILI value but do not employ extensive leakage control practices in your operations. In such cases it is beneficial to validate the data by performing field measurements to confirm the accuracy of production and customer meters, or to identify any other potential sources of error in the data.		

Appendix E

Copies of City Ordinance & Act



BILL NO. B-16

ORDINANCE NO. 2015-13

AN EMERGENCY ORDINANCE OF THE CITY OF
FRESNO, CALIFORNIA AMENDING SECTION 6-520 OF
THE FRESNO MUNICIPAL CODE RELATING TO
REGULATIONS FOR URBAN WATER CONSERVATION
TO LIMIT WATER WASTE

WHEREAS, on January 17, 2014, Edmund G. Brown, Governor of California, proclaimed a State of Emergency in the State of California due to severe drought conditions;

WHEREAS, on April 25, 2014, and April 1, 2015, the Governor signed Executive Orders directing the State Water Resources Control Board ("State Water Board") to adopt emergency regulations to ensure urban water suppliers implement drought response plans to limit outdoor irrigation and other wasteful water practices;

WHEREAS, California Water Code section 1058.5 grants the State Water Board the authority to adopt emergency regulations during a period when the Governor has issued a proclamation of emergency based upon drought conditions or in response to drought conditions that exist, or are threatened, in a critically dry year immediately preceded by two or more consecutive below normal, dry, or critically dry years;

WHEREAS, on July 15, 2014, the State Water Board adopted an emergency regulation for urban water conservation requiring each urban water supplier to implement the stage of its water shortage contingency plan that imposes restrictions on outdoor irrigation, which resulted in the City implementing Stage 2 of its Water Shortage Contingency Plan;



WHEREAS, on March 17, 2015, the State Water Board found an emergency still exists in the State of California due to severe drought conditions, and adoption of additional emergency regulations with specific prohibitions on water uses was necessary to promote water conservation to maintain an adequate supply during the drought emergency;

WHEREAS, on May 5, 2015, the State Water Board adopted additional emergency regulations for urban water conservation, requiring the City of Fresno to reduce its water usage by 28% compared to 2013 and impose additional prohibitions on water use beginning June 1, 2015, through February 28, 2016;

WHEREAS, the State Water Board's emergency regulations require the City of Fresno to prohibit irrigating ornamental turf on public medians and limit irrigation system design in new development, neither of which are currently included in the municipal code;

WHEREAS, as of May 12, 2015, Central and Southern Sierra snowpack levels are at two percent of average, and the Sierra snow water content may be the lowest in recorded history;

WHEREAS, due to drought conditions for the past several years, California's reservoir levels are below historic average;

WHEREAS, the Governor's April 2014 Executive Order suspended the requirement for review under the California Environmental Quality Act (CEQA) for certain activities, including adoption of emergency regulations, and on December 22, 2014, Executive Order B-28-14, extended the suspension of CEQA through May 31, 2016;

WHEREAS, this Emergency Ordinance is necessary to implement mandatory prohibitions required to be effective no later than June 1, 2015; and

WHEREAS, this Ordinance is necessary for the immediate preservation of the public health, peace, property, and safety.

THE COUNCIL OF THE CITY OF FRESNO DOES ORDAIN AS FOLLOWS:

SECTION 1. Section 6-520 of the Fresno Municipal Code is hereby amended as follows:

SEC. 6-520. WASTAGE OF WATER CONSERVATION.

(a) In the use of potable water supplied by the city, no customer shall do or permit any of the following:

(1) Water any lawn[, landscape, or grounds] except by use of a hose held in the person's hand or a sprinkling device, or

~~(2) Use potable water to irrigate or water outdoor landscaping in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots or structures.]~~

~~(2)(3) Keep, maintain, operate, or use any water connection, hose, faucet, hydrant, pipe, outlet, or plumbing fixture which is not tight and free from leakage, or~~

~~(3)(4) Willfully or negligently waste water, or~~

~~(4)(5) Flood any part of the premises of another, or~~

~~(5)(6) Sprinkle the premises of another so as to prevent the normal use thereof or unreasonably wet objects thereon which should not be subjected to a~~



spray of water except as naturally caused by the elements or by action of the owner of the object, or

~~(6)~~(7) Sprinkle or irrigate any yard, ground, premise, or vegetation between the hours of ~~twelve o'clock~~ 9:00 a.m. and 6:00 p.m. and ~~five o'clock p.m. during the months of April through October, inclusive,~~ or

~~(7)~~(8) Sprinkle or irrigate any yard, ground, premise, or vegetation unless the watering device used is controlled by an automatic shut-off device, or a person is in immediate attendance of the hose or watering device, or

~~(8)~~(9) Wash any privately owned motor vehicle, trailer, or boat except from a bucket or in a commercial car wash, provided a hose equipped with a shut-off nozzle may be used for a quick rinse [without causing water to flow onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures], or

~~(9)~~(10) Wash or rinse with a hose or watering device any sidewalk, driveway, parking area, tennis court, patio, or any other exterior paved area, ~~except in a manner which prevents the bulk of the runoff water from entering the street and instead diverts such water to other productive purposes such as landscape irrigation.~~ [or]

[(11) Use potable water in a fountain or other decorative water feature, except where the water is part of a recirculating system.]

(b) Lawn sprinkling systems shall be properly designed, installed, maintained, and operated to prevent wast[e]age of water.



(c) The Council may implement any or all of the measures ~~listed below~~ set forth in subsection (c), either city-wide or by specific zone, when any of the following conditions exist: (i) [The Governor of California,] the California Department of Water Resources[, or the State Water Resources Control Board] has declared a critically dry or drought year; or (ii) ~~water levels decline below the pump intake; [Groundwater level declines exceed three feet in a 12-month period,]~~ or (iii) [six feet in a 24-month period, for the City's key groundwater monitoring wells; Water] water pressures drop below thirty-five pounds per square inch during peak demand periods more than three days in any calendar week or ten days in any calendar month; or (iv) ~~degradation of water quality condition (i.e., exceeding the established maximum contaminant levels according to applicable state or federal law) decreases [the quantity of] water quantity available for delivery to all or part of the geographic area, or the customers and other persons, for whom Water Division service was designed or intended to the extent extraordinary measures to reduce water use are necessary, as determined by the Council. Measures to be implemented include, but are not limited to, the following:~~ [Measures the Council of the City of Fresno may implement include, but are not limited to, the following:]

(1) ~~Odd/even address alternate day outdoor~~ [Outdoor] watering restrictions [limiting permissible watering days based upon odd/even addresses, effective] for all or a specific zone of the city (in addition to the time of day restrictions set forth in Section ~~6-520(a)(6)~~[6-520(a)(7)]).

[(i) When odd/even outdoor water restrictions are in effect, the City shall observe a summer outdoor watering season and a winter



outdoor watering season. The summer season shall extend from May 1 to November 30 of each year, and the winter shall extend from December 1 to April 30.

(ii) ~~The following properties shall water by using each irrigation valve no more frequently than every other day~~[may submit an application for an exemption to the odd/even outdoor watering restrictions in effect at the time of the application]:

- a. Properties with multiple addresses, and
- b. Properties [with] turfed or landscaped areas of three acres or larger, and
- c. Properties without street addresses.

~~The owners of such properties may apply for an exemption from the established watering restrictions. The owners of such properties shall be required to submit a proposed watering schedule in writing to the Water Division for approval or modification. The Water Division may approve a~~[modified outdoor] watering schedule that may provide for more frequent watering than every other day. [or different watering days than allowed by the outdoor watering restrictions in effect at the time the application for an exemption is submitted for consideration.] ~~If it is determined~~ [the Water Division determines] ~~that the property can be watered within the city's regular watering rules without significantly impacting~~ [proposed exemption will adversely impact system] ~~water pressures in the service area, the proposed watering schedule will be denied. The~~ [then the proposed



exemption will be denied. All exemptions approved by the Water Division shall automatically expire on May 1 of each year, and the property owners must re-apply for an exemption to the outdoor watering restrictions for the upcoming summer outdoor watering season. Upon application, the Council may grant an exemption for new lawns not yet established.

[(iii) When odd/even address outdoor watering restrictions are in effect, outdoor watering shall not occur between the hours of 9:00 a.m. and 6:00 p.m. on the days approved for watering.]

~~(2) Prohibition of all irrigation of turf for all or a specific zone of the city except during off-peak hours (twelve midnight to six a.m., eight a.m. to eleven a.m. and seven p.m. to twelve midnight). The Council may grant an exemption for new lawns not yet established.~~

~~(3)[(2)] Implementation of regulations on the [Regulate the] filling of fountains in city facilities, as the Council determines appropriate.~~

~~(4) Prohibition of installation of outdoor evaporative "mist coolers."~~

~~(5)[(3)] Prohibition of draining of swimming pools more than once every three years, except for [as necessary to complete] structural repairs or to comply with public health standards[, as] determined by the County Health Officer. [Residents with private swimming pools shall file a written application for a permit with the Water Division Manager at least 48 hours prior to draining the pool.] Any customer whose swimming pool is drained by order of the department of health for failure to maintain it properly will also be issued a notice of violation of the city of Fresno municipal code. The draining of pools for reasons of health and safety~~



hazards as determined by the city of Fresno water division and/or the department of health is permitted. ~~Residents with private swimming pools shall file a written application for a permit prior to draining their pools with the Water Division Manager.~~ The application shall include the results of a pool water test conducted by an independent testing organization which shows a cyanuric acid level above 100 parts per million, total dissolved solids over 2,500 parts per million, or calcium over 450 parts per million, or stating the nature and duration of repairs to be made and the date on which the pool will be drained.

~~(6)[i] Prohibition of the filling or refilling of swimming [Swimming] pools during peak [shall only be filled between the] hours of 5:00 a.m. to 8:00 a.m. [9:00 a.m. and 6:00 p.m. Newly constructed or refurbished swimming pools may be filled by] and 5:00 p.m. to 8:00 p.m., except that a standard hose up to ¾" may be used to fill the pool and keep the tile and plaster wet during these [other] hours [to avoid damage to tile and plaster].~~

~~[(ii)] The Director shall propose fees and promulgate guidelines for the implementation of this subsection which shall include criterion and a procedure for approval of applications or for exemption by the Director.~~

~~[(4) Prohibition on irrigating ornamental turf on public street medians with potable water.~~

~~(5) Prohibition on irrigating landscapes outside of newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development.~~



(6) Prohibition of irrigating outdoor landscapes with potable water during and within 48 hours after measurable rainfall.

(7) Prohibition of serving drinking water other than upon request in eating or drinking establishments, including but not limited to, restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served or purchased.

(8) Require the operators of hotels and motels to provide guests the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guestroom using clear and easily understood language.]

(d) The provisions of this section are conditions of service. Each use of water by a customer that is inconsistent with the provisions of this section is an incident of water wast[e]age. If a customer has an incident of water wast[e]age [as observed directly by City staff or as recorded directly by the City's water meter reading system], the customer shall be charged the fee as described herein. ~~The fee that customers shall be charged for each incident of water wast[e]age described in this section shall not exceed the reasonable cost of service related to water wast[e]age enforcement and the cost of the estimated additional water used and/or wasted. Such amount shall be a proprietary charge to cover the estimated costs of staff enforcement of the water conservation rules. Such charge shall be as determined by the Council and designated in the Master Fee Schedule.~~

(1) Such charge shall be levied as follows:



(i) For the first incident of water wast[e]age, the fee designated in the Master Fee Resolution shall be deferred for a period of two years conditioned upon the customer not having a fourth incident of water wast[e]age within a two year period. If the customer does not have such fourth incident of water wast[e]age within two years such deferral shall become permanent. However, such fee shall be due and owing by the customer if a fourth incident of water wast[e]age occurs within two years.

(ii) The fee for the second incident of water wast[e]age shall be deferred for customers who attend a course in water conservation. The deferral shall be conditioned upon the customer's successful completion of a water conservation course provided by the Department of Public Utilities and the customer not having a third incident of water wast[e]age within a two year period. The deferred fee shall be collected if a third incident of water wast[e]age occurs within a two year period.

(iii) The fee for the third incident of water wast[e]age within a two year period shall be the fee designated in the Master Fee Resolution (plus any fee deferred from the second incident of water wast[e]age. A customer shall have the option of submitting proof of implementation of retrofit measures of no less value than the fee imposed for such third incident of water wast[e]age in lieu of that fee. Retrofit measures of a value less than that fee shall be credited toward payment of the fee.

(iv) The fee for the fourth incident of water wast[e]age within a two year period shall include the amount as designated in the Master Fee



Schedule together with all applicable amounts previously deferred as described above.

(2) If a customer has more than four incidents of water wast[e]age within a two year period, the city may implement any or all of the following measures:

(i) Require the customer to get a landscape evaluation, lawn water audit, and water budget, as appropriate, in order to learn efficient water use. This work ~~would~~ shall be completed at the customer[s] expense by landscape irrigation auditors certified by the Irrigation Association.

(ii) Require a customer to repair any defects in the watering system of such customers within fourteen days of notice by the city to repair.

(iii) Installation by the city of flow restrictors or termination of water service for exterior use.

(iv) Termination of all water service to a customer unless in the opinion of the Director such termination would result in an unreasonable risk to the health and safety of persons.

(v) Require ~~that~~ restoration of water service after termination be contingent on an agreement by the customer to adhere to the provisions of this section.

(e) The Director shall prepare and present a rationing plan to Council for approval. Such plan shall be adopted by resolution passed by Council.

SECTION 2. The Council of the City of Fresno hereby implements all measures set forth in subsection (c) as amended by this Emergency Ordinance.

SECTION 3. Pursuant to Sections 603 and 610 of the Charter of the City of Fresno, this Ordinance shall take effect upon passage.



* * * * *

STATE OF CALIFORNIA)
COUNTY OF FRESNO) ss.
CITY OF FRESNO)

I, YVONNE SPENCE, City Clerk of the City of Fresno, certify that the foregoing ordinance was adopted by the Council of the City of Fresno, at a regular meeting held on the 21st day of May, 2015.

AYES : Brand, Brandau, Caprioglio, Quintero, Soria, Baines
NOES : Olivier
ABSENT : None
ABSTAIN : None

YVONNE SPENCE, CMC
City Clerk

BY: *Yvonne Spence*
Deputy

APPROVED AS TO FORM:
DOUGLAS T. SLOAN,
City Attorney

BY: *[Signature]*
AMANDA B. FREEMAN
Deputy City Attorney

ABF:elb [67874elb/abl] Ordinance

CITY OF FRESNO
WATER CONSERVATION ACT



October 29, 2014

The following policies are enacted to develop policies and incentives to encourage water conservation in our City.

TABLE OF CONTENTS

Preface		Page 3-4
Article I	Definitions	5-7
Article II	Purpose of Act	7
Article III	Enterprise Water Conservation Rebate Fund	8-9
Article IV	Residential Water Conservation Incentives	9-10
Article V	Commercial Water Conservation Incentives	10
Article VI	New Construction Landscape Standards	10
Article VII	Irrigation Evaluation and Consultation	10
Article VIII	Prioritizing City Water Resources	11
Article IX	Managing City Water Usage on City Properties	11-12
Article X	Tiered Rate Structure	12
Article XI	Assisting Low Income Customers	13
Article XII	Water Shortage Contingency Plan	13-15
Article XIII	Effective Date	15

PREFACE

“By failing to prepare, you are preparing to fail” – Ben Franklin

The policies presented in this Act will be administered and enforced by the City through existing Fresno Municipal Code, Water Shortage Contingency Plan, Water Conservation Program, and Utility Billing and Collections. The intent of this Act is to better align these regulations, plans, programs, and services to promote and encourage water conservation in a manner that serves the best interest of all users of the City's public water supply system. At all times, the City will ensure that water conservation policies, practices, goals, and objectives are consistent with federal, state, and local laws, regulations, and ordinances.

The City of Fresno has several pro-active programs to address the community's water supply issues including a water conservation program that has been actively promoting activities that lower water demand since about 1981. Water conservation is the beneficial reduction in water use, waste, and loss. Conservation is the most economical and environmentally protective resource management tool available, helping Fresno meet the many challenges of water supply management.

Our community has responded to the challenge of the ongoing drought crisis and is once again showing why Fresno has been a leader in water conservation for over 20 years. Over the past five years, customer conservation efforts have resulted in a drop in average daily water usage from about 329 gallons per person per day down to less than 240 gallons per person per day. The City has officially reported water production totals showing a sharp drop in water usage from the same months in 2013 and a continued overall decline in water usage for the year. The reductions help meet Governor Brown's call to cut water use statewide. The City continues to re-visit its plans to provide a safe, clean, reliable water supply so that Fresno can potentially become drought-resilient.

However, the continued drought and other negative forces can affect our City's quality of life. The City of Fresno is currently in stage two of its Water Shortage Contingency Plan. Both privately owned properties and publicly owned properties are now feeling the stress of limited watering schedules as evidenced by browning of some lawns, shrubs and trees. Lawns can recover, shrubs are not expensive to replace but older, mature trees must be preserved.

No one is certain how long the drought in California will continue but we do know there is historical precedence of long-term drought conditions in our state and we must

prepare for the worst to preserve our way of life. For the past 80 years, our water table has dropped about a foot per year. The substantial reduction of surface water allocations in recent years from Friant and the Kings River and the lack of capacity for water treatment plants have resulted in over drafting of our aquifer to perilous levels.

Both City residents and businesses are being asked to sacrifice by reducing water consumption. While the City currently has water conservation programs that offer a number of beneficial services that help customers to conserve water, the overriding goal of this Act is to increase and incentivize water conservation measures for residents by offering additional services and cash rebates. A related financial incentive to water conservation will be the introduction of tiered water rates that will offer discounts for residents who conserve water.

Corollary to the rebate program is the utilization of new irrigation technologies that will enable both residential and commercial properties to better irrigate their landscapes using less water and energy and saving money. Furthermore, the City needs to incorporate new construction landscape standards for future residential and commercial properties to address the potential of long-term drought condition in how it plans for future growth.

Finally, this Act will develop policies and practices to prioritize City water resources and better manage water usage on its properties. It will also provide a needed update to its Water Shortage Contingency Plan. There is a crisis looming in the potential loss of 25 year old plus mature trees unless the City addresses this issue through improved and more efficient irrigation and maintenance practices.

ARTICLE I DEFINITIONS

Artificial Turf

Artificial turf is a surface of synthetic fibers made to look like natural grass. It is also referred to as synthetic lawn. It was originally used in sports stadiums but its use has now spread to residential and commercial properties to reduce maintenance costs and water costs

Black Water

Black Water is used to describe wastewater containing fecal matter and urine. It is also known as foul water or sewage water.

Cistern

A Cistern is a waterproof receptacle (a tank or container) for holding rainwater. They are built to catch and store rainwater.

City

"City" means the City of Fresno, a municipal corporation.

Conservation Orientated Rate Structure

A Conservation Orientated Rate Structure is a rate structure adopted by a city or governing board to reflect the cost of providing water, sends a price signal about the marginal cost of additional water, and encourages efficient use of water by customers.

Enterprise Funds

A fund established to account for operations that are financed and operated in a manner similar to private business enterprises, where the intent of the government body is that the cost of providing goods or services to the general public on a continuing basis be financed or recovered primarily through user charges.

Fresno Municipal Code Section 6-520

The City Code Section contains wastage of water and water conservation measures and outlines mandatory prohibitions and restrictions that are in place under normal water supply conditions in the City and provides language to implement additional conservation measures based on certain conditions.

General Fund

Revenues of the City that are not otherwise restricted as to their use, including monies from local property and sales tax, and other revenue sources. The General Fund pays for core City services including police, fire, public works and parks.

Grey Water

Grey water is household water that does not contain contaminants that can be recycled onsite for uses such as landscape irrigation.

HCF

HCF is one hundred cubic feet. This unit of measure is used to meter water consumption in the City of Fresno. One hundred cubic feet is equivalent to 748 gallons.

Micro Irrigation

Micro Irrigation is also known as trickle irrigation or drip irrigation. It is defined as the application of water at low volume and frequent interval under low pressure applied directly above and below the soil surface as continuous drops or tiny streams through emitters placed along a water delivery line.

Rain Sensor

A Rain Sensor is a switching device activated by rainfall. In a household application, the switching device is connected to an automatic irrigation system controller that causes the system to shut down in the event of rainfall.

Rainwater Harvesting

Rainwater Harvesting is the practice of capturing, infiltrating or utilizing rainfall from roofs, construction catchment surfaces and other sources for reuse before it reaches the aquifer. Its uses include water for gardens and water for irrigation.

Rate Stabilization Reserve Funds

The Rate Stabilization Reserves are designed as a source of funds to mitigate future rate increases in Enterprise Funds such as water and wastewater funds. The "Rate Stabilization Funds" help smooth out annual fee increases on water and sewer bills. These reserve funds are to be used exclusively for the operation and maintenance of the water and wastewater systems.

High-Efficiency Rotating Sprinkler Nozzles

Rotating sprinkler nozzles use up to 20% less water than a standard sprinkler head by distributing water more slowly and uniformly to the landscape, while preserving plant health.

Smart Controller

Smart Controllers estimate or measure depletion of available plant soil moisture in order to operate an irrigation system, replenishing water as needed while minimizing excess water use. Controller must be able to run the City of Fresno outdoor watering schedule.

Soil Moisture Sensor

A Soil Moisture Sensor is connected to an irrigation system controller that measures soil moisture content in an active root zone before each scheduled irrigation event and bypasses the cycle of soil moisture is above a user defined set point.

Water Conservation

The beneficial reduction in water use, water waste and water loss.

Water Shortage Contingency Plan

This is a City policy is included in Chapter 9 of the 2010 Urban Water Management Plan for the City that provides a combination of strategies for temporary supply and demand responses to temporary and potentially recurring water supply shortages and other water supply emergencies with four escalating stages of implementation.

Xeriscaping

A landscape method or design developed especially for arid and semiarid climates that utilize water-conserving techniques for use in residential, commercial or public land. Other current common terms in use are: water-wise, drought tolerant, drought resistant.

**ARTICLE II
PURPOSE OF ACT**

The purpose of this Act is to describe the water conservation policies, practices, goals, and objectives that apply to the residents, businesses, industries, and institutions that rely on the City of Fresno's public water supply system for water service. This Act will develop policies and practices that will conserve water usage by all City water customers and provide better overall management of City water resources.

Objectives of Act:

1. To reduce water consumption citywide for City water customers;
2. To establish a water conservation rebate fund for City water customers;
3. To develop more efficient irrigation systems for all City owned properties;
4. To prioritize water usage for City properties that will ensure that large mature trees will be preserved;
5. To establish residential and commercial landscape development standards as set out in Assembly Bill 1881 Model Water Efficient Landscape Ordinance.
6. To evaluate the using of alternative water service pricing strategies to encourage and promote water conservation; and
7. To update the City's Water Shortage Contingency Plan.

Accomplishment of the above stated objectives would better prepare the City for drought conditions to ensure the long-term sustainability for the City and less reliance on ground water.

**ARTICLE III
ENTERPRISE WATER CONSERVATION REBATE FUND**

The City's Water Division shall establish a Water Conservation Rebate Fund. The fund shall be established at \$250,000 per year for two consecutive fiscal years for a total appropriation of \$500,000. This will be a restricted fund for use only as water conservation rebates as promulgated in this Act. Eligible customers will receive a cash rebate for approved rebate applications.

Fund Replenishment

When the initial fund is depleted it shall require a majority vote of Council to replenish the fund. A majority of the Council will also determine the amount to be replenished. The decision to replenish the fund shall be based upon demand and availability of funds.

Eligibility for Property Owners

All City Water Utility customers including County Island residents using City water services are eligible for the water conservation rebate program. Water Utility customers must provide a copy of their City utility bill and be current and good standing on their accounts. Only water efficient devices listed and approved by the City maybe removed or retrofitted.

Eligibility for Rentals and Leased Properties

Tenants of residential properties and lessees of commercial properties can be eligible for water conservation rebates if approved by the owner of record. Landlords of residential or commercial properties must sign an application that confirms the legal owner of record is aware of and consents to the tenant/lessee to carryout plumbing or outdoor retrofits at the subject property.

Procedures

All applicants must complete a water conservation rebate application form and include legible copies of supporting documents including proof of purchase of approved water conservation devices and/or installation. Proof will include receipts, contract agreements, and, if necessary, a plumbing permit.

Site Inspections

The City has the right to audit any approved water conservation rebate items to verify qualifying conditions, including installation of any water saving product. Site visits may occur and applicants shall be randomly selected. Any audit that which determines that the applicant does not qualify or that the water saving item was not installed or not properly installed may be subject to repayment of any rebate.

Fund Priority

All rebates shall be paid on a first come first serve basis based upon receipt of a completed application form. Funding is limited to available resources; rebate amounts

are subject to change without notification. Rebates shall at all times be subject to change or termination with notification.

ACTICLE IV RESIDENTIAL WATER CONSERVATION INCENTIVES

City of Fresno currently offers many water saving evaluations and services to assist customers save water at no charge. There are also several water conserving devices available and rebates available. Current City of Fresno Water Conservation Evaluations and Services Assisting Customers include:

- Free Water-Wise landscape consultation and design
- Free Irrigation efficiency audit
- Free help setting irrigation timers
- Free Interior and Exterior water leak surveys
- Free Water Meter use graphs and reports
- Free Water conserving hardware
- Public outreach and education
- Rebates
- Enforcement of Fresno Municipal Code watering regulations
- Water Conservation Hotlines

This Act would increase water conserving incentives for customers by increasing the rebates and budget. The number of rebates and amount of rebates for qualifying appliances shall be determined based on available budget funds and through a study of similar rebates provided by other water conservation programs. The application will detail terms and how a customer can qualify. The following rebates are either currently being offered or are under review:

Item Description	Proposed Rebate
Recirculating Hot water pump	Range \$50 to \$100 subject to evaluation
Smart Irrigation Controller	Range \$50 to \$100 subject to evaluation
Micro Irrigation System Retrofit	Range \$50 to \$100 subject to evaluation
Soil Moisture Sensor System	Range \$50 to \$100 subject to evaluation
Rain Sensor	Range \$50 to \$100 subject to evaluation
Rainwater Harvesting system	Range \$50 to \$100 subject to evaluation
High Efficiency Toilets	\$50 per toilet
High Efficiency Toilets CII	\$50 per toilet
High Efficiency Urinals CII	\$100 per urinal
High Efficiency Clothes Washers	\$50 per washer
Ultra High Efficiency Shower Head	No charge with water audit or upon request
High Efficiency faucet aerators	No charge with water audit or upon request
Hose nozzle	No charge with water audit or upon request

High-efficiency Rotating Sprinkler Nozzles	Up to \$4 per nozzle
Window Evaporative cooler	\$100 per unit
Lawn to Garden Conversion Pilot	\$.50 per square foot
Car Wash coupons	\$2 each

Users of the City's public water supply system can use any combination of the above credits. The combined maximum credit per account cannot exceed \$1,000.

**ARTICLE V
COMMERCIAL WATER CONSERVATION INCENTIVES**

This Act includes water incentive rebates for all City customers. Some conditions apply to multifamily complexes, commercial or industrial properties. Depending on the results of the residential water rebate program, this Act may be amended to include multi family, commercial and industrial properties in a rebate program

**ARTICLE VI
NEW CONSTRUCTION LANDSCAPE STANDARDS**

This Act will recommend landscape standards for future residential and commercial properties consistent with the adopted 2035 General Plan. The City will need to address the potential of long-term drought conditions in how it plans for future growth to better manage its water resources. This should include requirements for all new public parks to have separate irrigation for trees. Future developments must have an identified long-term water source.

**ARTICLE VII
IRRIGATION EVALUATION AND CONSULTATION**

City staff will continue to offer free water saving evaluations for City residents upon request. The City will also explore purchasing large quantities of water conserving devices (e.g. smart controller) and offer discounted prices to City residents and businesses.

The City shall establish water conversation demonstration sites at convenient locations in the City to allow residents to meet with City staff and better understand the application and benefits of water savings devices.

ARTICLE VIII PRIORITIZING CITY WATER RESOURCES

A combination of inadequate funding and a prolonged drought have taken a serious toll on the trees, shrubs, and grass areas of City owned properties. This is especially true in most City parks. Bermuda grass is very resilient and shrubs can be replaced. Older, mature trees across the City are a valuable community treasure and must be preserved. This Act shall require the City to prioritize its water resources and develop more efficient irrigation systems to preserve our older mature trees on all City properties. City residents shall also be encouraged to adopt some of the water saving, more efficient irrigation systems to protect their trees and landscape.

Dedicated staff for tree maintenance and irrigation

The City should explore deployment of a special tree maintenance and irrigation team that will be dedicated to creating and maintaining a tree inventory to identify and evaluate current tree conditions and focus on restoring mature trees on City properties in danger of dying from lack of water or disease. Areas of community benefit such as City Parks, sports areas and botanical gardens should also receive special consideration.

ARTICLE IX MANAGING CITY WATER USAGE ON CITY PROPERTIES

There are four stages of City water use policies based upon the several conditions including water usage and water availability. The City owns hundreds of acres of parks and other properties where the City has responsibility to manage the irrigation systems and maintenance. It is essential that the City lead by example and develop policies and practices to implement the various drought stages and be in full compliance with its own water preservation standards and recognize priorities within City properties.

City staff should review best practices in other cities and consult and collaborate with the private sector or other public entities in developing 'Smart Water' practices on a citywide basis including evaluating irrigation systems. As part of these practices the City shall implement an action plan including the following:

1. Start the process of converting all tree irrigation to bubblers or drip irrigation;
2. Establish water irrigation lines in water isolated areas for trees to have a permanent ground water source instead of relying on water trucks that are used on an inconsistent basis;
3. Re-design City properties irrigation systems to be focused on sports areas (i.e. golf courses, baseball fields, etc.) and not on passive green space;

4. Develop a citywide plan to convert non public green spaces to native plant or wild flower plantings and educate the public on the visual impact;
5. Install smart controllers that communicate in park clusters and weather station data systems that determine irrigation by micro climate information;
6. Begin aerating and fertilizing park turf areas on a yearly basis to force roots to go deeper into the soil establishing a healthier and more resilient turf for hot summer periods;
7. Adopt new water technologies for irrigation systems and water management that will minimize water waste and dry areas in City parks; and
8. Train all City employees to be more knowledgeable of water conservation so that they are able to identify irrigation related issues and report them for corrective action.
9. Develop a budget for implementation of the above items that will be presented to Council for approval.

The City shall also explore state and federal funding sources for adoption of 'smart water' practices and policies to fund necessary citywide irrigation system costs and ongoing maintenance costs.

ARTICLE X TIERED WATER RATE STRUCTURE

This Act will direct City staff to review and evaluate the legal, financial, and institutional requirements associated with implementing a water conservation pricing structure for water service. A water conservation pricing structure is more commonly referred to as a tiered water rate structure or inclining block rate structure.

There are several cities in California and other states that use a tiered rate structure to promote and encourage water conservation. A tiered rate structure establishes different unit cost rates based on different levels of consumption or blocks of consumption. The number of tiers can vary from two to five. In a typical tiered rate structure, the first tier of water consumption is set based on average annual consumption, winter consumption, or some other basis. The objective is to establish the first tier of water consumption at a level that at a minimum accommodates the basic public health and sanitation needs of the customer class. Individuals are allowed to use more water than available in the first tier, but the unit cost of water increases as consumption increases.

The degree of change in unit costs between water use tiers or blocks is based on many factors; but the two most important factors are 1) the water use patterns of the

community, and 2) the costs required to produce, treat, and deliver water under different conditions (winter, summer, maximum day, maximum hour, etc.). Ultimately, water rates must be set to generate sufficient revenues to fund the current and future costs for the management, administration, operations and maintenance, upgrade, improvement, and expansion of the public water supply system.

ARTICLE XI ASSISTING LOW INCOME CUSTOMERS

This Act will direct City staff to review and evaluate the legal, financial, and institutional requirements associated offering water users the option to average out a one-year water utility bill using equal payment installments similar to what PG&E offers its customers. This program would be offered to those customers that request the option. Winter months are typically low water usage and summer months are higher due to more water usage on landscape irrigation. The equal payment option would allow residents ter to make it easier for City residents to budget the costs and adjusted semi-annually or as needed.

Some tiered structures offer 'Lifeline Rates' that provide relief to low-income customers. Low-income households are charged lower rates on that portion of water consumption that provides basic needs and higher rates are assessed on water consumption beyond that amount. Equitable pricing is essential to the success of a water conservation program and the basic operation of the water utility. Per Proposition 218, funds for a lifeline rate would require alternative funding sources such as the General Fund.

ARTICLE XII WATER SHORTAGE CONTINGENCY PLAN

This Act will direct City staff to review, evaluate, and prepare recommendations as necessary to update the City's Water Shortage Contingency Plan and Section 6-520 of the Fresno Municipal Code.

The City currently uses a four-stage Water Shortage Contingency Plan that escalates water conservation policies based on supply, demand and emergency conditions. The original Drought Contingency Plan was adopted in 1989; the Water Shortage Contingency Plan was adopted in 1994; and the 2010 Urban Water Management Pan updated the 1994 Water Shortage Contingency Plan.

An examination of water emergency plans by other cities suggests that the City's current policies can be updated to foster, promote, and encourage more efficient outdoor irrigation practices so that users of the public water system can conserve water without severely degrading landscaped areas in the community.

The current policy should be updated to better assess the level of water conservation measures utilizing new technologies and innovations in water conservation for residential, commercial and industrial properties. Providing a more detailed policy will allow for exceptions on the watering schedule or other measures.

During the review and evaluation of the current Water Shortage Contingency Plan and the Fresno Municipal Code, City staff shall consider developing recommendations for the following:

1. A review process for residential, commercial and industrial property owners that desire to apply for an exemption from certain Water Shortage Contingency Plan conditions (i.e. outdoor watering limited to 2 days per week). The review process should consider if the applicant can conclusively demonstrate that their irrigation system is water tight (i.e. no leaks) and the applicant has implemented water efficient irrigation technology and systems (i.e. drip irrigation system).
2. The review process shall authorize the City Manager, or designee of the City Manager, to approve exemptions to the Water Shortage Contingency Plan to address (1) adverse public health, safety, welfare and sanitation conditions; (2) degradation of the environment; (3) economic hardship; (4) conflict with other federal, state, or local laws, regulations, and ordinances; (5) degradation of other public assets and investments; and (6) other factors deemed important to the character and quality of life in the City.
3. Exemptions from outdoor water restrictions should be considered for the following:
 - A) Supervised testing, adjusting, or repairing of irrigation systems;
 - B) Watering or irrigating shrubs and trees, or vegetation intended for human consumption.
 - C) Watering or irrigating to establish new permanent landscapes. Such watering or irrigating could be authorize by permit only, and no more than one permit would be issued for an address per year;
 - D) Public or private active recreation areas that provide a public benefit, and are open and available to all residents of the community.
 - E) Public or private landscaped areas over three acres in size that provide a public benefit, and are open and available to all residents of the community.
4. The Stage 2 Water Restrictions should be amended to allow the following:
 - A) One-day per week water from December 1st through March 31st

B) The hours for outdoor water should be changed 9am to 9pm.

5. The water conservation stage triggers shall be based on available water supply rather than a percentage reduction of its water supply. See Exhibit 'A' for revised stage trigger guide.

**ARTICLE XIII
EFFECTIVE DATE**

This resolution shall take effect XXXXXXXXXXXX

Appendix F

DWR Population Tool Results

Please print this page to a PDF and include as part of your UWMP submittal.

Confirmation Information

Generated By Hannah Salafia	Water Supplier Name Fresno City Of	Confirmation # 9767331779	Generated On 3/8/2016 2:40:43 PM
---------------------------------------	--	-------------------------------------	--

Boundary Information

Census Year	Boundary Filename	Internal Boundary ID
1990	fresno_1990_processed.kml	517
2000	fresno_2000_processed.kml	516
2010	fresno_2010_processed.kml	515

Baseline Period Ranges

10 to 15-year baseline period

Number of years in baseline period:

Year beginning baseline period range:

Year ending baseline period range¹: 2005

5-year baseline period

Year beginning baseline period range:

Year ending baseline period range²: 2007

¹ The ending year must be between December 31, 2004 and December 31, 2010.

² The ending year must be between December 31, 2007 and December 31, 2010.

Persons per Connection

Year	Census Block Level		Persons per Connection
	Total Population	Number of Connections *	
1990	364,084		4.23
1991	-	-	4.23
1992	-	-	4.24
1993	-	-	4.24
1994	-	-	4.25
1995	-	-	4.26
1996	-	-	4.26
1997	-	-	4.27
1998	-	-	4.27
1999	-	-	4.28
2000	439,062	102476	4.28
2001	-	-	4.29
2002	-	-	4.29
2003	-	-	4.30
2004	-	-	4.30
2005	-	-	4.31
2006	-	-	4.32
2007	-	-	4.32
2008	-	-	4.33
2009	-	-	4.33
2010	505,315	116373	4.34
2015	-	-	4.37 **

Population Using Persons-Per-Connection

Year		Number of Connections *	Persons per Connection	Total Population
10 to 15 Year Baseline Population Calculations				
Year 1	1996	<input type="text"/>	4.26	
Year 2	1997	<input type="text"/>	4.27	
Year 3	1998	<input type="text"/>	4.27	
Year 4	1999	<input type="text"/>	4.28	
Year 5	2000	102476	4.28	439,062
Year 6	2001	<input type="text"/>	4.29	
Year 7	2002	<input type="text"/>	4.29	
Year 8	2003	<input type="text"/>	4.30	
Year 9	2004	<input type="text"/>	4.30	
Year 10	2005	<input type="text"/>	4.31	
5 Year Baseline Population Calculations				
Year 1	2003	<input type="text"/>	4.30	
Year 2	2004	<input type="text"/>	4.30	
Year 3	2005	<input type="text"/>	4.31	
Year 4	2006	<input type="text"/>	4.32	
Year 5	2007	<input type="text"/>	4.32	
2015 Compliance Year Population Calculations				
2015		119222	4.37 **	521,525

[Hide Print Confirmation](#)

SB X7-7 Table 7-A: Target Method 1 20% Reduction	
10-15 Year Baseline GPCD	2020 Target GPCD
309	247
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
304	288	247	247
* Maximum 2020 Target is 95% of the 5 Year Baseline GPCD			
NOTES:			

SB X7-7 Table 9: 2015 Compliance								
Actual 2015 GPCD	2015 Interim Target GPCD	Optional Adjustments (in GPCD)					2015 GPCD (Adjusted if applicable)	Did Supplier Achieve Targeted Reduction for 2015?
		Extraordinary Events	Weather Normalization	Economic Adjustment	TOTAL Adjustments	Adjusted 2015 GPCD		
190	278	<i>From Methodology 8 (Optional)</i>	<i>From Methodology 8 (Optional)</i>	<i>From Methodology 8 (Optional)</i>	0	189.745674	189.745674	YES
NOTES:								

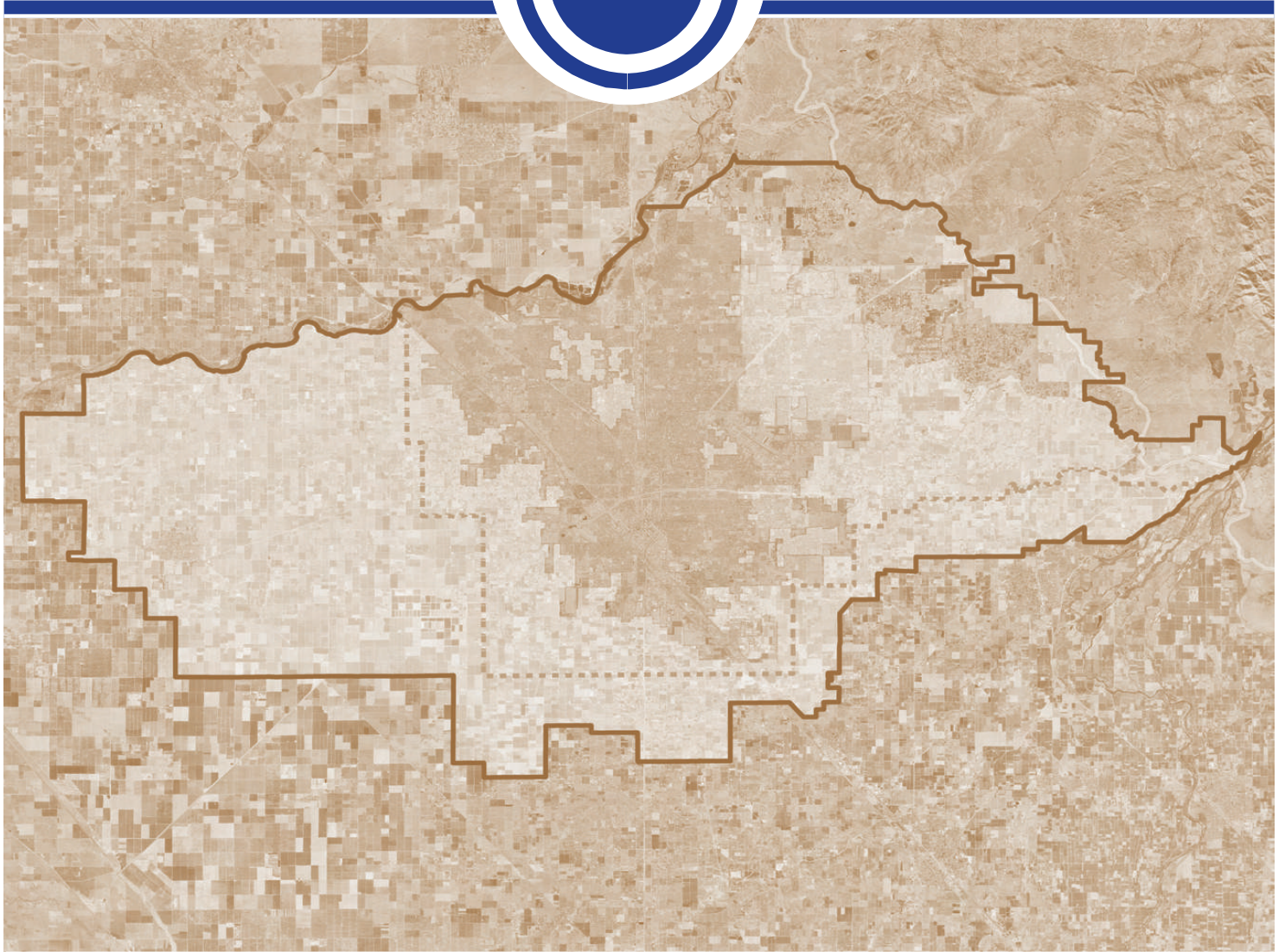
Appendix H

Fresno Area Regional Groundwater
Management Plan

December 2006



Fresno Area Regional
**Groundwater
Management
Plan**



- *Fresno Irrigation District* ● *City of Clovis* ● *Fresno Metropolitan Flood Control District* ●
- *County of Fresno* ● *City of Fresno* ● *City of Kerman* ● *Bakman Water Company* ●
- *Garfield Water District* ● *Malaga County Water District* ● *Pinedale County Water District* ●

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

The Fresno Area Regional Groundwater Management Plan

Adopted by:

Fresno Irrigation District
City of Clovis
Bakman Water Company
County of Fresno
City of Fresno
Pinedale County Water District
Fresno Metropolitan Flood Control District
City of Kerman
Malaga County Water District
Garfield Water District

On:

01/25/2006
02/13/2006
03/13/2006
07/18/2006
04/18/2006
09/20/2006
02/08/2006
03/01/2006
02/14/2006
11/01/2006

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

1 - INTRODUCTION	1-1
1.1 - Background Information on Regional Group	1-1
1.2 - Plan Area	1-2
1.3 - Purpose for this Groundwater Management Plan	1-5
1.4 - Previous Plans	1-5
1.5 - Statutory Authority for Groundwater Management	1-6
1.6 - Groundwater Management Plan Components	1-6
1.7 - Adoption of Plan	1-8
2 - PARTICIPANT INFORMATION	2-1
2.1 - Fresno Irrigation District	2-1
2.2 - Fresno County	2-2
2.3 - City of Fresno	2-4
2.4 - City of Clovis	2-5
2.5 - City of Kerman	2-6
2.6 - Malaga County Water District	2-6
2.7 - Pinedale County Water District	2-7
2.8 - Fresno Metropolitan Flood Control District	2-7
2.9 - Bakman Water Company	2-8
2.10 - Garfield Water District	2-9
2.11 - Surrounding Area	2-9
3 - GEOLOGY AND HYDROGEOLOGY OF THE FRESNO AREA	3-1
3.1 - Geology	3-1
3.2 - Hydrogeologic Characteristics	3-1
3.3 - Groundwater Conditions within the Plan Area	3-6
3.4 - Historic Groundwater Monitoring Programs	3-6
4 - REGIONAL GROUNDWATER MANAGEMENT OBJECTIVES	4-1
5 - STAKEHOLDER INVOLVEMENT	5-1
5.1 - Advisory Committee of Stakeholders	5-1
5.2 - Relationships with Other Agencies	5-2
5.3 - Plan to Involve the Public and Non-Participating Agencies	5-3
6 - MONITORING PROGRAM	6-1
6.1 - Groundwater Level Monitoring	6-1
6.2 - Groundwater Quality Monitoring	6-4
6.3 - Monitoring Protocols	6-5
6.4 - Land Surface Subsidence Monitoring	6-7
6.5 - Surface Water Monitoring	6-7
7 - GROUNDWATER RESOURCES PROTECTION	7-1
7.1 - Well Destruction	7-1
7.2 - Well Construction Policies	7-1
7.3 - Wellhead Protection	7-2
7.4 - Saline Water Intrusion	7-3
7.5 - Migration of Contaminated Groundwater	7-4
7.6 - Groundwater Quality Protection	7-4
8 - GROUNDWATER SUSTAINABILITY	8-1
8.1 - Groundwater Recharge	8-1
8.2 - Water Conservation and Education	8-3

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

8.3 - Groundwater Use Limitations	8-4
8.4 - Conjunctive Use of Water Resources	8-6
8.5 - Wastewater Reclamation and Recycling	8-7
8.6 - Operation of Facilities	8-8
9 - GROUNDWATER PLANNING AND MANAGEMENT	9-1
9.1 - Plan Implementation	9-1
9.2 - Groundwater Reports	9-1
9.3 - Plan Re-evaluation	9-2
9.4 - Land Use Planning	9-3
9.5 - Dispute Resolution	9-3
9.6 - Program Funding and Fees	9-4
10 - REFERENCES	10-1

List of Abbreviations	iii
------------------------------------	-----

Figures

1-1 Groundwater Basin Map	1-3
1-2 Map of Participating Agencies	1-4
2-1 Map of Surface Water Facilities	2-3
2-2 Neighboring Agency Map	2-10
3-1 Historical Decline in Groundwater Level	3-3
3-2 Well Hydrographs	3-4
3-3 Groundwater Contours (January 2005)	3-5
6-1 Map of Domestic Production and Monitor Wells	6-3
9-1 Landuse Map	9-6

Tables

1-1 Location of Groundwater Management Plan Components	1-7
2-1 Summary of Participants	2-11
5-1 Memberships in Water Related Organizations	5-5

Appendices

- A - Public Participation in Plan Adoption
- B- Resolutions to Adopt Plan
- C - Memorandum of Understanding
- D - Glossary

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

LIST OF ABBREVIATIONS

AB	Assembly Bill
AF	Acre-feet
CSA	Community Service Area
CVP	Central Valley Project
DBCP	Dibromo-Chloropropane
DHS	Department of Health Services
DWR	Department of Water Resources
EDB	Ethylene Dibromide
EHS	Environmental Health System
EPA	Environmental Protection Agency
FCEHD	Fresno County Environmental Health Department
FID	Fresno Irrigation District
FMFCD	Fresno Metropolitan Flood Control District
GAC	Granulated Activated Carbon
GMP	Groundwater Management Plan
HSA	Hydrologic Study Area
ISI	Integrated Storage Investigations
MCWD	Malaga County Water District
MG	Million Gallons
MGD	Million Gallons Per Day
MOU	Memorandum of Understanding
MTBE	Methyl Tertiary-Butyl Ether
NPDES	National Pollution Discharge Elimination System
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SWTP	Surface Water Treatment Plant
TAC	Technical Advisory Committee
TCE	Trichloroethylene
TCP	Trichloropropane
VOC	Volatile Organic Chemicals or Volatile Organic Compounds
WWD	Waterworks District
WWTF	Wastewater Treatment Facility
WWTP	Wastewater Treatment Plant

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

1 - INTRODUCTION

This Groundwater Management Plan (GMP or Plan) is a collaborative effort among nine public agencies and one private water company in the Fresno-Clovis metropolitan and surrounding area. The Plan documents a regional approach toward groundwater management, while still addressing individual goals and issues for each of the participants. The Plan satisfies the new requirements for Groundwater Management Plans created by the September 2002 California State Senate Bill No. 1938, which amended Sections 10753 and 10795 of the California Water Code. The Plan also addresses recommended components for a Groundwater Management Plan described in Appendix C of Department of Water Resources Bulletin 118 (2003 Update).

1.1 - Background Information on Regional Group

Background

The desire to develop and adopt a regional groundwater management plan for this region came from an effort to involve local stakeholders in development of a groundwater management plan for the Fresno Irrigation District (FID). In 2004, FID intended to update its groundwater management plan to meet SB 1938 requirements and DWR recommendations. In an effort to solicit comment from stakeholders, FID held a public hearing on July 7, 2004, to notify the public of FID's intent to modify its plan. The notice invited landowners and interested parties to make comment at the meeting and participate on a technical advisory committee. No public comments were received at the hearing. FID adopted a Resolution of Intent to Modify its Groundwater Management Plan on July 7, 2004.

A Technical Advisory Committee (TAC) was formed to provide input during preparation of the Plan. The TAC was comprised of local agency representatives and landowners. The first meeting of the TAC was held on November 18, 2004. A review of the new Water Code requirements was provided, as well as the initial expectations of the TAC. At this initial meeting, some of the agency representatives noted that they planned to prepare their own groundwater management plan and some expressed interest in developing a regional plan. It was decided to conduct another meeting with representatives of agencies that have overlapping boundaries with FID to determine the interest of other local stakeholders to participate in a cooperative or regional plan. This meeting was held on January 27, 2005. The meeting addressed the need for an updated plan, the new requirements in the Water Code, the benefits of a regional plan, and discussions on how to proceed with a regional groundwater management plan. From this meeting, it was determined that there was enough interest in developing a regional plan. The attendees at the meeting identified four major reasons for developing a regional plan:

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

- Cooperative groundwater management efforts
- Cost savings with preparing a regional plan and annual groundwater reports
- Inclusion of smaller agencies
- Regional funding opportunities

Cooperative Effort

Interested parties continued to meet to develop a Memorandum of Understanding (MOU) for preparation of the regional plan. The MOU was drafted and reviewed by each of the agencies, and monthly meetings with the agency representatives and landowners were held. The MOU was presented before each agency's governing body for discussion and public comment. The MOU was then adopted by each of the agencies. A copy of the signed MOU is included in Appendix B.

1.2 - Plan Area

The Plan Area lies within the Kings Groundwater Sub-basin, which lies within the San Joaquin Basin Hydrologic Study Area (HSA). The Kings Sub-basin is also identified as sub-basin 5-22.08 of the Tulare Lake Hydrologic Region in the Department of Water Resources Draft Bulletin 118 updated in 2003, as shown in Figure 1-1. The Plan boundary generally follows the boundary of the Fresno Irrigation District, however it is extended in the northeast along Friant Road to Willow Avenue, then east to the Friant-Kern Canal, then south along the Friant-Kern Canal to FID's boundary near the Kings River. The participants to this Plan include:

- Fresno Irrigation District
- County of Fresno
- City of Fresno
- City of Clovis
- City of Kerman
- Malaga County Water District
- Pinedale County Water District
- Fresno Metropolitan Flood Control District
- Bakman Water Company
- Garfield Water District

The participants are described in Section 2 and the Plan boundary and participant boundaries are shown in Figure 1-2. The Plan Area was determined based on the shared aquifer, and includes participants that are within close proximity within the aquifer and are actively managing water resources.

Consistent with provisions of the County's groundwater management plan, it is intended that this Plan supercede the County's existing Groundwater Management Plan only within the Plan Area. The County's existing Plan will still be in effect for the remainder of the County area.

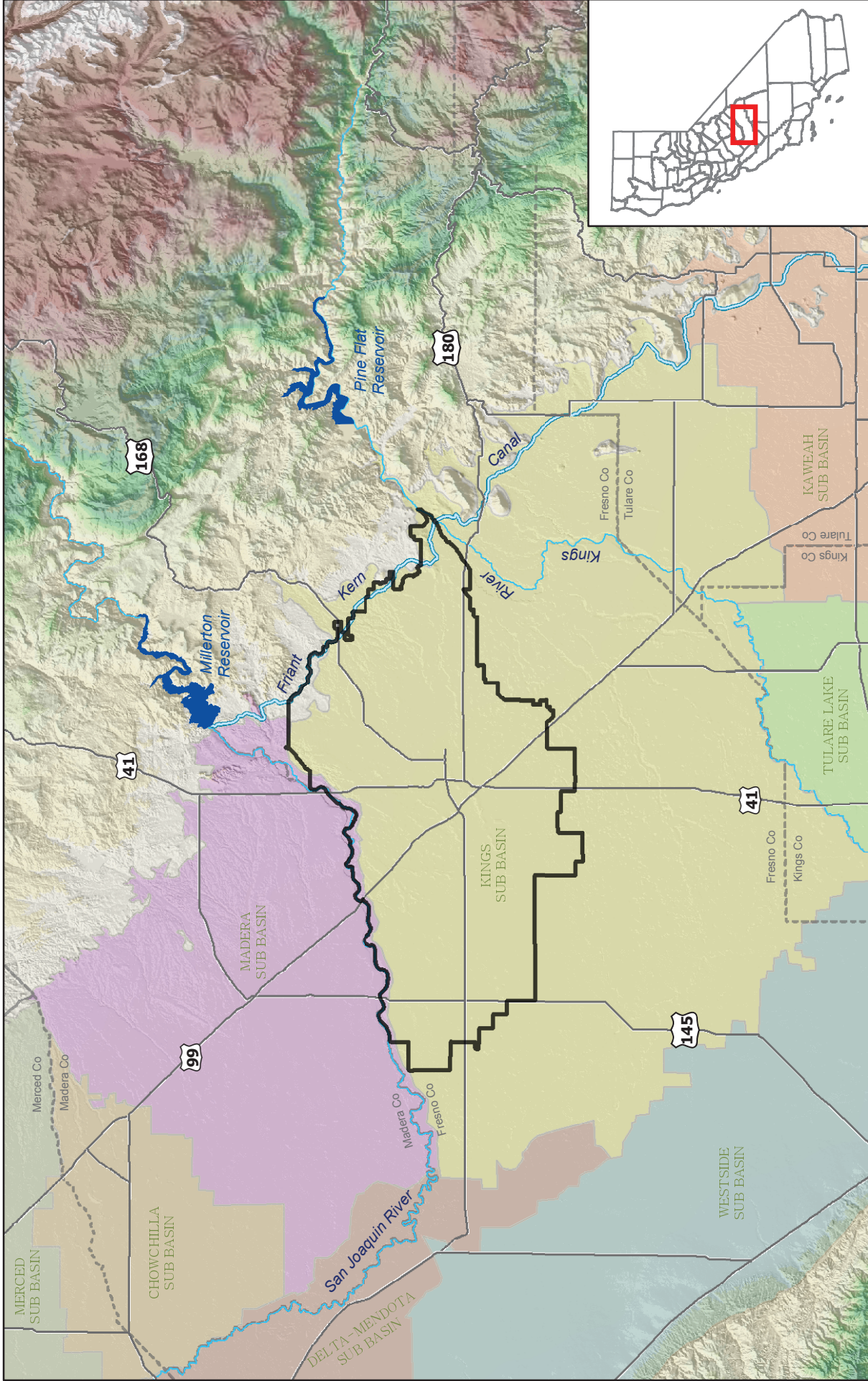


Figure 1-1
Groundwater Basin Map
 Fresno-Area Regional
 Groundwater Management Plan

Groundwater Sub Basins

	Westside
	Chowchilla
	Madera
	Delta-Mendota
	Kaweah
	Kings
	Merced
	Tulare Lake

GMP BOUNDARY

0 3 6 9 12 Miles

PROVOST & PRITCHARD
 EST. 1968
 ENGINEERING GROUP
 A TRC GROUP COMPANY

286 W. Cromwell Ave.
 Fresno, CA 93711-6162
 (559) 449-2700

December, 2005 \huntington\gis\Clients\Fresno\ID_103810380505\GMP_Vicinity.mxd

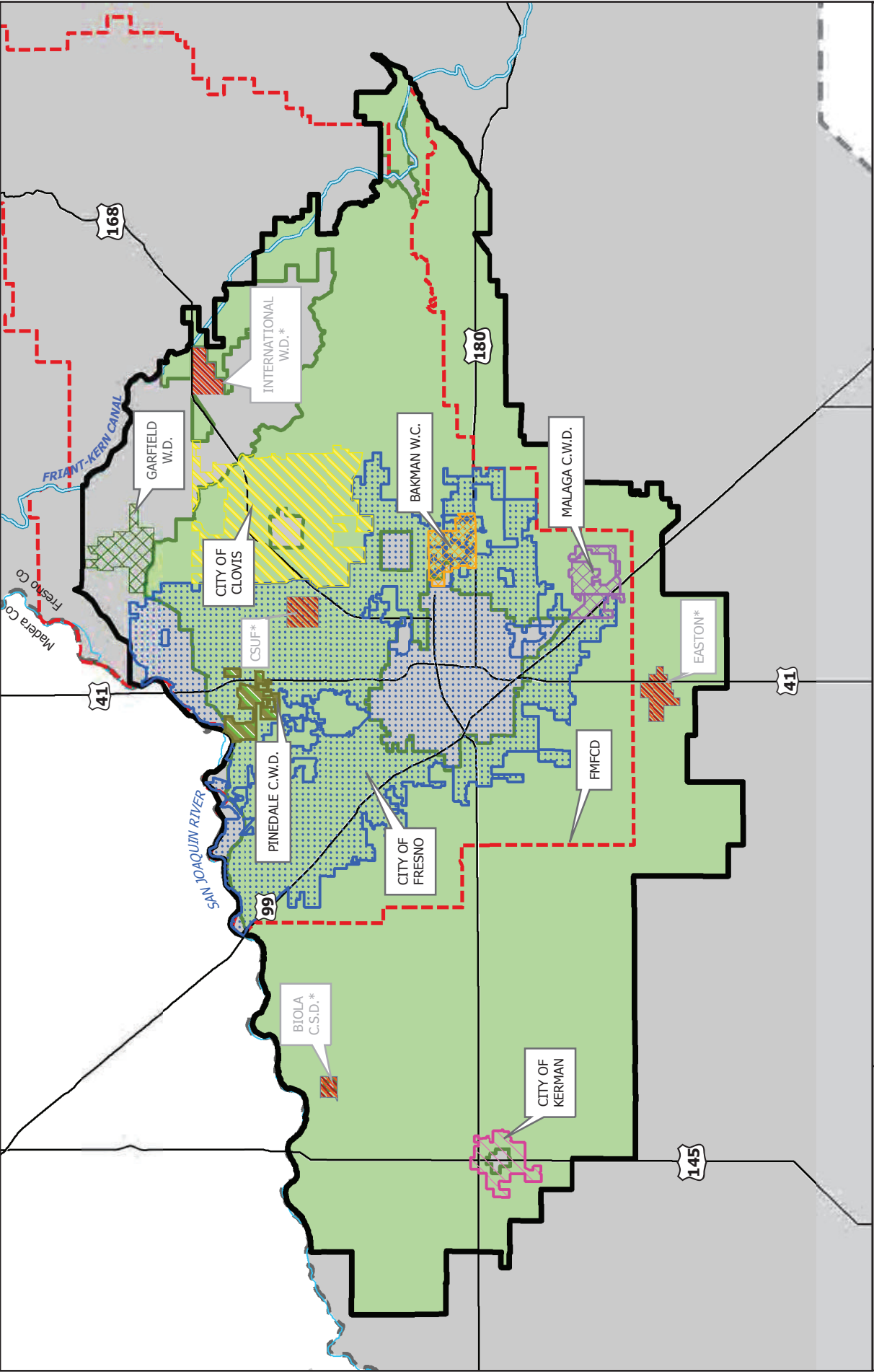


Figure 1-2
Participating Agencies
 Fresno-Area Regional
 Groundwater Management Plan

LEGEND

	GMP BOUNDARY
	FRIANT-KERN CANAL
	*Agencies within plan boundary, not participating
	BAKMAN W.D.
	GARFIELD W.D.
	MALAGA C.W.D.
	FRESNO I.D.
	FMFCD Boundary
	COUNTY OF FRESNO
	CITY OF FRESNO
	CITY OF KERMAN
	PINEDALE W.D.
	CITY OF CLOVIS
	BIOLA C.S.D.*
	PINEDALE C.W.D.
	CSUF*
	CITY OF CLOVIS
	GARFIELD W.D.
	INTERNATIONAL W.D.*
	BAKMAN W.C.
	MALAGA C.W.D.
	EASTON*
	FMFCD
	CITY OF FRESNO
	CITY OF KERMAN

The Plan area lies entirely within the County of Fresno, and the County is a participant to the Plan.
 The Plan area lies within the Kings River Conservation District.

0 1 2 3 4 Miles

PROVOST & PRITCHARD
 EST. 1968
 ENGINEERING GROUP
 A Langley Group Company

286 W. Cromwell Ave.
 Fresno, CA 93711-6162
 (559) 449-2700

December, 2005 \\huntington\gis\Clients\Fresno\FresnoRegionGMP_figure1-2.mxd

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

1.3 - Purpose for this Groundwater Management Plan

The purpose of this Plan is to implement effective groundwater management that works toward maintaining a high quality and dependable water resource for the water users and landowners within the Plan Area, while minimizing negative impacts to other affected parties. The Plan documents the existing groundwater management efforts in the Plan Area that have been successful. The Plan also develops a coordinated and comprehensive approach to the future evaluation and management of groundwater resources within the Plan Area, in concert with other groundwater management activities within the groundwater basin. The Plan integrates past and present effective groundwater management activities with proposed activities to meet the following objectives:

1. Increase awareness of groundwater management efforts being performed by other local parties.
2. Provide benefits of cost savings for preparation, opportunities for regional funding and grant programs, inclusion of smaller local agencies, and the development of more cooperative groundwater efforts.
3. Allow smaller agencies to participate that otherwise would not have been able to fund the preparation of a GMP.
4. Include participants with overlapping boundaries.

1.4 - Previous Plans

Three participants to this Plan have previously adopted Groundwater Management Plans. FID adopted a Groundwater Management Plan in 1995, and the City of Clovis and the County of Fresno each adopted plans in 1997. This Plan supercedes the existing plans for FID and the City of Clovis, as their service areas are included within the Plan boundary. This Plan boundary only covers a portion of the County of Fresno, so at the time of this Plan's adoption, the County's existing plan will still apply to the area outside of this Plan's boundary. Elements from each of the previously adopted plans have been incorporated into this regional plan.

The participants in this Plan also recognize that many of the components of this Plan were previously identified in the Water Resources Management Plan for Fresno-Clovis Urban and Northeast Fresno County prepared by the County of Fresno in 1986 (herein called the 1986 Plan). The 1986 Plan followed the Interim Best Management Plan for Water Quality, Fresno-Clovis Urban and Northeast Fresno County. The 1986 Plan included detailed descriptions of the groundwater quality and quantity conditions within the area, described the water purveyors within the region, and included five of the same participants to this Plan: County of Fresno, City of Fresno, City of Clovis, Fresno Irrigation District, and Fresno Metropolitan Flood Control District. Other water purveyors within the area were described in the Plan, but not included as participants for

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

implementation. The plan area of the 1986 Plan was smaller than the area described in this Plan. The 1986 Plan includes surface water related objectives that are included in this Plan. Many of the activities of the 1986 Plan are still viable and have become a part of on-going operations for the five agencies involved. However, the committees formed to implement the activities proposed in the 1986 Plan have not actively met for many years, and there is a need to review and update the groundwater related activities described in that plan. This Plan is intended to be a continuation of the groundwater related objectives of the 1986 Plan, which included:

1. Preserve and enhance the existing quality of the area's groundwater.
2. Preserve untreated groundwater as the primary source of domestic water.
3. Maximize the available water supply, including conjunctive use of surface water and groundwater.
4. Conserve the water resource for long-term beneficial use and assure an adequate supply for the future.
5. Manage water resources to the extent necessary to ensure reasonable, beneficial, and continued use of the resource.

1.5 - Statutory Authority for Groundwater Management

The California legislature recognized that local groundwater management is preferable to State or Federal groundwater controls, and passed Assembly Bill 255 (AB 255) in 1989. AB 255 was the first statewide legislation allowing local water agencies to prepare and adopt groundwater management plans for their jurisdictions. California Assembly Bill No. 3030 (AB 3030), which became law on January 1, 1993, superceded AB 255, and authorized local agencies that are within groundwater basins, as defined in California Department of Water Resources (DWR) Bulletin 118, to prepare and adopt groundwater management plans. Each of the public agency participants to this Plan meets the requirements of a "local agency", as defined within Section 10752 of the Water Code.

Agencies adopting a Plan are authorized to enter into agreements with other local agencies or private parties to manage mutual groundwater supplies, including those existing in overlapping areas, as necessary to implement the Plan. Bakman Water Company has been an active participant in the development of this Plan, and has entered into the Memorandum of Understanding for its development and implementation.

1.6 - Groundwater Management Plan Components

This Plan includes the required and recommended components for a Groundwater Management Plan as identified in California Water Code Section 10753, et. seq. This Plan is also consistent with the recommended elements for a Groundwater Management Plan as identified in DWR Bulletin 118 (2003), Appendix C. Table 1-1 identifies the location within this document where each of the components is addressed.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

Table 1-1 – Location of Groundwater Management Plan Components

Description	Plan Section(s)
California Water Code Mandatory Requirements (10750 et seq.)	
1. Documentation of public involvement	Appendix A, 1.1, 1.7
2. Groundwater basin management objectives	1.3, 4
3. Monitoring and management of groundwater elevations, groundwater quality, land subsidence and surface water	6
4. Plan to involve other agencies located in the groundwater basin	5.3
5. Monitoring protocols	6.3
6. Map of groundwater basin and agencies overlying the basin	Figure 1-1, 1-2
California Water Code Voluntary Components (10750 et seq.)	
7. Control of saline water intrusion	7.4
8. Identification and management of wellhead protection areas and recharge areas	7.3, 8.1
9. Regulation of the migration of contaminated groundwater	7.4, 7.5, 8.5
10. Administration of well abandonment and well destruction program	7.1
11. Mitigation of conditions of overdraft	8
12. Replenishment of groundwater extracted by water producers	8.1
13. Monitoring of groundwater levels and storage	6.1
14. Facilitating conjunctive use operations	8.4
15. Identification of well construction policies	7.2
16. Construction and operation by local agency of groundwater contamination cleanup, recharge, storage, conservation, water recycling, and extraction projects.	7.5, 8.1, 8.2, 8.4, 8.5, 8.6
17. Development of relationships with state and federal regulatory agencies	5.2, 5.3
18. Review of land use plans and coordination with land use planning agencies	9.1
Additional Components Recommended by DWR (App. C of Bulletin 118)	
19. Advisory committee of stakeholders	1.1, 5.1
20. Description of the area to be managed under the Plan	1.2, 2, 3
21. Descriptions of actions to meet management objectives and how they will improve water reliability	4 - 9
22. Periodic groundwater reports	9.2
23. Periodic re-evaluation of Groundwater Management Plan	9.4

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

1.7 - Adoption of Plan

Public Notice of Intention to Modify/Prepare a Regional Groundwater Management Plan

As required by the California Water Code, a public hearing was duly noticed on July 26, 2005 and August 2, 2005 consistent with California Water Code Section 10753.2(a), and held on August 10, 2005 to discuss adoption and implementation of the regional Plan. No public comments were received at this meeting.

Resolution of Intention to Modify/Prepare a Regional Groundwater Management Plan

Each agency adopted a Resolution for Intention to Modify/Prepare the Fresno-Area Regional Groundwater Management Plan. A copy of each agency's resolution is included in Appendix A. This resolution was then published on December 20, 2005 and December 27, 2005 consistent with California Water Code Section 10753.2(a).

Public Participation in Plan Development

The public was invited to participate in the development of the updated Groundwater Management Plan through the newspaper notices and the public hearing. The draft regional plan was then prepared with input from a Technical Advisory Committee (TAC). The Technical Advisory Committee includes landowners and representatives from each party participating in the plan. In October 2005, the Technical Advisory Committee included:

- Dale Stanton, Assistant General Manager, Fresno Irrigation District
- Bill Stretch, District Engineer, Fresno Irrigation District
- Lon Martin, Water Division Manager, City of Fresno
- Brock Buche, Water Division, City of Fresno
- Lisa Koehn, Assistant Utilities Director, City of Clovis
- Alan Weaver, Public Works Director, County of Fresno
- Phil Desatoff, Geologist, County of Fresno
- Jerry Lakeman, Fresno Metropolitan Flood Control District
- Alan Jacobsen, Public Works Director, City of Kerman
- Tim Bakman, Bakman Water Company
- Russ Holcomb, General Manager, Malaga County Water District
- John Garcia, General Manager, Pinedale County Water District
- Richard Carstens, Landowner
- Chris Palmer, Landowner

Following the public hearing regarding the intent to prepare and adopt the Plan, the Garfield Water District (Garfield) expressed an interest in participating in the Plan. The TAC and participants agreed to Garfield's participation. Garfield provided a Letter of Intent to Participate in the plan, and Exhibit 2 of the MOU was updated to include Garfield, as shown in Appendix C. Garfield held a public hearing on December 8, 2005 regarding intent to participate in the Plan. The meeting was publicly noticed on

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

November 26, 2005. Garfield's Board of Directors adopted the Resolution of Intent to Prepare and Adopt the Fresno-Area Groundwater Plan on December 8, 2005.

Public Notice of Intention to Adopt a Regional Groundwater Management Plan

As required by the California Water Code, a public hearing was duly noticed on January 10, 2006 and January 17, 2006, consistent with California Water Code Section 10753.2(a), and held on January 25, 2006 to discuss adoption and implementation of the regional Plan.

Resolution Adopting the Regional Groundwater Management Plan

Each agency adopted a Resolution for Adoption of the Fresno-Area Regional Groundwater Management Plan. A copy of each agency's resolution is included in Appendix B. A listing of the date of adoption by each agency is shown below.

Adopted by:	On:
Fresno Irrigation District	01/25/2006
City of Clovis	02/13/2006
Bakman Water Company	03/13/2006
County of Fresno	07/18/2006
City of Fresno	04/18/2006
Pinedale County Water District	09/20/2006
Fresno Metropolitan Flood Control District	02/08/2006
City of Kerman	03/01/2006
Malaga County Water District	02/14/2006
Garfield Water District	11/01/2006

Public Notice of Resolutions Adopting the Regional Groundwater Management Plan

Notice of the resolutions adopting the Fresno-Area Regional Groundwater management Plan was published on November 24, 2006 and December 1, 2006 consistent with California Water Code Section 10753.2(a).

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

2 - PARTICIPANT INFORMATION

Nine public agencies and one private water company in the Fresno-Clovis metropolitan and surrounding area have collaborated to develop this Plan. The Plan Area covers 455 square miles and is located entirely within Fresno County. The total population in the Plan Area in 2000 was approximately 600,000, according to recent census data. Refer to Figure 1-2 for a map showing the Plan Area boundary and the location of each participant. Table 2-1 summarizes the background information on each of the Plan participants. Figure 2-1 shows the major surface water facilities in the Plan Area, including canals, pipelines, streams, and flood control basins. Following is a brief description of each participant including information regarding the history, demographics, water supply, water quality, and facilities of each.

2.1 - Fresno Irrigation District

The Fresno Irrigation District (FID or District) is a public irrigation district formed pursuant to the California Irrigation District Law (Division 11 of the California Water Code). The District was formed in 1920 as the successor to the privately owned Fresno Canal and Land Company. The District is a local agency responsible for delivery of surface water to lands within the District, and management of groundwater in accordance with this adopted Groundwater Management Plan.

FID is located in the geographical center of Fresno County and extends from the San Joaquin River in the north, south to near the City of Fowler, and roughly from the Friant-Kern Canal to about five miles west of the City of Kerman, as shown in Figure 1-2. The District service area is approximately 245,000 acres (about 380 square miles) and includes the Fresno/Clovis metropolitan area near its center. The District now operates approximately 680 miles of canals and pipelines. Water delivery is provided to approximately 190,000 acres, although this number has been decreasing in recent years as a result of urban expansion.

Potable water is used within the District boundary for municipal, industrial and agricultural purposes. The District delivers approximately 500,000 acre-feet (average annual) of water from the Kings River and Central Valley Project water through the Friant-Kern Canal. Most of this water is delivered to agriculture, although an increasing share of the District's water supply is used for groundwater recharge in the urban area. In 2004, FID began delivery of surface water to surface water treatment facilities operated by the City of Fresno and the City of Clovis. In addition to surface water deliveries, a significant amount of groundwater pumping occurs in the District to meet urban and agricultural demands.

The agricultural lands in the District remain predominantly permanent crops, however the rapid growth of urban development is changing the land use in the Fresno/Clovis

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

metropolitan area. About 150,000 acres (or 60%) of the District remains as farmed agricultural land. Vineyards make up the largest category of farmland at nearly 30% of the total District acreage. Almonds and citrus are other significant categories. Nearly 30% of the District is now urban, with the remaining 10% of land area classified as rural residential.

2.2 - Fresno County

Fresno County was established in 1856 and covers 6,016 square miles extending from the Sierra Nevada mountains to the west side of the San Joaquin Valley. The County population was 824,000 in 2000. The area covered in this Plan (455 square miles) lies entirely within Fresno County. Hence, only a portion of Fresno County is addressed in this Plan, although it is generally the most densely populated area in the County.

Fresno County supplies potable water to communities in the Plan Area through six Community Service Areas (CSAs) and one Waterworks District (WWD). The CSAs and WWD have 14 active wells; one of the CSAs is connected to the City of Fresno water system. County staff monitors groundwater levels and groundwater quality in cooperation with CSA and WWD staff. In rural areas, water is supplied from private domestic wells and sewerage is handled almost exclusively with septic systems. Constituents of concern in Fresno County include nitrates, DBCP, radionuclides, and EDB.

Along the eastern border of the Plan Area, groundwater is limited to fractured zones deep within the underlying bedrock. Locating sustainable groundwater supplies in these areas has been problematic in recent years.

Though dated, significant information on the groundwater in Fresno County can be found in the *Water Resources Management Plan for Fresno-Clovis Urban and Northeast Fresno County*, prepared in 1986 by Fresno County.

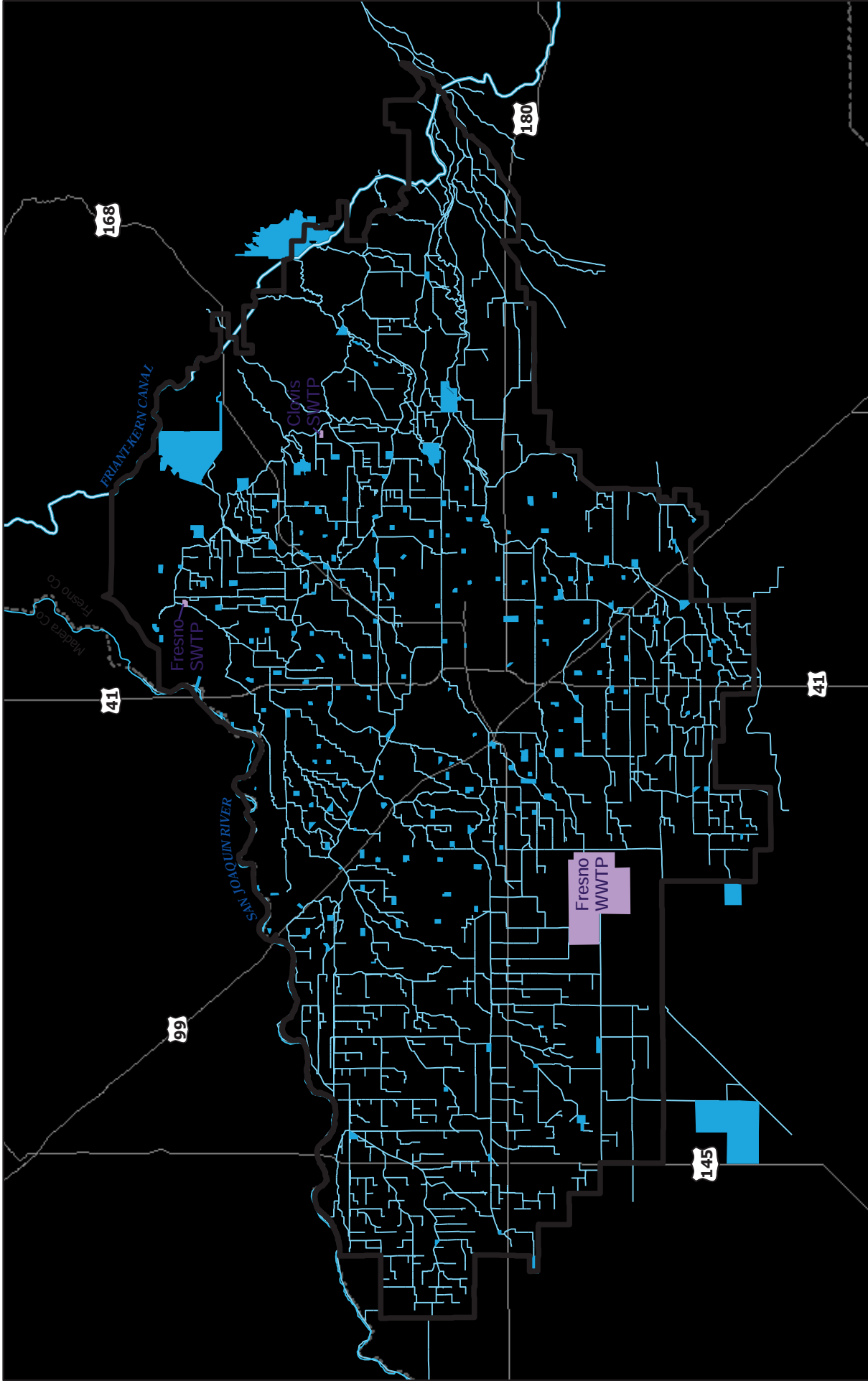


Figure 2-1
Surface Water Facilities
 Fresno-Area Regional
 Groundwater Management Plan

Wastewater Treatment Plant
 GWMP BOUNDARY
 FMFCD Basins and FID Ponds
 Water Facilities (Canals, Pipelines and Streams)

N
 0 1 2 3 4 Miles

 EST. 1958
PROVEST & PRITCHARD
 ENGINEERING GROUP, INC.
An Enbridge Company
 286 W. Cromwell Ave.
 Fresno, CA 93711-6162
 (559) 449-2700

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

2.3 - City of Fresno

The City of Fresno was founded in 1885 and had a population in 2003 of 457,000. The total area of the City is 102.5 square miles, but the City only serves water to 87.2 square miles. The City of Fresno serves customers located within the city limits, as well as in some unincorporated areas (county islands). The City of Fresno has and continues to be one of the fastest growing cities in California.

The City of Fresno supplies water to residential, commercial, industrial and landscape irrigation customers. The City does not provide water for any agricultural purposes. In 2005, the City had 120,399 connections, and 14% of the connections were measured. Since water is metered for all of the large water users, 33% of total water deliveries are measured.

The City of Fresno's primary source of water is groundwater from the Fresno Sole Source Aquifer, a large underground aquifer. The City of Fresno's domestic water system is somewhat unique for a water system of its size. Prior to beginning a new 30 million gallons per day (MGD) surface water treatment plant (SWTP) in 2004, the Fresno water system was one of the largest water systems in the United States relying solely on pumped groundwater as its only source of potable water. The total water pumped from Fresno's 250 wells exceeded 54 billion gallons (166,000 AF) in 2003.

The City of Fresno also has two surface water supplies: 60,000 AF of CVP water from the Friant system (San Joaquin River) and more than 100,000 AF (average annual) from the Kings River through a contract with FID. Since the mid-1960's surface water from these rivers has been imported to the City of Fresno via FID canals and placed into groundwater recharge basins. In cooperation with FID and FMFCD, the City of Fresno currently diverts more than 40,000 acre-feet of surface water per year to more than 70 basins throughout the Plan Area for the purposes of groundwater recharge. More than 40,000 AF was recharged during the 2005 irrigation season. Surface water is now also conveyed to the City's new SWTP located in northeast Fresno.

The City of Fresno measures water levels on a quarterly basis and performs water quality testing according to Department of Health Service (DHS) requirements. Eight major contaminant plumes are present in Fresno, and they are being addressed by the responsible parties through assessment and remediation, and some are in advanced stages of mitigation. The inorganic plume contaminants include chloride, nitrate, arsenic, and chromium. Organic plume contaminants include petroleum hydrocarbons and methyl tertiary-butyl ether (MTBE), chlorinated volatile organic chemicals (VOCs), Dibromo-Chloropropane (DBCP) and other pesticides, and trichloropropane (TCP). The City currently has 32 active municipal wells that are treated for DBCP or TCE.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

For more information on groundwater in the City of Fresno refer to the City of Fresno Water Conservation Plan (2005), the Fresno Metropolitan Water Resources Management Plan (1992), and the Fresno Municipal Code, Chapter 14, Water Regulations.

2.4 - City of Clovis

The City of Clovis (Clovis) is located in eastern Fresno County, just east of the City of Fresno. Clovis was incorporated in 1912 and now covers an area of 19.76 square miles. The population of Clovis in 2005 was 86,215. Clovis also delivers domestic water to the unincorporated area known as Tarpey Village, which in 2005 has a population of 3,957.

In 2004, groundwater pumping in Clovis was about 7,500 MG (23,000 AF). Clovis has 36 active wells; other wells have been abandoned due to low yields, sanding, or contamination problems. Some wells have facilities for granulated activated carbon (GAC) treatment. Clovis monitors groundwater quality according to DHS requirements, and monitors groundwater levels semi-annually.

Clovis lies on the eastern side of a large cone of depression that underlies the Fresno-Clovis Metropolitan area. In 1997, groundwater overdraft was estimated to be 2,500 AF/year. This amount has increased due to rapid urban growth and a corresponding increase in groundwater demand. Clovis performs intentional groundwater recharge using Kings River water derived from entitlements through FID. The annual surface water entitlement for Clovis currently is over 20,000 AF in an average year. Recharge is performed in single purpose recharge basins owned by Clovis, dual-purpose storm drainage basins owned by the Fresno Metropolitan Flood Control District (FMFCD), and local channels including Dry Creek, Redbank Creek, and Dog Creek. More than 9,000 acre-feet of surface water is currently recharged annually.

In 2004, Clovis also constructed and placed into operation a 15 MGD capacity surface water treatment plant. The plant is providing treated surface water to the easterly portion of Clovis. Clovis, in cooperation with FID, also has areas where surface water from FID's canal system is directly delivered to areas of large landscaping such as cemeteries, schools and parks.

For additional information on the groundwater resources in Clovis refer to the following reports prepared by Provost and Pritchard Engineering Group: *City of Clovis Groundwater Recharge Investigation Report* (1997) and *Groundwater Monitoring and Recharge Investigation Project* (2003).

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

2.5 - City of Kerman

The City of Kerman (Kerman) is located in central Fresno County, near the western edge of the Plan Area. Kerman was incorporated in 1946 and had a population of 11,500 in 2004. Kerman occupies 2.5 square miles and the surrounding area is predominantly an agricultural community.

Kerman serves urban water to residential (2,104), commercial (307) and industrial (7) connections. All of Kerman's water supplies come from locally pumped groundwater and the City does not have the water rights for any surface supplies. In 2004, Kerman pumped a total of 988 million gallons (3,030 AF) of groundwater. Kerman has four active wells and one well on standby. The construction of two new wells is planned for 2006. Planned improvements will be capable of meeting projected water demands through 2011. Kerman is also developing a groundwater recharge partnership with FID. The program would place combination flood control/recharge basins close to FID conveyance facilities.

Groundwater is available to Kerman from a deep aquifer, beneath the Corcoran Clay, and a shallow aquifer above the Corcoran Clay. The shallow aquifer sometimes has high levels of uranium. Kerman is experiencing accelerated urban growth and expects new developments to rapidly increase water demands. As a result, Kerman is investigating surface water supplies, or the use of water from the shallow aquifer for landscaping, as alternatives for meeting the growing demand.

For more information on Kerman's water supplies and facilities refer to the *City of Kerman Capital Improvement Plan* prepared by Yamabe and Horn in 2004.

2.6 - Malaga County Water District

Malaga County Water District (Malaga or District) is a water and wastewater utility district covering 2.3 square miles just south of the City of Fresno. Malaga began delivering water in 1965 and now serves a residential population of about 1,300 from 224 residential connections and 220 industrial/commercial connections. Residential development in Malaga is nearly complete; existing zoning and readily available land allow for continued commercial and industrial development. All new industrial and commercial enterprises will be required to connect to the District water system.

Since 1982 the demand for water has generally been increasing. Malaga depends entirely upon groundwater to meet its water needs, and, in 2003, District wells supplied 602 million gallons (1,848 AF). However, there is no pumping data available for the many private wells in the area. Malaga is currently in discussions with neighboring agencies to participate in groundwater recharge projects to replenish the groundwater supplies.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

Malaga has three active wells and two that have been removed from service due to a variety of contamination problems, including nitrates and DBCP's. Malaga also operates a wastewater treatment plant (WWTP) with a capacity of 1.2 MGD. Effluent from the WWTP is delivered to percolation ponds. If necessary, tertiary treated overflow is discharged into FID's Central Canal.

Additional information on Malaga's facilities, water usage, and groundwater quality can be found in the *2004 Malaga County Water District Water Supply Report* prepared by Provost and Pritchard Engineering Group.

2.7 - Pinedale County Water District

Pinedale County Water District (PCWD or Pinedale) was formed in 1954 and presently delivers water to approximately 2,400 residential and 550 commercial customers. Pinedale covers 1.7 square miles and is located in the north central portion of the Plan Area, with portions of the district in the City of Fresno and unincorporated Fresno County. Some areas in Pinedale remain undeveloped, and consequently water demands are expected to increase as the lands are occupied.

Pinedale has five active wells, but typically only needs to operate three to meet current water demands. Some other wells in Pinedale are no longer used due to TCE contamination. No treatment or chlorination is presently performed on a regular basis on any of the pumped groundwater. Pinedale monitors groundwater quality according to DHS requirements. Pinedale does not presently monitor groundwater levels.

Pinedale also collects sewage and delivers it to the Fresno sewerage system, except for an area in the northwest portion of the district where sewerage is collected by the Pinedale Public Utilities District. About 20 residential units in the eastern portion of Pinedale are still on underground septic systems.

2.8 - Fresno Metropolitan Flood Control District

The Fresno Metropolitan Flood Control District (FMFCD) was founded in 1956 to provide flood control, local storm drainage management, water conservation, and recreational services in the Fresno-Clovis Area. The district is located in the north-central portion of Fresno County between the San Joaquin and Kings Rivers. FMFCD is authorized to control storm waters within an urban area and rural foothill watersheds of approximately 400 square miles, known as the Fresno County Stream Group. About 270 square miles of the service area lies within the area covered by this Groundwater Management Plan.

The FMFCD currently has three reservoirs, five regional flood control detention basins planned, and 163 local basins constructed or in planning. The principal method of disposal of stormwater in the area is groundwater recharge at all of these basins.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

FMFCD monitors water deliveries to flood control/recharge basins and tests the chemical composition of sediments that collect in basins. FMFCD does not presently monitor groundwater levels or groundwater quality.

FMFCD is the lead agency for stormwater quality management and has primary responsibility for implementing a Stormwater Quality Management Program developed jointly with the City of Clovis, City of Fresno, County of Fresno, and California State University at Fresno. FMFCD has been involved with the Nationwide Urban Runoff Program (NURP) project, in conjunction with the Environmental Protection Agency (EPA). The goal of the program was to determine the extent to which urban runoff contributes to water quality problems and evaluate various management practices.

FMFCD maintains as its first operational priority the protection of people and property from flood damage. However the FMFCD also aims to conserve water by (1) retaining storm water runoff in basins to facilitate storm water percolation; and (2) cooperating with the Cities of Fresno and Clovis to direct imported surface water entitlements to District facilities for percolation.

For more information on FMFCD refer to the *FMFCD District Services Plan* prepared in 2004.

2.9 - Bakman Water Company

Bakman Water Company (Bakman) is a privately owned utility that has provided water service to the Fresno area since 1948. Bakman delivers water to approximately 1,800 connections serving 10,000 customers. Bakman's service area covers 1,660 acres within the southeastern portion of the City of Fresno and parts of unincorporated Fresno County.

Bakman is currently negotiating a contract with FID for a surface water allotment. Bakman does not have any other contract for surface water to be treated and delivered to its customers, and therefore delivers pumped groundwater to its customers. Bakman pumped a total of 1,270 MG (3,900 AF) of water in 2003. Water is served to residential and commercial customers. Bakman currently has ten active wells, three standby wells, and three inactive wells. Numerous private wells are found in the Bakman service area. However, new developments are required to connect to the Bakman water system.

Water quality concerns in Bakman include nitrate contamination from food processing industries and DBCP. Due to these water quality concerns, three wells have been classified as "standby wells" in accordance with Department of Health Services (DHS) standards. Blending and GAC treatments are working at other wells to reduce nitrate and DBCP concentrations within Bakman's boundary. All wells are plumbed and wired to allow for emergency chlorination.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

In 1991, Bakman signed an agreement with FID to fund groundwater recharge projects in FID through an annual payment. In addition, Bakman is presently pursuing groundwater recharge projects within its boundaries.

2.10 - Garfield Water District

Garfield Water District (Garfield) delivers surface water for agricultural uses to approximately 1,300 of the 1,750 acres within the District. Garfield recently entered into a Long-Term Renewal Contract with the United States for Project Water Service from the Friant Division. The contract is for 3,500 acre-feet of Class 1 water. Water deliveries to Garfield are made from a turnout on the Friant-Kern Canal, and metered delivery is made to the growers via a pipelined system. The predominant crops in Garfield are grapes, almonds, citrus, olives and stone fruits.

Garfield does not own nor operate any wells. All groundwater within Garfield is pumped from privately owned wells.

2.11 - Surrounding Area

Although not Plan participants, the neighboring water agencies shown in Figure 2-2 will be kept apprised of groundwater projects and policies that may impact them. Lands to the south and west of the Plan Area are particularly important since they are downgradient and located in the same groundwater sub-basin. Lands to the north share less hydrologic connection due to the partial hydraulic barrier created by the San Joaquin River.

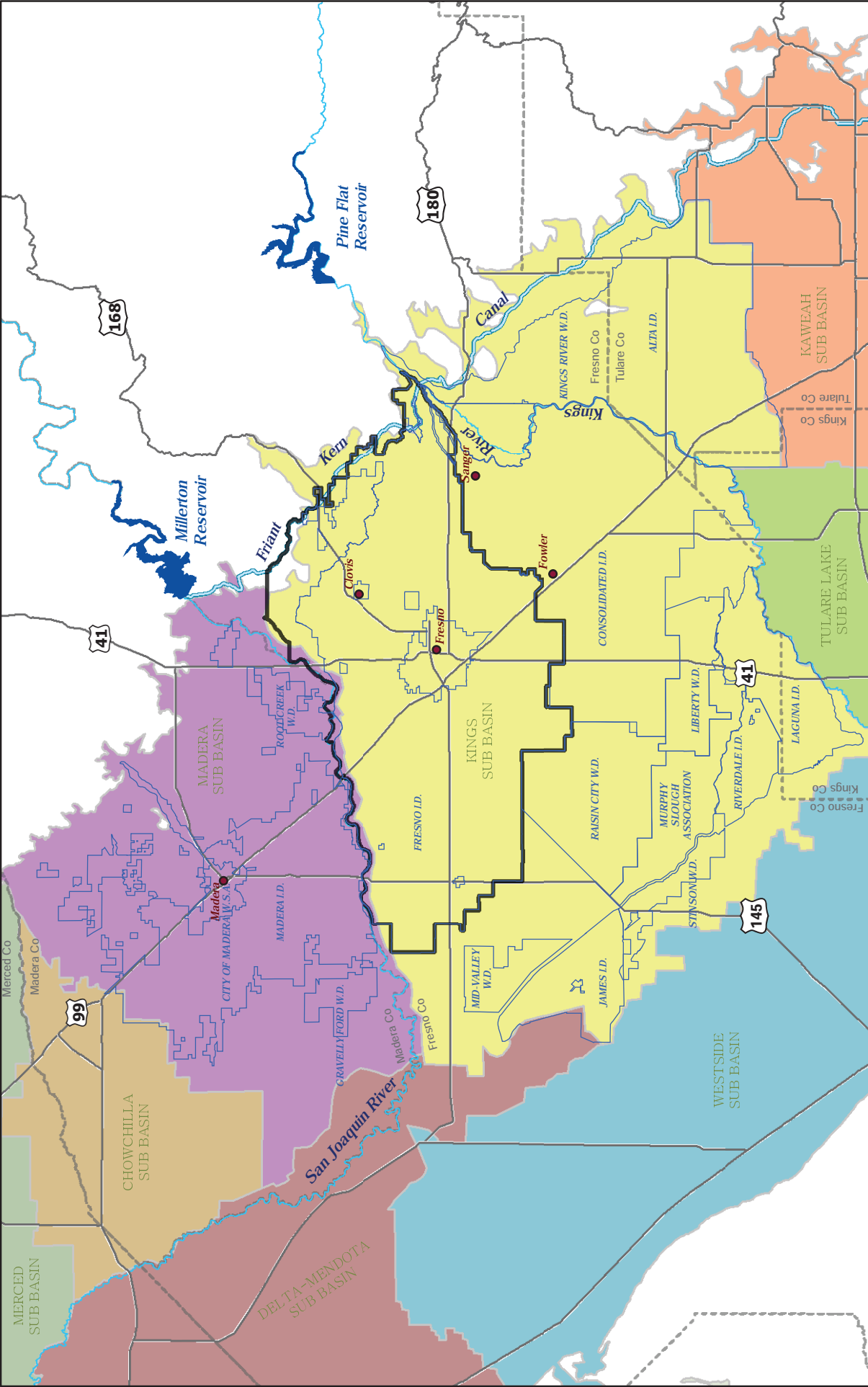


Figure 2-2
Neighboring Agency Map
 Fresno-Area Regional
 Groundwater Management Plan

Groundwater Sub Basins

- Westside
- Chowchilla
- Madera
- Delta-Mendota
- Merced
- Tulare Lake
- Kings
- Kaweah

GMP BOUNDARY

GMP BOUNDARY

Water Agencies

Water Agencies

0 3 6 9 12 Miles

N

PROVOST & PRITCHARD
 EST. 1968
 ENGINEERING GROUP
 A MCGRAW-HILL COMPANY

286 W. Cromwell Ave.
 Fresno, CA 93711-6162
 (559) 449-2700

TABLE 2-1

**FRESNO-AREA REGIONAL GROUNDWATER MANAGEMENT PLAN
SUMMARY OF PARTICIPANTS**

Description	Fresno Irrigation District	Fresno County	City of Fresno	City of Clovis	City of Kerman	Malaga County Water District	Pinedale County Water District	Fresno Metro. Flood Control District	Bakman Water Company
Address	2907 South Maple, Fresno, CA, 93725	2220 Tulare St, 7th Floor, Fresno, CA 93721	1910 East University Ave., Fresno, CA 93703-2988	155 N. Sunnyside Ave. Clovis, CA 93611	850 S. Madera, Kerman, CA 93630	3580 S. Frank St., Fresno, CA 93725	480 W. Birch Avenue, Pinedale, CA 93650	5469 E. Olive Avenue, Fresno, CA 93727	PO Box 7965, Fresno, CA, 93747
Website	www.fresnoirrigation.com	www.co.fresno.ca.us	www.ci.fresno.ca.us	www.ci.clovis.ca.us	-	-	-	www.fresnofloodcontrol.org	www.bakmanwater.com
Gross Area (square miles)	387	6,016 (455 within Plan area)	103	19.8	2.5	2.3	1.7	400 (___ within Plan area)	2.4
Formation Date	1920	1856	1885	1912	1946	1965	1954	1956	1948
Population Served ⁽¹⁾			466,200	90,000	11,500	1,300			10,000
Water Users		Urban	Urban	Urban	Urban	Urban	Urban	Urban	Urban
Production Wells ⁽²⁾	0	14	250	36	4	3	5	0	11
Groundwater Pumping - Volume (year)	0		54,000 MG (2003)	7,500 MG (2004)	990 MG (2004)	600 MG (2003)		None	1,270 MG (2003)
Primary Constituents of Concern		Nitrates, DBCP, radionuclides, EDB	Nitrate, arsenic, petro hydrocarbons, VOCs, DBCP, TCP	DBCP, nitrates, TCP	Uranium	Nitrate, DBCP	TCE	Various urban runoff contaminants	Nitrate, DBCP
Groundwater Level Monitoring Program	Y	Y	Y	Y	Y	Y	N	N	Y
Groundwater Quality Monitoring Program	N	Y	Y	Y	Y	Y	Y	Y (monitors storm water quality)	Y

(1) The 'Population Served' is the approximate population that the agency shown is provided.

(2) Only includes active wells owned and operated by the participant. Does not include private wells in the participant's area.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

3 - GEOLOGY AND HYDROGEOLOGY OF THE FRESNO AREA

This section provides a brief summary of the geology, hydrogeology, and groundwater conditions in the Plan Area. For additional details refer to the reports listed in Section 10 - References.

3.1 - Geology

The largest geomorphic features in the Plan Area are two high fans deposited by the San Joaquin River and Kings River. A compound alluvial fan of intermittent streams between the two rivers also extends southwesterly from the northeast portion of the Plan Area. Unconsolidated alluvial deposits comprised of layers of cobbles, gravel, sand, silt and clay comprise the aquifer. Highly permeable, coarse-grained deposits of the ancestral San Joaquin and Kings Rivers underlie most of the area. These deposits comprise Quaternary age alluvium and the underlying Quaternary-Tertiary Continental deposits. These deposits are present above a depth of 350 to 400 feet below land surface and are tapped by most large-capacity wells in the area.

The Tertiary-Quaternary age continental deposits are composed mainly of the fine-grained sands, silts, and clays with some lenses of coarse-grained deposits. The thickness ranges from a feather edge in the east to more than 1,300 feet in the west. These deposits generally yield less groundwater to wells compared to the overlying more permeable deposits.

3.2 - Hydrogeologic Characteristics

Groundwater Basin

The Plan Area lies within the Kings Groundwater Sub-basin, which is located within the San Joaquin Basin Hydrologic Study Area (HSA). The Kings Sub-basin is also identified as sub-basin 5-22.08 of the Tulare Lake Hydrologic Region in the DWR Bulletin 118 updated in 2003. The Kings Sub-basin extends from the Sierra Nevada foothills on the east to the San Joaquin Valley trough on the west, and from the San Joaquin River on the north to roughly the Fresno County line on the south. Refer to Figure 1-1 for the location of each participant in relation to the Kings Sub-basin. The Kings sub-basin has been identified as critically overdrafted, as identified in DWR Bulletin 118-80.

Aquifer Characteristics

Most of the aquifer underlying the Plan Area is generally unconfined but may be semi-confined in some locations due to localized, fine-grained, low permeability layers. For much of the Plan Area there are no extensive low permeability units to isolate deep aquifers from shallow aquifers. At the west edge of the Plan Area, near the City of Kerman, there is an area underlain by the Corcoran Clay.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

Groundwater Levels

Groundwater levels in the Plan Area range from about 10 feet to 400 feet below the ground surface. A large cone of depression under the Fresno/Clovis metropolitan area has developed. Figure 3-1 is a chart illustrating the decline in average water level in the Plan Area in recent years. Figure 3-2 shows hydrographs of selected wells within the Plan Area, showing the decline in groundwater levels for wells in the Fresno/Clovis metropolitan area since the 1950's. There is also a mound that has formed in the area of the Fresno-Clovis Regional Wastewater Treatment Facility located south and west of the City of Fresno.

Groundwater Movement

Historically, groundwater moved from northeast to southwest. More recently, the heavy municipal and agricultural pumping in the area has influenced the natural groundwater flow. The pumping cone of depression has caused the southwesterly flows to decrease and flows are generally deflected into the urban area. Figure 3-3 shows recent groundwater levels within the Plan Area.

Transmissivity

The ability of an aquifer to transmit groundwater is measured by its transmissivity. Transmissivity is defined as the quantity of groundwater that would move through a one-foot-wide section of the total thickness of the aquifer under a unit hydraulic gradient. Transmissivity in the Plan Area is spatially distributed with the highest transmissivity in the northwest. Well yields are higher in the northwestern and southwestern portions of the Plan Area. The well yields in the northeast are limited because a thinner aquifer is present above bedrock.

Specific Yield

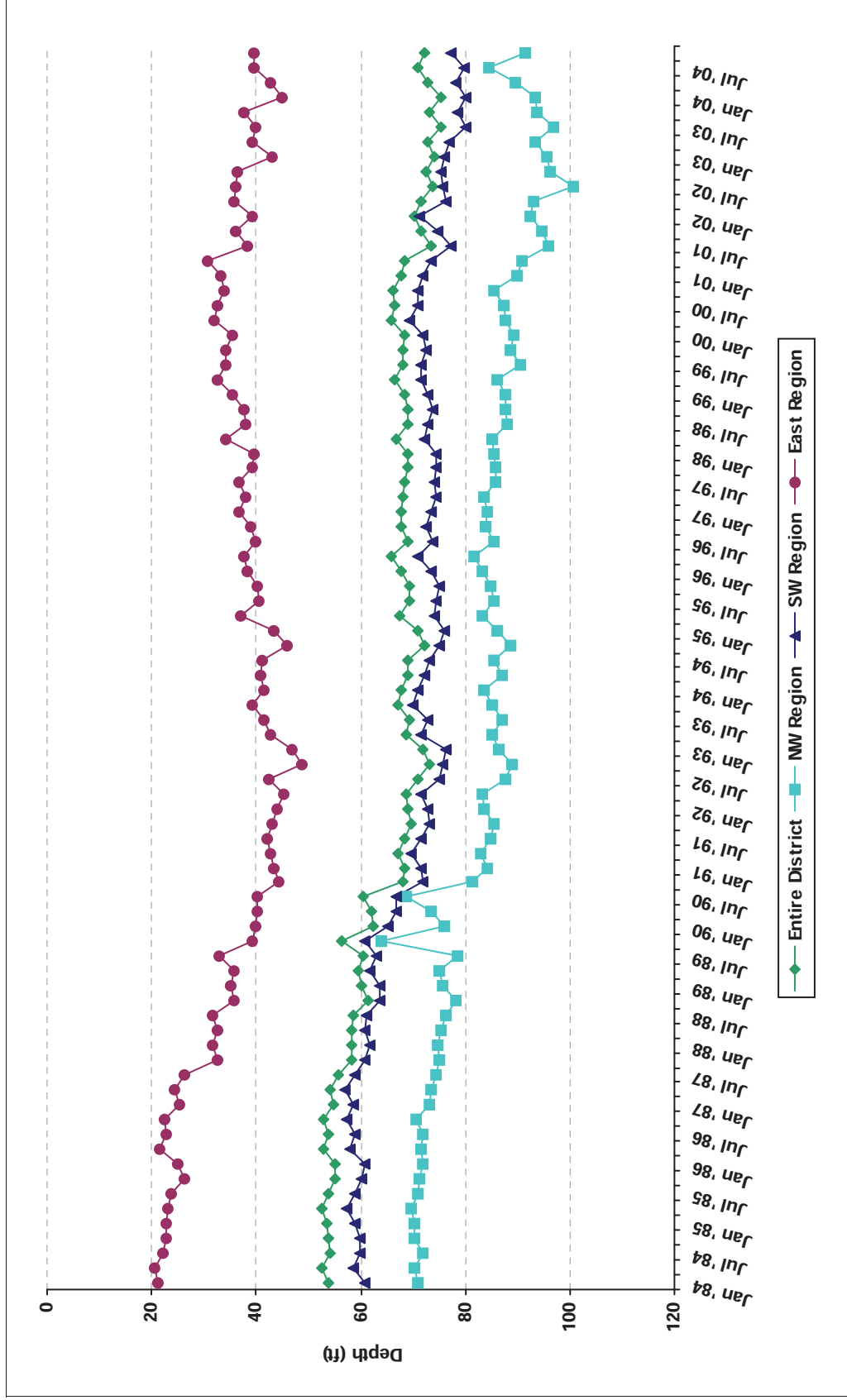
The ability of an aquifer to store groundwater is measured by its specific yield. Specific yield is defined as the quantity of groundwater that could be extracted from a unit volume of aquifer per unit decline in water level. The specific yield of an aquifer is important for evaluating the response of an aquifer to pumping. For example, if the specific yield is known, analysis of well hydrographs can be used to monitor the quantity of groundwater in storage in the reservoir. Estimates of specific yield of the older alluvium range from 0.15 to 0.20. Average values for the underlying continental deposits are estimated to range from 0.07 to 0.12.

Groundwater Development

The most favorable subsurface geologic conditions for the future development of groundwater are in the northwest Fresno area. Subsurface geologic conditions limit groundwater development in the northeast because of shallow bedrock north and northeast of Clovis and the predominance of fine-grained deposits at depth beneath these areas.

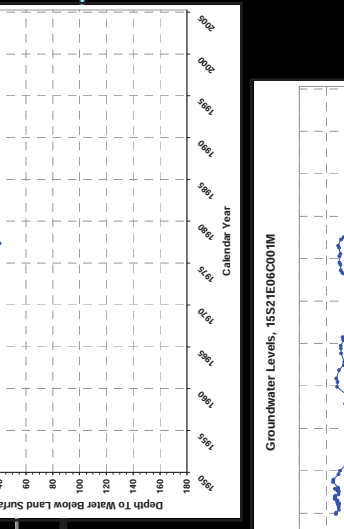
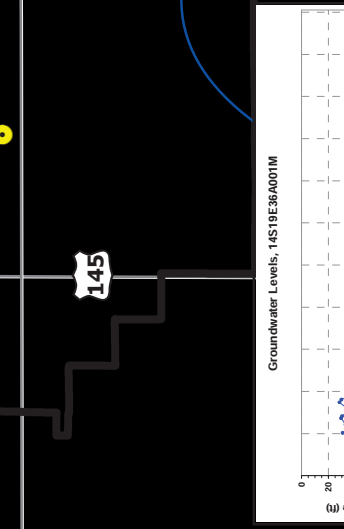
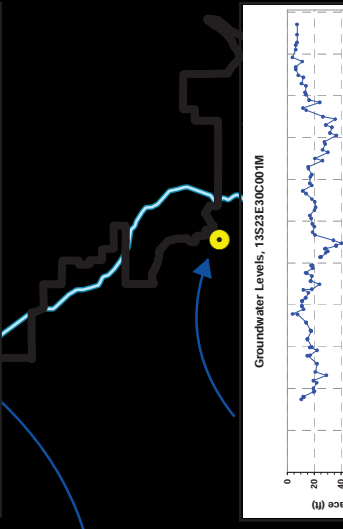
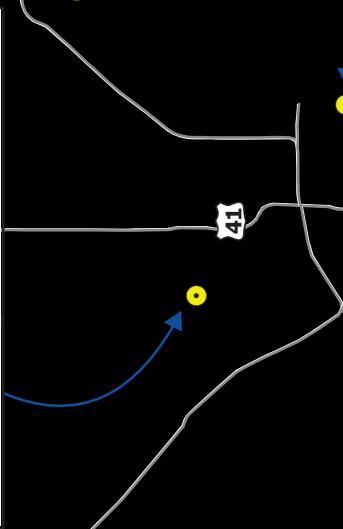
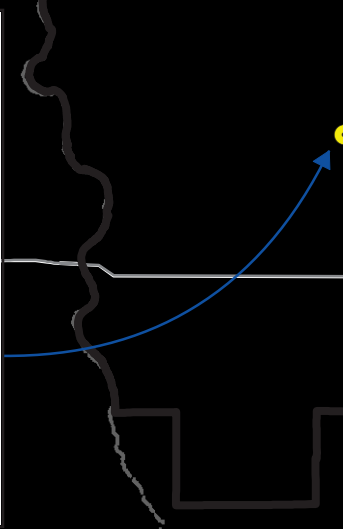
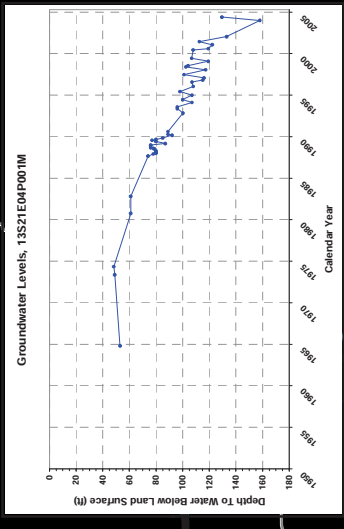
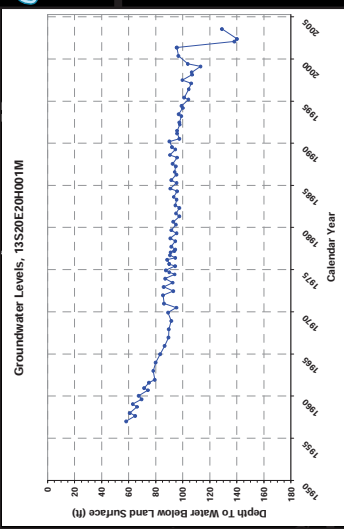
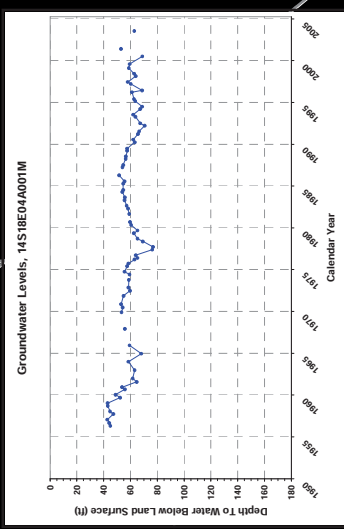
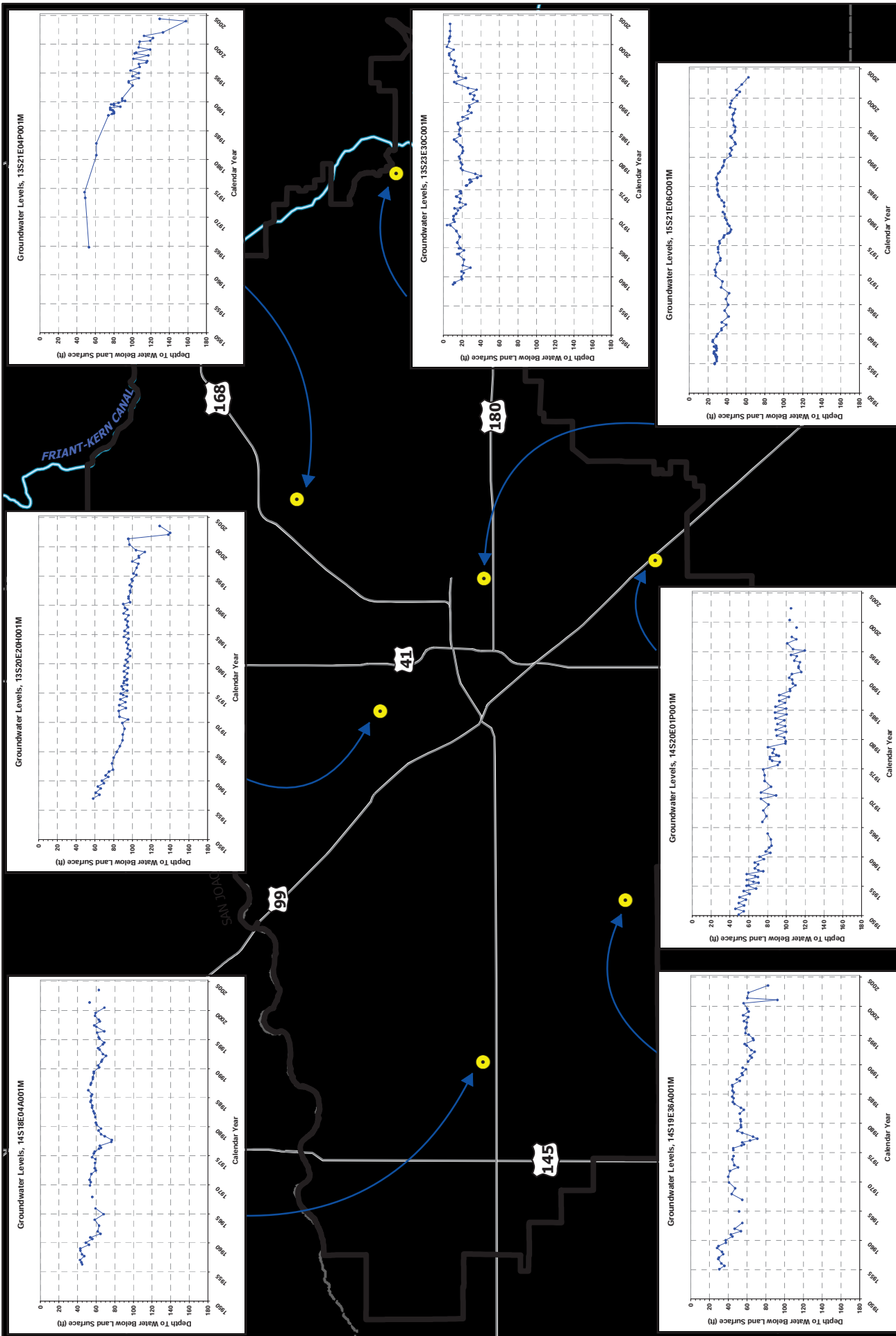
Fresno Irrigation District Regional Quarterly Weighted Average Depth To Groundwater

1/1/1984 To 10/1/2004



*NW Region is north of Belmont Ave, west of Fowler Ave
 *SW Region is south of Belmont Ave, west of Fowler Ave
 *East Region is east of Fowler Ave

Figure 3-1



PROVOST & PRITCHARD
 CIVIL ENGINEERS
 AN ENGINEERING COMPANY

286 W. Cromwell Ave.
 Fresno, CA 93711-6162
 (559) 449-2700

0 1 2 3 4 Miles

N

GMP BOUNDARY

FRIANT-KERN CANAL

Figure 3-2
Well Hydrographs
 Fresno-Area Regional
 Groundwater Management Plan

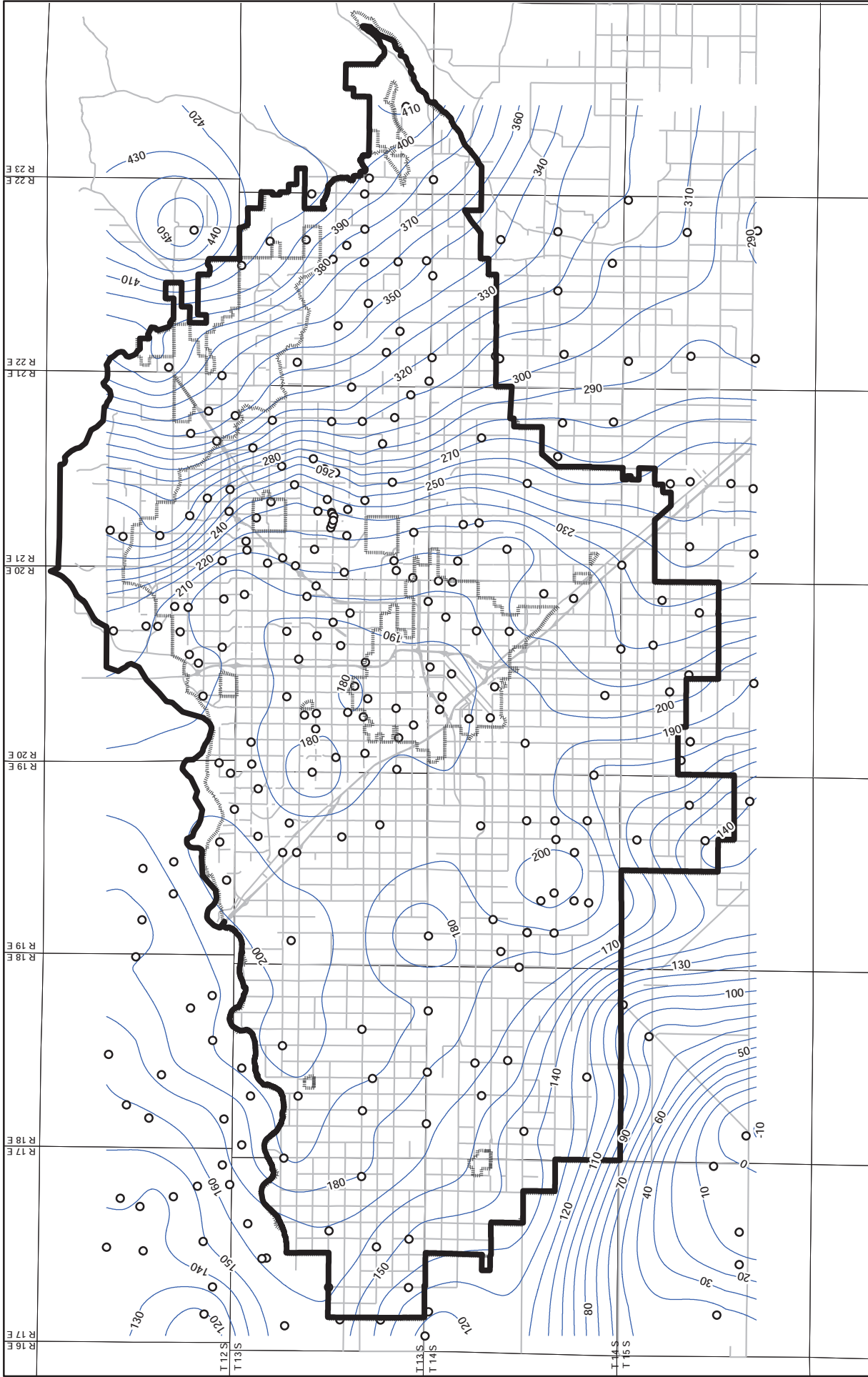


Figure 3-3
FID Annual Groundwater Report
Water Surface Elevation Contours
 Fresno-Area Regional
 Groundwater Management Plan

January 2005 Water Surface Elevation
 10 Foot Lines of Equal Elevation

Legend

- WSE (contours 10ft)
- Fresno ID Boundary
- Major Streets
- T / R
- Wells (Jan2005)
- GMP BOUNDARY

0 1 2 3 4 Miles

N

PROVOST & PRITCHARD
 EST. 1968
 ENGINEERING GROUP
 An Irwin Company

286 W. Cromwell Ave.
 Fresno, CA 93711-6162
 (559) 449-2700

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

Intentional Recharge

Subsurface geologic conditions are favorable for intentional recharge basins beneath the much of the Plan Area. Conditions are less favorable beneath part of the northeast portions of the Plan Area because of the restricting layers above the water table.

Substantial operational information on average infiltration rates is available from stormwater management basins managed by the Fresno Metropolitan Flood Control District. Typical infiltration rates range from about one-third to one-half foot per day. Much of this water is observed to move laterally in highly permeable deposits.

3.3 - Groundwater Conditions within the Plan Area

A combination of surface water supplies and groundwater pumping are used to satisfy the water demands of the area. In agricultural areas, the difference between surface deliveries and the agricultural crop requirements is met by supplemental groundwater pumping almost exclusively by private individual landowners. For many years, all municipal and industrial demands were met entirely from groundwater pumping. However, both the City of Clovis and City of Fresno have recently begun operation of surface water treatment plants.

The Plan participants have long recognized the importance of preserving and maximizing groundwater supplies within its boundaries. Some participants have actively facilitated groundwater recharge and groundwater banking, and have engaged in indirect or "in lieu" recharge programs by delivering surplus surface water whenever possible to minimize groundwater extractions.

Water level measurements taken within the Plan Area show a continued downward trend in the groundwater elevations.

Some areas within the Plan Area's service area suffer from groundwater quality degradation, particularly where the groundwater is used as a potable water supply. Some areas have identified "plumes" of contamination resulting from discharges of industrial or agricultural contaminants, and in some instances groundwater quality has been degraded to below that required by applicable regulatory standards. While most groundwater within the Plan Area is still of acceptable quality, these contamination plumes could spread if not properly managed and controlled.

3.4 - Historic Groundwater Monitoring Programs

Several groundwater studies of the Plan Area have been performed since 1930. These studies are conveniently summarized in the *Water Resources Management Plan for Fresno-Clovis Urban and Northeast Fresno County* (1986) prepared in a cooperative effort by the County of Fresno, the Cities of Clovis and Fresno, the Fresno Irrigation

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

District, and the Fresno Metropolitan Flood Control District. Most of these studies focused on water quality with the remainder focusing on groundwater levels and storage. Geologic and hydrogeologic information for the Plan Area is described in the U.S.G.S. Open File Report, *Geology, Hydrogeology & Water Quality in the Fresno Area, California* (Page & LeBlanc, 1969).

Groundwater Levels

A groundwater-level monitoring program was developed when FID was formed in 1920. The program included monthly and quarterly measurement of wells within FID. As more farmers installed wells, FID began to use additional wells for measuring water levels. The water level measurement program has been maintained since 1920 and covers the vast majority of the Plan Area. FID began to store and organize water level data in a database in 1995, and has prepared annual Groundwater Reports for many years.

In the early 1970's the DWR completed a study of the aquifer underlying FID to determine the specific yields and available storage in the aquifer by township and range. FID has incorporated this information into its quarterly groundwater reports so that changes in storage are calculated.

Groundwater Quality

Extensive groundwater-quality testing has been performed by various agencies in the Plan Area. Since the 1960's, testing for general chemical, trace mineral, and inorganic substances has been routinely performed on a large number of the community wells located in the Fresno/Clovis metropolitan area.

The available water quality data is voluminous and therefore is not presented in this Plan. The reader is referred to specific Plan participants if they seek water quality data.

In the *Water Resources Management Plan for Fresno-Clovis Urban and Northeast Fresno County* (1986) water quality was evaluated through research and assimilation of all available data, and the collection and analyses of water samples where additional data was needed. Documentary evidence of water quality held by the California Department of Health Services (DHS), Regional Water Quality Control Board (RWQCB), Department of Water Resources (DWR), Fresno County Health Departments Environmental Health System (EHS), and other agencies and municipalities were examined along with a historical review of pertinent literature. In addition, data developed from water quality hydrographs were grouped and evaluated in the report. Since 1986, a vast quantity of additional water quality data has been collected by the aforementioned agencies and the Plan participants.

Land Subsidence and Groundwater Impacts on Surface Water Flow and Quality

The Plan participants have not historically monitored land subsidence and groundwater impacts on surface water flow and quality. Refer to sections 6.4 and 6.5 for more information on these topics, respectively.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

4 - REGIONAL GROUNDWATER MANAGEMENT OBJECTIVES

The Plan Area is, and will continue to be, dependent on groundwater as a significant water supply source. The Plan objectives have been developed to monitor, protect and sustain groundwater within the region. These objectives of the Fresno-Area Regional Groundwater Management Plan include:

1. Preserve and enhance the existing quality of the area's groundwater.
2. Correct the overdraft and stabilize groundwater levels at the highest practical beneficial levels.
3. Preserve untreated groundwater as the primary source of domestic water.
4. Maximize the available water supply, including conjunctive use of surface water and groundwater.
5. Conserve the water resource for long-term beneficial use and to assure an adequate supply for the future.
6. Manage groundwater resources to the extent necessary to ensure reasonable, beneficial, and continued use of the resource.
7. Monitor groundwater quality and quantity to provide the requisite information for establishing groundwater policies, goals, and recommended actions.
8. Improve coordination and consistency amongst agencies responsible for the monitoring and management of groundwater in the Plan Area.

The proposed actions identified within each of the sections of this Plan are intended to help accomplish these Plan objectives.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

5 - STAKEHOLDER INVOLVEMENT

5.1 - Advisory Committee of Stakeholders

The Technical Advisory Committee (TAC) was formed to guide the development and implementation of this Plan. The TAC includes landowners and representatives from each party participating in the plan. In October 2005, the TAC members include:

- Dale Stanton, Assistant General Manager, Fresno Irrigation District
- Bill Stretch, District Engineer, Fresno Irrigation District
- Lon Martin, Water Division Manager, City of Fresno
- Brock Buche, Water Division, City of Fresno
- Lisa Koehn, Assistant Public Utilities Director, City of Clovis
- Alan Weaver, Public Works Director, County of Fresno
- Phil Desatoff, Geologist, County of Fresno
- Jerry Lakeman, Fresno Metropolitan Flood Control District
- Alan Jacobsen, Public Works Director, City of Kerman
- Tim Bakman, Bakman Water Company
- Russ Holcomb, General Manager, Malaga County Water District
- John Garcia, General Manager, Pinedale County Water District
- Richard Carstens, Landowner in Fresno Irrigation District
- Chris Palmer, Landowner in Fresno Irrigation District

The TAC ensures representation from a broad spectrum of interests including public agencies, private utilities, local landowners, agricultural water purveyors, urban water purveyors, and special districts.

Planned Activities

A TAC will meet semi-annually or more frequently if deemed appropriate. The Committee will have the following responsibilities:

- Review trends in groundwater levels and groundwater quality;
- Evaluate the effectiveness of current groundwater management policies and facilities;
- Discuss the need for new groundwater management policies and procedures;
- Discuss the need for new groundwater supply/enhancement facilities;
- Evaluate the progress of on-going groundwater related projects;
- Assess the overall progress in implementing the programs outlined in the Groundwater Management Plan;
- Recommend updates or amendments to the Groundwater Management Plan;
- Identify regional and multi-party groundwater projects;
- Identify and share information on funding opportunities for groundwater projects;
- Share new ideas and methods for managing groundwater;

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

- Update Plan participants on the efforts of other regional groups; and
- Review and comment on the Annual Groundwater Report.

5.2 - Relationships with Other Agencies

The participants have been and continue to be involved in many programs, studies and committees that include groundwater related items in this Plan as part of their focus or charge. The Participants will continue to be involved in these efforts. A summary of some of these efforts is included here.

1986 Water Resources Management Plan

As described in the 1986 Water Resources Management Plan (1986 Plan), the Fresno Irrigation District (FID), City of Fresno (Fresno), the City of Clovis (Clovis), the County of Fresno (County), and the Fresno Metropolitan Flood Control District (FMFCD) have partnered in a cooperative effort to develop and implement a comprehensive surface and groundwater management program consistent with the Water Resources Management Plan for Fresno-Clovis Urban and Northeast Fresno County. The 1986 Plan, prepared with a grant from the Environmental Protection Agency (EPA) under Section 205j of the Clean Water Act, is a water quality and quantity project to plan for the preservation and enhancement of the area water supply.

Fresno/Clovis Area Recharge Program

The five agencies have entered into a Master Agreement for management of water quality and quantity for the area. The main thrust of the program involves using the FID's delivery system to deliver portions of the Fresno and Clovis water allocations to certain FMFCD basins for recharge during the summer when the basins are not needed to control urban storm runoff. Fresno and Clovis both own and operate significant recharge facilities to which a portion of the cities' water allocations is also delivered using the FID's system. This program also contains elements designed to protect the quality of groundwater in the area.

Integrated Storage Investigation Program

Other basin wide groundwater management efforts include a Memorandum of Understanding (MOU) with the Department of Water Resources entered into on May 24, 2001, as part of the Integrated Storage Investigation (ISI) program. The MOU between DWR, the Kings River Conservation District, Alta Irrigation District, Consolidated Irrigation District and Fresno Irrigation District, formed a cooperative effort amongst the agencies to review and investigate groundwater conjunctive use efforts on the Upper Kings Basin. During the formation of this program, the Kings Basin Advisory Panel was formed to include the basin stakeholders. The primary goal of the Basin Advisory Panel is "to stabilize groundwater in the Upper Kings Basin by halting, and ultimately reversing, the current overdraft of the groundwater aquifer."

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

Upper Kings Water Forum

Several of the participants to this Plan are actively involved with the Upper Kings Water Forum. Specifically, the City of Fresno, City of Clovis, County of Fresno, and FID have been involved. Representatives from FID serve on the Upper Kings Forum Planning and Steering Committee. The purpose of the forum has been to develop an Integrated Regional Water Management Plan with assistance from State funding. The forum has also sought funding for construction, or implementation, projects within the region, including projects for the City of Clovis and FID. This Fresno-Area Regional Groundwater Management Plan will be incorporated into the Upper Kings Forum Integrated Regional Water Management Plan.

Water and Groundwater Associations

All of the plan participants are active in the groundwater community. Table 5-1 is a matrix illustrating the many water and groundwater related organizations that each participant belongs to. Many participants hold memberships in similar organizations, which increase opportunities for groundwater management coordination and the sharing of ideas.

Planned Activities

- Continue involvement with existing regional programs including the Fresno/Clovis Area Recharge Program, Integrated Storage Investigation Program, and Upper Kings Water Forum.
- Participate in newly formed regional groups that would complement this Plan.

5.3 - Plan to Involve the Public and Non-Participating Agencies

Water purveyors that are within the Plan boundary, but are not participating, include:

- Biola Community Service District
- Easton Community Service District
- International Water District

Each of these member agencies was invited to be a participating agency to the Plan, but could not financially participate. A copy of the draft Plan was sent directly to these agencies for review and comment. The Plan participants would welcome the participation of these and other agencies in the Plan Area, and they will have the opportunity to join the Plan in the future.

Input from neighboring agencies and interested parties was also solicited during this Plan's preparation.

Existing Activities

- Conducted public workshops regarding the Plan prior to adoption.
- Solicited input from neighboring agencies including Biola Community Service District, Easton Community Service District and International Water District.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

Planned Activities

- Allow for agencies within the Plan Area to be incorporated into the Plan.
- Publish annual groundwater reports for distribution to stakeholders and interested parties. Notify the public of the availability of the annual report for their review on websites and newsletters.
- Publish information on the accomplishment of the regional group on websites and newsletters.

TABLE 5-1

FRESNO-AREA REGIONAL GROUNDWATER MANAGEMENT PLAN
MEMBERSHIPS IN WATER-RELATED ORGANIZATIONS

Organization	Fresno Irrigation District	County of Fresno	City of Fresno	City of Clovis	City of Kerman	Malaga County Water District	Pinedale County Water District	Fresno Metro. Flood Control District	Bakman Water Company
Agricultural Water Management Council	●								
American Public Works Association		●	●	●	●			●	
American Water Works Association			●	●	●				
Association of California Water Agencies	●		●			●	●	●	
Association of Metropolitan Water Agencies	●	●	●	●		●	●	●	●
California Rural Water Association					●				
California Storm Water Quality Association								●	
California Urban Water Conservation Council			●			●			
California Water Awareness Campaign			●	●	●			●	●
Central Valley Project Association			●						
Central Valley Water Awareness Committee	●	●	●	●		●		●	●
Central Valley Water Education Center	●	●	●	●					
Fresno-Area Groundwater Management Group	●	●	●	●	●	●	●	●	●
Fresno County Water Advisory Committee				●					●
Fresno/Clovis Area Recharge Program	●		●	●				●	
Kings River Water Association	●								
National Association of Flood and Stormwater Management Agencies								●	
Waldron Pond Group	●			●					
Water Education Foundation			●	●				●	●

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

6 - MONITORING PROGRAM

A groundwater level and quality monitoring program is a critical component for documenting and evaluating groundwater conditions within the Plan Area. There is a need for a coordinated and consistent level and quality data collection method within the Plan Area as there is not currently a complete groundwater data management system for the Plan Area. The County of Fresno has planned to develop a database management system, but insufficient funding has delayed its development. The cooperative effort through this Plan will help spread some of the financial burden to multiple agencies. The program shall include groundwater level, quality monitoring, as well as any indication of land subsidence. To ensure the integrity and consistency of the data, protocols for collecting and reporting the data are needed, and must be implemented by each agency. The proposed monitoring program is intended to:

1. Provide warning of potential future problems.
2. Use data gathered to generate information for water resources evaluation.
3. Develop meaningful long-term trends in groundwater characteristics.
4. Provide data comparable from place to place in the plan area.
5. Better characterize the quality of well water in the plan area.

6.1 - Groundwater Level Monitoring

Many of the participants routinely perform groundwater level and quality monitoring in accordance with agency standards and State regulations for water purveyors, however the frequency and method for monitoring varies by participant. FID currently collects well water level readings within most of the Plan Area, but the system only includes a few wells in some areas and has very little water quality information. FID developed a groundwater-monitoring program, when it was formed in 1920, to quantify changes in groundwater depth within the District. FID currently collects water level measurements each quarter, and also compiles water level data that is collected yearly from other agencies. Each agency's water-level measuring-program was established separately and the data are managed separately, but FID compiles all the data into a single database. Other agencies from which FID receives groundwater level data include:

- City of Fresno
- City of Clovis
- Consolidated Irrigation District
- Madera Irrigation District
- James Irrigation District
- Malaga County Water District
- California Department of Water Resources

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

The County of Fresno no longer collects groundwater level data outside of its CSAs or WWDs. Some of the water purveyors, such as Kerman and the City of Fresno, have a water level measurement device in many wells connected to their SCADA systems. Other water purveyors such as Pinedale County Water District do not routinely record groundwater levels. FID and the City of Clovis monitor wells near their recharge facilities. The City of Fresno has several triple completion monitor wells near existing well sites that are monitored, however there are no monitor wells in or around recharge basin facilities that are used to evaluate groundwater recharge effects. A map of the domestic production and monitor wells that are frequently monitored for water level is included as Figure 6-1.

Existing Activities

- Individual monitoring by some participants with limited data sharing.
- Encourage landowners and developers to convert unused wells to monitor wells.

Planned Actions

- Develop a groundwater level monitoring program for the entire Plan Area. This will be accomplished by performing an inventory of monitoring efforts, finding gaps in the data, and adding wells to monitor in gap areas. Well driller's reports or monitored wells will be compared to identify each well's perforation depth.
- Decide on months for water level measurements to be taken so they are consistent for all parties.
- Survey the elevations for all wellheads and use a common survey datum.
- Protect wells in monitoring program from being abandoned.
- Develop Groundwater Database in accordance with 1986 Water Resources Master Plan and Fresno County Ordinance.
- Develop and use standard forms by all participants.
- Develop program for sharing data.

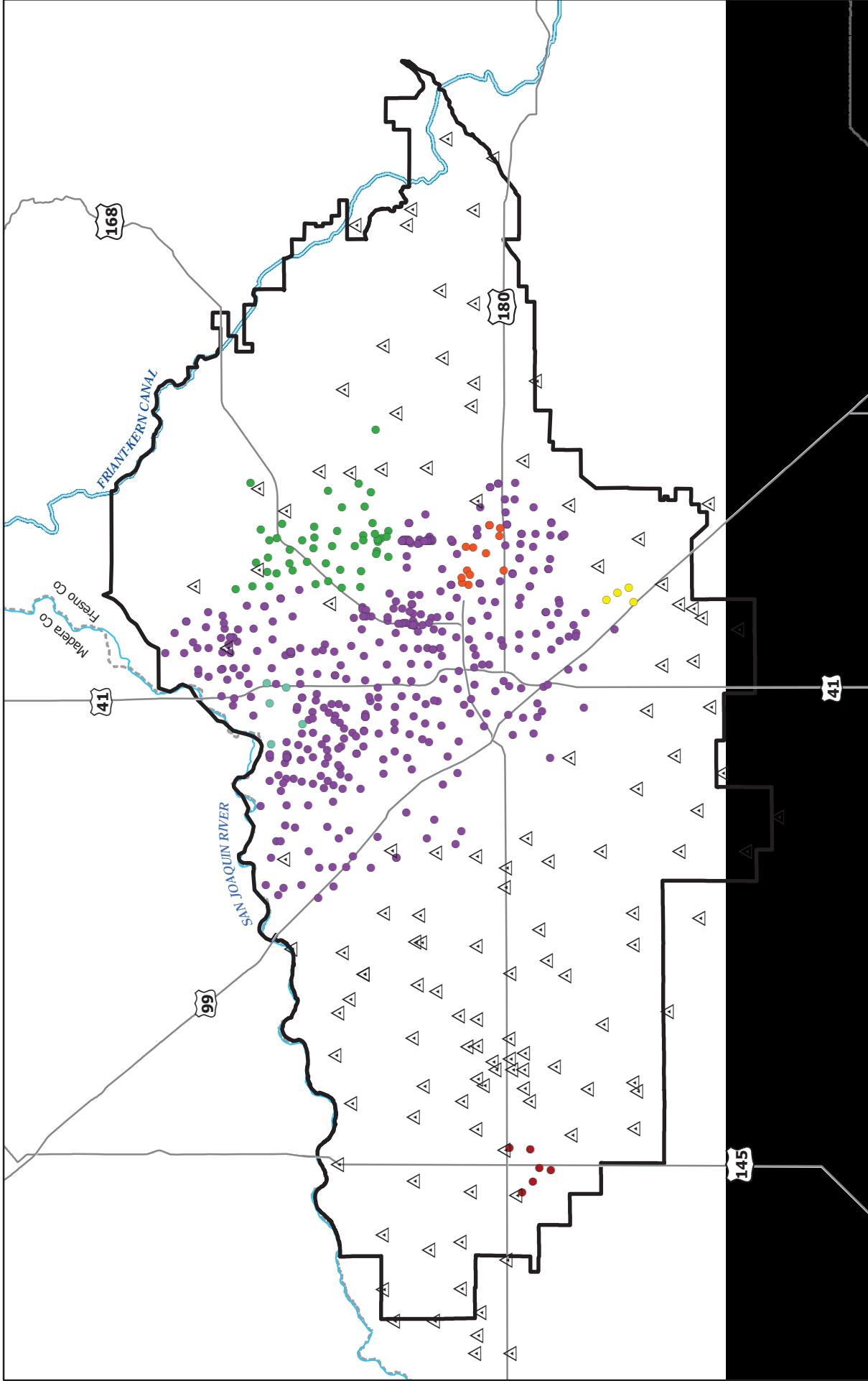


Figure 6-1
Domestic Production and Other Monitored Wells
 Fresno-Area Regional Groundwater Management Plan

- Domestic Production Wells**
- Bakman W.C. (orange dot)
 - City of Kerman (red dot)
 - City of Fresno (purple dot)
 - Malaga C.W.D. (yellow dot)
 - City of Clovis (green dot)
 - Pinedale C.W.D. (teal dot)

- GMP BOUNDARY (thick black line)
- Wells Monitored By Other Agencies (open square)
- Wells Monitored By FID (open triangle)

0 1 2 3 4 Miles

EST. 1968
PROVOST & PRITCHARD
 ENGINEERING GROUP
 A McLaughlin-Burnett Company

286 W. Cromwell Ave.
 Fresno, CA 93711-6162
 (559) 449-2700

N

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

6.2 - Groundwater Quality Monitoring

Groundwater within the Plan Area is generally of good quality, however there are some specific areas of concern. Primary contaminants within these areas of concern are nitrates, Dibromo-Chloropropane (DBCP), and TCE. The domestic water purveyors within the Plan Area perform routine water quality monitoring as required by the State Department of Health Services. The requirements for testing are based on the size of the community system. Additional testing is performed at individual sites for specific constituents of concern. Additional water quality testing is needed to update various plumes that have been identified within the area. In addition, there are many locations within the Plan Area where little to no water quality monitoring is performed. Outside of the boundaries of the domestic water purveyors, the County of Fresno will perform basic water quality monitoring for individual wells, however, the City of Fresno recently completed a study of nitrate in wells in the southeast portion of the Plan Area. The City of Fresno has also recently studied nitrate in wells near the Wastewater Treatment Facility.

The following contaminant plumes are found within the City of Fresno's borders:

- Purity Oil plume
- Fresno landfill
- TCE Pinedale groundwater site
- FMC plume
- Salt Plume
- THAN plume
- Old Hammer Field plume
- Weir Floway plume

Most of the groundwater contaminants in the Fresno area are being addressed by responsible parties through assessment and remediation, and some are in advanced stages of mitigation. The responsible parties of many of the point source contaminants (i.e. hydrocarbons and VOCs) are working with state (Regional Water quality Control Board, Department of Toxic Substances Control) and local (FCEHD) agencies to remediate the contaminants. Area wide contaminants are being addressed via wellhead treatment (DBCP) and plans are underway to address others, such as nitrate.

The groundwater quality beneath portions of the City of Fresno is compromised by a number of inorganic and organic chemical contaminants. The inorganic contaminants include chloride, nitrate, arsenic, manganese and chromium. Organic contaminants include petroleum hydrocarbons and MTBE, volatile organic compounds (VOCs), DBCP and other pesticides, and trichloropropane (TCP). The sources of these contaminants are primarily anthropogenic and include industrial facilities, fuel storage and dispensing sites, agricultural applications, septic systems, and food processing facilities.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

Management of these plumes is a key issue that the City of Fresno has historically focused on and will continue to address.

The Fresno Irrigation District does not have specific water quality requirements since they only supply agricultural water. However, they are cognizant of recommended water requirements for crops and use these as guidelines when evaluating water quality.

Existing Activities

- Routine water quality monitoring and reporting by domestic water purveyors as required by DHS.
- County offers free water quality testing to individual landowners outside of a community system. This data is either not retained or not readily available.
- Monitor sediment in recharge/flood control basins according to FMFCD's Standard Operating Procedures for Monitoring, Maintaining and Disposal of Stormwater Basin Sediment.

Planned Actions

- Develop a coordinated monitoring program by methods similar to groundwater level monitoring evaluation; inventory existing efforts, find gaps in data monitoring, then add wells to monitor in gap areas. Critical to this effort will be an understanding of perforation intervals within each well to identify the depth of the various constituents of concern.
- Protect wells in monitoring program from being abandoned.
- Develop program for sharing data to participants.
- Improve access to County individual water quality testing information.
- Prepare groundwater quality maps on a periodic basis with the aid of a qualified hydrogeologist.

6.3 - Monitoring Protocols

Monitoring protocols are necessary to ensure consistency in monitoring efforts and consistency is required for monitoring evaluations to be valid. Consistency should be reflected in factors such as location and reference elevation at sample points, sampling procedures, testing procedures, time of year and frequency of sample collection. Without such common ground, comparisons between and among reports must be carefully considered. Consequently, more uniform data gathering procedures are proposed in order to increase the reliability of analyses. Specific protocols for water level and water quality monitoring are discussed below.

General protocols that will be used for the groundwater level-measuring program include:

- Perform all water level measurements in as short a period as possible.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

- Perform year-to-year measurements at the same time of the year.
- Document the measurement reference point for each well as well as the measuring device and calibration date for the measuring device.
- Document the date and time of each measurement.
- Test each well twice, or more if needed, until consistent results are obtained.
- If there is reason to suspect groundwater contamination, water level measuring equipment will be decontaminated, and in general, measurements will proceed from the least to the most contaminated wells. Also use standardized decontamination procedures.
- Landowners will be contacted for permission to access their property prior to any fieldwork.

The water-quality monitoring protocols may include the following for existing and future monitoring efforts:

- Adequate pumping time prior to sample collection with documentation of stabilized parameters.
- Proper sample containers, preservatives, and holding times.
- Secure chain-of-custody procedures.
- Testing will only be performed at accredited, state-certified laboratories that use proper quality control and quality assurance procedures.
- All samples will be given a quality assurance code, which represents the relative confidence in the water sample.
- Some testing will include spiked, duplicate and field-blank samples for comparison to genuine samples.
- Proper handling procedures (e.g. placing the containers in an ice chest immediately after collection).
- Documentation of all protocols and procedures that are used.
- Uniform time of year for sampling (during periods of both minimal pumping in the winter and heavy pumping in July and August).
- Document the name, contact information, and qualifications of the individuals taking measurements.
- Landowners will be contacted for permission to access their property prior to any fieldwork.

These protocols, and any new protocols that are adopted, will be documented in future Annual Groundwater Reports.

Existing Activities

- Annual calibration of water level measurement transmitters by some agencies
- Use of well sounder for measurement.
- Conduct water quality testing in accordance with DHS and EPA requirements and testing procedures.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

Planned Actions

- Collect and compare monitoring protocols from all of the Plan participants. Develop standard regional protocols for water level and water quality monitoring.
- Develop standardized form for collection of data.

6.4 - Land Surface Subsidence Monitoring

No information is available on historic land subsidence in the area. The area may have experienced land subsidence in the early 1900's when it was prevalent in the San Joaquin valley. However, no significant land subsidence is known to have occurred in the last 50 years as a result of land development, water resources development, groundwater pumping, or oil drilling. Lands within the Plan Area will be observed for land subsidence, and, if land subsidence becomes a problem, this Plan will be amended to include preventive and mitigative measures for land subsidence. A Global Position System (GPS) control network has been established throughout the Plan Area. This control network consists of more than twenty control points that are tied to the High Precision Grid Network (HPGN), and the vertical datum is North American Vertical Datum 1988 (NAVD 88). This control network can be utilized to survey existing local benchmarks to monitor subsidence.

Existing Activities

- Established GPS Control Network throughout the Plan Area.

Planned Actions

- Periodic resurvey of control points and local benchmarks for land subsidence.

6.5 - Surface Water Monitoring

Within the Plan Area, large areas of agriculture lands that formerly were irrigated with surface water have been urbanized. Much of these urbanized lands rely solely on groundwater for water supply. Surface water is delivered to the outlying agricultural area, stormwater and recharge basins, and some landscaped areas. While a portion of the historically delivered surface water is routed to recharge basins, it was not until 2004, that the cities of Fresno and Clovis were able to utilize surface water through newly constructed surface water treatment facilities. The location of surface water deliveries within the Plan Area has had an impact on groundwater levels as shown in Figure 3-2. FID maintains daily surface water delivery records, and compares surface water delivered within its boundary to groundwater level changes.

Surface water flows can impact groundwater levels and groundwater quality if the two water sources are hydrologically connected. In addition, pumping may also affect nearby surface water rights if the surface supplies are hydrologically connected to the groundwater. Much of the east-side stream flow water enters into the FID canal system

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

for delivery to FMFCD and FID basins. FMFCD monitors surface water flows in portions of its boundary.

Changes to surface water quality can also affect groundwater quality by changing the quality of water that seeps from a stream. FID has not performed any water quality monitoring of stream flows entering FID. The water quality of the streams is monitored by other agencies and has historically been found to be of good quality. Between 85% and 90% of the water recharged in the FID is imported water. When importing water for recharge, the FID considers not just the cost but also the quality of the water to be recharged. The Participants will likewise be cognizant of water quality issues on streams in the Plan Area and address water quality issues if they arise.

Existing Activities

- FID reports surface water delivered within Plan Area and compares to groundwater level changes in annual report.
- Monitoring of surface water quality at Fresno and Clovis Surface Water Treatment Plants, as well as along conveyance system to Plants.
- Monitor quality of reclaimed water pumped to FID Canals from wells at the Wastewater Plant.

Planned Actions

- Continue monitoring of surface water deliveries within Plan Area.
- Prepare updated water budget for the City of Fresno and Clovis.
- Prepare water budget for the Plan Area based on annual monitoring program.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

7 - GROUNDWATER RESOURCES PROTECTION

7.1 - Well Destruction

Proper destruction of abandoned wells is necessary to protect groundwater resources and public safety. Improperly destroyed wells can provide a conduit for surface or near-surface contaminants to reach the groundwater. In addition, undesired mixing of water with different chemical qualities from different strata can occur in improperly destroyed wells.

The administration of a well construction, abandonment and destruction program has been delegated to the Counties by the State legislature. Accordingly, Fresno County has adopted a permitting program consistent with DWR Bulletin 74-81 for well abandonment and destruction. The City of Fresno also has a permit program for well destruction.

The Participants have and will continue to properly destroy any of their wells that are no longer utilized, and will enforce proper well destruction procedures for all private wells. In addition, the Participants will encourage landowners and developers to convert unusable wells to monitor wells, rather than destroy them, so that they can become a part of the Participants' groundwater monitoring program.

Existing Activities

- The Plan participants destroy wells according to City of Fresno, Fresno County or State of California standards.
- Clovis and Fresno require no longer used residential wells within the City to be properly destroyed.

Planned Actions

- Improve enforcement and consistency of well destruction policies; currently wells are not usually destroyed until the land is sold or the land use changes.
- Identify and map the locations of wells requiring proper destruction in the Plan Area.
- Maintain records on all well destruction performed in the Plan Area.

7.2 - Well Construction Policies

Proper well construction is important to ensure reliability, longevity, and protection of groundwater resources from contamination. Fresno County has adopted a well construction permitting program consistent with Department of Water Resources Bulletin 74-81 to assure proper construction of groundwater wells within the County. Other Plan participants have adopted similar permitting programs and standards.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

Proper wellhead protection is essential to ensure that contaminants do not inadvertently enter a well. Well construction policies that are intended to ensure proper wellhead protection are discussed in Section 7.3 – Wellhead Protection.

Some participants construct monitor wells to monitor water levels and water quality. Proper construction of monitor wells is essential to ensure their reliability and longevity. Important items to consider for a properly drilled monitor well include (1) method of drilling, (2) casing type and diameter, (3) perforations or well screen, (4) gravel pack, (5) annular seal, and (6) well development. As a general rule, monitor wells should be placed immediately upgradient and downgradient of a waste discharge site. After the monitor well is developed an aquifer test is recommended. Care should be taken to drill monitor wells deep enough so they won't go dry during summer months or drought periods; however, they should not be drilled so deep as to make monitoring of the shallowest strata difficult. Historical water level fluctuations should be examined to determine the magnitude of fluctuations to be expected in the future.

Existing Activities

- Wells are constructed according to State of California standards and may be further modified to meet site-specific requirements to accommodate a unique geologic setting in the local area.
- Records are maintained for all new wells drilled in the Plan Area.

Planned Actions

- Share well construction results in a 'Lessons Learned' format from water wells constructed in the Plan Area to share experiences among the Plan participants, and prevent common and recurring mistakes.

7.3 - Wellhead Protection

Need for Wellhead Protection

Contaminants from the surface can enter an improperly designed or constructed well along the outside edge of the well casing or directly through openings in the wellhead. A well is also the direct supply source to the customer, and such contaminants entering the well could then be pumped out and discharged directly into the distribution system. Therefore, essential to any wellhead protection program are proper well design, construction, and site grading to prevent intrusion of contaminants into the well from surface sources.

Since wells can be a direct conduit to the aquifer, they must be properly destroyed and abandoned or they will provide an unimpaird route for pollutants to enter the groundwater, particularly if pumping equipment is removed from the well and the casing is left uncapped. Well abandonment is discussed in Section 7.1.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

Wellhead Protection Guidelines

Wells constructed by the Participants will be designed and constructed in accordance with DWR Bulletin 74-81. In addition, the Participants will encourage landowners to follow the same standard for privately owned wells. DWR Bulletin 74-81 provides specifications pertaining to wellhead protection, including:

- Methods for sealing the well from intrusion of surface contaminants.
- Covering or protecting the boring at the end of each day from potential pollution sources or vandalism.
- Site grading to assure drainage is away from the wellhead.
- Setback requirements from known pollution sources.

Wellhead Protection Area

As defined in the Federal Safe Drinking Water Act Amendments of 1986, a wellhead protection area is “the surface and subsurface area surrounding a water well or well field supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water well or well field.” Wells are randomly spaced throughout the whole Plan Area. Therefore, the entire Plan Area is treated as a wellhead protection area.

Existing Activities

- Wellhead protection is performed according to DWR guidelines.

Planned Actions

- Identify and properly modify all public wells lacking adequate wellhead protection.

7.4 - Saline Water Intrusion

Saline water intrusion is not currently an identified problem in the Plan Area. The Plan Area is not located within or near large saline water bodies such as the ocean, saline inland lakes, or the saline deep aquifer on the Westside of the San Joaquin Valley. In addition, the Participants strive to prevent the importation of saline surface waters that could ultimately degrade the groundwater. When alternative water sources are available for importation, the Participants consider not only the cost but also the quality, including salinity, of the water. The Participants will monitor water quality in a manner that provides management information about salinity in the area. Should saline intrusion become a problem in the future, a Plan amendment will be prepared.

Existing Activities

- None

Planned Actions

- See Groundwater Quality Monitoring Program.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

7.5 - Migration of Contaminated Groundwater

Groundwater contamination can be human induced or caused by naturally occurring processes and chemicals. Sources of groundwater contamination can include irrigation, dairies, pesticide applications, septic tanks, industrial sources, stormwater runoff, and disposal sites. Groundwater within the Plan Area is generally of excellent quality for agricultural use. However, serious water quality problems in the southern and eastern portions of the Plan Area occur due to high concentrations of nitrate and DBCP. The presence of DBCP is primarily due to former pesticide application to the surrounding farmland.

The City of Fresno Nitrate Management Plan project, nearing completion, has yielded 20 to 30 viable projects of various types including blending, intentional recharge, removal of nitrate sources, treatment for nitrate reduction, and exchange of high nitrate water with lower nitrate surface water that can be used for recharge. All of these projects will be compared, ranked for effectiveness, and placed into service as appropriate over the next several years.

Information on existing contaminant plumes is voluminous, particularly for those plumes that have been assessed and are in various stages of remediation. Therefore, information on the plumes is not provided here.

Existing Activities

- Regularly review data and reports from regulatory agencies on contaminant plumes to provide warning of potential future problems.
- Report groundwater contamination to the appropriate regulatory agencies, including the Regional Water Quality Control Board and Department of Toxic Substances Control.

Planned Actions

- Seek to locate recharge basins next to areas with water quality problems to blend water supplies and create a hydraulic barrier to impede movement of contaminant plumes.
- Update maps for all contaminant plumes in the Plan Area.
- Implement some of the viable projects identified in the City of Fresno Nitrate Management Plan to control and reduce nitrate levels in the groundwater.

7.6 - Groundwater Quality Protection

The Fresno groundwater basin has been designated as a Sole Source Aquifer as authorized by Section 14246 of the Federal Safe Drinking Water Act of 1974. The designation, made by EPA in 1978, means the Fresno metropolitan area is dependent on a single source of groundwater and that source must be protected from potential contamination. This designation emphasizes the importance of protecting groundwater

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

quality in the Plan Area. Groundwater comprises the majority of water used in the Plan Area; consequently pollution prevention is a cardinal component of this GMP. Groundwater quality can be protected through stormwater quality management, septic system management, and water vulnerability planning and management, as discussed below.

Stormwater Quality Management Program

The Fresno Nationwide Urban Runoff Program project was conducted between 1981 and 1983 in conjunction with the US EPA's national effort. The results indicated that runoff contains significant levels of many contaminants, including most of the heavy metals and some organic compounds. Most stormwater in the Plan Area is delivered to flood control/recharge basins where it can percolate to the groundwater or accumulate in the vadose zone. Hence, stormwater quality management is essential to protecting the quality of the local groundwater.

In compliance with the federal Clean Water Act and storm water permit regulations, the FMFCD, County of Fresno, City of Fresno, City of Clovis, and California State University at Fresno, developed a Stormwater Quality Management Program. The program is documented in the *Fresno-Clovis Storm Water Quality Management Plan*, prepared in February 1999. As owner and operator of the storm water drainage system serving the metropolitan area, the FMFCD has primary responsibility for implementing this mandated program. The program includes pollution prevention and control practices for drainage system planning, design, construction, and maintenance. The program also includes public education programs; commercial, industrial and new development storm water quality control practices; monitoring to assess storm water impacts; and ordinances to enforce storm water quality controls.

Septic Systems

Septic systems have been identified as a major contributor to high nitrate levels in the local groundwater. Septic systems are still present in rural areas and some urban neighborhoods within the Plan Area. The Plan participants generally do not permit septic systems to be installed in urban areas, and specific rules and regulations must be followed for septic systems installed in rural areas. The gradual decommissioning of septic systems in urban areas is a principal goal for the Plan participants.

Water Vulnerability

The local aquifer can be contaminated through intentional acts such as vandalism and terrorism. As a result, the Plan participants have adopted numerous strategies to prevent intentional contamination such as security cameras, fencing, and frequent water quality testing for contaminants.

Some plan participants have also prepared Vulnerability Assessments and Emergency Response Plans in compliance with the 2002 Bioterrorism Act. The Bioterrorism Act requires communities serving water to more than 3,300 persons to:

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

1. Conduct a Vulnerability Assessment.
2. Certify and submit a copy of the Vulnerability Assessment to the EPA Administrator.
3. Prepare or revise an Emergency Response Plan based on the results of the vulnerability assessment.
4. Certify to the EPA Administrator, within 6 months of completing the assessment, that an Emergency Response Plan has been completed or updated.

Existing Activities

- A Stormwater Quality Protection Program is being implemented by FMFCD, Fresno, Clovis and the County of Fresno to reduce the volume of stormwater pollutants that reach the groundwater.
- Runoff-borne pollutants are trapped in flood control/recharge basin sediments for subsequent removal. All new basins are constructed in accord with FMFCD design standards that facilitate pollutant entrapment and management.
- Plan participants that are required to have prepared Vulnerability Assessments and Emergency Response Plans will keep these documents updated.
- The County of Fresno enforces rules and regulations for newly installed septic systems to reduce the incidence of nitrate contamination in the groundwater.

Planned Actions

- Plan participants will seek funding to sewer areas still served with septic tanks, when practical.
- Plan participants will seek funds to improve security at their water facilities and reduce the potential for contamination from acts of vandalism or terrorism.
- Plan participants will make use of available tools, such as View Fresno, the City of Fresno's online facility and geographic program, to strictly enforce rules and regulations regarding permits for new septic systems in locations where there is an existing sewer collection system in close proximity.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

8 - GROUNDWATER SUSTAINABILITY

The region is dependant on sustaining the long-term available groundwater in the Plan Area, as it is critical to the livelihood and economy of the area. The actions described within this section are intended to maintain or increase the volume of groundwater that is stored within the Plan Area. Water conservation, groundwater recharge, surface water treatment for domestic delivery, and water recycling are some of the efforts that are used within the area to mitigate the groundwater overdraft and replenish the groundwater supply.

Historic groundwater pumping within the urban area has developed a large cone of depression within the Plan Area. At the present time, groundwater replenishment efforts within the Plan Area do not offset the combined effect of groundwater extractions and subsurface outflow. The result is that the groundwater overdraft within just the FID boundary has been estimated to be approximately 20,000 acre-feet annually (FID GMP Supporting Documents, 1995). The overdraft within the Plan Area is believed to be even greater. This overdraft is evidenced by falling groundwater levels, and manifested by increasing costs of groundwater pumping, some groundwater degradation, and the undesirable migration of contaminant plumes. It is the specific goal of the Plan to correct the overdraft and to stabilize groundwater levels at the highest practical beneficial levels.

The Plan participants view groundwater usage tolls as a last resort for reducing groundwater pumping and reducing overdraft. The participants strive to ensure the unrestricted, non-export related, private use of groundwater within the Plan Area. The Plan participants believe that proper management, conservation and education programs will help to stabilize groundwater levels and preclude the need for groundwater usage fees.

8.1 - Groundwater Recharge

Substantial portions of the groundwater basin underlying the Plan Area are subject to conditions of critical overdraft as designated by the California DWR in Bulletin 118-80. Drinking water supplies and much of the agricultural water supply in the Plan Area are currently dependent on groundwater and, as a result, the groundwater resource has been stressed. Groundwater is a renewable resource through its proper management. Groundwater recharge is a viable method of renewing groundwater consumed. Recharge of surface water through the soils to the groundwater reservoir is also an economical alternative to replacing the existing groundwater supply system with a surface water supply system requiring treatment, storage, and delivery facilities.

Stabilization and recovery of the aquifer are the goals of groundwater replenishment and will result in (1) decreasing the pumping lifts and thereby decreasing the energy

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

needed for pumping; (2) preventing expenditures for deepening wells; and (3) preventing the premature abandonment of wells which would be necessitated by the lowering of the water table.

Groundwater recharge efforts within the Plan Area primarily involve using FID's delivery system to deliver portions of the Fresno and Clovis water allocations to specific FMFCD basins for recharge during the summer when the basins are not needed to control urban storm runoff. FMFCD owns and operates these basins. Not all basins are used for groundwater recharge, as some have been, or will be, converted to recreational facilities such as parks or athletic fields. Within the City of Fresno, the City Water Division and Parks and Recreation Division have developed a recommended designation for the proposed use of each basin during the non-storm season. FMFCD refers to this designation as each basin's secondary use designation. The designations include recharge, recreation, or dual use. The dual use designation is used for basins that have been developed for recreation, but also have a significant area of the basin remaining for recharge. The City's recommendation was considered and approved by FMFCD's Board of Directors. As new storm water basin locations are identified by FMFCD, the City makes a recommended designation for that basin, and it is then presented to FMFCD's Board of Directors for final determination. Recharge capability is an important consideration when making these designations.

To maintain needed groundwater recharge at these basin sites, it is important to preserve the recharge capability provided by the basin sites designated for recharge.

Although some basins are designated as recreation or dual use facilities, they are not developed as a recreational facility for many years because of a lack of funding or the basins not being fully excavated. This interim period can last several years. In some situations, these basins have been utilized for recharge during the interim period before it is converted to a recreational facility. Once a basin is fully developed as a recreational facility, it is no longer utilized for recharge.

Fresno and Clovis both own and operate significant recharge facilities, to which a portion of the cities' water allocations is also delivered using FID's system.

Some areas in the United States, including Arizona and some parts of California, are performing aquifer storage and recovery through wells. In these programs, surface water (often treated) is directly injected to the groundwater aquifer through existing wells during available periods when the well is not needed for extraction, then the recharged water is later extracted from that same well. Although this type of groundwater storage and recovery is not known to be occurring within the Plan Area, there may be application for such a program within certain portions of the Plan Area.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

Existing Activities

- Increase groundwater recharge capabilities within the Plan Area.
- Periodically remove sediment and rip the soils in recharge basins to maintain recharge rates.
- Maintain irrigation canals in an unlined or open bottom condition in those locations where it is determined that canal seepage is a significant source of recharge and does not create detrimental side effects.
- Work cooperatively to minimize development on lands that are favorable for artificial recharge.
- Without compromising flood protection, maximize retention and detention periods for stormwater runoff to maximize percolation to groundwater.
- Measure the volume of water delivered to groundwater recharge basins.
- Use FMFCD basins that are designated for recreational use as recharge basins prior to its conversion to a recreational facility.

Planned Activities

- Investigate the feasibility of groundwater recharge using flood control basins in the vicinity of Bakman Water Company.
- Seek funding to investigate the feasibility of groundwater recharge facilities in western Clovis.
- Construct additional interties between conveyance facilities and flood control basins to facilitate groundwater recharge.
- Develop and maintain an inventory of sites in the region that are suitable for recharge.
- Install flowmeters on all unmetered turnouts to recharge basins in FID.
- Prepare a water budget for the Plan Area to estimate total groundwater pumping, intentional recharge, deep percolation, groundwater inflow and outflow, change in groundwater storage, and, ultimately, the safe yield of the local aquifer.
- Investigate feasibility of aquifer storage and recovery within the Plan Area.
- Investigate feasibility of increasing use of surface water for landscape areas.
- Consider recharge capability of FMFCD basins when considering the secondary use designation for that basin.
- Seek to minimize reduction of groundwater recharge capabilities caused by the conversion of basins already designated for recharge purposes to recreational uses by increasing awareness or impacts of lost recharge capability, promoting alternative considerations, and pursuing replacement recharge capability when necessary.

8.2 - Water Conservation and Education

The Plan participants will at all times encourage effective water conservation measures, including residential and on-farm water saving technologies which produce a true savings of water. Plan participants intend to investigate possible incentive programs

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

that might be made available to landowners and water users to enhance the efficient use of water within the Plan Area. The participants have always been, and will continue to be, committed to efficiently managing water supplies so as to maximize the beneficial use of surface water while enhancing and preserving the groundwater resources to meet the balance of the water needs of the landowners and water users within the Plan Area. The participants will also participate in cooperative conservation efforts with other agencies and private parties.

Existing Activities

The Plan participants practice a variety of measures to educate the public and encourage water conservation. Some of these measures include:

- Watering restrictions on certain days and certain times of the day.
- Educational and informational programs through mailings, newsletters, websites, radio and television commercials, newspaper advertisements and pamphlets.
- Designated water conservation coordinator to enforce conservation measures, assess fines for water wasting, and perform water audits.
- Rebates for low water use fixtures.
- Require new developments to include water conservation fixtures and technology.
- Involvement in organizations that promote water education and water conservation such as the California Water Awareness Campaign, California Water Education Center, and the Water Education Foundation.
- Require new developments to use water conserving technologies, methods, and practices.
- Some participants use water meters and tiered water pricing to encourage conservation through cost savings to the consumer.
- In compliance with AB 2572, the City of Fresno has developed a water meter installation program and schedule. Meter installations will begin about 2008 and are planned for completion in 2013.

Planned Activities

- Share information among the Plan participants on methods that have been successful in conserving water.
- Secure funds to perform metering studies and install water meters at unmetered residential, commercial, and industrial connections.
- Bakman to implement plan to install meters on new development and existing services by 2025.

8.3 - Groundwater Use Limitations

The California Water Code gives certain participants the power to limit or suspend groundwater extractions. However, such limits will only be implemented if the

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

participants determine through study and investigation that groundwater replenishment programs or other alternative sources of water supply have proved insufficient or infeasible to lessen groundwater demand. In the unlikely event that it becomes necessary to reduce groundwater extractions, the participants intend to accomplish such reductions under a voluntary program, which will include suitable incentives to compensate users for reducing their groundwater pumping. The participants will not attempt to restrict or otherwise interfere with any landowner or water user exercising a valid right to pump and utilize groundwater.

County of Fresno Ordinance No. 00-013 regulates groundwater extractions and requires permits for transferring groundwater outside of the County. The Participants generally do not support groundwater pumping for export out of the Plan Area unless it involves a transfer or exchange of water that will not negatively impact the water supply available to the Plan Area.

Pumping Well Interference from Adjacent Properties

One cause of overdraft within the Plan Area is pumping by adjacent landowners, primarily to the south and west of the Plan Area. This occurs when water users in an area pump groundwater and the extraction well's capture zone entrains groundwater from a neighboring entity.

Most of the pumping by adjacent landowners is not offset by groundwater replenishment, which results in the lowering of groundwater levels. That, in turn, causes a subsurface outflow of groundwater from the Plan Area. Previous estimates place the combined subsurface outflow to the south and west as much as 80,000 acre-feet annually.

The Participants intend to encourage efforts to secure supplemental surface water supplies for these areas outside of the Plan Area that have insufficient surface water supplies. The Participants have and will continue to consider entering into cooperative agreements with water users and/or appropriate agencies located outside the Plan Area's boundaries but within or adjacent to the Kings sub-basin. Such cooperative agreements may implement voluntary programs and/or may provide for other actions acceptable to the participants and the affected water users/agencies. However, in no event will the participants attempt to unilaterally impose limits on the lawful extraction and use of groundwater outside its boundaries, and nothing in this section is intended to confer powers on the participants to act within the boundaries of another agency in contravention of the Water Code.

Existing Activities

- Some agencies do not permit individual wells to be drilled in their service area, and all new development must be connected to the agency's water system.
- Restrictions on groundwater exporting.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

Planned Activities

- Encourage efforts to secure supplemental surface water supplies for these areas outside of the Plan Area that have insufficient surface water supplies.

8.4 - Conjunctive Use of Water Resources

Conjunctive use of water is defined as the coordinated use of both underground and surface water sources so that the combination will result in optimum benefits. The members believe that they will continue to be water short for the foreseeable future. Conjunctive use is one method to provide more water to users while conserving groundwater resources.

The Cities of Fresno and Clovis have constructed water treatment plants for treating their surface water entitlements. This will ultimately result in a reduction in groundwater pumping within the Plan Area and should slow declining groundwater levels. The Plan Participants support these efforts and will continue to encourage other local agencies to maximize use of their surface waters to conserve groundwater resources.

Groundwater banking is the process of recharging excess surface water into the aquifer, storing the water in the aquifer for a period of time, then extracting the recharged water for delivery. This process allows surface water supplies to be extended, as available surface water can be captured, stored, and then delivered during periods of higher demand. The Plan participants will limit extraction to a percentage of the banked water such that benefits are derived for all parties involved, including adjacent landowners. In addition, banking and subsequent extraction of the banked water shall, to the extent possible, occur in close proximity to each other unless the affected parties agree otherwise, and there will be no adverse impact on the local groundwater supply. FID is developing the Waldron Banking Facility located near Kerman, and is also considering an additional banking facility in the southern portion of FID.

Direct delivery of surface water from the canal system to areas of large landscaping, such as cemeteries, golf courses, schools and parks, is another example of a conjunctive use program. Untreated surface water is filtered and then pumped into the landscape irrigation system at these sites. Certain regulations and limitations for the use of untreated surface water apply, but it is permissible. The direct delivery reduces the amount of groundwater needed, and can be less expensive than delivering surface water treated to drinking water standards. Within the Plan Area, only one school site, one park and one cemetery are known to currently be utilizing surface water for irrigation. The large irrigated turf locations are a primary concern, however there are also other locations in the western United States, including California, that are providing direct delivery of surface water for landscaping irrigation at residences. This is not being performed within the Plan Area, but is being considered.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

Existing Activities

- Pending development of Waldron Banking Facility.
- Delivery of surface water for landscaping to a few areas of large irrigated turf.

Planned Activities

- Encourage and assist landowners and water users in the transfer of water into the Plan Area, which will have the effect of causing "in lieu" recharge.
- Pursue the acquisition of new water supplies should they become available at affordable costs.
- Support the development of new surface storage and water supply projects that would permit the participants to better utilize surface water supplies.
- Expand conveyance systems to provide surface water to additional land.
- Wherever appropriate and practical, encourage groundwater conservation through the use of available surface irrigation water for non-agricultural purposes.
- Encourage those municipal water agencies that have not already done so to contract for available surface water.
- Work with all appropriate public agencies, private organizations, and individuals within and outside of the plan area to protect existing surface water rights and supplies.
- Seek opportunities to increase conservation storage through groundwater banking programs or off-stream storage to help balance full contract supply years with drought years.
- Construct additional surface water treatment plant capacity for the Cities of Fresno and Clovis.
- Investigate additional groundwater banking facilities.
- Investigate and encourage use of surface water for irrigation of large irrigated turf such as schools, golf courses, cemeteries and parks.

8.5 - Wastewater Reclamation and Recycling

The recycling or reclamation of treated wastewater will extend the overall water supply within the Plan Area. The Regional Water Quality Control Board regulates the use of recycled water based on the treatment method of treatment facilities. While wastewater treatment methods are outside the scope of this plan, the overall water supply of the Plan Area is extended by the reuse of this water.

Wastewater within the City of Fresno is currently piped to the Fresno-Clovis Regional Wastewater Treatment Facility, as shown in Figure 2-1. This facility provides secondary level treatment, and nearly all of the effluent is sent to percolation ponds at the facility. A portion of the water is then reclaimed through a series of reclamation wells, and delivered to FID facilities for on-farm irrigation. The water reclaimed is metered, and the amount delivered is approximately 26,000 acre-feet per year.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

Malaga County Water District and the City of Kerman also operate smaller wastewater treatment facilities. The City of Kerman currently delivers tertiary treated wastewater from its facility to neighboring agricultural lands for irrigation. There are other smaller wastewater treatment facilities that are distributing treated wastewater for landscape and irrigation purposes.

The City of Clovis is planning construction of a WWTF in the northeast portion of the Plan Area. The City is also planning to construct distribution facilities for delivering tertiary treated water from this facility to irrigate large landscape areas, including parks, local street and Caltrans right of way landscaping, and agricultural irrigation at California State University Fresno.

Existing Activities

- Delivery of reclaimed water at the Fresno-Clovis Regional WWTF.
- Direct application of effluent for irrigation at the Kerman WWTF.

Planned Activities

- Explore opportunities to optimize reuse of reclaimed water from the Fresno-Clovis Regional Wastewater Treatment Facility.
- Institute water recycling program planned for reuse of wastewater at the proposed Clovis wastewater treatment facility.
- Encourage higher level treatment facilities to facilitate less restricted use of recycled water.
- Encourage new developments to incorporate dual water systems. The secondary water system would use recycled water or groundwater of marginal quality for landscape irrigation.

8.6 - Operation of Facilities

The construction and proper operation of groundwater management facilities is an important facet of this plan. New facilities are needed to keep pace with increased water demands and the desire for improved management.

The participants have a number of opportunities to further improve and enhance the water and groundwater supplies of its landowners and neighbors. The participants will continue to evaluate potential projects that would involve the construction and operation of additional groundwater management facilities. Additional groundwater management facilities can provide needed flexibility and thus allow more optimal management of the groundwater.

Lastly, the members strive to provide the best facilities for delivery of surface water supplies, since they are used conjunctively with groundwater. The members realize that the success of conjunctive-use programs is often contingent on the quality of surface water and conveyance systems.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

Existing Activities

- Policy to keep canals unlined where practical to allow for groundwater recharge.
- Cooperative use of stormwater facilities for groundwater recharge.
- Frequent maintenance of recharge ponds to maintain higher infiltration rates.

Planned Activities

- Maintain and upgrade conveyance facilities for capacity and stability.
- Improve canal maintenance procedures to eliminate or reduce canal downtime for deliveries to surface water treatment facilities.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

9 - GROUNDWATER PLANNING AND MANAGEMENT

9.1 - Plan Implementation

The Participants have executed a Memorandum of Understanding (MOU) to facilitate the implementation of this Plan. This Plan and associated agreement, serve as a mechanism for cooperative efforts amongst the participants and other agencies within the region. Many of the activities described in the Plan target specific locations within the Plan Area, and therefore may involve only one or a few of the participants. Although certain activities may only involve some participants, the TAC meetings will serve as the primary forum for coordination of cooperative efforts. The annual report will also summarize all related activities within the Plan Area. Implementation of this Plan is expected to result in significant amounts of new knowledge and an achievable improvement in groundwater management in the basin. The participants also recognize that implementing the GMP is in the best interest of their water users. The participants plan to continue all of the 'Existing Activities' listed throughout this Plan. Implementation of each of these tasks would be beneficial to the Plan participants, but will be contingent on available staff time and funding.

Planned Activities

- Implement the Planned Activities described in the Plan.
- TAC to meet semi-annually to discuss regional groundwater management. Comments on the content and value of the GMP will be solicited at each meeting.
- Prepare Annual Reports and Reevaluate the Plan as described herein.

9.2 - Groundwater Reports

The Participants will prepare groundwater reports every year to document groundwater levels, available groundwater storage, historical trends, groundwater quality, and progress on groundwater projects. This information will be used to forecast future problems, plan future groundwater projects, and develop new groundwater policies.

Existing Activities

- Several agencies prepare reports (i.e. water supply reports, water master plans, water conservation plans, urban water management plans, etc.) that document groundwater conditions. These reports will continue to be prepared for use in assessing groundwater conditions within individual agencies.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

Planned Activities

- Prepare Fresno Area Regional Groundwater Management Plan Annual Report and include information on all of the Plan participants. Plan will likely include:
 - Groundwater level data
 - Groundwater contour maps
 - Groundwater storage calculations (using specific yield values for each township and range)
 - Evaluation of one-year and five-year historical trends in groundwater levels, contours, and storage, and perceived reasons for any changes
 - Estimation of deliveries to recharge basins
 - Summary of important groundwater management actions during the period covered by the report
 - Discussion on whether management actions are meeting the management objectives
 - Summary of proposed management actions for the future
 - Summary of actions taken to coordinate with other water management, land-use and government agencies
 - Summary of groundwater related actions taken by other regional groups
 - Recommendations for changes in the content or format of the annual report
 - Recommendations for updates to the GMP
- The annual report will cover the prior calendar year and will be completed each year by May 31st.

9.3 - Plan Re-evaluation

Most of the strategies that make up this Plan are established policies, procedures, and ordinances. The goal of this document is to codify them for purposes of identifying an overall management program. Implementation of the various components of the Plan will continue on an on-going basis. As new policies, practices, or ordinances become necessary or desirable to enhance groundwater management, this Plan will be amended as necessary.

The Technical Advisory Committee (TAC) will be responsible for monitoring the progress of the GMP objectives. Refer to Section 5.1 for more information on the membership, policies, and procedures of the TAC. The TAC will attempt to meet twice each year to review and evaluate groundwater conditions as well as evaluate the effectiveness of the GMP.

Planned Activities

- The TAC will meet semi-annually to discuss regional groundwater management. Comments on the content and value of the GMP will be solicited at each meeting.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

- Recommendations for modifying, updating, or expanding the GMP will be recorded annually in the Plan Group's Annual Groundwater Report.
- The GMP will be revised through a formal public process every five years, or earlier if a sufficient quantity of revisions, updates, and additions have been identified.

9.4 - Land Use Planning

The intent of this Plan is not to dictate land-use planning policies, but rather to establish some land-use planning goals that can aid in protecting and preserving groundwater resources. Some of the Plan participants have direct land-use planning authority while others do not. However, all of the participants have the opportunity to comment on environmental documents for land-use related activities. The Plan participants will attempt to work cooperatively with other agencies to minimize adverse impacts to groundwater supplies and quality as a result of proposed land-use changes. Some specific land-use planning goals include: (1) preserving areas with high groundwater recharge potential for recharge activities; (2) protecting areas sensitive to groundwater contamination; (3) requiring hydrogeologic investigations, water master plans, and proven and sustainable water supplies for all new developments; and (4) requiring appropriate mitigation for any adverse impacts that land use changes have on groundwater resources. A map showing the extent of the general urbanization within the Plan Area is included as Figure 9-1.

Existing Activities

- Notify residents and agencies of projects that have the potential to impact groundwater within their sphere of influence.
- When appropriate, comment on environmental documents and land-use plans that have the potential to impact groundwater.

Planned Activities

- Determine ways to improve communication between County, Cities and other Private/Public agencies regarding landuse changes that may have an impact on groundwater.

9.5 - Dispute Resolution

Each participant has their own mechanisms for dispute resolution related to groundwater issues. These may include procedures for filing complaints and appeals to a manager, board, or committee. The Plan participants recognize the importance of groundwater as their primary water source and will work diligently to resolve any groundwater disputes according to their internal rules and regulations.

This regional GMP will provide a forum for the participants to discuss groundwater related disputes and identify possible solutions. In addition, it is envisioned that the

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

regional coordination, improved communication, and multi-party projects that develop as part of this Plan will help to reduce future conflicts among the participants.

Planned Activities

- Discuss issues of concern at semi-annual TAC meeting. Provide recommendations for resolution if appropriate.

9.6 - Program Funding and Fees

Funding individual activities described in this Plan will be provided for in each agency's individual budget. Funding of the Plan preparation and annual report are included in the MOU for implementation. The Plan participants have a variety of options for funding groundwater projects as discussed below.

Water Replenishment Fees

Included in the authority granted to local agencies under the California Water Code were the powers to limit groundwater extractions and implement water replenishment fees based upon the amount of water extracted (extraction based fees must first be approved by majority vote of impacted landowners). Inherent in these powers is the authority to implement metering of private wells. These are considered measures of last resort and the members will make any and all efforts to ensure the private, non-metered use of groundwater by their water users.

Capital Improvement Fees

Some participants have the authority to finance capital improvement projects and collect repayment charges from the benefited parties. This process would require a favorable vote from the constituency approving the repayment fees prior to implementation, and is considered a realistic alternative for large capital projects to improve groundwater facilities.

Grants

Some participants have successfully acquired funding from the DWR and other public agencies for projects that are consistent with the goals of their Groundwater Management Plan. The participants will continue to pursue available grants and low-interest loans from the DWR as well as other state and federal agencies.

Other Revenue Sources

Groundwater projects are also financed through a variety of water user fees, property taxes, sales taxes, fine payments, and development impact fees.

Cost Sharing Agreement

Costs for GMP updates, annual groundwater reports, and other projects involving all of the Plan participants will be distributed according to an accepted cost-sharing agreement that is documented in the MOU.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

Planned Activities

- Share information on funding opportunities for groundwater related projects.
- Identify beneficial groundwater projects that become economically feasible when costs are shared among two or more participants.

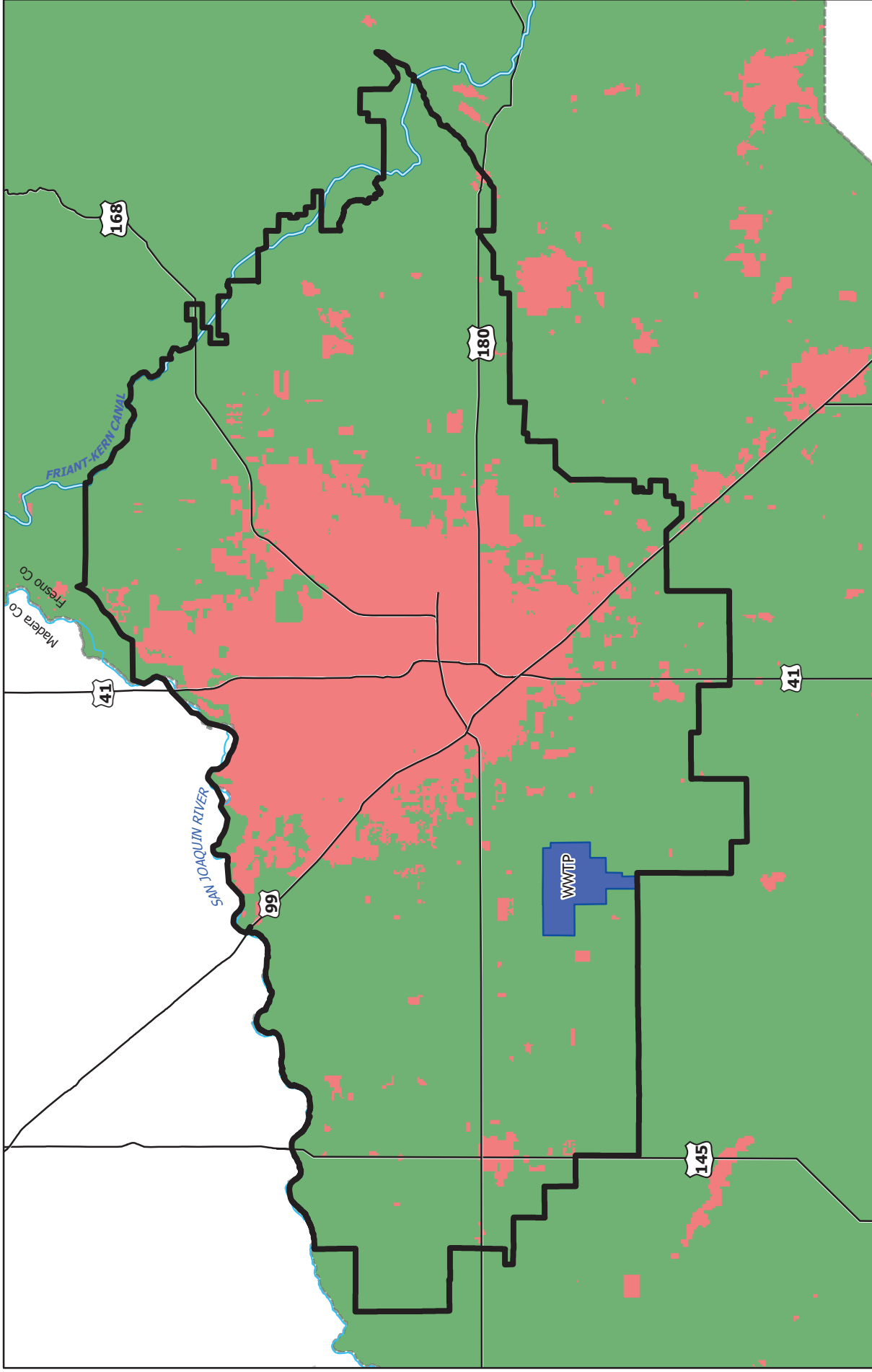




Figure 9-1
Landuse Map
 Fresno-Area Regional
 Groundwater Management Plan

 GMP BOUNDARY
 FRIANT-KERN CANAL
 Urban Land Use
 Ag / Irrigated Land Use


 Miles
EST. 1988
PROVOST & PRITCHARD
ENGINEERS INC. GRADUATE
A Langstaff Company
 286 W. Cromwell Ave.
 Fresno, CA 93711-6162
 (559) 449-2700

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

10 - REFERENCES

1. Brown and Caldwell, Fresno Nationwide Urban Runoff Program Project, FMFCD, Annual Reports, 1982, 1983.
2. California Department of Water Resources, *Bulletin No. 118-80 – Groundwater Basins in California*, 1980.
3. California Department of Water Resources, *Bulletin No. 118 update 2003 – Groundwater Basins in California*, 2003.
4. California Department of Water Resources, *Bulletin No. 74-81 – Water Well Standards: State of California*, 1981.
5. California State Senate, *Senate Bill No. 1938, Chapter 603, Groundwater Management: State Funding*, 2002.
6. CH2MHill, *Fresno Metropolitan Water Resources Management Plan*, 1992.
7. City of Clovis Public Utilities Department, *Groundwater Management Plan*, November 17, 1997.
8. City of Clovis, *2000 Urban Water Management Plan*, 2000.
9. City of Fresno, Department of Public Utilities, Water Division, *City of Fresno Water Conservation Plan*, 2005.
10. County of Fresno, *Fresno County Groundwater Management Plan*, 1997.
11. County of Fresno, *Water Resources Management Plan for Fresno-Clovis Urban and Northeast Fresno County*, 1986.
12. Fresno County Public Works Department, *Northeast Fresno Groundwater Supply*, 1976.
13. Fresno Irrigation District, *2000 Groundwater Report*, 2000.
14. Fresno Irrigation District, *Agreement between Fresno Irrigation District and City of Fresno for Exchange of Recycled Water*, June 1974.
15. Fresno Irrigation District, *Groundwater Report as of Jan 1, 2002*, 2002.
16. Fresno Metropolitan Flood Control District, *District Services Plan*, 2004.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

17. California State University at Fresno, City of Clovis, City of Fresno, County of Fresno, and Fresno Metropolitan Flood Control District, *Fresno-Clovis Storm Water Quality Management Plan*, February 1999.
18. Kenneth D. Schmidt and Associates, *Technical Report on Groundwater Conditions at and Near the Cities of Fresno and Clovis Wastewater Treatment Facility*, 2002.
19. Provost and Pritchard Engineering Group and Kenneth D. Schmidt and Associates, *City of Clovis Groundwater Recharge Investigation – Phase I*, 1997.
20. Provost and Pritchard Engineering Group, *Groundwater Monitoring and Recharge Investigation Project for the City of Clovis*, 2003.
21. Provost and Pritchard Engineering Group, *Malaga County Water District 2004 Water Supply Report*, 2004.
22. Provost and Pritchard Engineering Group, *Supporting Documents for Fresno Irrigation District Groundwater Management Plan*, 1993.
23. Provost and Pritchard Engineering Group, *Waldron Banking Facility Proposition 13 Groundwater Storage Grant Application for Fresno Irrigation District*, 2003.
24. Thomson West, *California Water Code, 2003 Desktop Edition, Chapter 3 – Groundwater Management Plans*, 2003.
25. United States Department of Agriculture, *A Geologic Approach to Artificial Recharge Site Selection in the Fresno-Clovis Area*, 1980.
26. United States Geologic Survey, *Groundwater Reconnaissance in the Fresno Northeast Area, Open File Report 75-315*, 1975.
27. United States Geologic Survey, *Geology, Hydrology and Water Quality in the Fresno Area, California*, Page and LeBlanc, 1969

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

APPENDIX A

PUBLIC PARTICIPATION IN PLAN ADOPTION

RESOLUTION NO. 2005-09

**RESOLUTION OF THE BOARD OF DIRECTORS OF THE
FRESNO IRRIGATION DISTRICT**

**FOR INTENTION TO ADOPT THE
FRESNO-AREA REGIONAL GROUNDWATER MANAGEMENT PLAN**

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the Fresno Irrigation District adopted a groundwater management plan consistent with the provisions of the California Water Code Section 10750 et. seq. on August 12, 1996; and

WHEREAS, the Fresno Irrigation District desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District and Bakman Water Company have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions; and

WHEREAS, the District's Board of Directors believes that groundwater can best be managed, as in the past, by local agencies in coordination with owners of lands overlying the groundwater basin; and

WHEREAS, the Board of Directors believes the updating and adoption of a new groundwater management plan will be in the best interests of its constituents and water users and can help meet the projected long-term water needs of the Fresno Irrigation District; and

WHEREAS, a public hearing was held on August 10, 2005 to discuss the adoption and implementation of the Fresno-Area Regional Groundwater Management Plan.

NOW, THEREFORE, BE IT RESOLVED, by the Board of Directors of the Fresno Irrigation District as follows:

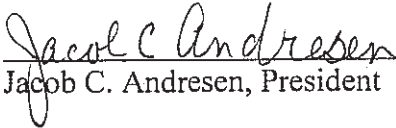
The foregoing findings are true and correct:

1. It is the intention of the Fresno Irrigation District to adopt the Fresno-Area Regional Groundwater Management Plan in accordance with Part 2.75 of Division 6 of the California Water Code, and the District's consultant is hereby authorized and directed to draft such a plan;
2. That this resolution shall be deemed a resolution of intention in accordance with California Water Code Section 10753.2;
3. After such a plan has been prepared, a second public hearing will be conducted in accordance with the California Water Code Section 10753.5, et seq. to determine whether to adopt the plan;
4. That the officers of the Fresno Irrigation District are authorized and directed to publish this resolution of intention to update the District's groundwater management plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request;
5. That the Board of Directors hereby authorizes its officers to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

RESOLVED by the Board of Directors of the Fresno Irrigation District that the Fresno-Area Regional Groundwater Management Plan be developed to be in compliance with California Senate Bill No. 1938.

The General Manager of the Fresno Irrigation District is hereby authorized and directed to prepare the necessary data, make investigations, sign, and file such application with the California Department of Water Resources.

PASSED AND ADOPTED at a regular meeting of the Board of Directors of Fresno Irrigation District on August 10, 2005.

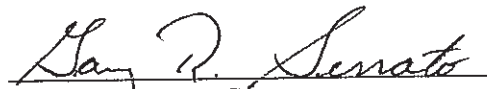


Jacob C. Andresen, President

CERTIFICATE OF SECRETARY

I, GARY SERRATO, Secretary of the Fresno Irrigation District hereby certify that the Board of Directors at a regular meeting on August 10, 2005 adopted the foregoing Resolution by the following roll call vote:

	<u>Aye</u>	<u>Nay</u>	<u>Absent</u>	<u>Abstain</u>
President Andresen	<input checked="" type="checkbox"/>	___	___	___
Vice-President Boswell	<input checked="" type="checkbox"/>	___	___	___
Director Niederfrank	<input checked="" type="checkbox"/>	___	___	___
Director Balls	<input checked="" type="checkbox"/>	___	___	___
Director Neely	<input checked="" type="checkbox"/>	___	___	___



Gary R. Serrato, Secretary

RESOLUTION NO. 05-140

A RESOLUTION OF INTENTION OF THE COUNCIL OF THE CITY OF CLOVIS, CALIFORNIA, TO ADOPT THE FRESNO-AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the City of Clovis adopted a groundwater management plan consistent with the provisions of the California Water Code Section 10750 et. seq. on November 17, 1997; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District and Bakman Water Company have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions; and

WHEREAS, the City of Clovis desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on August 10, 2005 to discuss the adoption and implementation of the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the Clovis City Council believes that groundwater can best be managed, as in the past, by local agencies in coordination with owners of lands overlying the groundwater basin; and

WHEREAS, the Clovis City Council believes the updating and adoption of a new groundwater management plan will be in the best interests of its constituents and water users and can help meet the projected long-term water needs of the City of Clovis.

NOW, THEREFORE, BE IT RESOLVED by the Clovis City Council as follows:

1. It is the intention of the City of Clovis to adopt the Fresno-Area Regional Groundwater Management Plan in accordance with Part 2.75 of Division 6 of the California Water Code, and the Fresno Irrigation District's consultant is hereby authorized and directed to draft such a plan;
2. That this resolution shall be deemed a resolution of intention in accordance with California Water Code Section 10753.2;
3. After such a plan has been prepared in accordance with all applicable law, including but not limited to the California Environmental Quality Act, a second public hearing will be conducted in accordance with the California Water Code Section 10753.5, et seq. to determine whether to adopt the plan;
4. That the officers of the City of Clovis are authorized and directed to publish this resolution of intention to adopt the Fresno-Area Regional Groundwater Management Plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request;
5. That the Clovis City Council hereby authorizes its officers to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

BE IT RESOLVED by the City Council of the City of Clovis that the Fresno-Area Regional Groundwater Management Plan be developed to be in compliance with California Senate Bill No. 1938.

The Director of Public Utilities of the City of Clovis is hereby authorized and directed to prepare the necessary data, make investigations, sign, and file such application with the California Department of Water Resources.

* * * * *

The foregoing resolution was introduced and adopted at a regular meeting of the City Council of the City of Clovis held on September 6, 2005 by the following vote, to wit:

AYES: Councilmembers Armstrong, Ashbeck, Flores, Whalen, Mayor Magsig

NOES: None

ABSENT: None

ABSTAIN: None

DATED: September 6, 2005



Mayor



City Clerk

BAKMAN WATER COMPANY

TELEPHONE (559) 255-0324 • P.O. BOX 7965 • 5105 E. BELMONT • FRESNO, CA 93747

MINUTES OF THE SPECIAL MEETING OF THE BOARD OF DIRECTORS OF BAKMAN WATER COMPANY, A CALIFORNIA CORPORATION.

A special meeting of the Board of Directors of the Bakman Water Company was held at the Bakman Water Co. office located at 5105 E. Belmont Ave, Fresno, California.

Date: July 8, 2005

Time: 9:00am

Officers present were Richard Tim Bakman, Virginia Bakman, and Dottie Patton.

On July 8, 2005, a special meeting was called to discuss the possibility of being a part of **Memorandum of Understanding** regarding The Fresno Area Regional Groundwater Management Plan.

Purpose This MOU is intended to promote and to provide a means to establish an orderly process to share information, develop courses of action, and to resolve any issues with respect to the cooperative development of the groundwater management plan and with respect to the administration of the groundwater management plan. Administration will include coordination of data received from each party, public noticing, meetings and annual reporting as described herein. This MOU memorializes the interests, intent and responsibilities of the parties with respect to the adoption of a groundwater management plan consistent with the provisions of the California Water Code to provide for collection of data and the development of a plan for the management of groundwater resources within the jurisdictions of the parties hereto.

Payment of Costs Each of the parties hereto shall contribute to the cost of updating the groundwater management plan in accordance with the obligations specified in Exhibit "2" attached hereto. Additionally, any ongoing fees or costs incurred in the administration of the plan (as administration is defined and limited in Section 1 of this MOU) or of this Memorandum of Understanding will be shared by the parties in accordance with percentages identified in Exhibit "2".

The following being all of the directors of Bakman Water Company, hereby consent to and agree to be a part of the **Memorandum of Understanding** regarding The Fresno Area Regional Groundwater Management Plan.


Richard Tim Bakman Water


Virginia A. Bakman


Dottie Patton, Secretary/Treasurer



RESOLUTION NO. 2005-386

A RESOLUTION OF THE COUNCIL OF THE CITY OF
FRESNO, CALIFORNIA, FOR INTENTION TO ADOPT
THE FRESNO-AREA REGIONAL GROUNDWATER
MANAGEMENT PLAN

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the Fresno Irrigation District adopted a groundwater management plan consistent with the provisions of the California Water Code Section 10750 et. seq. on August 12, 1996; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District and Bakman Water Company have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions.

WHEREAS, the City of Fresno desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on August 10, 2005 to discuss the adoption and implementation of the Fresno-Area Regional Groundwater Management Plan; and

Adopted			05
Approved	10		
Effective			



WHEREAS, the Council believes that groundwater can best be managed, as in the past, by local agencies in coordination with owners of lands overlying the groundwater basin; and

WHEREAS, the Council believes the updating and adoption of a new groundwater management plan will be in the best interests of its constituents and water users and can help meet the projected long-term water needs of the City of Fresno.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Fresno as follows:

The foregoing findings are true and correct:

1. It is the intention of the City of Fresno to adopt the Fresno-Area Regional Groundwater Management Plan in accordance with Part 2.75 of Division 6 of the California Water Code, and the District's consultant is hereby authorized and directed to draft such a plan;
2. That this resolution shall be deemed a resolution of intention in accordance with California Water Code Section 10753.2;
3. After such a plan has been prepared in accordance with all applicable law, including but not limited to the California Environmental Quality Act, a second public hearing will be conducted in accordance with the California Water Code Section 10753.5, et seq. to determine whether to adopt the plan;
4. That the officers of the City of Fresno are authorized and directed to publish this resolution of intention to update the District's groundwater management plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request;
5. That the Council hereby authorizes its officers to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

BE IT FURTHER RESOLVED that the Fresno-Area Regional Groundwater Management Plan be developed to be in compliance with California Senate Bill No. 1938.



BE IT FURTHER RESOLVED that the Director of the Department of Public Utilities is hereby authorized and directed to prepare the necessary data, make investigations, sign, and file such application with the California Department of Water Resources.

STATE OF CALIFORNIA)
COUNTY OF FRESNO) ss.
CITY OF FRESNO)

I, REBECCA E. KLISCH, City Clerk of the City of Fresno, certify that the foregoing resolution was adopted by the Council of the City of Fresno, at a regular meeting held on the 20th day of September, 2005.

AYES : Boyajian, Calhoun, Duncan, Perea, Sterling, Westerlund, Dages
NOES : None
ABSENT : None
ABSTAIN : None

REBECCA E. KLISCH
City Clerk

BY: Rebecca Klisch
Deputy

APPROVED AS TO FORM:
CITY ATTORNEY'S OFFICE

BY: [Signature]
Chief Assistant City Attorney

RESOLUTION NO. 05-___

**RESOLUTION OF THE OF THE BOARD OF DIRECTORS OF THE
PINEDALE COUNTY WATER DISTRICT**

**FOR INTENTION TO ADOPT THE
FRESNO-AREA REGIONAL GROUNDWATER MANAGEMENT PLAN**

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District and Bakman Water Company have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions.

WHEREAS, the Pinedale County Water District desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on August 10, 2005 to discuss the adoption and implementation of the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the Board of Directors believes that groundwater can best be managed, as in the past, by local agencies in coordination with owners of lands overlying the groundwater basin; and

WHEREAS, the Board of Directors believes the updating and adoption of a new groundwater management plan will be in the best interests of its constituents and water users and can help meet the projected long-term water needs of the Pinedale County Water District,

BE IT RESOLVED, by the Board of Directors as follows:

The foregoing findings are true and correct:


1. It is the intention of the Pinedale County Water District to adopt the Fresno-Area Regional Groundwater Management Plan in accordance with Part 2.75 of Division 6 of the California Water Code, and the District's consultant is hereby authorized and directed to draft such a plan;

2. That this resolution shall be deemed a resolution of intention in accordance with California Water Code Section 10753.2;
3. After such a plan has been prepared in accordance with all applicable law, including but not limited to the California Environmental Quality Act, a second public hearing will be conducted in accordance with the California Water Code Section 10753.5, et seq. to determine whether to adopt the plan;
4. That the officers of Pinedale County Water District are authorized and directed to publish this resolution of intention to update the District's groundwater management plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request;
5. That the Board of Directors hereby authorizes its officers to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

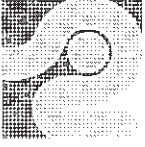
RESOLVED by the Board of Directors of the Pinedale County Water District that the Fresno-Area Regional Groundwater Management Plan be developed to be in compliance with California Senate Bill No. 1938.

The General Manager of the Pinedale County Water District is hereby authorized and directed to prepare the necessary data, make investigations, sign, and file such application with the California Department of Water Resources.

PASSED AND ADOPTED at a regular meeting of the Board of Directors of Pinedale County Water District on 10/5, 2005.



(General Manager)




FRESNO METROPOLITAN FLOOD CONTROL DISTRICT

CERTIFICATION

I, Esther Schwandt, as Clerk to the Board of Directors of the Fresno Metropolitan Flood Control District, do hereby certify the foregoing to be a full, true and correct copy of **Resolution No. 2005-473** adopted by the Board of Directors on **August 24, 2005**, the original of which is on file at the District office.

In witness whereof, I have hereunto set my hand and affixed the Seal of the Fresno Metropolitan Flood Control District.


Esther Schwandt
Clerk to the Board

October 10, 2005
Date

Original document bears our embossment

RESOLUTION NO. 2005-473

**BEFORE THE BOARD OF DIRECTORS OF THE
FRESNO METROPOLITAN FLOOD CONTROL DISTRICT**

**RESOLUTION OF INTENTION TO ADOPT THE
FRESNO-AREA REGIONAL GROUNDWATER MANAGEMENT PLAN**

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District and Bakman Water Company have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions; and

WHEREAS, the Fresno Metropolitan Flood Control District, "District", desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on August 10, 2005 to discuss the adoption and implementation of the Fresno-Area Regional Groundwater Management Plan; and

RESOLUTION NO. 2005-473

Page 2 of 3

WHEREAS, the Board of Directors believes that groundwater can best be managed, as in the past, by local agencies in coordination with owners of lands overlying the groundwater basin; and

WHEREAS, the Board of Directors believes the updating and adoption of a new groundwater management plan will be in the best interests of its constituents and water users and can help meet the projected long-term water needs of the District,

BE IT RESOLVED, by the Board of Directors as follows:

The foregoing findings are true and correct:

1. It is the intention of the District to adopt the Fresno-Area Regional Groundwater Management Plan in accordance with Part 2.75 of Division 6 of the California Water Code, and the Fresno Irrigation District's consultant is hereby authorized and directed to draft such a plan;
2. That this resolution shall be deemed a resolution of intention in accordance with California Water Code Section 10753.2;
3. After such a plan has been prepared in accordance with all applicable law, including but not limited to the California Environmental Quality Act, a second public hearing will be conducted in accordance with the California Water Code Section 10753.5, et seq. to determine whether to adopt the plan;

RESOLUTION NO. 2005-473

Page 3 of 3

4. That the officers of District are authorized and directed to publish this resolution of intention to update the Fresno Irrigation District's groundwater management plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request;
5. That the Board of Directors hereby authorizes its officers to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

RESOLVED by the Board of Directors of the District that the Fresno-Area Regional Groundwater Management Plan be developed to be in compliance with California Senate Bill No. 1938.

The General Manager-Secretary of the District is hereby authorized and directed to prepare the necessary data, make investigations, sign, and file such application with the California Department of Water Resources.

PASSED AND ADOPTED this 24th day of August 2005 by the following vote to wit:

AYES: Franco, Spina, Marcus, Groom, Welton, Williams and Rastegar
NOES: None
ABSTAIN: None
ABSENT: None

1 RESOLUTION NO. 05-54

2 **RESOLUTION OF THE CITY COUNCIL OF THE CITY OF KERMAN APPROVING**
3 **ENTERING INTO MEMORANDUM OF UNDERSTANDING (MOU) WITH FRESNO**
4 **IRRIGATION DISTRICT (FID) AND OTHER AGENCIES AND WATER COMPANIES**
5 **ON GROUNDWATER MANAGEMENT PLAN (GWMP) FOR KERMAN**

6 **WHEREAS**, the City Council of the City of Kerman ("Kerman") as the legislative body of
7 the City, has authorized the negotiation of a Memorandum of Understanding (MOU) with Fresno
8 Irrigation District ("District"), the City of Fresno ("Fresno"), the City of Clovis ("Clovis"), the
9 Fresno Metropolitan Flood Control District ("Metropolitan"), the Bakman Water Company
10 ("Company"), the City of Kerman ("Kerman"), the County of Fresno ("County"), the Malaga
11 County Water District ("Malaga"), and the Pinedale County Water District ("Pinedale") to provide
12 a means to promote an orderly process to share information, develop courses of action, and to
13 resolve any issues with respect to the cooperative development and administration of the groundwater
14 management plan; and

15 **WHEREAS**, the attached Memorandum of Understanding (MOU), Exhibit "A" memorializes
16 the interests, intent and responsibilities of the parties with respect to the adoption of the groundwater
17 management plan consistent with the provisions of the California Water Code; and

18 **WHEREAS**, conditions of the MOU are as outlined therein under Conditions and Covenants
19 1 through 12.

20 **NOW, THEREFORE, BE IT RESOLVED THAT THE CITY COUNCIL OF THE CITY**
21 **OF KERMAN RESOLVES THAT** the City Manager is authorized to sign the Memorandum of Understanding
22 regarding The Fresno Area Regional Groundwater Management Plan and the City Clerk is to attest.

23 The foregoing resolution was introduced at a regular meeting of the City Council of the City of
24 Kerman held on the 6th day of July, 2005, and passed at said meeting by the following vote:

25 **AYES:** Cromartie, Rodriguez, Sidhu, Stockwell
26 **NOES:** None
27 **ABSENT:** Moore
28 **ABSTAIN:** None

////

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

The foregoing resolution is hereby approved.

ATTEST:


MAYOR, CITY OF KERMAN


CITY CLERK, CITY OF KERMAN

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

CITY CLERK'S CERTIFICATE

EDITH M. FORSSTROM does hereby certify as follows:

That she is the City Clerk of the City of Kerman and that the foregoing Resolution, being Resolution No. 05-54 was passed at a regular meeting of the City Council of the City of Kerman held on the 6th day of July, 2005 and she further certifies that the foregoing is a true and correct copy of said Resolution No. 05-54 so adopted.



EDITH M. FORSSTROM, City Clerk

RESOLUTION NO. 05-08-23

**RESOLUTION OF THE BOARD OF DIRECTORS OF THE
MALAGA COUNTY WATER DISTRICT**

**FOR INTENTION TO ADOPT THE
FRESNO-AREA REGIONAL GROUNDWATER MANAGEMENT PLAN**

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the District adopted a groundwater management plan consistent with the provisions of the California Water Code Section 10750 et. seq. on August 12, 1996; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District and Bakman Water Company have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions.

WHEREAS, the Malaga County Water District desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on August 10, 2005 to discuss the adoption and implementation of the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the Board of Directors believes that groundwater can best be managed, as in the past, by local agencies in coordination with owners of lands overlying the groundwater basin; and

WHEREAS, the Board of Directors believes the updating and adoption of a new groundwater management plan will be in the best interests of its constituents and water users and can help meet the projected long-term water needs of the Malaga County Water District,

BE IT RESOLVED, by the Board of Directors as follows:


The foregoing findings are true and correct:

1. It is the intention of the Malaga County Water District to adopt the Fresno-Area Regional Groundwater Management Plan in accordance with Part 2.75 of Division 6 of the California Water Code, and the District's consultant is hereby authorized and directed to draft such a plan;
2. That this resolution shall be deemed a resolution of intention in accordance with California Water Code Section 10753.2;
3. After such a plan has been prepared in accordance with all applicable law, including but not limited to the California Environmental Quality Act, a second public hearing will be conducted in accordance with the California Water Code Section 10753.5, et seq. to determine whether to adopt the plan;
4. That the officers of Malaga County Water District are authorized and directed to publish this resolution of intention to update the District's groundwater management plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request;
5. That the Board of Directors hereby authorizes its officers to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

RESOLVED by the Board of Directors of the Malaga County Water District that the Fresno-Area Regional Groundwater Management Plan be developed to be in compliance with California Senate Bill No. 1938.

The General Manager of the Malaga County Water District is hereby authorized and directed to prepare the necessary data, make investigations, sign, and file such application with the California Department of Water Resources.

PASSED AND ADOPTED at a regular meeting of the Board of Directors of the Malaga County Water District on August 23, 2005.



Russ Holcomb
General Manager

RESOLUTION NO. 05-1201

**RESOLUTION OF THE BOARD OF DIRECTORS OF THE
GARFIELD WATER DISTRICT**

**FOR INTENTION TO ADOPT THE
FRESNO-AREA REGIONAL GROUNDWATER MANAGEMENT PLAN**

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the Garfield Water District desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District and Bakman Water Company have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, the Garfield Water District has agreed to the terms of the Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within its jurisdiction; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District and Bakman Water Company desire to have the Garfield Water District participate in the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions.

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on December 8, 2005 to discuss the adoption and implementation of the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the Board of Directors believes that groundwater can best be managed, as in the past, by local agencies in coordination with owners of lands overlying the groundwater basin; and

WHEREAS, the Board of Directors believes the updating and adoption of a new groundwater management plan will be in the best interests of its constituents and water users and can help meet the projected long-term water needs of the Garfield Water District,

BE IT RESOLVED, by the Board of Directors as follows:

The foregoing findings are true and correct:

1. It is the intention of the Garfield Water District to adopt the Fresno-Area Regional Groundwater Management Plan in accordance with Part 2.75 of Division 6 of the California Water Code, and the District's consultant is hereby authorized and directed to draft such a plan;
2. That this resolution shall be deemed a resolution of intention in accordance with California Water Code Section 10753.2;
3. After such a plan has been prepared in accordance with all applicable law, including but not limited to the California Environmental Quality Act, a second public hearing will be conducted in accordance with the California Water Code Section 10753.5, et seq. to determine whether to adopt the plan;
4. That the officers of Garfield Water District are authorized and directed to publish this resolution of intention to update the District's groundwater management plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request;
5. That the Board of Directors hereby authorizes its officers to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

RESOLVED by the Board of Directors of the Garfield Water District that the Fresno-Area Regional Groundwater Management Plan be developed to be in compliance with California Senate Bill No. 1938.

The Secretary of the Garfield Water District is hereby authorized and directed to prepare the necessary data, make investigations, sign, and file such application with the California Department of Water Resources.

PASSED AND ADOPTED at a regular meeting of the Board of Directors of Garfield Water District on December 8, 2005.

Katherine B. Alves
Secretary

office, 2917 East Shepherd Avenue, Clovis, California. Opportunity for public questions and input will be provided at the hearing.

In compliance with Water Code Section 10753.4 (b), landowners and other interested parties who wish to participate in updating the groundwater management plan, may do so by attending the hearing and indicating their interest or by submitting a written letter to Gary Serrato, Secretary, Fresno Irrigation District, 2907 S. Maple Avenue, Fresno, California 93725.

November 21, 2005
(PJB: November 26, 2005)

/s/ Katherine Alves
Secretary

November 26, 2005

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

Dated NOVEMBER 26, 2005

Cathy Hamilton

PROVOST & PRICHARD

ATTN: MICHAEL TAYLOR

286 W CROMWELL AVE

FRESNO, CA 937116162

PROOF OF PUBLICATION

COUNTY OF FRESNO STATE OF CALIFORNIA

EXHIBIT A.

The undersigned states:

McClatchy Newspapers in and on all dates herein stated was a corporation, and the owner and publisher of The Fresno Bee.

The Fresno Bee is a daily newspaper of general circulation now published, and on all-the-dates herein stated was published in the City of Fresno, County of Fresno, and has been adjudged a newspaper of general circulation by the Superior Court of the County of Fresno, State of California, under the date of November 22, 1994, Action No. 520058-9.

The undersigned is and on all dates herein mentioned was a citizen of the United States, over the age of twenty-one years, and is the principal clerk of the printer and publisher of said newspaper; and that the notice, a copy of which is hereto annexed, marked Exhibit A, hereby made a part hereof, was published in The Fresno Bee in each issue thereof (in type not smaller than nonpareil), on the following dates.

12/20, 12/27/05

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

Dated DECEMBER 27, 2005

Aiko H. Green

PUBLIC NOTICE

#104099

NOTICE OF ADOPTION OF RESOLUTION FOR INTENTION TO ADOPT THE FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

NOTICE IS HEREBY GIVEN that Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, Bakman Water Company, City of Kerman, County of Fresno, Malaga County Water District, Pinedale County Water District and Garfield Water District should adopt a resolution of intention to adopt a Fresno Area Regional Groundwater Management Plan to be in compliance with California Senate Bill No. 1938. This regional groundwater management plan will replace the existing groundwater management plans adopted by the Fresno Irrigation District and the City of Clovis. This regional groundwater management plan will also replace the County of Fresno's existing groundwater management plan for the portion of the county within the plan area.

The resolution adopted by each party reads as follows:

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District, Bakman Water Company and Garfield Water District have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions.

WHEREAS, the (party) desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on August 10, 2005 to discuss the adoption and implementation of the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the (party's governing body) believes that groundwater can best be managed, as in the past, by local agencies in coordination with owners of lands overlying the groundwater basin; and

WHEREAS, the (party's governing body) believes the updating and adoption of a new groundwater management plan will be in the best interests of its constituents and water users and can help meet the projected long-term water needs of the (party),

BE IT RESOLVED, by the (party's governing body) as follows:

The foregoing findings are true and correct:

1. It is the intention of the (party) to adopt the Fresno-Area Regional Groundwater Management Plan in accordance with Part 2.75 of Division 6 of the California Water Code, and the District's consultant is hereby authorized and directed to draft such a plan;
2. That this resolution shall be deemed a resolution of intention in accordance with

PROVOST & PRICHARD

ATTN: MICHAEL TAYLOR

286 W CROMWELL AVE

FRESNO, CA 937116162

PROOF OF PUBLICATION

COUNTY OF FRESNO STATE OF CALIFORNIA

EXHIBIT A.

PUBLIC NOTICE
#173824

**NOTICE OF HEARING ON INTENTION TO ADOPT
THE FRESNO AREA REGIONAL
GROUNDWATER MANAGEMENT PLAN**

NOTICE IS HEREBY GIVEN that at 4:30 pm on the 10th day of August, 2005, at the office of the Fresno Irrigation District at 2907 S. Maple Avenue, Fresno, California, a public hearing will be held to discuss whether or not the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, Bakman Water Company, City of Kerman, County of Fresno, Malaga County Water District and Pinedale County Water District should adopt a resolution of intention to adopt a Fresno Area Regional Groundwater Management Plan to be in compliance with California Senate Bill No. 1938. This regional groundwater management plan will replace the existing groundwater management plans adopted by the Fresno Irrigation District and the City of Clovis. This regional groundwater management plan will also replace the County of Fresno's existing groundwater management plan for the portion of the county within the plan area.

Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas.

Landowners within these agency boundaries and other interested parties are invited to attend the hearing. Copies of the proposed resolution and other relevant written materials will be available for review by the public at the hearing or may be obtained in advance at the District Office, 2907 S. Maple Avenue, Fresno, California 93725. Opportunity for public questions & input will be provided at the hearing.

In compliance with Water Code 10753.4 (b), landowners and other interested parties who wish to participate in updating the groundwater management plan, including becoming a member of a technical advisory committee, may do so by attending the hearing and indicating their interest or by submitting a written letter to Gary Serrato, Secretary, Fresno Irrigation District, 2907 S. Maple Avenue, Fresno, California 93725.

/s/ Gary Serrato
General Manager

FPROC July 21, 2005
(PUB: July 26, August 2, 2005)

The undersigned states:

McClatchy Newspapers in and on all dates herein stated was a corporation, and the owner and publisher of The Fresno Bee.

The Fresno Bee is a daily newspaper of general circulation now published, and on all-the-dates herein stated was published in the City of Fresno, County of Fresno, and has been adjudged a newspaper of general circulation by the Superior Court of the County of Fresno, State of California, under the date of November 22, 1994, Action No. 520058-9.

The undersigned is and on all dates herein mentioned was a citizen of the United States, over the age of twenty-one years, and is the principal clerk of the printer and publisher of said newspaper; and that the notice, a copy of which is hereto annexed, marked Exhibit A, hereby made a part hereof, was published in The Fresno Bee in each issue thereof (in type not smaller than nonpareil), on the following dates.

July 26, 2005;
August 2, 2005

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

Dated AUGUST 2, 2005

Cathy Gonzalez

EXHIBIT A.

PUBLIC NOTICE

#104099

NOTICE OF ADOPTION OF RESOLUTION FOR INTENTION TO ADOPT THE FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

NOTICE IS HEREBY GIVEN that Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, Bakman Water Company, City of Kerman, County of Fresno, Malaga County Water District, Pinedale County Water District and Garfield Water District should adopt a resolution of intention to adopt a Fresno Area Regional Groundwater Management Plan to be in compliance with California Senate Bill No. 1938. This regional groundwater management plan will replace the existing groundwater management plans adopted by the Fresno Irrigation District and the City of Clovis. This regional groundwater management plan will also replace the County of Fresno's existing groundwater management plan for the portion of the county within the plan area.

The resolution adopted by each party reads as follows:

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District, Bakman Water Company and Garfield Water District have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions.

WHEREAS, the (party) desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on August 10, 2005 to discuss the adoption and implementation of the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the (party's governing body) believes that groundwater can best be managed, as in the past, by local agencies in coordination with owners of lands overlying the groundwater basin; and

WHEREAS, the (party's governing body) believes the updating and adoption of a new groundwater management plan will be in the best interests of its constituents and water users and can help meet the projected long-term water needs of the (party),

BE IT RESOLVED, by the (party's governing body) as follows:

The foregoing findings are true and correct:

1. It is the intention of the (party) to adopt the Fresno-Area Regional Groundwater Management Plan in accordance with Part 2.75 of Division 6 of the California Water Code, and the District's consultant is hereby authorized and directed to draft such a plan;
2. That this resolution shall be deemed a resolution of intention in accordance with California Water Code Section 10753.2;
3. After such a plan has been prepared in accordance with all applicable law, including but not limited to the California Environmental Quality Act, a second public hearing will be conducted in accordance with the California Water Code Section 10753.5, et seq. to determine whether to adopt the plan;
4. That the officers of (party) are authorized and directed to publish this resolution of intention to update the District's groundwater management plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request;
5. That the (party's governing body) hereby authorizes its officers to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

RESOLVED by the (party's governing body) of the (party) that the Fresno-Area Regional Groundwater Management Plan be developed to be in compliance with California Senate Bill No. 1938.

The of the (party) is hereby authorized and directed to prepare the necessary data, make investigations, sign, and file such application with the California Department of Water Resources.

The resolutions were adopted on the following dates: Fresno Irrigation District on 8/10/2005, City of Clovis on 9/6/2005, Bakman Water Company on 7/8/2005, County of Fresno on 10/11/2005, City of Fresno on 9/20/2005, Pinedale County Water District on 10/5/2005, Fresno Metropolitan Flood Control District on 8/24/2005, City of Kerman on 7/6/2005, Malaga County Water District on 8/23/2005, and Garfield Water District on 12/8/2005.

(PUB: December 20, 27, 2005)

PROVOST & PRICHARD

ATTN: MICHAEL TAYLOR

286 W CROMWELL AVE

FRESNO, CA 937116162

PROOF OF PUBLICATION

COUNTY OF FRESNO STATE OF CALIFORNIA

EXHIBIT A.

PUBLIC NOTICE
#47015

**NOTICE OF HEARING ON INTENTION TO ADOPT THE
FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN**

NOTICE IS HEREBY GIVEN that at five o'clock on the 25th day of January, 2006, at the office of the Fresno Irrigation District at 2907 S. Maple Avenue, Fresno, California, a public hearing will be held to discuss whether or not the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, Bakman Water Company, City of Kerman, County of Fresno, Malaga County Water District, Pinedale County Water District, and Garfield Water District should adopt a resolution of intention to adopt a Fresno Area Regional Groundwater Management Plan to be in compliance with California Senate Bill No. 1938. This regional groundwater management plan will replace the existing groundwater management plans adopted by the Fresno Irrigation District and the City of Clovis. This regional groundwater management plan will also replace the County of Fresno's existing groundwater management plan for the portion of the county within the plan area.

Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas. The Plan includes the required sections for groundwater management plan, as cited in Section 10753 of the California Water Code and Department of Water Resources recommendations as indicated in DWR Bulletin 118, Appendix C. A Technical Advisory Committee of agency representatives and landowners has provided input for the development of the Plan. The Plan includes regional groundwater management objectives, and a listing of existing and planned groundwater management actions to accomplish these objectives.

Landowners within these agency boundaries and other interested parties are invited to attend the hearing. Copies of the proposed resolution and other relevant written materials will be available for review by the public at the hearing or may be obtained in advance at the District Office, 2907 S. Maple Avenue, Fresno, California 93725. Opportunity for public questions & input will be provided at the hearing.

In compliance with Water Code Section 10753.4 (b), landowners and other interested parties who wish to participate in updating the groundwater management plan, including becoming a member of a technical advisory committee, may do so by attending the hearing and indicating their interest or by submitting a written letter to Gary Serrato, Secretary, Fresno Irrigation District, 2907 S. Maple Avenue, Fresno, California 93725.

/s/ Gary Serrato
General Manager

January 5, 2006 (PUB: January 10,17, 2006)

The undersigned states:

McClatchy Newspapers in and on all dates herein stated was a corporation, and the owner and publisher of The Fresno Bee.

The Fresno Bee is a daily newspaper of general circulation now published, and on all-the-dates herein stated was published in the City of Fresno, County of Fresno, and has been adjudged a newspaper of general circulation by the Superior Court of the County of Fresno, State of California, under the date of November 22, 1994, Action No. 520058-9.

The undersigned is and on all dates herein mentioned was a citizen of the United States, over the age of twenty-one years, and is the principal clerk of the printer and publisher of said newspaper; and that the notice, a copy of which is hereto annexed, marked Exhibit A, hereby made a part hereof, was published in The Fresno Bee in each issue thereof (in type not smaller than nonpareil), on the following dates.

January 10, 17, 2006

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

Dated JANUARY 17, 2006

Cathy Aquilera

PROVOST & PRICHARD

ATTN: MICHAEL TAYLOR

286 W CROMWELL AVE

FRESNO, CA 937116162

PROOF OF PUBLICATION

COUNTY OF FRESNO STATE OF CALIFORNIA

EXHIBIT A.

PUBLIC NOTICE

#167234

**NOTICE OF ADOPTION OF RESOLUTION FOR INTENTION TO ADOPT THE
FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN**

NOTICE IS HEREBY GIVEN that Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, Bakman Water Company, City of Kerman, County of Fresno, Malaga County Water District, Pinedale County Water District and Garfield Water District should adopt a resolution of intention to adopt a Fresno Area Regional Groundwater Management Plan to be in compliance with California Senate Bill No. 1938. This regional groundwater management plan will replace the existing groundwater management plans adopted by the Fresno Irrigation District and the City of Clovis. This regional groundwater management plan will also replace the County of Fresno's existing groundwater management plan for the portion of the county within the plan area.

The resolution adopted by each party reads as follows:

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District, Bakman Water Company and Garfield Water District have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions.

WHEREAS, the (party) desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on August 10, 2005 to discuss the adoption and implementation of the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the (party's governing body) believes that groundwater can best be managed, as in the past, by local agencies in coordination with owners of lands overlying the groundwater basin; and

WHEREAS, the (party's governing body) believes the updating and adoption of a new groundwater management plan will be in the best interests of its constituents and water users and can help meet the projected long-term water needs of the (party),

BE IT RESOLVED, by the (party's governing body) as follows:
The foregoing findings are true and correct:

1. It is the intention of the (party) to adopt the Fresno-Area Regional Groundwater Management Plan in accordance with Part 2.75 of Division 6 of the California Water Code, and the District's consultant is hereby authorized and directed to draft such a plan;
2. That this resolution shall be deemed a resolution of intention in accordance with California Water Code Section 10753.2;
3. After such a plan has been prepared in accordance with all applicable law, including but not limited to the California Environmental Quality Act, a second public hearing will be conducted in accordance with the California Water Code Section 10753.5, et seq. to determine whether to adopt the plan;

The undersigned states:

McClatchy Newspapers in and on all dates herein stated was a corporation, and the owner and publisher of The Fresno Bee.

The Fresno Bee is a daily newspaper of general circulation now published, and on all-the-dates herein stated was published in the City of Fresno, County of Fresno, and has been adjudged a newspaper of general circulation by the Superior Court of the County of Fresno, State of California, under the date of November 22, 1994, Action No. 520058-9.

The undersigned is and on all dates herein mentioned was a citizen of the United States, over the age of twenty-one years, and is the principal clerk of the printer and publisher of said newspaper; and that the notice, a copy of which is hereto annexed, marked Exhibit A, hereby made a part hereof, was published in The Fresno Bee in each issue thereof (in type not smaller than nonpareil), on the following dates.

November 24, December 1, 2006

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

Dated DECEMBER 1, 2006

Cathy Aguirre

EXHIBIT A.

PUBLIC NOTICE

#167234

NOTICE OF ADOPTION OF RESOLUTION FOR INTENTION TO ADOPT THE FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

NOTICE IS HEREBY GIVEN that Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, Bakman Water Company, City of Kerman, County of Fresno, Malaga County Water District, Pinedale County Water District and Garfield Water District should adopt a resolution of intention to adopt a Fresno Area Regional Groundwater Management Plan to be in compliance with California Senate Bill No. 1938. This regional groundwater management plan will replace the existing groundwater management plans adopted by the Fresno Irrigation District and the City of Clovis. This regional groundwater management plan will also replace the County of Fresno's existing groundwater management plan for the portion of the county within the plan area.

The resolution adopted by each party reads as follows:

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District, Bakman Water Company and Garfield Water District have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions.

WHEREAS, the (party) desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on August 10, 2005 to discuss the adoption and implementation of the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the (party's governing body) believes that groundwater can best be managed, as in the past, by local agencies in coordination with owners of lands overlying the groundwater basin; and

WHEREAS, the (party's governing body) believes the updating and adoption of a new groundwater management plan will be in the best interests of its constituents and water users and can help meet the projected long-term water needs of the (party),

BE IT RESOLVED, by the (party's governing body) as follows:

The foregoing findings are true and correct:

1. It is the intention of the (party) to adopt the Fresno-Area Regional Groundwater Management Plan in accordance with Part 2.75 of Division 6 of the California Water Code, and the District's consultant is hereby authorized and directed to draft such a plan;
2. That this resolution shall be deemed a resolution of intention in accordance with California Water Code Section 10753.2;
3. After such a plan has been prepared in accordance with all applicable law, including but not limited to the California Environmental Quality Act, a second public hearing will be conducted in accordance with the California Water Code Section 10753.5, et seq. to determine whether to adopt the plan;
4. That the officers of (party) are authorized and directed to publish this resolution of intention to update the District's groundwater management plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request;
5. That the (party's governing body) hereby authorizes its officers to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

RESOLVED by the (party's governing body) of the (party) that the Fresno-Area Regional Groundwater Management Plan be developed to be in compliance with California Senate Bill No. 1938.

The (agency authorized representative) of the (party) is hereby authorized and directed to prepare the necessary data, make investigations, sign, and file such application with the California Department of Water Resources.

The resolutions were adopted on the following dates: Fresno Irrigation District on 1/25/06, City of Clovis on 2/13/06, Bakman Water Company on 3/13/06, County of Fresno on 7/18/06, City of Fresno on 4/18/06; Pinedale County Water District on 9/20/06, Fresno Metropolitan Flood Control District on 2/8/06, City of Kerman on 3/1/06, Malaga County Water District on 2/14/06, and Garfield Water District on 11/1/06.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

APPENDIX B

RESOLUTIONS TO ADOPT PLAN

RESOLUTION NO. 2006-03

RESOLUTION OF THE BOARD OF DIRECTORS OF THE FRESNO IRRIGATION DISTRICT

ADOPTING THE FRESNO-AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the District adopted a groundwater management plan consistent with the provisions of the California Water Code Section 10750 et. seq. on August 12, 1996; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District, Garfield Water District and Bakman Water Company have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions.

WHEREAS, the Fresno Irrigation District desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on August 10, 2005 to discuss the intent to prepare the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the Board of Directors of the Fresno Irrigation District adopted a Resolution of Intent to Prepare the Fresno-Area Regional Groundwater Management Plan on August 10, 2005; and

WHEREAS, the public was invited to participate in the development of the Fresno-Area Regional Groundwater Management and a Technical Advisory Committee comprised of landowners and participant representatives was formed and met regularly to develop the Plan; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on January 25, 2006 to discuss the adoption and implementation of the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the Board of Directors believes that groundwater can best be managed, as in the past, by local agencies in coordination with owners of lands overlying the groundwater basin; and


WHEREAS, the Board of Directors believes the adoption of the Fresno-Area Regional Groundwater Management Plan is in the best interests of its constituents and water users and can help meet the projected long-term water needs of the Fresno Irrigation District,

BE IT RESOLVED, by the Board of Directors as follows:

The foregoing findings are true and correct:

1. That the Board of Directors of the Fresno Irrigation District does hereby adopt the Fresno-Area Regional Groundwater Management Plan as submitted on the date of this resolution.
2. That the officers of Fresno Irrigation District are authorized and directed to publish this resolution of adopt the Fresno-Area Regional Groundwater Management Plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request;
3. That the Board of Directors hereby authorizes its officers to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

PASSED AND ADOPTED at a regular meeting of the Board of Directors of Fresno Irrigation District on January 25, 2006.

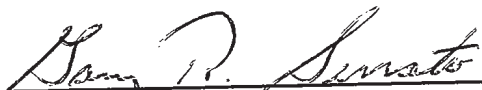


Jacob C. Andresen, President

CERTIFICATE OF SECRETARY

I hereby certify that I am the Secretary of the Fresno Irrigation District and that the foregoing Resolution was duly adopted by the Board of Directors of said District at the Special Meeting duly held in Fresno, California on January 25, 2006, at which meeting a quorum of said Board of Directors was at all times present and acting.

IN WITNESS WHEREOF, I have hereunto set my hand and seal of said District this 25th day of January, 2006.



Gary R. Serrato, Secretary

	<u>Aye</u>	<u>Nay</u>	<u>Absent</u>	<u>Abstain</u>
President Andresen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vice-President Boswell	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Director Niederfrank	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Director Balls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Director Neely	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

RESOLUTION NO. 06-37

A RESOLUTION OF THE COUNCIL OF THE CITY OF CLOVIS ADOPTING THE FRESNO-AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the City of Clovis adopted a groundwater management plan consistent with the provisions of the California Water Code Section 10750 et. seq. on November 17, 1997; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District, Garfield Water District and Bakman Water Company have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions; and

WHEREAS, the City of Clovis desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on August 10, 2005 to discuss the intent to prepare the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the City Council of the City of Clovis adopted a Resolution of Intention to Adopt the Fresno-Area Regional Groundwater Management Plan on September 6, 2005; and

WHEREAS, the public was invited to participate in the development of the Fresno-Area Regional Groundwater Management and a Technical Advisory Committee comprised of landowners and participant representatives was formed and met regularly to develop the Plan; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on January 25, 2006 to discuss the adoption and implementation of the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the Clovis City Council believes that groundwater can best be managed, as in the past, by local agencies in coordination with owners of lands overlying the groundwater basin; and

WHEREAS, the Clovis City Council believes the adoption of the Fresno-Area Regional Groundwater Management Plan is in the best interests of its constituents and water users and can help meet the projected long-term water needs of the City of Clovis,

BE IT RESOLVED, by the Clovis City Council as follows:

The foregoing findings are true and correct:

1. That the Council of the City of Clovis does hereby adopt the Fresno-Area Regional Groundwater Management Plan as submitted on the date of this resolution.
2. That the officers of the City of Clovis are authorized and directed to publish this resolution of adoption of the Fresno-Area Regional Groundwater Management Plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request;
3. That the Clovis City Council hereby authorizes the Public Utilities Director to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

* * * * *

The foregoing resolution was introduced and adopted at a regular meeting of the City Council of the City of Clovis held on February 13, 2006, by the following vote, to wit:

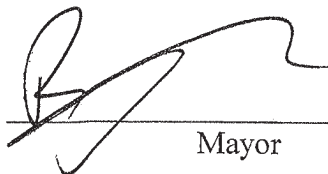
AYES: Councilmembers Armstrong, Ashbeck, Flores, Whalen

NOES: None

ABSENT: Mayor Magsig

ABSTAIN: None

DATED: February 13, 2006



Mayor



City Clerk



CLERK'S CERTIFICATE

I, Diana Stice, Deputy City Clerk of the City of Clovis do hereby certify that the attached is a true and correct copy of Resolution 06-37 dated February 13, 2006 as it appears in the Office of the City Clerk.

IN WITNESS WHEREOF, I hereunto set my hand and affix the seal of the City of Clovis on February 22, 2006.



Diana Stice

Diana Stice, Deputy City Clerk

RESOLUTION NO. 06-01

RESOLUTION OF THE BOARD OF DIRECTORS OF THE BAKMAN WATER COMPANY

ADOPTING THE FRESNO-AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the District adopted a groundwater management plan consistent with the provisions of the California Water Code Section 10750 et. seq. on August 12, 1996; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District, Garfield Water District and Bakman Water Company have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions.

WHEREAS, the Bakman Water Company desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on August 10, 2005 to discuss the intent to prepare the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the Board of Directors of the Bakman Water Company adopted a Resolution of Intent to Prepare the Fresno-Area Regional Groundwater Management Plan on August 10, 2005; and

WHEREAS, the public was invited to participate in the development of the Fresno-Area Regional Groundwater Management and a Technical Advisory Committee comprised of landowners and participant representatives was formed and met regularly to develop the Plan; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on January 25, 2006 to discuss the adoption and implementation of the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the Board of Directors believes that groundwater can best be managed, as in the past, by local agencies in coordination with owners of lands overlying the groundwater basin; and

WHEREAS, the Board of Directors believes the adoption of the Fresno-Area Regional Groundwater Management Plan is in the best interests of its constituents and water users and can help meet the projected long-term water needs of the Bakman Water Company,

BE IT RESOLVED, by the Board of Directors as follows:

The foregoing findings are true and correct:

1. That the Board of Directors of the Bakman Water Company does hereby adopt the Fresno-Area Regional Groundwater Management Plan as submitted on the date of this resolution.
2. That the officers of Bakman Water Company are authorized and directed to publish this resolution of adopt the Fresno-Area Regional Groundwater Management Plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request;
3. That the Board of Directors hereby authorizes its officers to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

PASSED AND ADOPTED at a regular meeting of the Board of Directors of Bakman Water Company on March 13, 2006.

A handwritten signature in black ink, appearing to be 'J. B.', written over a horizontal line.

President

BAKMAN WATER COMPANY

TELEPHONE (559) 255-0324 • P.O. BOX 7965 • 5105 E. BELMONT • FRESNO, CA 93747

MINUTES OF THE SPECIAL MEETING OF THE BOARD OF DIRECTORS OF BAKMAN WATER COMPANY, A CALIFORNIA CORPORATION.

A special meeting of the Board of Directors of the Bakman Water Company was held at the Bakman Water Co. office located at 5105 E. Belmont Ave, Fresno, California.

Date: March 13, 2006

Time: 9:00am

Officers present were Richard Tim Bakman, Virginia Bakman, and Dottie Patton.

On March 13, 2005, a special meeting was called to discuss the possibility of adopting the **Fresno-Area Regional Groundwater Management Plan**

The following being all of the directors of Bakman Water Company, hereby **PASSED AND ADOPTED** the **Fresno-Area Regional Groundwater Management Plan** on March 13, 2006.



Richard Tim Bakman


Virginia A. Bakman
Dottie Patton, Secretary/Treasurer

RESOLUTION NO. 06-464

**RESOLUTION OF THE BOARD OF SUPERVISORS OF THE
COUNTY OF FRESNO**

**ADOPTING THE
FRESNO-AREA REGIONAL GROUNDWATER MANAGEMENT PLAN**

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the District adopted a groundwater management plan consistent with the provisions of the California Water Code Section 10750 et. seq. on August 12, 1996; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District, Garfield Water District and Bakman Water Company have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions.

WHEREAS, the Board of Supervisors desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on August 10, 2005 to discuss the intent to prepare the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the Board of Supervisors of the County of Fresno adopted a Resolution of Intent to Prepare the Fresno-Area Regional Groundwater Management Plan on October 11, 2005; and

WHEREAS, the public was invited to participate in the development of the Fresno-Area Regional Groundwater Management and a Technical Advisory Committee comprised of landowners and participant representatives was formed and met regularly to develop the Plan; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on January 25, 2006 to discuss the adoption and implementation of the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the Board of Supervisors believes that groundwater can best be managed, as in the past, by local agencies in coordination with owners of lands overlying the groundwater basin; and

WHEREAS, the Board of Supervisors believes the adoption of the Fresno-Area Regional Groundwater Management Plan is in the best interests of its constituents and water users and can help meet the projected long-term water needs of the County of Fresno,

BE IT RESOLVED, by the Board of Supervisors as follows:

The foregoing findings are true and correct:

1. That the Board of Supervisors of the County of Fresno do hereby adopt the Fresno-Area Regional Groundwater Management Plan as submitted on the date of this resolution.
2. That the officers of County of Fresno are authorized and directed to publish this resolution of adopt the Fresno-Area Regional Groundwater Management Plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request;
3. That the Board of Supervisors hereby authorizes its officers to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

1 THE FOREGOING was passed and adopted by the following vote of the Board of
2 Supervisors of the County of Fresno this 18th day of July, 2006, to-wit:

3 AYES: Supervisors Anderson, Case, Perea, Waterston, Larson

4 NOES: None

5 ABSENT: None
6
7
8

9 
10 CHAIRMAN, Board of Supervisors

11
12 ATTEST:

13 BERNICE E. SEIDEL, Clerk
14 Board of Supervisors

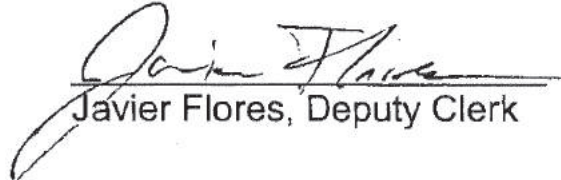
15
16 By 
17 Deputy

18
19
20
21
22
23
24
25
26 Agenda #5

27 Resolution #06-46⁴
28

CERTIFICATE OF DELIVERY OF DOCUMENT

I am employed by the County of Fresno as a Deputy Clerk of the Board of Supervisors. On July 18, 2006, I delivered a copy of Resolution No. 06-464 to the Chairman of the Fresno County Board of Supervisors.


Javier Flores, Deputy Clerk



RESOLUTION NO. 2006-146

A RESOLUTION OF THE COUNCIL OF THE CITY OF FRESNO, CALIFORNIA, ADOPTING THE FRESNO-AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the Fresno Irrigation District adopted a groundwater management plan consistent with the provisions of the California Water Code Section 10750 et. seq. on August 12, 1996; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District, Garfield Water District and Bakman Water Company have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions.

WHEREAS, the City of Fresno desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on August 10, 2005 to discuss the intent to prepare the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the Council of the City of Fresno adopted a Resolution of Intent to Prepare the Fresno-Area Regional Groundwater Management Plan on September 20, 2005; and

Adopted _____
Approved _____
Effective _____

2006-146



Management Plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request;

- 4. That the Council hereby authorizes its officers to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

STATE OF CALIFORNIA)
COUNTY OF FRESNO) ss.
CITY OF FRESNO)

I, REBECCA E. KLISCH, City Clerk of the City of Fresno, certify that the foregoing resolution was adopted by the Council of the City of Fresno, at a regular meeting held on the 18th day of April, 2006.

AYES : Boyajian, Calhoun, Dages, Perea, Sterling, Westerlund, Duncan
NOES : None
ABSENT : None
ABSTAIN : None

REBECCA E. KLISCH
City Clerk

BY: [Signature]
Deputy

APPROVED AS TO FORM:
CITY ATTORNEY'S OFFICE

BY: [Signature]
Deputy City Attorney

JCH:ns [37684ns/jch] - 4/10/06

**RESOLUTION NO. 7 OF 2006
PINEDALE COUNTY WATER DISTRICT
FRESNO COUNTY, CALIFORNIA**

**RESOLUTION ADOPTING THE FRESNO-AREA REGIONAL
GROUNDWATER MANAGEMENT PLAN**

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, a groundwater management plan consistent with the provisions of California Water Code Section 10750, et seq, was adopted on August 12, 1996, and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District, Garfield Water District and Bakman Water Company have entered into a Memorandum of Understanding to cooperate and participate in the development of Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions, and

WHEREAS, the Pinedale County Water District desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et.seq.; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2 (a), and held on August 10, 2005 to discuss whether or not to adopt a resolution of intention to draft a groundwater management plan for the purpose of establishing a groundwater management program; and

WHEREAS, after the hearing, the Pinedale County Water District adopted a Resolution of Intention to draft a ground water management plan in accord with the provisions of California Water Code Section 10753.2(b), and

WHEREAS, the Pinedale County Water District, after its adoption of said Resolution of Intention, caused said Resolution of Intention to be published pursuant to Section 6066 of the Government Code, and

WHEREAS, a Working Draft of the Fresno Area Regional Groundwater Management was prepared on behalf of the parties to the aforementioned Memorandum of Understanding, and

WHEREAS, a public hearing was duly noticed and heard pursuant to the provisions of Water Code Section 10753.5, and

WHEREAS, the Board of Directors believes that groundwater can best be managed by local agencies in coordination with owners of lands overlying the groundwater basin; and

WHEREAS, the Board of Directors believes the adoption of the Fresno-Area Regional Groundwater Management Plan is in the best interest of its constituents and water users and can help meet the projected long-term water needs of the Pinedale County Water District.

BE IT RESOLVED, by the Board of Directors as follows:

The foregoing findings are true and correct:

1. That the Board of Directors of the Pinedale County Water District does hereby adopt the Fresno-Area Regional Groundwater Management Plan as submitted on the date of this Resolution.

2. That the Board of Directors of the Pinedale County Water District hereby authorizes its Officers to execute all documents and to take any other action necessary or advisable to carry out the purposes of this Resolution.

PASSED AND ADOPTED at a regular meeting of the Board of Directors of the Pinedale County Water District this 20th day of September 2006 by the following vote:

AYES : RICHARD BURRILL, NICOLE COOPER,
EDWARD HIGGASON, DAVID RODRIGUEZ,
DELTES COOPER

NOES : NONE

ABSENT : NONE

S/ RICHARD BURRILL
RICHARD BURRILL, President of the Board
of Directors of Pinedale County Water District.

S/ PAM EINSEL
PAM EINSEL, Secretary of the
Pinedale County Water District

Eugene L. Adams
ATTORNEY AT LAW
3554 W. Magill Ave
Fresno, CA 93711-0815
(559) 485-4611

SECRETARY'S CERTIFICATE

I, PAM EINSEL, Secretary of the Pinedale County Water District, do hereby certify that the foregoing is a full, true and correct copy of a Resolution duly adopted at a regular meeting of the Board of Directors of said Pinedale County Water District, duly and legally held at the regular meeting place thereof on the 20th day of September, 2006, of which meeting all of the members of said Board had due notice and at which a majority thereof were present; that at said meeting, said Resolution was introduced by Director EDWARD HIGGASON and read in full and was, thereupon, on motion of Director EDWARD HIGGASON, seconded by Director DAVID RODRIGUEZ and adopted by the following vote:


AYES : RICHARD BURRILL, EDWARD HIGGASON
DAVID RODRIGUEZ, DELTES COOPER, NICOLE COOPER

NOES : NONE

ABSENT: NONE

That I have carefully compared the same with the original minutes of said meeting on file in my office and that said Resolution is a full, true and correct copy of the original Resolution adopted at said meeting and entered in said minutes. That said Resolution has not been amended, modified or rescinded since the date of its adoption and the same is now in full force and effect

WITNESS MY HAND and the Seal of said District this 6th day of October, 2006.


PAM EINSEL, Secretary of the
Pinedale County Water District

RESOLUTION NO. 2006-490

**BEFORE THE BOARD OF DIRECTORS OF THE
FRESNO METROPOLITAN FLOOD CONTROL DISTRICT**

**RESOLUTION ADOPTING THE FRESNO-AREA
REGIONAL GROUNDWATER MANAGEMENT PLAN**

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the District adopted a Groundwater Management Plan consistent with the provisions of the California Water Code Section 10750 et. seq. on August 12, 1996; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District, Garfield Water District and Bakman Water Company have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions; and

WHEREAS, the Fresno Metropolitan Flood Control District desires to adopt a Groundwater Management Plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

RESOLUTION NO. 2006-490

Page 2 of 3

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on August 10, 2005 to discuss the intent to prepare the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the Board of Directors of the Fresno Metropolitan Flood Control District adopted a Resolution of Intent to Prepare the Fresno-Area Regional Groundwater Management Plan on August 24, 2005; and

WHEREAS, the public was invited to participate in the development of the Fresno-Area Regional Groundwater Management and a Technical Advisory Committee comprised of landowners and participant representatives was formed and met regularly to develop the Plan; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on January 25, 2006 to discuss the adoption and implementation of the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the Board of Directors believes that groundwater can best be managed, as in the past, by local agencies in coordination with owners of lands overlying the groundwater basin; and

WHEREAS, the Board of Directors believes the adoption of the Fresno-Area Regional Groundwater Management Plan is in the best interests of its constituents and water users and can help meet the projected long-term water needs of the Fresno Metropolitan Flood Control District; and

RESOLUTION NO. 2006-490

Page 3 of 3

BE IT RESOLVED, by the Fresno Metropolitan Flood Control District as follows:

The foregoing findings are true and correct:

1. That the Board of Directors of the Fresno Metropolitan Flood Control District does hereby adopt the Fresno-Area Regional Groundwater Management Plan as submitted on the date of this Resolution.
2. That the officers of the Fresno Metropolitan Flood Control District are authorized and directed to publish this resolution of adopt the Fresno-Area Regional Groundwater Management Plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request;
3. That the Board of Directors hereby authorizes its officers to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

PASSED AND ADOPTED by the Board of Directors of the District this 8th day of February 2006 by the following vote, to wit:

AYES: Directors Franco, Welton, Spina, Groom, Williams and Rastegar

NOES: None

ABSENT: Director Marcus

ABSTAIN: None

RESOLUTION NO. 06-17

**RESOLUTION OF THE CITY COUNCIL OF THE
CITY OF KERMAN**

**ADOPTING THE
FRESNO-AREA REGIONAL GROUNDWATER MANAGEMENT PLAN**

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the District adopted a groundwater management plan consistent with the provisions of the California Water Code Section 10750 et. seq. on August 12, 1996; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District, Garfield Water District and Bakman Water Company have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions.

WHEREAS, the City Council of the City of Kerman desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on August 10, 2005 to discuss the intent to prepare the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the of the City Council of the City of Kerman adopted a Resolution of Intent to Prepare the Fresno-Area Regional Groundwater Management Plan on August 10, 2005; and

WHEREAS, the public was invited to participate in the development of the Fresno-Area Regional Groundwater Management and a Technical Advisory Committee comprised of landowners and participant representatives was formed and met regularly to develop the Plan; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on January 25, 2006 to discuss the adoption and implementation of the Fresno-Area Regional Groundwater Management Plan; and

REC'D JUN 05 2006

WHEREAS, the City Council of the City of Kerman believes that groundwater can best be managed, as in the past, by local agencies in coordination with owners of lands overlying the groundwater basin; and

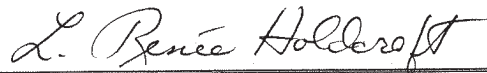
WHEREAS, the City Council of the City of Kerman believes the adoption of the Fresno-Area Regional Groundwater Management Plan is in the best interests of its constituents and water users and can help meet the projected long-term water needs of the City of Kerman.

BE IT RESOLVED, by the City Council of the City of Kerman as follows:

The foregoing findings are true and correct:

1. That the City Council of the City of Kerman does hereby adopt the Fresno-Area Regional Groundwater Management Plan as submitted on the date of this resolution.
2. That the officers of City Council of the City of Kerman are authorized and directed to publish this resolution of adopt the Fresno-Area Regional Groundwater Management Plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request;
3. That the City Council of the City of Kerman hereby authorizes its officers to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

PASSED AND ADOPTED at a regular meeting of the City Council of the City of Kerman on the 1st day of March, 2006.



CITY CLERK, CITY OF KERMAN

The foregoing resolution was adopted at a regular meeting of the City Council of the City of Kerman on the 1st day of March, 2006, and passed at said meeting by the following vote:

AYES: Cromartie, Rodriguez, Sidhu, Stockwell

NOES: None

ABSENT: None

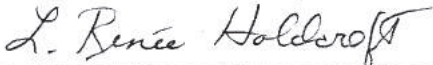
ABSTAIN: Council Member Moore

The foregoing resolution is hereby approved.



MAYOR, CITY OF KERMAN

ATTEST:



CITY CLERK, CITY OF KERMAN

**CITY CLERK
RESOLUTION CERTIFICATION**

I, L. RENEE HOLDCROFT, do hereby certify as follows:

That I am the City Clerk of the City of Kerman and that the foregoing document, being Resolution No. 06-17, was passed at a regular meeting of the City Council of the City of Kerman held on the 1st day of March, 20 06 and I further certify that the foregoing is a true and correct copy of the document so adopted.

6-1-06

DATE



L. RENEE HOLDCROFT

City Clerk

RESOLUTION NO. 02-14-06 (B)

**RESOLUTION OF THE BOARD OF DIRECTORS OF THE
MALAGA COUNTY WATER DISTRICT**

**ADOPTING THE
FRESNO-AREA REGIONAL GROUNDWATER MANAGEMENT PLAN**

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the District adopted a groundwater management plan consistent with the provisions of the California Water Code Section 10750 et. seq. on August 12, 1996; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District, Garfield Water District and Bakman Water Company have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions.

WHEREAS, the Malaga County Water District desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on August 10, 2005 to discuss the intent to prepare the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the Board of Directors of the Malaga County Water District adopted a Resolution of Intent to Prepare the Fresno-Area Regional Groundwater Management Plan on August 10, 2005; and

WHEREAS, the public was invited to participate in the development of the Fresno-Area Regional Groundwater Management and a Technical Advisory Committee comprised of landowners and participant representatives was formed and met regularly to develop the Plan; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on January 25, 2006 to discuss the adoption and implementation of the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the Board of Directors believes that groundwater can best be managed, as in the past, by local agencies in coordination with owners of lands overlying the groundwater basin; and

WHEREAS, the Board of Directors believes the adoption of the Fresno-Area Regional Groundwater Management Plan is in the best interests of its constituents and water users and can help meet the projected long-term water needs of the Malaga County Water District,

BE IT RESOLVED, by the Board of Directors as follows:

The foregoing findings are true and correct:

1. That the Board of Directors of the Malaga County Water District does hereby adopt the Fresno-Area Regional Groundwater Management Plan as submitted on the date of this resolution.
2. That the officers of the Malaga County Water District are authorized and directed to publish this resolution of adopt the Fresno-Area Regional Groundwater Management Plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request;
3. That the Board of Directors hereby authorizes its officers to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

PASSED AND ADOPTED at a regular meeting of the Board of Directors of Malaga County Water District on February 14, 2006.



Russ Holcomb
General Manager

RESOLUTION No. 06-1101

**RESOLUTION OF THE BOARD OF DIRECTORS OF THE
GARFIELD WATER DISTRICT**

**FOR INTENTION TO ADOPT THE
FRESNO-AREA REGIONAL GROUNDWATER MANAGEMENT PLAN**

WHEREAS, Part 2.75 of Division 6 of the California Water Code permits the adoption and implementation of groundwater management plans to encourage authorized local agencies to manage groundwater resources within their service areas; and

WHEREAS, the Fresno Irrigation District, City of Fresno, City of Clovis, Fresno Metropolitan Flood Control District, County of Fresno, City of Kerman, Malaga County Water District, Pinedale County Water District, Garfield Water District and Bakman Water Company have entered into a Memorandum of Understanding to cooperate and participate in the development of the Fresno-Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions within their respective jurisdictions; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions; and

WHEREAS, the Garfield Water District desires to adopt a groundwater management plan that is consistent with recent amendments to the provisions of the California Water Code Section 10750 et seq.; and

WHEREAS, a public hearing was duly noticed consistent with California Water Code Section 10753.2(a), and held on March 1, 2006, to discuss the adoption and implementation of the Fresno-Area Regional Groundwater Management Plan; and

WHEREAS, the Board of Directors believes that groundwater can best be managed, as in the past, by local agencies in coordination with owners of lands overlying the groundwater basin; and

WHEREAS, the Board of Directors believes the updating and adoption of a new groundwater management plan will be in the best interests of its constituents and water users and can help meet the projected long-term water needs of the Garfield Water District,

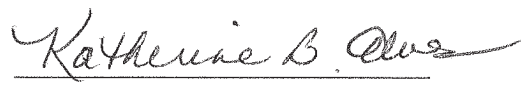
BE IT RESOLVED, by the Board of Directors as follows:

The foregoing findings are true and correct:

1. It is the intention of the Garfield Water District to adopt the Fresno-Area Regional Groundwater Management Plan in accordance with part 2.75 of Division 6 of the California Water Code, and the District's engineer is hereby authorized to represent the Garfield Water District in any joint management proceedings;
2. That this resolution shall be deemed a resolution of intention in accordance with California Water Code Section 10753.2;
3. That the plan has been prepared in accordance with all applicable laws, including, but not limited to the California Environmental Quality Act, and a public hearing has been conducted in accordance with the California Water Code Section 10753.5 et seq. to determine whether to adopt the plan;
4. That the officers of Garfield Water District have published a resolution of intention to update the Garfield Water District's groundwater management plan in accordance with the provisions of California Water Code Section 10753.3 and to provide interested persons with a copy of this resolution upon written request; and
5. That the Board of Directors hereby authorizes its officers to execute all documents and take any other action necessary or advisable to carry out the purposes of this resolution.

RESOLVED by the Board of Directors of the Garfield Water District that the Fresno-Area Regional Groundwater Management Plan be deemed to be in compliance with California Senate Bill No. 1938.


PASSED AND ADOPTED at a regular meeting of the Board of Directors of Garfield Water District on November 1, 2006.


Katherine Alves, Secretary

SECRETARY'S CERTIFICATE

I, KATHERINE ALVES, the undersigned do hereby certify:

That I am the duly elected and acting Secretary of the GARFIELD WATER DISTRICT
and that the foregoing Resolution was adopted on the 1st day of November, 2006.


Katherine Alves, Secretary

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

APPENDIX C

MEMORANDUM OF UNDERSTANDING

MEMORANDUM OF UNDERSTANDING

REGARDING

THE FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

This Memorandum of Understanding ("MOU") is entered into on this 11th day of October, 2005 by and between the FRESNO IRRIGATION DISTRICT ("District"), the CITY OF FRESNO ("Fresno"), the CITY OF CLOVIS ("Clovis"), the FRESNO METROPOLITAN FLOOD CONTROL DISTRICT ("Metropolitan"), the BAKMAN WATER COMPANY ("Company"), the CITY OF KERMAN ("Kerman"), the COUNTY OF FRESNO ("County"), the MALAGA COUNTY WATER DISTRICT ("Malaga"), and the PINEDALE COUNTY WATER DISTRICT ("Pinedale").

RECITALS

WHEREAS, the District adopted a regional groundwater management plan consistent with the provisions of the California Water Code Section 10750 et. seq. on August 12, 1996; and

WHEREAS, the District desires to update its groundwater management plan to make it consistent with recent amendments to the provisions of the California Water Code Section 10750 et. seq.; and

WHEREAS, other parties that are within the boundary of the District wish to enter into this Memorandum of Understanding, so that the parties may cooperate and participate in the cost-efficient development of a regional groundwater management plan for the planning and monitoring activities for groundwater conditions within their respective jurisdictions; and

WHEREAS, the District desires to incorporate the concerns and conditions of the other parties to this Memorandum of Understanding into its updated regional groundwater management plan so that the plan may provide a more comprehensive view and approach toward groundwater within the jurisdictional territory of the parties as identified, more or less, on the map included as Exhibit "1", attached hereto; and

WHEREAS, each of the parties has the authority pursuant to law and their local governing authorities to enter into this cooperative effort to study and plan for the management of groundwater conditions within their respective jurisdictions.

NOW THEREFORE, BE IT RESOLVED, in consideration of the promises contained herein the parties hereto agree upon the following covenants and conditions:

1. Purpose. This MOU is intended to promote and to provide a means to establish an orderly process to share information, develop courses of

action, and to resolve any issues with respect to the cooperative development of the regional groundwater management plan and with respect to the administration of the regional groundwater management plan. Administration will include coordination of data received from each party, public noticing, meetings and annual reporting as described herein. This MOU memorializes the interests, intent and responsibilities of the parties with respect to the adoption of a regional groundwater management plan consistent with the provisions of the California Water Code to provide for collection of data and the development of a plan for the management of groundwater resources within the jurisdictions of the parties hereto.

2. District's Responsibility. The District shall review and revise its groundwater management plan consistent with the current requirements of the California Water Code and the intentions of the parties hereto. The plan will be based upon the existing groundwater management plan of the District and shall incorporate new provisions required by recent changes in California law. The plan will be updated to include necessary revisions to incorporate the jurisdictions of the parties other than the District into the plan, so that the resulting document will satisfy the requirement of the Water Code that each of the parties has prepared a groundwater management plan. The District intends to complete the update of the regional groundwater management plan by December 2005.

3. Payment of Costs. Each of the parties hereto shall contribute to the cost of updating the groundwater management plan in accordance with the obligations specified in Exhibit "2" attached hereto. Additionally, any ongoing fees or costs incurred in the administration of the plan (as administration is defined and limited in Section 1 of this MOU) or of this Memorandum of Understanding will be shared by the parties in accordance with the percentages identified in Exhibit "2".

4. Coordination and Meetings. There shall be an annual coordination meeting between the parties. The District shall provide notice to the parties to this Memorandum of Understanding of the date and time of the meeting and submit a proposed agenda for such meeting. Each of the parties hereto agrees to provide a representative to participate in each of the annual meetings held during the effective dates of the regional groundwater management plan. The meeting may be held more often than annually if the parties hereto agree that more frequent meetings are necessary.

5. Data Provision. The parties to this agreement shall provide water quantity and water quality data for the purposes of preparing an annual report for public and state dissemination. The purpose of such data will be to evaluate the effectiveness of the implementation of the regional groundwater management plan by the parties. The parties hereto may employ consultants or contractors to assist in the preparation of the annual report which costs shall be shared according to the percentages specified in Exhibit "2". Preparation of the first annual report is estimated at 10% of the total Exhibit "2" fees to be shared at the same percentages as identified in Exhibit "2".

6. Membership. Any party to this Memorandum of Understanding may terminate their participation in the Memorandum of Understanding by providing ninety (90) days written notice to the District. Such member shall be responsible for their proportionate share of any costs incurred in administration of the Memorandum of Understanding through the effective date of their termination. Additionally, by agreement of all of the parties hereto, additional parties may be permitted to become participants in the Memorandum of Understanding and the regional groundwater management plan and will be required to pay their proportionate share of costs. Upon the termination of any member's participation or the addition of any additional member, the parties to the Memorandum of Understanding will revise the percentages for cost sharing purposes contained in Exhibit "2" appropriately. Participation in this MOU does not obligate parties to contribute to construction or implementation of groundwater related projects, unless mutually agreed upon.

7. Lead Agency. The District shall be the lead agency for contracting services associated with the development and implementation of the regional groundwater management plan. To the extent the District wishes to receive reimbursement for costs it incurs in addition to those costs identified on Exhibit "2", it shall obtain the prior written approval of each party. Promptly upon incurring approved costs, the District shall submit invoices according to the percentages contained in Exhibit "2" to each of the parties hereto for payment. The parties hereto shall remit payment of their appropriate portion of any such costs and expenses to the District within thirty (30) days of receipt of an invoice. Each party's share of contribution for preparation of the updated regional groundwater management plan as specified in Exhibit "2" shall be paid prior to the initiation of work to update the plan.

8. Budgets. The District shall prepare a proposed annual budget for consideration of the parties hereto at the annual meeting. The budget shall estimate the expenses and costs to be incurred with development of the updated regional groundwater management plan and any subsequent administration and implementation of the plan.

9. Amendments. This Memorandum of Understanding may be amended only by the express written consent of all of the parties hereto.

10. Severability. If any part of this agreement is found to be in conflict with applicable laws, such part shall be inoperative, null and void and so far as it is in conflict with said law that the remainder of the agreement shall remain in full force and effect.

11. Counterparts. This agreement may be executed in counterparts by the parties.

12. Governing Law and Venue. Any disputes or claims arising in connection with, or out of the implementation of this agreement shall be governed by the law of the State of California.

Executed on this _____ day of _____, 2005.

FRESNO IRRIGATION DISTRICT

By: *Gary R. Serrato*

CITY OF CLOVIS

By: _____

BAKMAN WATER COMPANY

By: _____

COUNTY OF FRESNO

By: _____

CITY OF FRESNO

By: _____

APPROVED AS TO FORM:

HILDA CANTU MONTOY
City of Fresno Attorney

By: _____
Deputy

ATTEST

REBECCA E. KLISCH
City of Fresno Clerk

By: _____

PINEDALE COUNTY
WATER DISTRICT

By: _____

FRESNO METROPOLITAN
FLOOD CONTROL DISTRICT

By: _____

CITY OF KERMAN

By: _____

MALAGA COUNTY WATER
DISTRICT

By: _____

Executed on this _____ day of _____, 2005.

FRESNO IRRIGATION DISTRICT

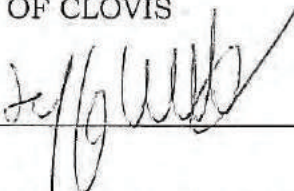
PINEDALE COUNTY
WATER DISTRICT

By: _____

By: _____

CITY OF CLOVIS

FRESNO METROPOLITAN
FLOOD CONTROL DISTRICT

By:  _____

By: _____

BAKMAN WATER COMPANY

CITY OF KERMAN

By: _____

By: _____

COUNTY OF FRESNO

MALAGA COUNTY WATER
DISTRICT

By: _____

By: _____

CITY OF FRESNO

By: _____

APPROVED AS TO FORM:

HILDA CANTU MONTOY
City of Fresno Attorney

By: _____
Deputy

ATTEST

REBECCA E. KLISCH
City of Fresno Clerk

By: _____

Executed on this _____ day of _____, 2005.

FRESNO IRRIGATION DISTRICT

PINEDALE COUNTY
WATER DISTRICT

By: _____

By: _____

CITY OF CLOVIS

FRESNO METROPOLITAN
FLOOD CONTROL DISTRICT

By: _____

By: _____

BAKMAN WATER COMPANY

CITY OF KERMAN

By:  _____

By: _____

COUNTY OF FRESNO

MALAGA COUNTY WATER
DISTRICT

By: _____

By: _____

CITY OF FRESNO

By: _____

APPROVED AS TO FORM:

HILDA CANTU MONTOY
City of Fresno Attorney

By: _____
Deputy

ATTEST

REBECCA E. KLISCH
City of Fresno Clerk

By: _____

Executed on this _____ day of _____, 2005.

FRESNO IRRIGATION DISTRICT

PINEDALE COUNTY
WATER DISTRICT

By: _____

By: _____

CITY OF CLOVIS

FRESNO METROPOLITAN
FLOOD CONTROL DISTRICT

By: _____

By: _____

BAKMAN WATER COMPANY

CITY OF KERMAN

By: _____

By: _____

COUNTY OF FRESNO

MALAGA COUNTY WATER
DISTRICT

By: _____

By: _____

CITY OF FRESNO

By: *[Signature]*

APPROVED AS TO FORM:

HILDA CANTU MONTÓY
City of Fresno Attorney

By: *[Signature]* Deputy Chief Asst.

ATTEST

REBECCA E. KLISCH
City of Fresno Clerk

By: *[Signature]*
Deputy (8/9/05)

Executed on this _____ day of _____, 2005.

FRESNO IRRIGATION DISTRICT

By: _____

CITY OF CLOVIS

By: _____

BAKMAN WATER COMPANY

By: _____

COUNTY OF FRESNO

By: _____

CITY OF FRESNO

By: _____

APPROVED AS TO FORM:

HILDA CANTU MONTOY
City of Fresno Attorney

By: _____
Deputy

ATTEST

REBECCA E. KLISCH
City of Fresno Clerk

By: _____

PINEDALE COUNTY
WATER DISTRICT

By: *John Garcia*

FRESNO METROPOLITAN
FLOOD CONTROL DISTRICT

By: _____

CITY OF KERMAN

By: _____

MALAGA COUNTY WATER
DISTRICT

By: _____

Executed on this _____ day of _____, 2005.

FRESNO IRRIGATION DISTRICT

By: _____

PINEDALE COUNTY
WATER DISTRICT

By: _____

CITY OF CLOVIS

By: _____

FRESNO METROPOLITAN
FLOOD CONTROL DISTRICT

By: Brian Wyle

BAKMAN WATER COMPANY

By: _____

CITY OF KERMAN

By: _____

COUNTY OF FRESNO

By: _____

MALAGA COUNTY WATER
DISTRICT

By: _____

CITY OF FRESNO

By: _____

APPROVED AS TO FORM:

HILDA CANTU MONTROY
City of Fresno Attorney

By: _____
Deputy

ATTEST

REBECCA E. KLISCH
City of Fresno Clerk

By: _____

Executed on this _____ day of _____, 2005.

FRESNO IRRIGATION DISTRICT

By: _____

PINEDALE COUNTY
WATER DISTRICT

By: _____

CITY OF CLOVIS

By: _____

FRESNO METROPOLITAN
FLOOD CONTROL DISTRICT

By: _____

BAKMAN WATER COMPANY

By: _____

CITY OF KERMAN

By: *D. Mufidi*
Attest: *[Signature]*

City Clerk

MALAGA COUNTY WATER
DISTRICT

By: _____

COUNTY OF FRESNO

By: _____

CITY OF FRESNO

By: _____

APPROVED AS TO FORM:

HILDA CANTU MONTROY
City of Fresno Attorney

By: _____
Deputy

ATTEST

REBECCA E. KLISCH
City of Fresno Clerk

By: _____

Executed on this _____ day of _____, 2005.

FRESNO IRRIGATION DISTRICT

By: _____

PINEDALE COUNTY
WATER DISTRICT

By: _____

CITY OF CLOVIS

By: _____

FRESNO METROPOLITAN
FLOOD CONTROL DISTRICT

By: _____

BAKMAN WATER COMPANY

By: _____

CITY OF KERMAN

By: _____

COUNTY OF FRESNO

By: _____

MALAGA COUNTY WATER
DISTRICT

By: *H. L. Conrad*

CITY OF FRESNO

By: _____

APPROVED AS TO FORM:

HILDA CANTU MONTROY
City of Fresno Attorney

By: _____
Deputy

ATTEST

REBECCA E. KLISCH
City of Fresno Clerk

By: _____

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

REVIEWED AND RECOMMENDED
FOR APPROVAL

COUNTY OF FRESNO

By: Alan Weaver
Alan Weaver, Director
Department of Public Works and
Planning

Judith G. Case
Judith G. Case
CHAIRMAN, Board of Supervisors

OCT 11 2005

APPROVED AS TO ACCOUNTING
FORM

ATTEST:

By: Vicki Crow
Vicki Crow, Auditor-
Controller/Treasurer-Tax
Collector

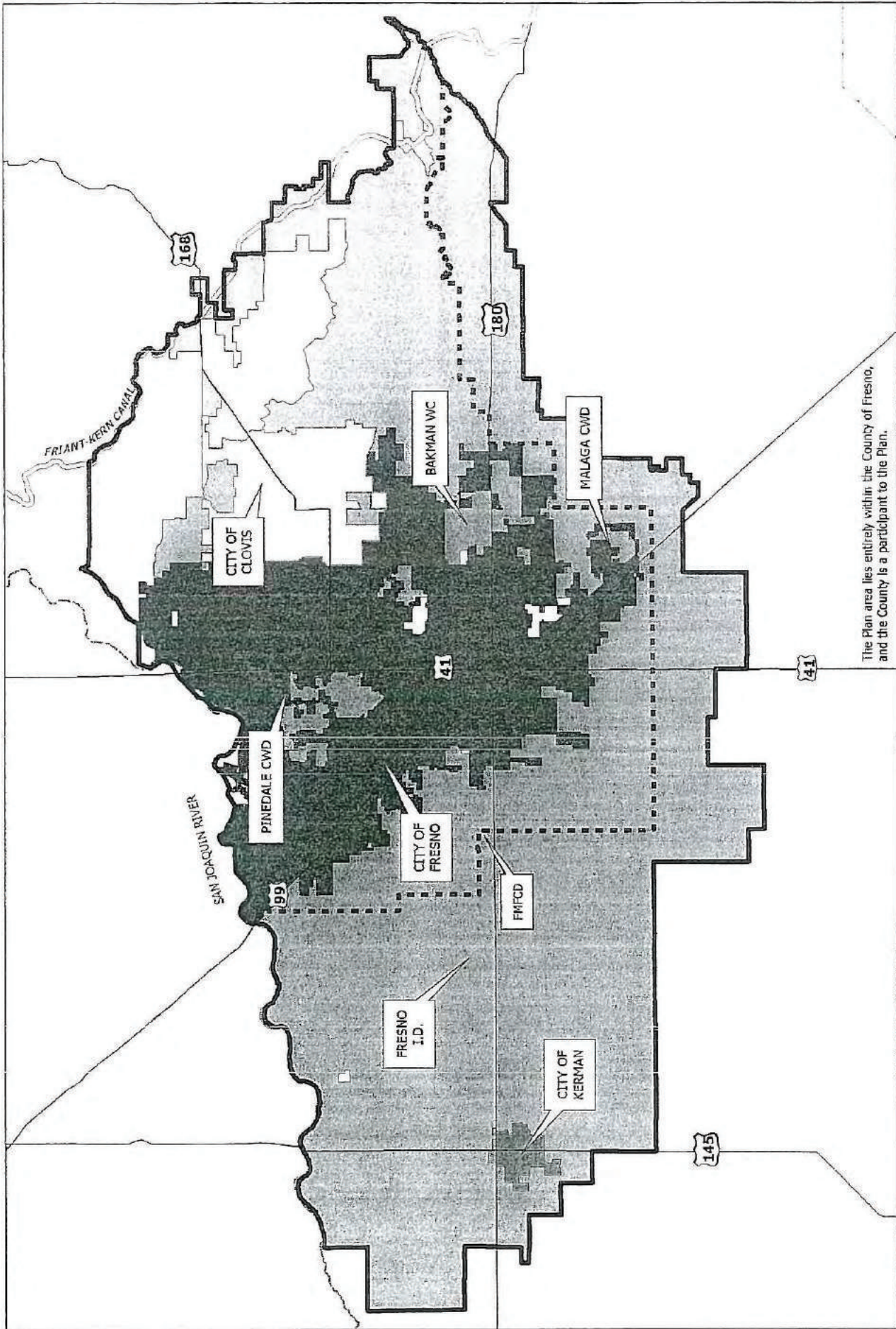
Bernice E. Seidel
Bernice E. Seidel, Clerk
Board of Supervisors

APPROVED AS TO LEGAL FORM
Dennis Marshall, County Counsel

By: Susan F. Coberly
Deputy

Fund: 0001
Subclass: 10000
Org Number: 436000300
Account: 7010
Project No.:

EXHIBIT "1"



The Plan area lies entirely within the County of Fresno, and the County is a participant to the Plan.

Exhibit 1 Fresno Area Regional Groundwater Management Plan Boundary Map

- GWMP BOUNDARY
- FRESNO I.D.
- FRIANT-KERN CANAL
- FMFCD
- CITY OF KERNMAN
- MALAGA CWD
- PINEDALE WD
- BAKMAN WD
- CITY OF CLOVIS
- CITY OF FRESNO

PROVOST & PARTNERS
PLANNING & CONSULTING GROUP

0 1 2 3 4 Miles

North Arrow

EXHIBIT 2

Agency	Cost Share	Percent Total
Fresno Irrigation District	\$25,000	23.81%
City of Fresno	\$30,000	28.57%
City of Clovis	\$20,000	19.05%
Fresno Metropolitan Flood Control District	\$7,500	7.14%
Bakman Water Company	\$5,000	4.76%
City of Kerman	\$5,000	4.76%
County of Fresno	\$5,000	4.76%
Malaga County Water District	\$5,000	4.76%
Pinedale County Water District	\$2,500	2.38%
Total Estimated GW Mgmt. Plan Cost	\$105,000	100%¹
¹ Rounded		
NOTE: Estimate does not include agency staff time, legal fees or required newspaper notices. Estimate includes consultant work only as required to prepare the Regional Groundwater Management Plan in compliance with SB 1938.		

GARFIELD WATER DISTRICT

Mailing Address
P. O. Box 337
Clovis, CA 93613
Phone (559) 299-1120

Office Location
1990 Shaw, Suite A
Clovis, CA 93613
Fax (559) 299-3304

November 2, 2005

Mr. Dale Stanton, P.E.
Fresno Irrigation District
2907 So. Maple Avenue
Fresno, CA 93725

RE: LETTER OF INTENT TO PARTICIPATE IN THE FRESNO AREA REGIONAL GMP

Dear Mr. Stanton:

The Garfield Water District (District) desires to cooperate and participate in the development of the Fresno Area Regional Groundwater Management Plan for the planning and monitoring activities of groundwater conditions in the area. The District hereby agrees to the terms of the Memorandum of Understanding (MOU) regarding the Fresno Area Regional Groundwater Management Plan, attached hereto. In accordance with the recommendation of the Technical advisory Committee responsible for the Plan development, the District will make an initial contribution of two thousand five hundred dollars (\$2,500.00) to assist in the preparation of the Plan. A revised cost share and percentage total described in Exhibit 2 of the MOU is attached.

The District will duly notice and conduct a public hearing for intent to participate in preparation of the Plan in accordance with California Water Code requirements. Pending comments received during the hearing, the District Board of Directors intends to adopt a resolution of intent to participate in the preparation of the Plan. Following the acceptance of this letter, completion of the public hearing and adoption of the resolution, the District will participate in Plan development and all processes involved with the Plan's anticipated adoption.

Thank you for the opportunity to participate in this Plan.

Respectfully,

GARFIELD WATER DISTRICT

President

COPY

Attachments

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

APPENDIX D

GLOSSARY

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

GLOSSARY

Acre-Foot: A quantity or volume of water covering one acre to a depth of one foot; equal to 43,560 cubic feet or 325,851 gallons.

Alluvium: A stratified bed of sand, gravel, silt, and clay deposited by flowing water.

Aquifer: A geologic formation that stores and transmits water and yields significant quantities of water to wells and springs.

Confined Aquifer: A water bearing subsurface stratum that is bounded above and below by formations of impermeable, or relatively impermeable, soil or rock.

Conjunctive Operation: The operation of a groundwater basin in combination with a surface water storage and conveyance system. Water is stored in the groundwater basin for later use by intentionally recharging the basin during periods of above-average water supply.

Deep Percolation: The percolation of surface water through the ground and beyond the lower limit of the root zone of plants into a groundwater aquifer.

Ecology: The study of the interrelationships of living organisms to one another and to their surroundings.

Ecosystem: Recognizable, relatively homogeneous units, including the organisms they contain, their environment, and all the interactions among them.

Effluent: Waste water or other liquid, partially or completely treated or in its natural state, flowing from a treatment plant.

Environment: The sum of all external influences and conditions affecting the life and development of an organism or ecological community; the total social and cultural conditions.

Evapotranspiration Of Applied Water (ETAW): The portion of the total evapotranspiration which is provided by irrigation.

Groundwater: Water that occurs beneath the land surface and completely fills all pore spaces of the alluvium, soil, or rock formation in which it is situated.

Groundwater Banking: The importation and storage of a new water supply in a groundwater aquifer for subsequent extraction of a fraction thereof for use by designated beneficiaries. The fraction of the water stored (i.e. banked) in the underground that may be withdrawn is a function of the groundwater mitigation

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

GLOSSARY

required. Approval, oversight, mitigation and accounting for groundwater banking shall be the responsibility of the local agency whose AB 3030 plan governs. Agreement of the impacted local water service agencies shall also be obtained.

Groundwater Basin: A groundwater reservoir, defined by all the overlying land surface and the underlying aquifers that contain the water stored in the reservoir. In some cases, the boundaries of successively deeper aquifers may differ and make it difficult to define the limits of the basin.

Groundwater Mining: The withdrawal of water from an aquifer in excess of recharge over time. If continued, the underground supply would eventually be exhausted or the water table could drop below economically feasible pumping lifts.

Groundwater Mitigation: An action or activity designed to compensate for the actual or expected negative impact caused by groundwater pumping by appropriators and/or groundwater bankers. Mitigation shall include making provisions for sufficient recharge to offset the effects of all extractions, subsurface outflow and other unrecoverable losses attributable to the appropriation or banking activity. Mitigation may be incorporated into a conjunctive operation of a groundwater basin or subarea thereof with the consent of the agency or agencies responsible for the conjunctive management of such basin or subarea.

Groundwater Overdraft: The condition of a groundwater basin 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 water supply conditions approximate average.

Groundwater Recharge: Increases in groundwater storage by natural conditions or by human activity.

Groundwater Reservoir: An aquifer or an aquifer system in which groundwater is stored.

Groundwater Storage Capacity: The space or voids contained in a given volume of deposits. Under optimum conditions, the usable groundwater storage capacity is the volume of water that can, within specified economic limitations, be alternately extracted and replaced in the reservoir.

Groundwater Table: The upper surface of the zone of saturation (all pores of subsoil filled with water), except where the surface is formed by an impermeable body.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

GLOSSARY

Hardpan: A layer of nearly impermeable soil beneath a more permeable soil, formed by natural chemical cementing of the soil particles.

Hydrologic Balance: An accounting of all water inflow to, water outflow from, and changes in water storage within a hydrologic unit over a specified period.

Hydrologic Basin: The complete drainage area upstream from a given point on a stream.

In-Lieu Groundwater Recharge: A method of replenishing a groundwater resource by delivering an alternate surface supply to agricultural or urban users instead of pumping groundwater, thus leaving water in the underground for future use. Deliveries of surface water to parks, golf courses and freeway landscaping are examples of urban in-lieu recharge.

Intentional Recharge: The addition of surface water to a groundwater reservoir by human activity, such as putting surface water into spreading basins.

Irrecoverable Losses: The water lost to a salt sink or lost by evaporation or evapotranspiration from a conveyance facility, drainage canal, or in fringe areas.

Irrigation Efficiency: The efficiency of water application. Computed by dividing evapotranspiration of applied water by applied water and converting the result to a percentage. Efficiency can be computed at three levels: farm, district, or basin. Applied water may exclude water that percolates to groundwater for subsequent reuse.

Irrigation Return Flow: Applied water that is not transpired, evaporated, or deep percolated into a groundwater basin but that returns to a surface water supply.

Land Subsidence: The lowering of the natural land surface in response to: earth movements; lowering of fluid pressure (or lowering of groundwater level); removal of underlying supporting materials by mining or solution of solids, either artificially or from natural causes; compaction caused by wetting (hydrocompaction); oxidation of organic matter in soils; or added load on the land surface.

Leaching: The flushing of salts from the soil by the downward percolation of applied water.

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

GLOSSARY

Leaching Requirement: The incremental water necessary to prevent harmful salt accumulations in the soil. $LR = ETAW \times LF \text{ DU}100 (1-LF)$ where LF is the leaching fraction.

Mean Annual Runoff: The average value of annual runoff amounts calculated for a selected period of record for a specified area.

Milligrams Per Liter (mg/L): The weight in milligrams of any substance dissolved in one liter of liquid. Nearly the same as parts per million.

Moisture Stress: A condition of physiological stress in a plant caused by a lack of water.

Natural Flow: The flow past a specified point on a natural stream that is unaffected by stream diversion, storage, import, export, return flow, or change in use caused by modifications in land use.

Net Water Demand: The amount of water needed in a water service area to meet all requirements. It is the sum of evapotranspiration of applied water (ETAW) in an area, the irrecoverable losses from the distribution system, and the outflow leaving the service area.

New Water Supply: A surface water supply which has not historically been imported or brought under control and put to beneficial use by recharge of the groundwater or by direct use. New water would include, but not be limited to:

- a. Fresno Stream Group water.
- b. C.V.P. Class II water not historically diverted (i.e. obligation water subject to spill from Friant Dam).
- c. Kings River flood releases from Pine Flat Dam and divertable under existing license conditions and applicable agreements.
- d. Fresno County's C.V.P. Cross Valley Supply.
- e. Any other water purchased, exchanged, developed or otherwise acquired that did not constitute a part of the historic water supply for the area in question.
- f. City of Fresno's C.V.P. Class I Supply. While this is an existing supply, it can be redirected to portions of the City outside of the District, at any time and at the City's sole discretion, and therefore has all the characteristics of new water.

Nonpoint Source: Waste water discharge other than from point sources. (See Point Source).

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

GLOSSARY

Perched Groundwater: Groundwater supported by a zone of material of low permeability located above an underlying main body of groundwater with which it is not hydrostatically connected.

Percolation: The downward movement of water through the soil or alluvium to the groundwater table.

Permeability: The capability of soil or other geologic formation to transmit water.

Point Source: A specific site from which waste or polluted water is discharged into a water body, the source of which can be identified. See also Nonpoint source.

Pollution (of water): The alteration of the physical, chemical, or biological properties of water by the introduction of any substance into water that adversely affects any beneficial use of water.

Recharge Basin: A surface facility, often a large pond, used to increase the infiltration of surface water into a groundwater basin.

Reclaimed Waste Water: Waste water that becomes suitable for a specific beneficial use as a result of treatment.

Return Flow: The portion of withdrawn water not consumed by evapotranspiration or system losses which returns to its source or to another body of water.

Reuse: The additional use of previously used water.

Riparian: of, or on the banks of, a stream or other body of water.

Riparian Vegetation: Vegetation growing on the banks of a stream or other body of water.

Runoff: The surface flow of water from an area; the total volume of surface flow during a specified time.

Safe Yield: The maximum quantity of water that can be withdrawn from a groundwater basin over a long period of time without developing a condition of overdraft. Sometimes referred to as sustained yield.

Salinity: General, the concentration of mineral salts dissolved in water. Salinity may be measured by weight (total dissolved solids), electrical conductivity, or osmotic pressure. Where sea water is known to be the major source of salt,

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

GLOSSARY

salinity is often used to refer to the concentration of chlorides in the water. See also Total Dissolved Solids.

Secondary Treatment: In waste water treatment, the biological process of reducing suspended, colloidal, and dissolved organic matter in effluent from primary treatment systems. Secondary treatment is usually carried out through the use of trickling filters or by the activated sludge process.

Seepage: The gradual movement of a fluid into, through, or from a porous medium.

Service Area: The geographical land area served by a distribution system of a water agency.

Streamflow: The rate of water flow past a specified point in a channel.

Surface Supply: Water supply from streams, lakes and reservoirs.

Tail Water: Applied irrigation water that runs off the end of a field. Tail water is not necessarily lost; it can be collected and reused on the same or adjacent fields.

Tertiary Treatment: In sewage, the additional treatment of effluent beyond that of secondary treatment to obtain a very high quality of effluent.

Total Dissolved Solids: A quantitative measure of the residual minerals dissolved in water that remain after evaporation of a solution. Usually expressed in milligrams per liter. Abbreviation: TDS. See also Salinity.

Transpiration: The process in which plant tissues give off water vapor to the atmosphere as an essential physiological process.

Waste Water: The water remaining after use, liquid waste, or drainage from a community, industry, or institution.

Water Conservation: As used in this report, water conservation is the reduction in depletion. This reduction includes the reduction of the evapotranspiration of applied water and irrecoverable losses to salt sinks.

Waste Water Reclamation: The planned reuse of waste water for specific beneficial purposes.

Water Demand Schedule: A time distribution of the demand for prescribed quantities of water for specified purposes. It is usually a monthly tabulation of

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

GLOSSARY

the total quantity of water that a particular water user intends to use during a specified year.

Water Quality: Used to describe the chemical, physical, and biological characteristics of water, usually in regard to its suitability for a particular purpose.

Water Reclamation: The treatment of water of impaired quality, including brackish water, waste water, and sea water to produce a water of suitable quality for the intended use.

Water Right: A legally protected right to take possession of water occurring in a natural water way and to divert that water for beneficial use.

Water Year: A continuous 12-month period for which hydrologic records are compiled and summarized. In California, it begins on October 1.

Appendix I

Water Supply Contract and Agreement

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
Central Valley Project, California

CONTRACT BETWEEN THE UNITED STATES
AND
CITY OF FRESNO
PROVIDING FOR PROJECT WATER SERVICE
FROM FRIANT DIVISION AND
FOR FACILITIES REPAYMENT

Table of Contents

<u>Article No.</u>	<u>Title</u>	<u>Page No.</u>
	Preamble	1
	Explanatory Recitals	1
1	Definitions.....	6
2	Effective Date Of Contract	12
3	Water To Be Made Available And Delivered To The Contractor.....	14
4	Time For Delivery Of Water.....	21
5	Point Of Diversion And Responsibility For Distribution Of Water	23
6	Measurement Of Water Within The Service Area.....	25
7	Rates, Method Of Payment For Water, And Accelerated Facilities Repayment...27	
8	Non-Interest Bearing Operation And Maintenance Deficits	37
9	Recovered Water Account	37
10	Sales, Transfers, And Exchanges Of Water.....	38
11	Application Of Payments And Adjustments.....	41
12	Temporary Reductions—Return Flows	42
13	Constraints On The Availability Of Water	43
14	Unavoidable Groundwater Percolation.....	46
15	Acreage Limitation	46
16	Rules, Regulations, And Determinations.....	46
17	Protection Of Water And Air Quality	47
18	Water Acquired By The Contractor Other Than From The United States	47
19	Opinions And Determinations	49
20	Coordination And Cooperation.....	50
21	Charges For Delinquent Payments.....	51
22	Equal Employment Opportunity	52
23	General Obligation—Benefits Conditioned Upon Payment.....	53
24	Compliance With Civil Rights Laws And Regulations	54
25	Privacy Act Compliance	54

26	Contractor To Pay Certain Miscellaneous Costs	54
27	Water Conservation	55
28	Existing Or Acquired Water Or Water Rights.....	56
29	Operation And Maintenance By Operating Non-Federal Entity	57
30	Contingent On Appropriation Or Allotment Of Funds.....	58
31	Books, Records, And Reports.....	59
32	Assignment Limited—Successors And Assigns Obligated.....	59
33	Severability	60
34	Resolution Of Disputes.....	60
35	Officials Not To Benefit	61
36	Changes In Contractor’s Service Area.....	61
37	Federal Laws.....	62
38	Emergency Reserve Fund	62
39	Medium For Transmitting Payment.....	62
40	Notices	63
41	Confirmation Of Contract.....	63
42	Contract Drafting Considerations	63
	Signature Page	64

Exhibit A	Contractor’s Map or Description of Service Area
Exhibit B	Rates and Charges
Exhibit C-1	Repayment Schedule - Lump Sum Option
Exhibit C-2	Omitted
Exhibit D	Computation of the Friant Surcharge
Exhibit E	Restated Contract
Exhibit F	Metering Plan

1 UNITED STATES
2 DEPARTMENT OF THE INTERIOR
3 BUREAU OF RECLAMATION
4 Central Valley Project, California

5 CONTRACT BETWEEN THE UNITED STATES
6 AND
7 CITY OF FRESNO
8 PROVIDING FOR PROJECT WATER SERVICE FROM
9 FRIANT DIVISION AND
10 FACILITIES REPAYMENT

11 THIS CONTRACT, made this 22nd day of December, 2010, is entered
12 into pursuant to the Act of June 17, 1902, (32 Stat. 388), and acts amendatory or supplementary
13 thereto, including but not limited to: the Acts of August 26, 1937 (50 Stat. 844), as amended and
14 supplemented, August 4, 1939 (53 Stat. 1187), as amended and supplemented, June 21, 1963 (77
15 Stat. 68), October 12, 1982 (96 Stat. 1262), October 27, 1986 (100 Stat. 3050), as amended, Title
16 XXXIV of the Act of October 30, 1992 (106 Stat. 4706), and Title X, Subtitle A, of the Act of
17 March 30, 2009 (123 Stat. 1349), also referred to as the San Joaquin River Restoration
18 Settlement Act hereinafter referred to as SJRRSA, all collectively hereinafter referred to as
19 Federal Reclamation law, between THE UNITED STATES OF AMERICA, hereinafter referred
20 to as the United States and the CITY OF FRESNO, hereinafter referred to as the Contractor, a
21 public agency of the State of California, duly organized, existing, and acting pursuant to the laws
22 thereof, with its principal place of business in California;

23 WITNESSETH, That

24 EXPLANATORY RECITALS

25 [1st] WHEREAS, the United States has constructed and is operating the Central Valley
26 Project, California, for diversion, storage, carriage, distribution and beneficial use, for flood

27 control, irrigation, municipal, domestic, industrial, fish and wildlife mitigation, protection and
28 restoration, generation and distribution of electric energy, salinity control, navigation and other
29 beneficial uses, of waters of the Sacramento River, the American River, the Trinity River, and
30 the San Joaquin River and their tributaries; and

31 [2nd] WHEREAS, the United States constructed Friant Dam (thereby creating Millerton
32 Lake) and the Friant-Kern and Madera Canals, hereinafter collectively referred to as the Friant
33 Division Facilities, which will be used in part for the furnishing of water to the Contractor
34 pursuant to the terms of this Contract; and

35 [3rd] WHEREAS, the United States and the Contractor entered into Contract Number
36 14-06-200-8901 which established terms for the delivery to the Contractor of Project Water from
37 the Friant Division from March 1, 1966 through February 28, 2006; and

38 [4th] WHEREAS, the Contractor and the United States have, pursuant to subsection
39 3404(c)(1) of the Central Valley Project Improvement Act (CVPIA), subsequently entered into a
40 Binding Agreement, identified as Binding Agreement No. 14-06-200-8901-BA, which sets out
41 the terms pursuant to which the Contractor agreed to renew the existing contract before its
42 expiration date after completion of the programmatic environmental impact statement, and
43 subsequently entered into a long-term renewal contract identified as Contract Number
44 14-06-200-8901-LTR1, which provided for continued water service to Contractor through
45 February 28, 2045, and is herein referred to as the "Existing Contract"; and

46 [5th] WHEREAS, pursuant to Section 8 of the Act of June 17, 1902 (32 Stat. 388), the
47 United States has acquired water rights and other rights to the flows of the San Joaquin River,
48 including without limitation the permits issued as the result of Decision 935 by the California

49 State Water Resource Control Board and the contracts described in subdivision (n) of Article 3
50 of this Contract, pursuant to which the Contracting Officer develops, diverts, stores and delivers
51 Project Water stored or flowing through Millerton Lake in accordance with State and Federal law
52 for the benefit of Project Contractors in the Friant Division and for other specified Project
53 purposes; and

54 [6th] WHEREAS, the water supplied to the Contractor pursuant to this Contract is
55 Project Water developed through the exercise of the rights described in the fifth (5th) Explanatory
56 Recital of this Contract; and

57 [7th] WHEREAS, as a result of litigation entitled "Natural Resources Defense Council,
58 et al. v Kirk Rogers, et al." No. CIV-S-88-1658LLK/GGH, certain contractors from the Friant
59 Division entered into a Stipulation of Settlement dated September 13, 2006, (the "Settlement"),
60 which settlement prescribes a Restoration Goal and a Water Management Goal and which
61 Settlement was subsequently confirmed and implemented through the SJRRSA; and

62 [8th] WHEREAS, the SJRRSA authorizes and directs the Secretary to convert the
63 Existing Contract to a repayment contract under clause (1) in the proviso to the first sentence of
64 subsection (c) (hereinafter referred to as subsection (c)(1)) of Section 9 of the Act of August 4,
65 1939, no later than December 31, 2010, and further directs that such contract shall require the
66 repayment of the Contractor's allocated share of construction costs in lump sum payment by
67 January 31, 2014, which funds will in turn be made available for implementation of the
68 Settlement and SJRRSA, and which costs otherwise would have been payable through annual
69 water rates, with full repayment by 2030; and

70 [9th] WHEREAS, such repayment of costs will assist the United States with
71 implementation of actions required under the Settlement and the SJRRSA and provide the
72 Contractor the benefits provided in Section 10010 of the SJRRSA; and

73 [10th] WHEREAS, Section 2 of the Act of June 21, 1963 (1963 Act) provides that if the
74 other party to any long-term contract for municipal, domestic, or industrial water supply so
75 requests, The Secretary shall provide in any contract entered into under subsection (c)(1) of
76 Section 9 of the Act of August 4, 1939 (repayment contract) that such party to the contract
77 “shall, during the term of the contract and any renewal thereof and subject to fulfillment of all
78 obligations thereunder, have a first right for the purposes stated in the contract (to which the
79 holders of any other type of contract for municipal, domestic, or industrial water supply shall be
80 subordinate) to a stated share or quantity of the project’s water supply available for municipal,
81 domestic, or industrial use”; and

82 [11th] Omitted; and

83 [12th] WHEREAS, the Contractor has demonstrated to the satisfaction of the
84 Contracting Officer that the Contractor has utilized the Project Water supplies available to it for
85 reasonable and beneficial use and/or has demonstrated projected future demand for water use
86 such that the Contractor has the capability and expects to utilize fully for reasonable and
87 beneficial use the quantity of Project Water to be made available to it pursuant to this Contract;
88 and

89 [13th] WHEREAS, water obtained from the Central Valley Project has been relied upon
90 by urban and agricultural areas within California for more than fifty (50) years and is considered
91 by the Contractor as an essential portion of its water supply; and

92 [14th] WHEREAS, the economies of regions within the Central Valley Project,
93 including the Contractor's, depend upon the continued availability of water, including water
94 service from the Central Valley Project; and

95 [15th] WHEREAS, the Secretary intends through coordination, cooperation, and
96 partnerships to pursue measures to improve water supply, water quality, and reliability of the
97 Project for all Project purposes; and

98 [16th] WHEREAS, the mutual goals of the United States and the Contractor include: to
99 provide for reliable Project Water supplies; to control costs of those supplies; to achieve
100 repayment of the Central Valley Project as required by law; to guard reasonably against Project
101 Water shortages; to achieve a reasonable balance among competing demands for use of Project
102 Water; and to comply with all applicable environmental statutes, all consistent with the legal
103 obligations of the United States relative to the Central Valley Project; and

104 [17th] WHEREAS, any time during the Year the Contracting Officer determines that a
105 need exists to evacuate water from Millerton Lake in order to prevent or minimize spill or to
106 meet flood control criteria (currently referred to as "uncontrolled season"), taking into
107 consideration, among other things, anticipated upstream reservoir operations and the most
108 probable forecast of snowmelt and runoff projections for the upper San Joaquin River, Friant
109 Division Project Contractors utilize a portion of their undependable Class 2 Water in their
110 service areas to, among other things, assist in the management and alleviation of groundwater
111 overdraft in the Friant Division service area, provide opportunities for restoration of the San
112 Joaquin River below Friant Dam, minimize flooding along the San Joaquin River, encourage
113 optimal water management, and maximize the reasonable and beneficial use of the water; and

114 [18th] WHEREAS, the parties desire and intend that this Contract not provide a
115 disincentive to the Friant Division Project Contractors continuing to carry out the beneficial
116 activities set out in the Explanatory Recital immediately above; and

117 [19th] WHEREAS, the United States has determined that the Contractor has fulfilled all
118 of its obligations under the Existing Contract; and

119 [20th] WHEREAS, this Contract allows the Contractor to retain a sustainable water
120 supply, and provides greater certainty regarding the cost and long-term integrity of its Central
121 Valley Project water supplies.

122 NOW, THEREFORE, in consideration of the mutual and dependent covenants herein
123 contained, it is hereby mutually agreed by the parties hereto as follows:

124 DEFINITIONS

125 1. When used herein, unless otherwise distinctly expressed or manifestly
126 incompatible with the intent of the parties as expressed in this Contract, the term:

127 (a) "Additional Capital Obligation" shall mean any additional construction
128 costs or other capitalized costs incurred after the effective date of this Contract or not reflected in
129 the Existing Capital Obligation as provided in Section 10010(a)(3)(B) of the SJRRSA and any
130 amounts payable by Contractor as determined through the final adjustment described and
131 required by Section 10010(b) of the SJRRSA;

132 (b) "Calendar Year" shall mean the period January 1 through December 31,
133 both dates inclusive;

134 (c) "Charges" shall mean the payments required by Federal Reclamation law
135 in addition to the Rates and Tiered Pricing Components specified in this Contract as determined
136 annually by the Contracting Officer pursuant to this Contract and consistent with the SJRRSA;

137 (d) "Class 1 Water" shall mean that supply of water stored in or flowing
138 through Millerton Lake which, subject to the contingencies hereinafter described in Articles 3,
139 12, and 13 of this Contract, will be available for delivery from Millerton Lake and the
140 Friant-Kern and Madera Canals as a dependable water supply during each Year;

141 (e) "Class 2 Water" shall mean that supply of water which can be made
142 available subject to the contingencies hereinafter described in Articles 3, 12, and 13 of this
143 Contract for delivery from Millerton Lake and the Friant-Kern and Madera Canals in addition to
144 the supply of Class 1 Water. Because of its uncertainty as to availability and time of occurrence,
145 such water will be undependable in character and will be furnished only if, as, and when it can be
146 made available as determined by the Contracting Officer;

147 (f) "Condition of Shortage" shall mean a condition respecting the Project
148 during any Year such that the Contracting Officer is unable to deliver sufficient water to meet the
149 Contract Total;

150 (g) "Contracting Officer" shall mean the Secretary of the Interior's duly
151 authorized representative acting pursuant to this Contract or applicable Federal Reclamation law
152 or regulation;

153 (h) "Contract Total" shall mean the maximum amount of Class 1 Water plus
154 the maximum amount of Class 2 Water specified in subdivision (a) of Article 3 of this Contract
155 and is the stated share or quantity of the Project's available water supply to which the Contractor

156 shall have a first right, in accordance with the 1963 Act and the terms of this Contract, upon the
157 Contractor's complete payment of the Repayment Obligation, notwithstanding any Additional
158 Capital Obligation that may later be established;

159 (i) "Contractor's Service Area" shall mean the area to which the Contractor is
160 permitted to provide Project Water under this Contract as described in Exhibit "A" attached
161 hereto, which may be modified from time to time in accordance with Article 36 of this Contract
162 without amendment of this Contract;

163 (j) "CVPIA" shall mean the Central Valley Project Improvement Act, Title
164 XXXIV of the Act of October 30, 1992 (106 Stat. 4706);

165 (k) Omitted;

166 (l) Omitted;

167 (m) "Existing Capital Obligation" shall mean the remaining amount of
168 construction costs of the Contractor identified in the Central Valley Project Irrigation Water
169 Rates and/or Municipal and Industrial Water Rates, respectively, dated January 25, 2007, as
170 adjusted to reflect payments not reflected in such schedule, pursuant to Section 10010(a)(3)(A)
171 of the SJRRSA. The Contracting Officer has computed the Existing Capital Obligation in a
172 manner consistent with the SJRRSA and such amount is set forth in Exhibits "C-1", incorporated
173 herein by reference;

174 (n) "Financing Costs", for purposes of computing the reduction of certain
175 charges as specified in subdivision (c) of Article 7 of this Contract, shall mean the difference
176 between the net present value of the Existing Capital Obligation discounted using the full

177 Treasury rate and the Existing Capital Obligation discounted using one-half the Treasury rate, as
178 set forth in Section 10010(d)(3) of the SJRRA;

179 (o) "Full Cost Rate" shall mean an annual rate as determined by the
180 Contracting Officer that shall amortize the expenditures for construction properly allocable to the
181 Project irrigation or M&I functions, as appropriate, of facilities in service including all O&M
182 deficits funded, less payments, over such periods as may be required under Federal Reclamation
183 law or applicable contract provisions. Interest will accrue on both the construction expenditures
184 and funded O&M deficits from October 12, 1982, on costs outstanding at that date, or from the
185 date incurred in the case of costs arising subsequent to October 12, 1982, and shall be calculated
186 in accordance with subsections 202(3)(B) and (3)(C) of the RRA. The Full Cost Rate includes
187 actual operation, maintenance, and replacement costs consistent with Section 426.2 of the Rules
188 and Regulations for the RRA;

189 (p) Omitted;

190 (q) Omitted;

191 (r) "Irrigation Water" shall mean water made available from the Project that
192 is used primarily in the production of agricultural crops or livestock, including domestic use
193 incidental thereto, and watering of livestock;

194 (s) Omitted;

195 (t) "Long Term Historic Average" shall mean the average of the final forecast
196 of Water Made Available to the Contractor pursuant to this Contract and the contracts referenced
197 in the third (3rd) and fourth (4th) Explanatory Recitals of this Contract;

198 (u) “Municipal and Industrial (M&I) Water” shall mean Water Made
199 Available from the Project other than Irrigation Water made available to the Contractor. M&I
200 Water shall include water used for human use and purposes such as the watering of landscaping
201 or pasture for animals (e.g., horses) which are kept for personal enjoyment or water delivered to
202 land holdings operated in units of less than five (5) acres unless the Contractor establishes to the
203 satisfaction of the Contracting Officer that the use of water delivered to any such landholding is a
204 use described in subdivision (r) of this Article of this Contract;

205 (v) “Municipal & Industrial (M&I) Full Cost Water Rate” shall mean the Full
206 Cost Rate applicable to the delivery of M&I Water;

207 (w) “Operation and Maintenance” or “O&M” shall mean normal and
208 reasonable care, control, operation, repair, replacement (other than Capital replacement), and
209 maintenance of Project facilities;

210 (x) “Operating Non-Federal Entity” shall mean the Friant Water Authority, or
211 its successor, a Non-Federal entity, which has the obligation to operate and maintain all or a
212 portion of the Friant Division Facilities pursuant to an agreement with the United States and
213 which may have funding obligations with respect thereto;

214 (y) Omitted;

215 (z) “Project” shall mean the Central Valley Project owned by the United
216 States and managed by the Department of the Interior, Bureau of Reclamation;

217 (aa) “Project Contractors” shall mean all parties who have a long-term water
218 service contract or repayment contract for Project Water from the Project with the United States
219 pursuant to Federal Reclamation law;

220 (bb) "Project Water" shall mean all water that is developed, diverted, stored, or
221 delivered by the Secretary in accordance with the statutes authorizing the Project and in
222 accordance with the terms and conditions of water rights acquired pursuant to California law;

223 (cc) "Rates" shall mean the payments for O&M costs as determined annually
224 by the Contracting Officer in accordance with the then-existing applicable water ratesetting
225 policies for the Project, as described in subdivision (a) of Article 7 of this Contract and
226 illustrated in Exhibit "B", attached hereto;

227 (dd) "Recovered Water Account" shall mean the program, as defined in the
228 Settlement, to make water available to all of the Friant Division Project Contractors who provide
229 water to meet interim flows or restoration flows for the purpose of reducing or avoiding the
230 impact of the interim flows and restoration flows on such contractors;

231 (ee) "Repayment Obligation", as provided in subdivision (a)(2)(A) of Article 7
232 of this Contract, shall be the Existing Capital Obligation, as defined herein, discounted by
233 one-half of the Treasury rate and computed consistent with the provisions of Section
234 10010(a)(3)(A) of the SJRRSA to be paid by January 31, 2014;

235 (ff) "Secretary" shall mean the Secretary of the Interior, a duly appointed
236 successor, or an authorized representative acting pursuant to any authority of the Secretary and
237 through any agency of the Department of the Interior;

238 (gg) "Settlement" shall mean the Stipulation of Settlement dated September 13,
239 2006, the Order Approving Stipulation of Settlement, and the Judgment and further orders issued
240 by the Court pursuant to the terms and conditions of the Settlement in Natural Resources
241 Defense Council, et al. v. Rodgers, et al., No. CIV-S-88-1658 LLJ/GGH;

242 (hh) "Tiered Pricing Component" shall be the incremental amount to be paid
243 for each acre-foot of Water Delivered as described in subdivision (l)(1) of Article 7 of this
244 Contract;

245 (ii) "Water Delivered" or "Delivered Water" shall mean Project Water
246 diverted for use by the Contractor at the point(s) of delivery approved by the Contracting
247 Officer;

248 (jj) "Water Made Available" shall mean the estimated amount of Project
249 Water that can be delivered to the Contractor for the upcoming Year as declared by the
250 Contracting Officer, pursuant to subdivision (a) of Article 4 of this Contract;

251 (kk) "Water Management Goal" shall mean the goal of the Settlement to
252 reduce or avoid adverse water supply impacts to all the Friant Division Project Contractors that
253 may result from the interim flows and restoration flows provided for in the Settlement;

254 (ll) "Water Scheduled" shall mean Project Water made available to the
255 Contractor for which times and quantities for delivery have been established by the Contractor
256 and Contracting Officer, pursuant to subdivision (b) of Article 4 of this Contract; and

257 (mm) "Year" shall mean the period from and including March 1 of each
258 Calendar Year through the last day of February of the following Calendar Year.

259 EFFECTIVE DATE OF CONTRACT

260 2. (a) This Contract shall become effective on the date first hereinabove written
261 and shall continue so long as the Contractor is making the payment required herein and paying
262 any other amounts owing under this Contract and applicable law, unless it is terminated by the
263 Contracting Officer by reason of a material uncured breach by the Contractor; Provided, That the

264 Contracting Officer shall not seek to terminate this Contract by reason of an asserted material
265 uncured breach by the Contractor unless it has first provided at least sixty (60) days written
266 notice of the asserted breach to the Contractor and the Contractor has failed to cure such breach
267 (or to diligently commence curative actions satisfactory to the Contracting Officer for a breach
268 that cannot be fully cured within sixty (60) days) within the sixty (60)-day notice period;
269 Provided further, That this Contract may be terminated at any time by mutual consent of the
270 parties hereto.

271 (b) Upon complete payment of the Repayment Obligation by the Contractor,
272 and notwithstanding any Additional Capital Obligation that may later be established, the Tiered
273 Pricing Component as that term is utilized in this Contract and Full Cost pricing provisions of
274 Federal Reclamation law, and subdivisions (k), (l), (o) through (q), (s), and (v) of Article 1,
275 subdivision (f) of Article 6, subdivisions (a)(2)(A), (l)(1), (l)(2), and (l)(3) of Article 7, Article
276 14, subdivision (a) of Article 18, and Article 25, all of this Contract, shall no longer be
277 applicable to the Contractor. Upon complete payment of the Repayment Obligation by the
278 Contractor, and notwithstanding any Additional Capital Obligation that may later be established,
279 the terms of this Contract shall be as provided in the restated contract attached hereto as Exhibit
280 "E", which has been prepared solely as a matter of administrative convenience. Exhibit "E"
281 makes no substantive revisions other than those required by this subdivision of this Article of
282 this Contract. Accordingly, upon complete payment of the Repayment Obligation by the
283 Contractor, and notwithstanding any Additional Capital Obligation that may later be established,
284 the parties shall refer to Exhibit "E" as their entire agreement under this Contract.

285 (c) This Contract supersedes in its entirety and is intended to replace in full
286 the Existing Contract; Provided, That if this Contract is terminated or determined to be invalid or
287 unenforceable for any reason other than a material uncured breach of this Contract by the
288 Contractor, the Existing Contract shall not be superseded and shall be in full force and effect.

289 WATER TO BE MADE AVAILABLE AND DELIVERED TO THE CONTRACTOR

290 3. (a) During each Year, consistent with all applicable State water rights,
291 permits, and licenses, Federal law, the Settlement including the SJRRSA, and subject to the
292 provisions set forth in Articles 12 and 13 of this Contract, the Contracting Officer shall make
293 available for delivery to the Contractor from the Project 60,000 acre-feet of Class 1 Water for
294 M&I purposes. The quantity of Water Delivered to the Contractor in accordance with this
295 subdivision shall be scheduled and paid for pursuant to the provisions of Articles 4 and 7 of this
296 Contract.

297 (b) Upon complete payment of the Repayment Obligation by the Contractor,
298 and notwithstanding any Additional Capital Obligation that may later be established, the
299 Contractor shall have a first right to a stated share or quantity of the Project's water supply
300 available for M&I uses in accordance with the 1963 Act and the terms of this Contract which
301 right shall not be disturbed so long as the Contractor fulfills all of its obligations hereunder. The
302 quantity of water made available for delivery in any given Year shall remain subject to the terms
303 and conditions of subdivision (a) of this Article of this Contract.

304 (c) The Contractor shall utilize the Project Water in accordance with all
305 applicable legal requirements.

306 (d) The Contractor shall make reasonable and beneficial use of all Project
307 Water or other water furnished pursuant to this Contract. Groundwater recharge programs,
308 groundwater banking programs, surface water storage programs, and other similar programs
309 utilizing Project Water or other water furnished pursuant to this Contract conducted within the
310 Contractor's Service Area which are consistent with applicable State law and result in use
311 consistent with applicable Federal Reclamation law will be allowed; Provided, That any direct
312 recharge program(s) is (are) described in the Contractor's Water Conservation Plan submitted
313 pursuant to Article 27 of this Contract; Provided further, That such Water Conservation Plan
314 demonstrates sufficient lawful uses exist in the Contractor's Service Area so that using a
315 long-term average, the quantity of Delivered Water is demonstrated to be reasonable for such
316 uses and in compliance with Federal Reclamation law. Groundwater recharge programs,
317 groundwater banking programs, surface water storage programs, and other similar programs
318 utilizing Project Water or other water furnished pursuant to this Contract conducted outside the
319 Contractor's Service Area may be permitted upon written approval of the Contracting Officer,
320 which approval will be based upon environmental documentation, Project Water rights, and
321 Project operational concerns. The Contracting Officer will address such concerns in regulations,
322 policies, or guidelines.

323 (e) The Contractor, through this Contract, shall comply with requirements
324 applicable to the Contractor in biological opinion(s) prepared as a result of the consultation
325 regarding the execution of the Existing Contract undertaken pursuant to Section 7 of the
326 Endangered Species Act of 1973, as amended, as well as the requirements of any other biological
327 opinions applicable to Project Water delivery under this Contract, that are within the

328 Contractor's legal authority to implement. The Existing Contract, which evidences in excess of
329 44 years of diversions for M&I purposes of the quantities of water provided in subdivisions (a)
330 of Article 3 of this Contract, will be considered in developing an appropriate baseline for the
331 biological assessment(s) prepared pursuant to the ESA, and any other needed environmental
332 review. The Contractor shall comply with the limitations or requirements imposed by
333 environmental documentation applicable to the Contractor and within its legal authority to
334 implement regarding specific activities. Nothing herein shall be construed to prevent the
335 Contractor from challenging or seeking judicial relief in a court of competent jurisdiction with
336 respect to any biological opinion or other environmental documentation referred to in this Article
337 of this Contract.

338 (f) Subject to subdivisions (l) and (n) of this Article of this Contract,
339 following the declaration of Water Made Available under Article 4 of this Contract, the
340 Contracting Officer will make a determination whether Project Water, or other water available to
341 the Project, can be made available to the Contractor in addition to the Contract Total in this
342 Article of this Contract during the Year without adversely impacting the Project or other Project
343 Contractors and consistent with the Secretary's legal obligations. At the request of the
344 Contractor, the Contracting Officer will consult with the Contractor prior to making such a
345 determination. Subject to subdivisions (l) and (n) of this Article of this Contract, if the
346 Contracting Officer determines that Project Water, or other water available to the Project, can be
347 made available to the Contractor, the Contracting Officer will announce the availability of such
348 water and shall so notify the Contractor as soon as practical. The Contracting Officer will
349 thereafter meet with the Contractor and other Project Contractors capable of taking such water to

350 determine the most equitable and efficient allocation of such water. If the Contractor requests
351 the delivery of any quantity of such water, the Contracting Officer shall make such water
352 available to the Contractor in accordance with applicable statutes, regulations, guidelines, and
353 policies.

354 (g) The Contractor may request permission to reschedule for use during the
355 subsequent Year some or all of the Water Made Available to the Contractor during the current
356 Year referred to as "carryover." The Contractor may request permission to use during the
357 current Year a quantity of Project Water which may be made available by the United States to
358 the Contractor during the subsequent Year referred to as "pre-use." The Contracting Officer's
359 written approval may permit such uses in accordance with applicable statutes, regulations,
360 guidelines, and policies.

361 (h) The Contractor's right pursuant to Federal Reclamation law and applicable
362 State law to the reasonable and beneficial use of the Water Delivered pursuant to this Contract
363 shall not be disturbed so long as the Contractor shall fulfill all of its obligations under this
364 Contract. Nothing in the preceding sentence shall affect the Contracting Officer's ability to
365 impose shortages under Article 12 or subdivision (b) of Article 13 of this Contract.

366 (i) Project Water furnished to the Contractor pursuant to this Contract may be
367 delivered for purposes other than those described in subdivisions (r) and (u) of Article 1 of this
368 Contract upon written approval by the Contracting Officer in accordance with the terms and
369 conditions of such approval.

370 (j) The Contracting Officer shall make reasonable efforts to protect the water
371 rights and other rights described in the fifth (5th) Explanatory Recital of this Contract and to

372 provide the water available under this Contract. The Contracting Officer shall not object to
373 participation by the Contractor, in the capacity and to the extent permitted by law, in
374 administrative proceedings related to the water rights and other rights described in the fifth (5th)
375 Explanatory Recital of this Contract; Provided however, That the Contracting Officer retains the
376 right to object to the substance of the Contractor's position in such a proceeding. Provided
377 further, that in such proceedings the Contracting Officer shall recognize the Contractor has a
378 legal right under the terms of this Contract to use Project Water.

379 (k) Project Water furnished to the Contractor during any month designated in
380 a schedule or revised schedule submitted by the Contractor and approved by the Contracting
381 Officer shall be deemed to have been accepted by the Contractor as Class 1 Water to the extent
382 that Class 1 Water is called for in such schedule for such month and shall be deemed to have
383 been accepted as Class 2 Water to the extent Class 2 Water is called for in such schedule for such
384 month. If in any month the Contractor diverts a quantity of water in addition to the total amount
385 of Class 1 Water and Class 2 Water set forth in the Contractor's approved schedule or revised
386 schedule for such month, such additional diversions shall be charged first against the
387 Contractor's remaining Class 2 Water supply available in the current Year. To the extent the
388 Contractor's remaining Class 2 Water supply available in the current Year is not sufficient to
389 account for such additional diversions, such additional diversions shall be charged against the
390 Contractor's remaining Class 1 Water supply available in the current Year. To the extent the
391 Contractor's remaining Class 1 Water and Class 2 Water supplies available in the current Year
392 are not sufficient to account for such additional diversions, such additional diversions shall be
393 charged first against the Contractor's available Class 2 Water supply and then against the

394 Contractor's available Class 1 Water supply, both for the following Year. Payment for all
395 additional diversions of water shall be made in accordance with Article 7 of this Contract.

396 (l) If the Contracting Officer determines there is a Project Water supply
397 available at Friant Dam as the result of an unusually large water supply not otherwise storable for
398 Project purposes or infrequent and otherwise unmanaged flood flows of short duration, such
399 water will be made available to the Contractor and others under Section 215 of the Act of
400 October 12, 1982, pursuant to the priorities specified below if the Contractor enters into a
401 temporary contract with the United States not to exceed one (1) year for the delivery of such
402 water or as otherwise provided for in Federal Reclamation law and associated regulations. Such
403 water may be identified by the Contractor either (i) as additional water to supplement the supply
404 of Class 1 Water and/or Class 2 Water made available to it pursuant to this Contract or, (ii) upon
405 written notification to the Contracting Officer, as water to be credited against the Contractor's
406 Class 2 Water supply available pursuant to this Contract. The Contracting Officer shall make
407 water determined to be available pursuant to this subsection according to the following priorities:
408 first, to contractors for Class 1 Water and/or Class 2 Water within the Friant Division; second, to
409 contractors in the Cross Valley Division of the Project. The Contracting Officer will consider
410 requests from other parties for Section 215 Water for use within the area identified as the Friant
411 Division service area in the environmental assessment developed in connection with the
412 execution of the Existing Contract.

413 (m) Nothing in this Contract, nor any action or inaction of the Contractor or
414 Contracting Officer in connection with the implementation of this Contract, is intended to

415 override, modify, supersede or otherwise interfere with any term or condition of the water rights
416 and other rights referred in the fifth (5th) Explanatory Recital of this Contract.

417 (n) The rights of the Contractor under this Contract are subject to the terms of
418 the contract for exchange waters, dated July 27, 1939, between the United States and the San
419 Joaquin and Kings River Canal and Irrigation Company, Incorporated, et al., (hereinafter referred
420 to as the Exchange Contractors), Contract No. I1r-1144, as amended. The United States agrees
421 that it will not deliver to the Exchange Contractors thereunder waters of the San Joaquin River
422 unless and until required by the terms of said contract, and the United States further agrees that it
423 will not voluntarily and knowingly determine itself unable to deliver to the Exchange
424 Contractors entitled thereto from water that is available or that may become available to it from
425 the Sacramento River and its tributaries or the Sacramento-San Joaquin Delta those quantities
426 required to satisfy the obligations of the United States under said Exchange Contract and under
427 Schedule 2 of the Contract for Purchase of Miller and Lux Water Rights (Contract I1r-1145,
428 dated July 27, 1939).

429 (o) Pursuant to and consistent with section 10004 of SJRRSA and Paragraph
430 16 of the Settlement, the Contracting Officer is required to develop and implement a plan for
431 recirculation, recapture, reuse, exchange or transfer of water released for restoration flows or
432 interim flows, as those terms are defined in the Settlement, to reduce or avoid impacts to water
433 deliveries caused by said restoration flows or interim flows and water developed through such
434 activities may be made available (i) to the Contractor without the need of an additional contract,
435 and/or (ii) to others on behalf of the Contractor under terms mutually acceptable to the
436 Contractor and the Contracting Officer that are consistent with the Water Management Goal.

TIME FOR DELIVERY OF WATER

437

438

4. (a) On or about February 20 of each Calendar Year, the Contracting Officer

439

shall announce the Contracting Officer's initial declaration of the Water Made Available. The

440

declaration will be updated monthly and more frequently if necessary, based on then-current

441

operational and hydrologic conditions and a new declaration with changes, if any, to the Water

442

Made Available will be made. The Contracting Officer shall provide forecasts of Project

443

operations and the basis of the estimate, with relevant supporting information, upon the written

444

request of the Contractor. Concurrently with the declaration of the Water Made Available, the

445

Contracting Officer shall provide the Contractor with the updated Long Term Historic Average.

446

The declaration of Project operations will be expressed in terms of both Water Made Available

447

and the Long Term Historic Average.

448

(b) On or before each March 1 and at such other times as necessary, the

449

Contractor shall submit to the Contracting Officer a written schedule, satisfactory to the

450

Contracting Officer, showing the monthly quantities of Project Water to be delivered by the

451

United States to the Contractor pursuant to this Contract for the Year commencing on such

452

March 1. The Contracting Officer shall use all reasonable means to deliver Project Water

453

according to the approved schedule for the Year commencing on such March 1.

454

(c) The Contractor shall not schedule Project Water in excess of the quantity

455

of Project Water the Contractor intends to put to reasonable and beneficial use within the

456

Contractor's Service Area, or to sell, transfer or exchange pursuant to Article 10 of this Contract

457

or bank pursuant to subdivision (d) of Article 3 of this Contract during any Year.

458 (d) Subject to the conditions set forth in subdivision (a) of Article 3 of this
459 Contract, the United States shall deliver Project Water to the Contractor in accordance with the
460 initial schedule submitted by the Contractor pursuant to subdivision (b) of this Article, or any
461 written revision(s), satisfactory to the Contracting Officer, thereto submitted within a reasonable
462 time prior to the date(s) on which the requested change(s) is/are to be implemented; Provided,
463 That the total amount of water requested in that schedule or revision does not exceed the
464 quantities announced by the Contracting Officer pursuant to the provisions of subdivision (a) of
465 Article 3 of this Contract, and the Contracting Officer determines that there will be sufficient
466 capacity available in the appropriate Friant Division Facilities to deliver the water in accordance
467 with that schedule; Provided further, That the Contractor shall not schedule the delivery of any
468 water during any period as to which the Contractor is notified by the Contracting Officer or
469 Operating Non-Federal Entity that Project facilities required to make deliveries to the Contractor
470 will not be in operation because of scheduled O&M.

471 (e) The Contractor may, during the period from and including November 1 of
472 each Year through and including the last day of February of that Year, request delivery of any
473 amount of the Class 1 Water estimated by the Contracting Officer to be made available to it
474 during the following Year. The Contractor may, during the period from and including January 1
475 of each Year (or such earlier date as may be determined by the Contracting Officer) through and
476 including the last day of February of that Year, request delivery of any amount of Class 2 Water
477 estimated by the Contracting Officer to be made available to it during the following Year. Such
478 water shall hereinafter be referred to as pre-use water. Such request must be submitted in writing
479 by the Contractor for a specified quantity of pre-use and shall be subject to the approval of the

480 Contracting Officer. Payment for pre-use water so requested shall be at the appropriate Rate(s)
481 for the following Year in accordance with Article 7 of this Contract and shall be made in
482 advance of delivery of any pre-use water. The Contracting Officer shall deliver such pre-use
483 water in accordance with a schedule or any revision thereof submitted by the Contractor and
484 approved by the Contracting Officer, to the extent such water is available and to the extent such
485 deliveries will not interfere with the delivery of Project Water entitlements to other Friant
486 Division contractors or the physical maintenance of the Project facilities. The quantities of
487 pre-use Water Delivered pursuant to this subdivision shall be deducted from the quantities of
488 water that the Contracting Officer would otherwise be obligated to make available to the
489 Contractor during the following Year; Provided, That the quantity of pre-use water to be
490 deducted from the quantities of either Class 1 Water or Class 2 Water to be made available to the
491 Contractor in the following Year shall be specified by the Contractor at the time the pre-use
492 water is requested or as revised in its first schedule for the following Year submitted in
493 accordance with subdivision (b) of this Article of this Contract, based on the availability of the
494 following Year water supplies as determined by the Contracting Officer.

495 POINT OF DIVERSION AND RESPONSIBILITY FOR DISTRIBUTION OF WATER

496 5. (a) Project Water scheduled pursuant to subdivision (b) of Article 4 of this
497 Contract shall be delivered to the Contractor at a point or points of delivery either on Project
498 facilities or another location or locations mutually agreed to in writing by the Contracting Officer
499 and the Contractor.

500 (b) The Contracting Officer, the Operating Non-Federal Entity, or other
501 appropriate entity shall make all reasonable efforts to maintain sufficient flows and levels of

502 water in the Friant-Kern Canal to deliver Project Water to the Contractor at specific turnouts
503 established pursuant to subdivision (a) of this Article of this Contract.

504 (c) The Contractor shall not deliver Project Water to land outside the
505 Contractor's Service Area unless approved in advance by the Contracting Officer. Until
506 complete payment of the Repayment Obligation by the Contractor, and notwithstanding any
507 Additional Capital Obligation that may later be established, the Contractor shall deliver Project
508 Water in accordance with applicable Full Cost pricing provisions of Federal Reclamation law.

509 (d) All Water Delivered to the Contractor pursuant to this Contract shall be
510 measured and recorded with equipment furnished, installed, operated, and maintained by the
511 United States, the Operating Non-Federal Entity or other appropriate entity as designated by the
512 Contracting Officer (hereafter "other appropriate entity") at the point or points of delivery
513 established pursuant to subdivision (a) of this Article of this Contract. Upon the request of either
514 party to this Contract, the Contracting Officer shall investigate, or cause to be investigated by the
515 responsible Operating Non-Federal Entity, the accuracy of such measurements and shall take any
516 necessary steps to adjust any errors appearing therein. For any period of time when accurate
517 measurements have not been made, the Contracting Officer shall consult with the Contractor and
518 the responsible Operating Non-Federal Entity prior to making a final determination of the
519 quantity delivered for that period of time.

520 (e) Neither the Contracting Officer nor any Operating Non-Federal Entity
521 shall be responsible for the control, carriage, handling, use, disposal, or distribution of Project
522 Water Delivered to the Contractor pursuant to this Contract beyond the delivery points specified
523 in subdivision (a) of this Article of this Contract. The Contractor shall indemnify the United

524 States, its officers, employees, agents, and assigns on account of damage or claim of damage of
525 any nature whatsoever for which there is legal responsibility, including property damage,
526 personal injury, or death arising out of or connected with the control, carriage, handling, use,
527 disposal, or distribution of such Project Water beyond such delivery points, except for any
528 damage or claim arising out of: (i) acts or omissions of the Contracting Officer or any of its
529 officers, employees, agents, or assigns, including any responsible Operating Non-Federal Entity,
530 with the intent of creating the situation resulting in any damage or claim; (ii) willful misconduct
531 of the Contracting Officer or any of its officers, employees, agents, or assigns, including any
532 responsible Operating Non-Federal Entity; (iii) negligence of the Contracting Officer or any of
533 its officers, employees, agents, or assigns including any responsible Operating Non-Federal
534 Entity; or (iv) damage or claims resulting from a malfunction of facilities owned and/or operated
535 by the United States or responsible Operating Non-Federal Entity; Provided, That the Contractor
536 is not the Operating Non-Federal Entity that owned or operated the malfunctioning facility(ies)
537 from which the damage claim arose.

538 MEASUREMENT OF WATER WITHIN THE SERVICE AREA

539 6. (a) The Contractor has established a measurement program satisfactory to the
540 Contracting Officer and all surface water delivered for M&I purposes within the Contractor's
541 Service Area is measured at each M&I service connection. The water measuring devices or
542 water measuring methods of comparable effectiveness must be acceptable to the Contracting
543 Officer. The Contractor shall be responsible for installing, operating, and maintaining and
544 repairing all such measuring devices and implementing all such water measuring methods at no
545 cost to the United States. The Contracting Officer acknowledges that the Contractor has a

546 metering plan (Exhibit "F") setting forth the milestones and schedule that the Contractor will
547 implement to comply with the requirements of this Article. The Contractor shall provide an
548 annual written report to the Contracting Officer describing the Contractor's metering plan
549 implementation progress. The Contractor shall use the information obtained from such water
550 measuring devices or water measuring methods to ensure its proper management of the water, to
551 bill water users for water delivered by the Contractor; and, if applicable, to record water
552 delivered for M&I purposes by customer class as defined in the Contractor's water conservation
553 plan provided for in Article 27 of this Contract. Nothing herein contained, however, shall
554 preclude the Contractor from establishing and collecting any charges, assessments, or other
555 revenues authorized by California law.

556 (b) To the extent the information has not otherwise been provided, upon
557 execution of this Contract, the Contractor shall provide to the Contracting Officer a written
558 report describing the measurement devices or water measuring methods being used or to be used
559 to implement subdivision (a) of this Article of this Contract and identifying the M&I service
560 connections or alternative measurement programs approved by the Contracting Officer, at which
561 such measurement devices or water measuring methods are being used, and, if applicable,
562 identifying the locations at which such devices and/or methods are not yet being used including a
563 time schedule for implementation at such locations. The Contracting Officer shall advise the
564 Contractor in writing within sixty (60) days as to the adequacy of, and necessary modifications,
565 if any, of the measuring devices or water measuring methods identified in the Contractor's report
566 and if the Contracting Officer does not respond in such time, they shall be deemed adequate. If
567 the Contracting Officer notifies the Contractor that the measuring devices or methods are

568 inadequate, the parties shall within sixty (60) days following the Contracting Officer's response,
569 negotiate in good faith the earliest practicable date by which the Contractor shall modify said
570 measuring devices and/or measuring methods as required by the Contracting Officer to ensure
571 compliance with subdivision (a) of this Article of this Contract.

572 (c) All new surface water delivery systems installed within the Contractor's
573 Service Area after the effective date of this Contract shall also comply with the measurement
574 provisions described in subdivision (a) of this Article of this Contract.

575 (d) The Contractor shall inform the Contracting Officer and the State of
576 California in writing by April 30 of each Year of the monthly volume of surface water delivered
577 within the Contractor's Service Area during the previous Year.

578 (e) The Contractor shall inform the Contracting Officer and the Operating
579 Non-Federal Entity on or before the twentieth (20th) calendar day of each month of the quantity
580 of M&I Water taken during the preceding month.

581 (f) In the event the provisions of subdivision (a) of this Article that relate to
582 metering are challenged in a judicial proceeding, the parties agree to meet and confer promptly
583 and as often as necessary to employ their reasonable best efforts to coordinate a response to the
584 challenge and, as appropriate, develop revisions to this Contract.

585 RATES, METHOD OF PAYMENT FOR WATER,
586 AND ACCELERATED REPAYMENT OF FACILITIES

587 7. (a) The Contractor's cost obligations for all Delivered Water shall be
588 determined in accordance with: (i) the Secretary's ratesetting policy for Irrigation Water adopted
589 in 1988 and the Secretary's then-existing ratesetting policy for M&I Water, consistent with the

590 SJRRSA, and such ratesetting policies shall be amended, modified, or superseded only through a
591 public notice and comment procedure; (ii) applicable Federal Reclamation law and associated
592 rules and regulations, or policies; and (iii) other applicable provisions of this Contract.

593 (1) The Contractor shall pay the United States as provided for in this
594 Article of this Contract for the Delivered Water at Rates and Charges determined in accordance
595 with policies for Irrigation Water and M&I Water. The Contractor's Rates shall be established to
596 recover its estimated reimbursable costs included in the O&M component of the Rate and
597 amounts established to recover other charges and deficits, other than the construction costs. The
598 Rates for O&M costs and Charges shall be adjusted, as appropriate, in accordance with the
599 provisions of the SJRRSA.

600 (2) In accordance with the SJRRSA, the Contractor's allocable share
601 of Project construction costs will be repaid pursuant to the provisions of this Contract.

602 (A) The amount due and payable to the United States, pursuant
603 to the SJRRSA, shall be the Repayment Obligation. The Repayment Obligation has been
604 computed by the Contracting Officer in a manner consistent with the SJRRSA and is set forth as
605 a lump sum payment which amounts together with the manner in which such amounts were
606 calculated are set forth in Exhibit "C-1". The Repayment Obligation is due in lump sum by
607 January 31, 2014 as provided by the SJRRSA. Notwithstanding any Additional Capital
608 Obligation that may later be established, receipt of the Contractor's payment of the Repayment
609 Obligation by the United States shall fully and permanently satisfy the Existing Capital
610 Obligation.

611 (B) Project construction costs or other capitalized costs
612 attributable to capital additions to the Project incurred after the effective date of this Contract or
613 that are not reflected in the schedule referenced in Exhibit "C-1" and properly assignable to the
614 Contractor, shall be repaid as prescribed by the SJRRSA without interest except as required by
615 law. Consistent with Federal Reclamation law, interest shall continue to accrue on the M&I
616 portion of unpaid Project construction costs or other capitalized cost assigned to the Contractor
617 until such costs are paid. Increases or decreases in Project construction costs or other capitalized
618 costs assigned to the Contractor caused solely by annual adjustment of Project construction costs
619 or other capitalized costs assigned to each Central Valley Project contractor by the Secretary
620 shall not be considered in determining the amounts to be paid pursuant to this subdivision
621 (a)(2)(B), but will be considered under subdivision (b) of this Article. A separate repayment
622 agreement shall be established by the Contractor and the Contracting Officer to accomplish
623 repayment of all additional Project construction costs or other capitalized costs assigned to the
624 Contractor within the timeframe prescribed by the SJRRSA subject to the following:

625 (1) If the collective annual Project construction costs or
626 other capitalized costs that are incurred after the effective date of this Contract and properly
627 assignable to the contractors are less than \$5,000,000, then the portion of such costs properly
628 assignable to the Contractor shall be repaid in not more than five (5) years after notification of
629 the allocation. This amount is the result of a collective annual allocation of Project construction
630 costs to the contractors exercising contract conversions; Provided, That the reference to the
631 amount of \$5,000,000 shall not be a precedent in any other context.

632 (2) If the collective annual Project construction costs or
633 other capitalized costs that are incurred after the effective date of this Contract and properly
634 assignable to the contractors are \$5,000,000 or greater, then the portion of such costs properly
635 assignable to the Contractor shall be repaid as provided by applicable Federal Reclamation law.
636 This amount is the result of a collective annual allocation of Project construction costs to the
637 contractors exercising contract conversions; Provided, That the reference to the amount of
638 \$5,000,000 shall not be a precedent in any other context.

639 (b) Consistent with Section 10010(b) of the SJRRSA, following a final cost
640 allocation by the Secretary upon completion of the construction of the Central Valley Project, the
641 amounts paid by the Contractor shall be subject to adjustment to reflect the effect of any
642 reallocation of Project construction costs or other capitalized costs assigned to the Contractor
643 that may have occurred between the determination of Contractor's Existing Capital Obligation
644 and the final cost allocation. In the event that the final cost allocation, as determined by the
645 Secretary, indicates that the costs properly assignable to the Contractor, as determined by the
646 Contracting Officer, are greater than the Existing Capital Obligation and other amounts of
647 Project construction costs or other capitalized costs paid by the Contractor, then the Contractor
648 shall be obligated to pay the remaining allocated costs. The term of such additional repayment
649 contract shall be no less than one (1) year and no more than ten (10) years, however, mutually
650 agreeable provisions regarding the rate of repayment of such amount may be developed by the
651 parties. In the event that the final cost allocation, as determined by the Secretary, indicates that
652 the costs properly assignable to the Contractor, as determined by the Contracting Officer, are less
653 than the Existing Capital Obligation and other amounts of Project construction costs or other

654 capitalized costs paid by the Contractor, then the Contracting Officer shall credit such
655 overpayment as an offset against any outstanding or future obligation of the Contractor,
656 consistent with the SJRRSA. This Contract shall be implemented in a manner consistent with
657 Section 10010(f) of the SJRRSA.

658 (c) Prior to July 1 of each Calendar Year, the Contracting Officer shall
659 provide the Contractor an estimate of the Charges for Project Water that will be applied to the
660 period October 1, of the current Calendar Year, through September 30, of the following Calendar
661 Year, and the basis for such estimate. The Contractor shall be allowed not less than two (2)
662 months to review and comment on such estimates. On or before September 15 of each Calendar
663 Year, the Contracting Officer shall notify the Contractor in writing of the Charges to be in effect
664 during the period October 1 of the current Calendar Year, through September 30 of the following
665 Calendar Year, and such notification shall revise Exhibit "B". Charges shall be subject to
666 reduction consistent with the SJRRSA based upon the average annual delivery amount agreed to
667 by the Contracting Officer and the Contractor.

668 (1) Upon complete payment of the Repayment Obligation by the
669 Contractor, and notwithstanding any Additional Capital Obligation that may later be established,
670 for the years 2020 through 2039 inclusive, Charges shall reflect the reduction on a per acre-foot
671 basis consistent with Section 10010(d)(1) of the SJRRSA. Exhibit "D" sets forth the reduction in
672 Charges to offset the Financing Costs as prescribed in Section 10010(d)(1) of the SJRRSA;
673 Provided, That if the Secretary determines such Charges are otherwise needed, an equivalent
674 reduction will be made to O&M costs consistent with such provisions of the SJRRSA.
675 Consistent with Section 10010(d)(1) of the SJRRSA and as shown in Exhibit "D", the Friant

676 Surcharge reduction has been calculated based upon the anticipated average annual water
677 deliveries, for the purpose of this reduction only, mutually agreed upon by the Secretary and the
678 Contractor for the period from January 1, 2020 through December 31, 2039. The Friant
679 Surcharge reduction shall remain fixed and shall only be applied to Water Delivered pursuant to
680 this Contract to which the Friant Surcharge applies (including but not limited to water
681 transferred, banked, or exchanged), commencing on January 1, 2020 until such volume of Water
682 Delivered equals 1,020,000 acre-feet or December 31, 2039, whichever occurs first.

683 (2) Further, to fully offset the Financing Costs, Contractor shall be
684 entitled to a reduction in other outstanding or future obligations of the Contractor in accordance
685 with Section 10010(d)(2) of the SJRRSA. The amount of such further reduction in outstanding
686 or future obligations of the Contractor after October 1, 2019 has been computed by the
687 Contracting Officer, and as computed, such amount is set forth in Exhibit "D".

688 (d) Prior to October 1 of each Calendar Year, the Contracting Officer shall
689 make available to the Contractor an estimate of the Rates and Tiered Pricing Component for
690 Project Water for the following Year and the computations and cost allocations upon which those
691 Rates are based. The Contractor shall be allowed not less than two (2) months to review and
692 comment on such computations and cost allocations. By December 31 of each Calendar Year,
693 the Contracting Officer shall provide the Contractor with the final Rates and Tiered Pricing
694 Component to be in effect for the upcoming Year, and such notification shall revise Exhibit "B".
695 The O&M component of the Rate may be reduced as provided in the SJRRSA.

696 (e) At the time the Contractor submits the initial schedule for the delivery of
697 Project Water for each Year pursuant to subdivision (b) of Article 4 of this Contract, the

698 Contractor shall make an advance payment to the United States equal to the total amount payable
699 pursuant to the applicable Rate(s) set under subdivision (a) of this Article of this Contract, for the
700 Project Water scheduled to be delivered pursuant to this Contract during the first two (2)
701 calendar months of the Year. Before the end of the first month and before the end of each
702 calendar month thereafter, the Contractor shall make an advance payment to the United States, at
703 the Rate(s) set under subdivision (a) of this Article of this Contract, for the Water Scheduled to
704 be delivered pursuant to this Contract during the second month immediately following.

705 Adjustments between advance payments for Water Scheduled and payments at Rates due for
706 Water Delivered shall be made before the end of the following month; Provided, That any
707 revised schedule submitted by the Contractor pursuant to Article 4 of this Contract which
708 increases the amount of Water Delivered pursuant to this Contract during any month shall be
709 accompanied with appropriate advance payment, at the Rates then in effect, to assure that Project
710 Water is not delivered to the Contractor in advance of such payment. In any month in which the
711 quantity of Water Delivered to the Contractor pursuant to this Contract equals the quantity of
712 Water Scheduled and paid for by the Contractor, no additional Project Water shall be delivered
713 to the Contractor unless and until an advance payment at the Rates then in effect for such
714 additional Project Water is made. Final adjustment between the advance payments for the Water
715 Scheduled and payments for the quantities of Water Delivered during each Year pursuant to this
716 Contract shall be made as soon as practicable but no later than April 30th of the following Year,
717 or sixty (60) days after the delivery of Project Water carried over under subdivision (g) of Article
718 3 of this Contract if such water is not delivered by the last day of February.

719 (f) The Contractor shall also make a payment in addition to the Rate(s) in
720 subdivision (e) of this Article of this Contract to the United States for Water Delivered, at the
721 Charges and the appropriate Tiered Pricing Component then in effect, before the end of the
722 month following the month of delivery; Provided, That the Contractor may be granted an
723 exception from the Tiered Pricing Component pursuant to subdivision (l)(2) of this Article of this
724 Contract. The payments shall be consistent with the quantities of Irrigation Water and M&I
725 Water Delivered as shown in the water delivery report for the subject month prepared by the
726 Contracting Officer. Such water delivery report shall be the basis for payment of Charges and
727 Tiered Pricing Components by the Contractor, and shall be provided to the Contractor by the
728 Contracting Officer (as applicable) within five (5) days after the end of the month of delivery.
729 The water delivery report shall be deemed a bill basis for payment of Charges and the applicable
730 Tiered Pricing Component for Water Delivered. Adjustment for overpayment or underpayment
731 of Charges shall be made through the adjustment of payments due to the United States for
732 Charges for the next month. Any amount to be paid for past due payment of Charges shall be
733 computed pursuant to Article 21 of this Contract.

734 (g) The Contractor shall pay for any Water Delivered under subdivision (d),
735 (f), or (g) of Article 3 of this Contract as determined by the Contracting Officer pursuant to
736 applicable statutes, associated regulations, any applicable provisions of guidelines or ratesetting
737 policies; Provided, That the Rate for Water Delivered under subdivision (d) of Article 3 of this
738 Contract shall be no more than the otherwise applicable Rate for Irrigation Water or M&I Water
739 under subdivision (a) of this Article of this Contract.

740 (h) Payments to be made by the Contractor to the United States under this
741 Contract may be paid from any revenues available to the Contractor.

742 (i) All revenues received by the United States from the Contractor relating to
743 the delivery of Project Water or the delivery of non-project water through Project facilities shall
744 be allocated and applied in accordance with Federal Reclamation law and the associated rules or
745 regulations, the then-existing Project Ratesetting policies for M&I Water and consistent with the
746 SJRRSA.

747 (j) The Contracting Officer shall keep its accounts, pertaining to the
748 administration of the financial terms and conditions of its long-term contracts, in accordance
749 with applicable Federal standards so as to reflect the application of Project costs and revenues.
750 The Contracting Officer shall, each Year upon request of the Contractor, provide to the
751 Contractor a detailed accounting of all Project and Contractor expense allocations, the
752 disposition of all Project and Contractor revenues, and a summary of all water delivery
753 information. The Contracting Officer and the Contractor shall enter into good faith negotiations
754 to resolve any discrepancies or disputes relating to accountings, reports, or information.

755 (k) The parties acknowledge and agree that the efficient administration of this
756 Contract is their mutual goal. Recognizing that experience has demonstrated that mechanisms,
757 policies, and procedures used for establishing Rates, Charges, Tiered Pricing Components,
758 and/or for making and allocating payments, other than those set forth in this Article of this
759 Contract, may be in the mutual best interest of the parties, it is expressly agreed that the parties
760 may enter into agreements to modify the mechanisms, policies, and procedures for any of those
761 purposes while this Contract is in effect without amending this Contract.

762 (l) (1) Beginning at such time as the total of the deliveries of Class 1
763 Water and Class 2 Water in a Year exceed eighty (80) percent of the Contract Total, then before
764 the end of the month following the month of delivery the Contractor shall make an additional
765 payment to the United States equal to the applicable Tiered Pricing Component. The Tiered
766 Pricing Component for the total of the deliveries of Class 1 Water and Class 2 Water in excess of
767 eighty (80) percent of the Contract Total, but less than or equal to ninety (90) percent of the
768 Contract Total, shall equal the one-half of the difference between the Rate established under
769 subdivision (a) of this Article of this Contract and the Irrigation Full Cost Water Rate, or M&I
770 Full Cost Water Rate, whichever is applicable. The Tiered Pricing Component for the total of
771 the deliveries of Class 1 Water and Class 2 Water which exceeds ninety (90) percent of the
772 Contract Total shall equal the difference between (i) the Rate established under subdivision (a) of
773 this Article of this Contract and (ii) the Irrigation Full Cost Water Rate or M&I Full Cost Water
774 Rate, whichever is applicable.

775 (2) Omitted.

776 (3) For purposes of determining the applicability of the Tiered Pricing
777 Components pursuant to this Article of this Contract, Water Delivered shall include Project
778 Water that the Contractor transfers to others but shall not include Project Water transferred and
779 delivered to the Contractor.

780 (m) Rates under the respective ratesetting policies will be established to
781 recover only reimbursable O&M (including any deficits) costs of the Project, as those terms are
782 used in the then-existing Project ratesetting policies, and consistent with the SJRRSA, and
783 interest, where appropriate, except in instances where a minimum Rate is applicable in

784 accordance with the relevant Project ratesetting policy. Changes of significance in practices
785 which implement the Contracting Officer's ratesetting policies will not be implemented until the
786 Contracting Officer has provided the Contractor an opportunity to discuss the nature, need, and
787 impact of the proposed change.

788 (n) Except as provided in subsections 3405(a)(1)(B) and 3405(f) of the
789 CVPIA, the Rates for Project Water transferred by the Contractor shall be the Contractor's Rates
790 adjusted upward or downward to reflect the changed costs of delivery (if any) incurred by the
791 Contracting Officer in the delivery of the transferred Project Water to the transferee's point of
792 delivery in accordance with the then-existing Central Valley Project Ratesetting Policy.

793 NON-INTEREST BEARING OPERATION AND MAINTENANCE DEFICITS

794 8. Omitted.

795 RECOVERED WATER ACCOUNT

796 9. (a) Notwithstanding any other provisions of this Contract, water delivered to
797 the Contractor under its Recovered Water Account as provided at Paragraph 16(b) of the
798 Settlement and affirmed by Section 10004(a)(5) of the SJRRSA shall be at the total cost of
799 \$10.00 per acre foot. Recovered Water Account water provided to the Contractor shall be
800 administered at a priority for delivery lower than Class 2 Water and higher than Section 215
801 Water.

802 (b) The manner in which the Recovered Water Account will be administered
803 will be developed in accordance with subdivision (k) of Article 7 of this Contract, the SJRRSA,
804 and Paragraph 16 of the Settlement.

SALES, TRANSFERS, AND EXCHANGES OF WATER

805
806
807
808
809
810
811
812
813
814
815
816
817
818
819
820
821
822
823
824
825
826

10. (a) The right to receive Project Water provided for in this Contract may be sold, transferred, or exchanged to others for reasonable and beneficial uses within the State of California if such sale, transfer, or exchange is authorized by applicable Federal and State laws, and applicable guidelines or regulations then in effect. No sale, transfer, or exchange of Project Water under this Contract may take place without the prior written approval of the Contracting Officer, except as provided for in subdivisions (b) and (c) of this Article of this Contract. No such Project Water sales, transfers, or exchanges shall be approved, where approval is required, absent compliance with appropriate environmental documentation including but not limited to the National Environmental Policy Act and the Endangered Species Act. Such environmental documentation must include, as appropriate, an analysis of groundwater impacts and economic and social effects, including environmental justice, of the proposed Project Water sales, transfers and exchanges on both the transferor/exchanger and transferee/exchange recipient.

(b) In order to facilitate efficient water management by means of Project Water sales, transfers, or exchanges of the type historically carried out among Project Contractors located within the same geographical area and to allow the Contractor to participate in an accelerated water transfer program, the Contracting Officer has prepared, as appropriate, necessary environmental documentation including, but not limited to, the National Environmental Policy Act and the Endangered Species Act analyzing annual Project Water sales, transfers, or exchanges among Contractors within the same geographical area and the Contracting Officer has determined that such Project Water sales, transfers, and exchanges comply with applicable law.

827 (c) Project Water sales, transfers, and exchanges analyzed in the
828 environmental documentation referenced in subdivision (b) of this Article of this Contract, shall
829 be conducted with advance notice to the Contracting Officer and the Contracting Officer's
830 written acknowledgement of the transaction, but shall not require prior written approval by the
831 Contracting Officer.

832 (d) For Project Water sales, transfers, or exchanges to qualify under
833 subdivision (b) of this Article of this Contract such Project Water sale, transfer, or exchange
834 must: (i) be for irrigation purposes for lands irrigated within the previous three (3) years, for
835 M&I use, groundwater recharge, groundwater banking, similar groundwater activities, surface
836 water storage, or fish and wildlife resources; not lead to land conversion; and be delivered to
837 established cropland, wildlife refuges, groundwater basins or M&I use; (ii) occur within a single
838 Year; (iii) occur between a willing seller and a willing buyer or willing exchangers; (iv) convey
839 water through existing facilities with no new construction or modifications to facilities and be
840 between existing Project Contractors and/or the Contractor and the United States, Department of
841 the Interior; and (v) comply with all applicable Federal, State, and local or tribal laws and
842 requirements imposed for protection of the environment and Indian Trust Assets, as defined
843 under Federal law.

844 (e) The environmental documentation and the Contracting Officer's
845 compliance determination for transactions described in subdivision (b) of this Article of this
846 Contract shall be reviewed every five (5) years and updated, as necessary, prior to the expiration
847 of the then-existing five (5) year period. All subsequent environmental documentation shall

848 include an alternative to evaluate not less than the quantity of Project Water historically sold,
849 transferred, or exchanged within the same geographical area.

850 (f) Consistent with Section 10010(e)(1) of the SJRRSA, any agreement
851 providing for sale, transfer, or exchange of Project Water that is not used for interim flows or
852 restoration flows pursuant to Paragraphs 13 and 15 of the Settlement, shall be deemed to satisfy
853 the requirements of CVPIA section 3405(a)(1)(A) and (I); Provided, That such sales, transfers, or
854 exchanges comply with sub-division (f)(1) and (f)(2) below.

855 (1) Project Water sales, transfers, and exchanges conducted under the
856 provisions of subdivision (f) of this Article of this Contract shall not require the Contracting
857 Officer's concurrence as to compliance with CVPIA 3405(a)(1)(A) and (I); Provided, That the
858 Contractor shall, for Project Water sales, transfers, or exchanges, with a term greater than one (1)
859 year, provide ninety (90) days written advance notification to the Contracting Officer and
860 similarly thirty (30) days written advance notification of any Project Water sale, transfer, or
861 exchange with a term of less than one (1) year. The Contracting Officer shall promptly make
862 such notice publicly available.

863 (2) The Contractor's thirty (30) days or ninety (90) days advance
864 written notification pursuant to subdivision (f)(1) of this Article of this Contract shall explain
865 how the proposed Project Water sales, transfers, or exchanges are intended to reduce, avoid, or
866 mitigate impacts to Project Water deliveries caused by interim or restoration flows or is
867 otherwise intended to facilitate the Water Management Goal as described in the SJRRSA. The
868 Contracting Officer shall promptly make such notice publicly available.

869 (3) In addition, the Contracting Officer shall, at least annually, make
870 available publicly a compilation of the number of Project Water sales, transfers, and exchange
871 agreements implemented in accordance with sub-divisions (f)(1) and (f)(2) of this Article of this
872 Contract.

873 (4) Project Water sold, transferred, or exchanged under an agreement
874 that meets the terms of subdivisions (f)(1) and (f)(2) of this Article of this Contract shall not be
875 counted as a replacement or an offset for purposes of determining reductions to Project Water
876 deliveries to any Friant Division Project Contractor except as provided in Paragraph 16(b) of the
877 Settlement.

878 (g) Upon complete payment of the Repayment Obligation by the Contractor,
879 and notwithstanding any Additional Capital Obligation that may later be established, in the case
880 of a sale or transfer of Irrigation Water to another contractor which is otherwise subject to the
881 acreage limitations, reporting, and Full Cost pricing provisions of the RRA, such sold or
882 transferred Irrigation Water shall not be subject to such RRA provisions, however, in the case of
883 a sale or transfer of Irrigation Water to the Contractor from another contractor which is subject to
884 RRA provisions, such RRA provisions shall apply to delivery of such water.

885 APPLICATION OF PAYMENTS AND ADJUSTMENTS

886 11. (a) The amount of any overpayment by the Contractor of the Contractor's
887 O&M, Capital, and deficit (if any) obligations for the Year shall be applied first to any current
888 liabilities of the Contractor arising out of this Contract then due and payable. Overpayments of
889 more than One Thousand Dollars (\$1,000) shall be refunded at the Contractor's request. In lieu
890 of a refund, any amount of such overpayment, at the option of the Contractor, may be credited

891 against amounts to become due to the United States by the Contractor. With respect to
892 overpayment, such refund or adjustment shall constitute the sole remedy of the Contractor or
893 anyone having or claiming to have the right to the use of any of the Project Water supply
894 provided for herein. All credits and refunds of overpayments shall be made within thirty (30)
895 days of the Contracting Officer obtaining direction as to how to credit or refund such
896 overpayment in response to the notice to the Contractor that it has finalized the accounts for the
897 Year in which the overpayment was made.

898 (b) All advances for miscellaneous costs incurred for work requested by the
899 Contractor pursuant to Article 26 of this Contract shall be adjusted to reflect the actual costs
900 when the work has been completed. If the advances exceed the actual costs incurred, the
901 difference will be refunded to the Contractor. If the actual costs exceed the Contractor's
902 advances, the Contractor will be billed for the additional costs pursuant to Article 26 of this
903 Contract.

904 TEMPORARY REDUCTIONS—RETURN FLOWS

905 12. (a) The Contracting Officer shall make all reasonable efforts to optimize
906 delivery of the Contract Total subject to: (i) the authorized purposes and priorities of the Project;
907 (ii) the requirements of Federal law and the Settlement; and (iii) the obligations of the United
908 States under existing contracts, or renewals thereof, providing for water deliveries from the
909 Project.

910 (b) The Contracting Officer or Operating Non-Federal Entity may temporarily
911 discontinue or reduce the quantity of Water Delivered to the Contractor as herein provided for
912 the purposes of investigation, inspection, maintenance, repair, or replacement of any of the

913 Project facilities or any part thereof necessary for the delivery of Project Water to the Contractor,
914 but so far as feasible the Contracting Officer or Operating Non-Federal Entity will give the
915 Contractor due notice in advance of such temporary discontinuance or reduction, except in case
916 of emergency, in which case no notice need be given; Provided, That the United States shall use
917 its best efforts to avoid any discontinuance or reduction in such service. Upon resumption of
918 service after such reduction or discontinuance, and if requested by the Contractor, the United
919 States will, if possible, deliver the quantity of Project Water which would have been delivered
920 hereunder in the absence of such discontinuance or reduction.

921 (c) The United States reserves the right to all seepage and return flow water
922 derived from Water Delivered to the Contractor hereunder which escapes or is discharged
923 beyond the Contractor's Service Area; Provided, That this shall not be construed as claiming for
924 the United States any right as seepage or return flow to water being used pursuant to this
925 Contract for surface irrigation or underground storage either being put to reasonable and
926 beneficial use pursuant to this Contract within the Contractor's Service Area by the Contractor or
927 those claiming by, through, or under the Contractor. For purposes of this subdivision,
928 groundwater recharge, groundwater banking and all similar groundwater activities will be
929 deemed to be underground storage.

930 CONSTRAINTS ON THE AVAILABILITY OF WATER

931 13. (a) In its operation of the Project, the Contracting Officer will use all
932 reasonable means to guard against a Condition of Shortage in the quantity of water to be made
933 available to the Contractor pursuant to this Contract. In the event the Contracting Officer

934 determines that a Condition of Shortage appears probable, the Contracting Officer will notify the
935 Contractor of said determination as soon as practicable.

936 (b) If there is a Condition of Shortage because of errors in physical operations
937 of the Project, drought, other physical causes beyond the control of the Contracting Officer or
938 actions taken by the Contracting Officer to meet legal obligations, including but not limited to
939 obligations pursuant to the Settlement then, except as provided in Article 19 of this Contract, no
940 liability shall accrue against the United States or any of its officers, agents, or employees for any
941 damage, direct or indirect, arising therefrom.

942 (c) The United States shall not execute contracts which together with this
943 Contract, shall in the aggregate provide for furnishing Class 1 Water in excess of 800,000
944 acre-feet per Year or Class 2 Water in excess of 1,401,475 acre-feet per Year; Provided, That,
945 subject to subdivision (l) of Article 3 of this Contract, the limitation placed on Class 2 Water
946 contracts shall not prohibit the United States from entering into temporary contracts of one year
947 or less in duration for delivery of Project Water to other entities if such water is not necessary to
948 meet the schedules as may be submitted by all Friant Division Project Contractors entitled to
949 receive Class 1 Water and/or Class 2 Water under their contracts. Nothing in this subdivision
950 shall limit the Contracting Officer's ability to take actions that result in the availability of new
951 water supplies to be used for Project purposes and allocating such new supplies; Provided, That
952 the Contracting Officer shall not take such actions until after consultation with the Friant
953 Division Project Contractors.

954 (d) The Contracting Officer shall not deliver any Class 2 Water pursuant to
955 this or any other contract heretofore or hereafter entered into any Year unless and until the

956 Contracting Officer determines that the cumulative total quantity of Class 1 Water specified in
957 subdivision (c) of this Article of this Contract will be available for delivery in said Year. If the
958 Contracting Officer determines there is or will be a shortage in any Year in the quantity of
959 Class 1 Water available for delivery, the Contracting Officer shall apportion the available Class 1
960 Water among all Contractors entitled to receive such water that will be made available at Friant
961 Dam in accordance with the following:

962 (1) A determination shall be made of the total quantity of Class 1
963 Water at Friant Dam which is available for meeting Class 1 Water contractual commitments, the
964 amount so determined being herein referred to as the available supply.

965 (2) The total available Class 1 supply shall be divided by the Class 1
966 Water contractual commitments, the quotient thus obtained being herein referred to as the
967 Class 1 apportionment coefficient.

968 (3) The total quantity of Class 1 Water under Article 3 of this Contract
969 shall be multiplied by the Class 1 apportionment coefficient and the result shall be the quantity of
970 Class 1 Water required to be delivered by the Contracting Officer to the Contractor for the
971 respective Year, but in no event shall such amount exceed the total quantity of Class 1 Water
972 specified in subdivision (a) of Article 3 of this Contract.

973 (e) If the Contracting Officer determines there is less than the quantity of
974 Class 2 Water which the Contractor otherwise would be entitled to receive pursuant to Article 3
975 of this Contract, the quantity of Class 2 Water which shall be furnished to the Contractor by the
976 Contracting Officer will be determined in the manner set forth in paragraphs (1), (2), and (3), of

977 subdivision (d) of this Article of this Contract substituting the term "Class 2" for the term "Class
978 1."

979 (f) In the event that in any Year there is made available to the Contractor, by
980 reason of any shortage or apportionment as provided in subdivisions (a), (d), or (e) of this Article
981 of this Contract, or any discontinuance or reduction of service as set forth in subdivision (b) of
982 Article 12 of this Contract, less than the quantity of water which the Contractor otherwise would
983 be entitled to receive hereunder, there shall be made an adjustment on account of the amounts
984 already paid to the Contracting Officer by the Contractor for Class 1 Water and Class 2 Water
985 for said Year in accordance with Article 11 of this Contract.

986 UNAVOIDABLE GROUNDWATER PERCOLATION

987 14. Omitted.

988 ACREAGE LIMITATION

989 15. Omitted.

990 RULES, REGULATIONS, AND DETERMINATIONS

991 16. (a) The parties agree that the delivery of water or the use of Federal facilities
992 pursuant to this Contract is subject to Federal Reclamation law, as amended and supplemented,
993 and the rules and regulations promulgated by the Secretary of the Interior under Federal
994 Reclamation law.

995 (b) The Contracting Officer shall have the right to make determinations
996 necessary to administer this contract that are consistent with its provisions, the laws of the United
997 States and the State of California, and the rules and regulations promulgated by the Secretary of
998 the Interior. Such determinations shall be made in consultation with the Contractor.

999 (c) The terms of this Contract are subject to the Settlement and the SJRRSA.

1000 Nothing in this Contract shall be interpreted to limit or interfere with the full implementation of
1001 the Settlement and the SJRRSA.

1002

PROTECTION OF WATER AND AIR QUALITY

1003
1004
1005
1006
1007
1008

17. (a) Project facilities used to make available and deliver water to the Contractor shall be operated and maintained in the most practical manner to maintain the quality of the water at the highest level possible as determined by the Contracting Officer: *Provided, That* the United States does not warrant the quality of the water delivered to the Contractor and is under no obligation to furnish or construct water treatment facilities to maintain or improve the quality of water delivered to the Contractor.

1009
1010
1011
1012
1013
1014
1015

(b) The Contractor shall comply with all applicable water and air pollution laws and regulations of the United States and the State of California; and shall obtain all required permits or licenses from the appropriate Federal, State, or local authorities necessary for the delivery of water by the Contractor; and shall be responsible for compliance with all Federal, State, and local water quality standards applicable to surface and subsurface drainage and/or discharges generated through the use of Federal or Contractor facilities or project water provided by the Contractor within the Contractor's Project Water Service Area.

1016
1017

(c) This article shall not affect or alter any legal obligations of the Secretary to provide drainage or other discharge services.

1018
1019

WATER ACQUIRED BY THE CONTRACTOR
OTHER THAN FROM THE UNITED STATES

1020

18. (a) Omitted.

1021
1022
1023
1024
1025
1026
1027
1028

(b) Upon complete payment of the Repayment Obligation by the Contractor, and notwithstanding any Additional Capital Obligation that may later be established, water or water rights now owned or hereafter acquired by the Contractor other than from the United States pursuant to this Contract and Irrigation Water furnished pursuant to the terms of this Contract may be simultaneously transported through the same distribution facilities of the Contractor without the payment of fees to the United States and without application of Federal Reclamation law to Water Delivered pursuant to this Contract or to lands which receive Water Delivered to Contractor pursuant to this Contract.

1029 (c) Water or water rights now owned or hereafter acquired by the Contractor,
1030 other than from the United States or adverse to the Project or its contractors (i.e., non-project
1031 water), may be stored, conveyed and/or diverted through Project facilities, other than Friant
1032 Division Facilities, subject to the completion of appropriate environmental documentation, with
1033 the approval of the Contracting Officer and the execution of any contract determined by the
1034 Contracting Officer to be necessary, consistent with the following provisions:

1035 (1) The Contractor may introduce non-project water into Project
1036 facilities and deliver said water to lands within the Contractor's Service Area subject to payment
1037 to the United States and/or to any applicable Operating Non-Federal Entity of an appropriate rate
1038 as determined by the Contracting Officer. In addition, if electrical power is required to pump
1039 non-project water, the Contractor shall be responsible for obtaining the necessary power and
1040 paying the necessary charges therefor.

1041 (2) Delivery of such non-project water in and through Project facilities
1042 shall only be allowed to the extent such deliveries do not: (i) interfere with other Project
1043 purposes as determined by the Contracting Officer; (ii) reduce the quantity or quality of water
1044 available to other Project Contractors; (iii) interfere with the delivery of contractual water
1045 entitlements to any other Project Contractors; (iv) interfere with the physical maintenance of the
1046 Project facilities; or (v) result in the United States incurring any liability or unreimbursed costs
1047 or expenses thereby.

1048 (3) Neither the United States nor the Operating Non-Federal Entity
1049 shall be responsible for control, care or distribution of the non-project water before it is
1050 introduced into or after it is delivered from the Project facilities. The Contractor hereby releases

1051 and agrees to defend and indemnify the United States and the Operating Non-Federal Entity, and
1052 their respective officers, agents, and employees, from any claim for damage to persons or
1053 property, direct or indirect, resulting from Contractor's diversion or extraction of non-project
1054 water from any source.

1055 (4) Diversion of such non-project water into Project facilities shall be
1056 consistent with all applicable laws, and if involving groundwater, consistent with any
1057 groundwater management plan for the area from which it was extracted.

1058 (5) After Project purposes are met, as determined by the Contracting
1059 Officer, the United States and the Contractor shall share priority to utilize the remaining capacity
1060 of the facilities declared to be available by the Contracting Officer for conveyance and
1061 transportation of non-project water prior to any such remaining capacity being made available to
1062 non-project contractors.

1063 (d) Non-project water may be stored, conveyed and/or diverted through Friant
1064 Division Facilities, subject to the prior completion of appropriate environmental documentation
1065 and approval of the Contracting Officer without execution of a separate contract, consistent with
1066 subdivisions (c)(1) through (c)(5) of this Article and any other condition determined to be
1067 appropriate by the Contracting Officer.

1068 OPINIONS AND DETERMINATIONS

1069 19. Where the terms of this Contract provide for actions to be based upon the opinion
1070 or determination of either party to this Contract, said terms shall not be construed as permitting
1071 such action to be predicated upon arbitrary, capricious, or unreasonable opinions or
1072 determinations. Both parties, notwithstanding any other provisions of this Contract, expressly

1073 reserve the right to seek relief from and appropriate adjustment for any such arbitrary, capricious,
1074 or unreasonable opinion or determination. Each opinion or determination by either party shall be
1075 provided in a timely manner. Nothing in this Article of this Contract is intended to or shall affect
1076 or alter the standard of judicial review applicable under Federal law to any opinion or
1077 determination implementing a specific provision of Federal law embodied in statute or
1078 regulation.

1079 COORDINATION AND COOPERATION

1080 20. (a) In order to further their mutual goals and objectives, the Contracting
1081 Officer and the Contractor shall communicate, coordinate, and cooperate with each other, and
1082 with other affected Project Contractors, in order to improve the operation and management of the
1083 Project. The communication, coordination, and cooperation regarding operations and
1084 management shall include, but not limited to, any action which will or may materially affect the
1085 quantity or quality of Project Water supply, the allocation of Project Water supply, and Project
1086 financial matters including, but not limited to, budget issues. The communication, coordination,
1087 and cooperation provided for hereunder shall extend to all provisions of this Contract. Each
1088 party shall retain exclusive decision making authority for all actions, opinions, and
1089 determinations to be made by the respective party.

1090 (b) It is the intent of the Secretary to improve water supply reliability. To
1091 carry out this intent:

1092 (1) The Contracting Officer will, at the request of the Contractor,
1093 assist in the development of integrated resource management plans for the Contractor. Further,

1094 the Contracting Officer will, as appropriate, seek authorizations for implementation of
1095 partnerships to improve water supply, water quality, and reliability.

1096 (2) The Secretary will, as appropriate, pursue program and project
1097 implementation and authorization in coordination with Project Contractors to improve the water
1098 supply, water quality, and reliability of the Project for all Project purposes.

1099 (3) The Secretary will coordinate with Project Contractors and the
1100 State of California to seek improved water resource management.

1101 (4) The Secretary will coordinate actions of agencies within the
1102 Department of the Interior that may impact the availability of water for Project purposes.

1103 (5) The Contracting Officer shall periodically, but not less than
1104 annually, hold division level meetings to discuss Project operations, division level water
1105 management activities, and other issues as appropriate.

1106 (c) Without limiting the contractual obligations of the Contracting Officer
1107 hereunder, nothing in this Contract shall be construed to limit or constrain the Contracting
1108 Officer's ability to communicate, coordinate, and cooperate with the Contractor or other
1109 interested stakeholders or to make decisions in a timely fashion as needed to protect health,
1110 safety, physical integrity of structures or facilities, or the Contracting Officer's ability to comply
1111 with applicable laws.

1112 CHARGES FOR DELINQUENT PAYMENTS

1113 21. (a) The Contractor shall be subject to interest, administrative and penalty
1114 charges on delinquent installments or payments. When a payment is not received by the due
1115 date, the Contractor shall pay an interest charge for each day the payment is delinquent beyond
1116 the due date. When a payment becomes sixty (60) days delinquent, the Contractor shall pay an
1117 administrative charge to cover additional costs of billing and processing the delinquent payment.
1118 When a payment is delinquent ninety (90) days or more, the Contractor shall pay an additional

1119 penalty charge of six (6) percent per year for each day the payment is delinquent beyond the due
1120 date. Further, the Contractor shall pay any fees incurred for debt collection services associated
1121 with a delinquent payment.

1122 (b) The interest charge rate shall be the greater of the rate prescribed quarterly
1123 in the Federal Register by the Department of the Treasury for application to overdue payments,
1124 or the interest rate of one-half of one (0.5) percent per month prescribed by Section 6 of the
1125 Reclamation Project Act of 1939 (Public Law 76-260). The interest charge rate shall be
1126 determined as of the due date and remain fixed for the duration of the delinquent period.

1127 (c) When a partial payment on a delinquent account is received, the amount
1128 received shall be applied, first to the penalty, second to the administrative charges, third to the
1129 accrued interest, and finally to the overdue payment.

1130 EQUAL EMPLOYMENT OPPORTUNITY

1131 22. During the performance of this Contract, the Contractor agrees as follows:

1132 (a) The Contractor will not discriminate against any employee or applicant for
1133 employment because of race, color, religion, sex, disability, or national origin. The Contractor
1134 will take affirmative action to ensure that applicants are employed, and that employees are
1135 treated during employment, without regard to their race, color, religion, sex, disability, or
1136 national origin. Such action shall include, but not be limited to the following: employment,
1137 upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination;
1138 rates of pay or other forms of compensation; and selection for training, including apprenticeship.
1139 The Contractor agrees to post in conspicuous places, available to employees and applicants for
1140 employment, notices to be provided by the Contracting Officer setting forth the provisions of this
1141 nondiscrimination clause.

1142 (b) The Contractor will, in all solicitations or advertisements for employees
1143 placed by or on behalf of the Contractor, state that all qualified applicants will receive
1144 consideration for employment without regard to race, color, religion, sex, disability, or national
1145 origin.

1146 (c) The Contractor will send to each labor union or representative of workers
1147 with which it has a collective bargaining agreement or other contract or understanding, a notice,
1148 to be provided by the Contracting Officer, advising the labor union or workers' representative of
1149 the Contractor's commitments under Section 202 of Executive Order 11246 of September 24,
1150 1965, and shall post copies of the notice in conspicuous places available to employees and
1151 applicants for employment.

1152 (d) The Contractor will comply with all provisions of Executive Order No.
1153 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary
1154 of Labor.

1155 (e) The Contractor will furnish all information and reports required by
1156 Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the
1157 Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and
1158 accounts by the Contracting Agency and the Secretary of Labor for purposes of investigation to
1159 ascertain compliance with such rules, regulations, and orders.

1160 (f) In the event of the Contractor's noncompliance with the nondiscrimination
1161 clauses of this contract or with any of such rules, regulations, or orders, this contract may be
1162 canceled, terminated or suspended in whole or in part and the Contractor may be declared
1163 ineligible for further Government contracts in accordance with procedures authorized in
1164 Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and
1165 remedies invoked as provided in Executive Order 11246 of September 24, 1965 or by rule,
1166 regulation, or order of the Secretary of Labor, or as otherwise provided by law.

1167 (g) The Contractor will include the provisions of paragraphs (1) through (7) in
1168 every subcontract or purchase order unless exempted by the rules, regulations, or orders of the
1169 Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24,
1170 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor
1171 will take such action with respect to any subcontract or purchase order as may be directed by the
1172 Secretary of Labor as a means of enforcing such provisions, including sanctions for
1173 noncompliance: *Provided, however,* that in the event the Contractor becomes involved in, or is
1174 threatened with, litigation with a subcontractor or vendor as a result of such direction, the
1175 Contractor may request the United States to enter into such litigation to protect the interests of
1176 the United States.

1177 GENERAL OBLIGATION—BENEFITS CONDITIONED UPON PAYMENT

1178 23. (a) The obligation of the Contractor to pay the United States as provided in
1179 this Contract is a general obligation of the Contractor notwithstanding the manner in which the
1180 obligation may be distributed among the Contractor's water users and notwithstanding the
1181 default of individual water users in their obligations to the Contractor.

1182 (b) The payment of charges becoming due hereunder is a condition precedent
1183 to receiving benefits under this Contract. The United States shall not make water available to the
1184 Contractor through Project facilities during any period in which the Contractor may be in arrears
1185 in the advance payment of water rates due the United States. The Contractor shall not furnish
1186 water made available pursuant to this Contract for lands or parties which are in arrears in the
1187 advance payment of water rates levied or established by the Contractor.

1188 (c) With respect to subdivision (b) of this Article of this Contract, the
1189 Contractor shall have no obligation to require advance payment for water rates which it levies.

1190

COMPLIANCE WITH CIVIL RIGHTS LAWS AND REGULATIONS

1191
1192
1193
1194
1195

24. (a) The Contractor shall comply with Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d), Section 504 of the Rehabilitation Act of 1975 (P.L. 93-112, as amended), the Age Discrimination Act of 1975 (42 U.S.C. 6101, et seq.) and any other applicable civil rights laws, as well as with their respective implementing regulations and guidelines imposed by the U.S. Department of the Interior and/or Bureau of Reclamation.

1196
1197
1198
1199
1200
1201

(b) These statutes require that no person in the United States shall, on the grounds of race, color, national origin, handicap, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving financial assistance from the Bureau of Reclamation. By executing this Contract, the Contractor agrees to immediately take any measures necessary to implement this obligation, including permitting officials of the United States to inspect premises, programs, and documents.

1202
1203
1204
1205
1206
1207
1208
1209

(c) The Contractor makes this agreement in consideration of and for the purpose of obtaining any and all Federal grants, loans, contracts, property discounts, or other Federal financial assistance extended after the date hereof to the Contractor by the Bureau of Reclamation, including installment payments after such date on account of arrangements for Federal financial assistance which were approved before such date. The Contractor recognizes and agrees that such Federal assistance will be extended in reliance on the representations and agreements made in this Article, and that the United States reserves the right to seek judicial enforcement thereof.

1210

PRIVACY ACT COMPLIANCE

1211

25. Omitted.

1212

CONTRACTOR TO PAY CERTAIN MISCELLANEOUS COSTS

1213
1214
1215
1216
1217
1218

26. In addition to all other payments to be made by the Contractor pursuant to this Contract, the Contractor shall pay to the United States, within sixty (60) days after receipt of a bill and detailed statement submitted by the Contracting Officer to the Contractor for such specific items of direct cost incurred by the United States for work requested by the Contractor associated with this Contract plus indirect costs in accordance with applicable Bureau of Reclamation policies and procedures. All such amounts referred to in this Article of this

1219 Contract shall not exceed the amount agreed to in writing in advance by the Contractor. This
1220 Article of this Contract shall not apply to costs for routine contract administration.

1221 WATER CONSERVATION

1222 27. (a) Prior to the delivery of water provided from or conveyed through
1223 Federally constructed or Federally financed facilities pursuant to this Contract, the Contractor
1224 shall be implementing an effective water conservation and efficiency program based on the
1225 Contractor's water conservation plan that has been determined by the Contracting Officer to
1226 meet the conservation and efficiency criteria for evaluating water conservation plans established
1227 under Federal law. The water conservation and efficiency program shall contain definite water
1228 conservation objectives, appropriate economically feasible water conservation measures, and
1229 time schedules for meeting those objectives. Continued Project Water delivery pursuant to this
1230 Contract shall be contingent upon the Contractor's continued implementation of such water
1231 conservation program. In the event the Contractor's water conservation plan or any revised
1232 water conservation plan completed pursuant to subdivision (d) of this Article of this Contract
1233 have not yet been determined by the Contracting Officer to meet such criteria, due to
1234 circumstances which the Contracting Officer determines are beyond the control of the
1235 Contractor, water deliveries shall be made under this Contract so long as the Contractor
1236 diligently works with the Contracting Officer to obtain such determination at the earliest
1237 practicable date, and thereafter the Contractor immediately begins implementing its water
1238 conservation and efficiency program in accordance with the time schedules therein.

1239 (b) Should the amount of M&I Water Delivered pursuant to subdivision (a) of
1240 Article 3 of this Contract equal or exceed two thousand (2,000) acre-feet per Year, the

1241 Contractor shall implement the Best Management Practices identified by the time frames issued
1242 by the California Urban Water Conservation Council for such M&I Water unless any such
1243 practice is determined by the Contracting Officer to be inappropriate for the Contractor.

1244 (c) The Contractor shall submit to the Contracting Officer a report on the
1245 status of its implementation of the water conservation plan on the reporting dates specified in the
1246 then-existing conservation and efficiency criteria established under Federal law.

1247 (d) At five (5) -year intervals, the Contractor shall revise its water
1248 conservation plan to reflect the then-existing conservation and efficiency criteria for evaluating
1249 water conservation plans established under Federal law and submit such revised water
1250 management plan to the Contracting Officer for review and evaluation. The Contracting Officer
1251 will then determine if the water conservation plan meets Reclamation's then-existing
1252 conservation and efficiency criteria for evaluating water conservation plans established under
1253 Federal law.

1254 (e) If the Contractor is engaged in direct groundwater recharge, such activity
1255 shall be described in the Contractor's water conservation plan.

1256 EXISTING OR ACQUIRED WATER OR WATER RIGHTS

1257 28. Except as specifically provided in Article 18 of this Contract, the provisions of
1258 this Contract shall not be applicable to or affect non-project water or water rights now owned or
1259 hereafter acquired by the Contractor or any user of such water within the Contractor's Service
1260 Area. Any such water shall not be considered Project Water under this Contract. In addition,
1261 this Contract shall not be construed as limiting or curtailing any rights which the Contractor or

1262 any water user within the Contractor's Service Area acquires or has available under any other
1263 contract pursuant to Federal Reclamation law.

1264 OPERATION AND MAINTENANCE BY OPERATING NON-FEDERAL ENTITY

1265 29. (a) The O&M of a portion of the Project facilities which serve the Contractor,
1266 and responsibility for funding a portion of the costs of such O&M, have been transferred to the
1267 Operating Non-Federal Entity by separate agreement between the United States and the
1268 Operating Non-Federal Entity. That separate agreement shall not interfere with or affect the
1269 rights or obligations of the Contractor or the United States hereunder.

1270 (b) The Contracting Officer has previously notified the Contractor in writing
1271 that the O&M of a portion of the Project facilities which serve the Contractor has been
1272 transferred to the Operating Non-Federal Entity, and therefore, the Contractor shall pay directly
1273 to the Operating Non-Federal Entity, or to any successor approved by the Contracting Officer
1274 under the terms and conditions of the separate agreement between the United States and the
1275 Operating Non-Federal Entity described in subdivision (a) of this Article of this Contract, all
1276 rates, charges or assessments of any kind, including any assessment for reserve funds, which the
1277 Operating Non-Federal Entity or such successor determines, sets or establishes for (i) the O&M
1278 of the portion of the Project facilities operated and maintained by the Operating Non-Federal
1279 Entity or such successor, or (ii) the Friant Division's share of the operation, maintenance and
1280 replacement costs for physical works and appurtenances associated with the Tracy Pumping
1281 Plant, the Delta-Mendota Canal, the O'Neill Pumping/Generating Plant, the federal share of the
1282 O'Neill Forebay, the Mendota Pool, and the federal share of San Luis Unit joint use conveyance
1283 and conveyance pumping facilities. Such direct payments to the Operating Non-Federal Entity

1284 or such successor shall not relieve the Contractor of its obligation to pay directly to the United
1285 States the Contractor's share of the Project Rates, Charges, and Tiered Pricing Components
1286 except to the extent the Operating Non-Federal Entity collects payments on behalf of the United
1287 States in accordance with the separate agreement identified in subdivision (a) of this Article of
1288 this Contract.

1289 (c) For so long as the O&M of any portion of the Project facilities serving the
1290 Contractor is performed by the Operating Non-Federal Entity, or any successor thereto, the
1291 Contracting Officer shall adjust those components of the Rates for Water Delivered under this
1292 Contract representing the cost associated with the activity being performed by the Operating
1293 Non-Federal Entity or its successor.

1294 (d) In the event the O&M of the Project facilities operated and maintained by
1295 the Operating Non-Federal Entity is re-assumed by the United States during the term of this
1296 Contract, the Contracting Officer shall so notify the Contractor, in writing, and present to the
1297 Contractor a revised Exhibit "B" which shall include the portion of the Rates to be paid by the
1298 Contractor for Project Water under this Contract representing the O&M costs of the portion of
1299 such Project facilities which have been re-assumed. The Contractor shall, thereafter, in the
1300 absence of written notification from the Contracting Officer to the contrary, pay the Rates,
1301 Charges, and Tiered Pricing Component(s) specified in the revised Exhibit "B" directly to the
1302 United States in compliance with Article 7 of this Contract.

1303 CONTINGENT ON APPROPRIATION OR ALLOTMENT OF FUNDS

1304 30. The expenditure or advance of any money or the performance of any obligation of
1305 the United States under this Contract shall be contingent upon appropriation or allotment of
1306 funds. Absence of appropriation or allotment of funds shall not relieve the Contractor from any

1307 obligations under this Contract. No liability shall accrue to the United States in case funds are
1308 not appropriated or allotted.

1309 BOOKS, RECORDS, AND REPORTS

1310 31. (a) The Contractor shall establish and maintain accounts and other books and
1311 records pertaining to administration of the terms and conditions of this Contract, including: the
1312 Contractor's financial transactions, water supply data, and Project land and right-of-way
1313 agreements; the water users' land-use (crop census), land ownership, land-leasing and water use
1314 data; and other matters that the Contracting Officer may require. Reports thereon shall be
1315 furnished to the Contracting Officer in such form and on such date or dates as the Contracting
1316 Officer may require. Subject to applicable Federal laws and regulations, each party to this
1317 Contract shall have the right during office hours to examine and make copies of the other party's
1318 books and records relating to matters covered by this Contract.

1319 (b) Notwithstanding the provisions of subdivision (a) of this Article of this
1320 Contract, no books, records, or other information shall be requested from the Contractor by the
1321 Contracting Officer unless such books, records, or information are reasonably related to the
1322 administration or performance of this Contract. Any such request shall allow the Contractor a
1323 reasonable period of time within which to provide the requested books, records, or information.

1324 (c) At such time as the Contractor provides information to the Contracting
1325 Officer pursuant to subdivision (a) of this Article of this Contract, a copy of such information
1326 shall be provided to the Operating Non-Federal Entity.

1327 ASSIGNMENT LIMITED—SUCCESSORS AND ASSIGNS OBLIGATED

1328 32. (a) The provisions of this Contract shall apply to and bind the successors and
1329 assigns of the parties hereto, but no assignment or transfer of this Contract or any right or interest
1330 therein shall be valid until approved in writing by the Contracting Officer.

1331 (b) The assignment of any right or interest in this Contract by either party
1332 shall not interfere with the rights or obligations of the other party to this Contract absent the
1333 written concurrence of said other party.

1334 (c) The Contracting Officer shall not unreasonably condition or withhold
1335 approval of any proposed assignment.

1336 SEVERABILITY

1337 33. In the event that a person or entity who is neither (i) a party to a Project contract,
1338 nor (ii) a person or entity that receives Project Water from a party to a Project contract, nor
1339 (iii) an association or other form of organization whose primary function is to represent parties to
1340 Project contracts, brings an action in a court of competent jurisdiction challenging the legality or
1341 enforceability of a provision included in this Contract and said person, entity, association, or
1342 organization obtains a final court decision holding that such provision is legally invalid or
1343 unenforceable and the Contractor has not intervened in that lawsuit in support of the plaintiff(s),
1344 the parties to this Contract shall use their best efforts to (i) within thirty (30) days of the date of
1345 such final court decision identify by mutual agreement the provisions in this Contract which
1346 must be revised and (ii) within three (3) months thereafter promptly agree on the appropriate
1347 revision(s). The time periods specified above may be extended by mutual agreement of the
1348 parties. Pending the completion of the actions designated above, to the extent it can do so
1349 without violating any applicable provisions of law, the United States shall continue to make the
1350 quantities of Project Water specified in this Contract available to the Contractor pursuant to the
1351 provisions of this Contract which were not found to be legally invalid or unenforceable in the
1352 final court decision.

1353 RESOLUTION OF DISPUTES

1354 34. Should any dispute arise concerning any provisions of this Contract, or the
1355 parties' rights and obligations thereunder, the parties shall meet and confer in an attempt to

1356 resolve the dispute. Prior to the Contractor commencing any legal action, or the Contracting
1357 Officer referring any matter to Department of Justice, the party shall provide to the other party
1358 thirty (30) days written notice of the intent to take such action; Provided, That such notice shall
1359 not be required where a delay in commencing an action would prejudice the interests of the party
1360 that intends to file suit. During the thirty (30) day notice period, the Contractor and the
1361 Contracting Officer shall meet and confer in an attempt to resolve the dispute. Except as
1362 specifically provided, nothing herein is intended to waive or abridge any right or remedy that the
1363 Contractor or the United States may have.

1364 OFFICIALS NOT TO BENEFIT

1365 35. No Member of or Delegate to Congress, Resident Commissioner, or official of the
1366 Contractor shall benefit from this Contract other than as a water user or landowner in the same
1367 manner as other water users or landowners.

1368 CHANGES IN CONTRACTOR'S SERVICE AREA

1369 36. (a) While this Contract is in effect, no change may be made in the
1370 Contractor's Service Area or boundaries, by inclusion or exclusion of lands, dissolution,
1371 consolidation, merger, or otherwise, except upon the Contracting Officer's written consent.

1372 (b) Within thirty (30) days of receipt of a request for such a change, the
1373 Contracting Officer will notify the Contractor of any additional information required by the
1374 Contracting Officer for processing said request, and both parties will meet to establish a mutually
1375 agreeable schedule for timely completion of the process. Such process will analyze whether the
1376 proposed change is likely to: (i) result in the use of Project Water contrary to the terms of this
1377 Contract; (ii) impair the ability of the Contractor to pay for Project Water furnished under this
1378 Contract or to pay for any Federally-constructed facilities for which the Contractor is
1379 responsible; and (iii) have an impact on any Project Water rights applications, permits, or

1380 licenses. In addition, the Contracting Officer shall comply with the National Environmental
1381 Policy Act and the Endangered Species Act. The Contractor will be responsible for all costs
1382 incurred by the Contracting Officer in this process, and such costs will be paid in accordance
1383 with Article 26 of this Contract.

1384 FEDERAL LAWS

1385 37. By entering into this Contract, the Contractor does not waive its rights to contest
1386 the validity or application in connection with the performance of the terms and conditions of this
1387 Contract of any Federal law or regulation; Provided, That the Contractor agrees to comply with
1388 the terms and conditions of this Contract unless and until relief from application of such Federal
1389 law or regulation to the implementing provision of the Contract is granted by a court of
1390 competent jurisdiction.

1391 EMERGENCY RESERVE FUND

1392 38. The Contractor and Contracting Officer acknowledge that the requirements to
1393 establish and maintain a minimum reserve fund account to finance extraordinary O&M costs of
1394 Friant Division Facilities is and will continue to be administered under Contract No.
1395 8-07-20-X0356 titled Agreement To Transfer The Operation, Maintenance And Replacement
1396 And Certain Financial And Administrative Activities Related To The Friant-Kern Canal And
1397 Associated Works, dated March 1, 1998 as amended, supplemented, assigned, or renewed.

1398 MEDIUM FOR TRANSMITTING PAYMENT

1399 39. (a) All payments from the Contractor to the United States under this contract
1400 shall be by the medium requested by the United States on or before the date payment is due. The
1401 required method of payment may include checks, wire transfers, or other types of payment
1402 specified by the United States.

1403 (b) Upon execution of the contract, the Contractor shall furnish the
1404 Contracting Officer with the Contractor's taxpayer's identification number (TIN). The purpose
1405 for requiring the Contractor's TIN is for collecting and reporting any delinquent amounts arising
1406 out of the Contractor's relationship with the United States.

1407 NOTICES

1408 40. Any notice, demand, or request authorized or required by this Contract shall be
1409 deemed to have been given, on behalf of the Contractor, when mailed, postage prepaid, or
1410 delivered to the Area Manager, South-Central California Area Office, 1243 "N" Street, Fresno,
1411 California 93721, and on behalf of the United States, when mailed, postage prepaid, or delivered
1412 to the City of Fresno, Public Utilities Director, 2600 Fresno Street, Room 3065, Fresno,
1413 California 93721-3624. The designation of the addressee or the address may be changed by
1414 notice given in the same manner as provided in this Article of this Contract for other notices.

1415 CONFIRMATION OF CONTRACT

1416 41. The Contractor, after the execution of this Contract, shall promptly provide to the
1417 Contracting Officer a decree of a court of competent jurisdiction of the State of California,
1418 confirming the execution of this Contract. The Contractor shall furnish the United States a
1419 certified copy of the final decree, the validation proceedings, and all pertinent supporting records
1420 of the court approving and confirming this Contract, and decreeing and adjudging it to be lawful,
1421 valid, and binding on the Contractor.

1422 CONTRACT DRAFTING CONSIDERATIONS

1423 42. Articles 1 through 7, Articles 9 through 13, subdivision (c) of Article 16, Articles
1424 18 through 20, subdivision (c) of Article 23, Articles 26 through 29, subdivisions (b) and (c) of
1425 Article 31, subdivisions (b) and (c) of Article 32, Articles 33 through 34, subdivision (b) of
1426 Article 36, and Articles 37 through 38 of this Contract have been drafted, negotiated, and
1427 reviewed by the parties hereto, each of whom is sophisticated in the matters to which this
1428 Contract pertains, and no one party shall be considered to have drafted the stated Articles.

1429 IN WITNESS WHEREOF, the parties hereto have executed this Contract as of the day
1430 and year first above written.

APPROVED AS TO LEGAL
FORM AND SUFFICIENCY
James E. Turner
OFFICE OF REGIONAL SOLICITOR
DEPARTMENT OF THE INTERIOR

THE UNITED STATES OF AMERICA

By: *Donald R. Hanson*
Regional Director, Mid-Pacific Region
Bureau of Reclamation

CITY OF FRESNO

By: *Mark Scott*
City Manager 12/13/10

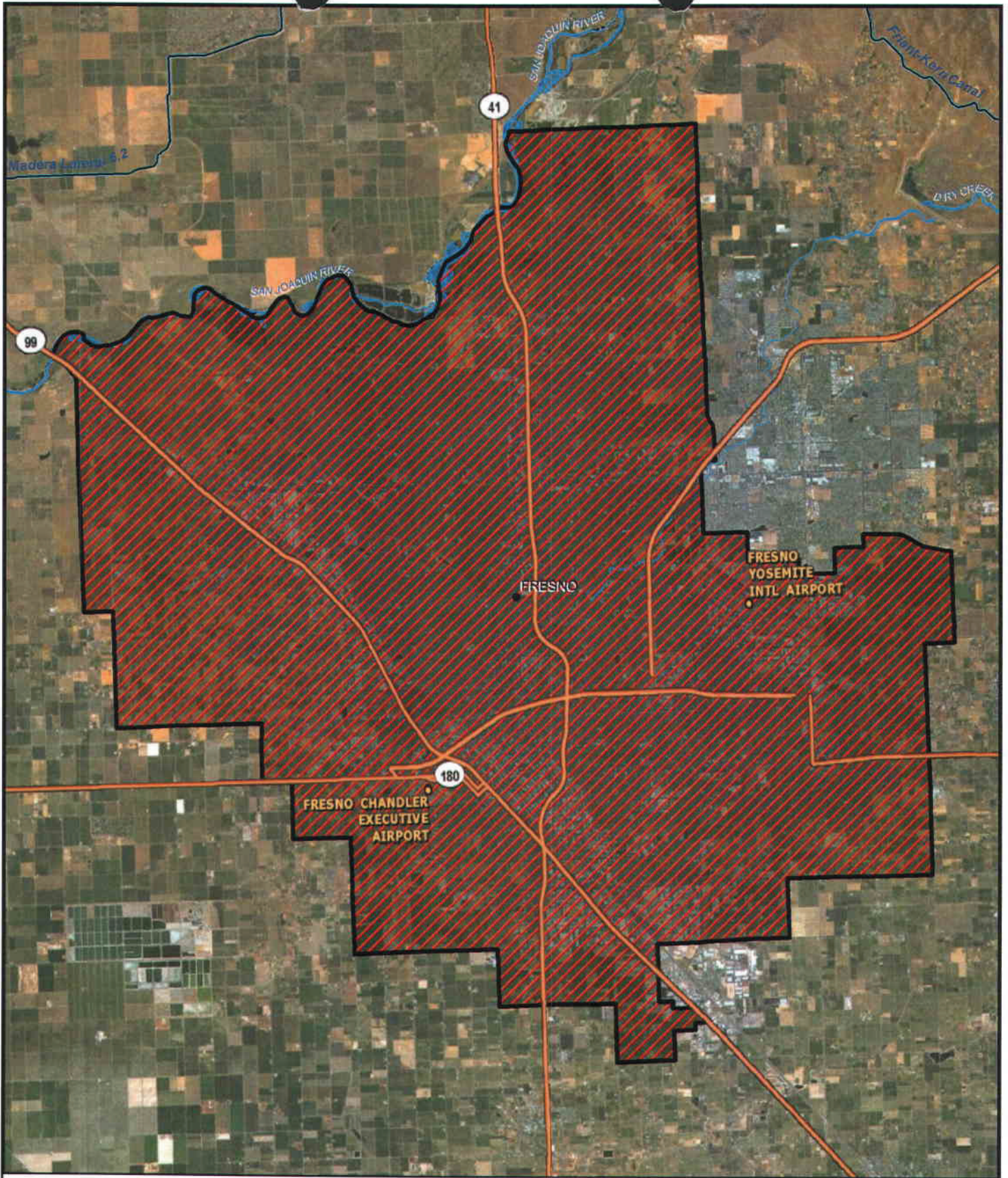
By: *[Signature]*
Public Utilities Director

Attest:

By: *Rebecca E. Klivil*
City Clerk 12-14-10

Approved as to form:

By: *[Signature]*
City Attorney

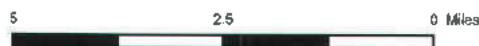


-  District Boundary
-  Contractor's Service Area (Irrigation Only)
-  Contractor's Service Area (Irrigation and M&I)

City of Fresno
 Contract No. 14-06-200-8901D
 Exhibit A
 Friant 9 (d) Repayment



Date: September 1, 2010
 File Name: N:\Districts\Contracts\Friant_9(d)\Contracts\CityOfFresno.mxd



1785-202-60

EXHIBIT B

Rates and Charges

This is a placeholder page. The Rates and Charges will be transmitted to the Contractor at a later date.

Exhibit C-1
Repayment Obligation - Lump Sum Option

Priant Contractor:
San Joaquin River Restoration Act

City of Fresno

Existing Capital Obligation (Article 1(m)) \$ 15,663,060.20

Irrigation portion of Existing Capital Obligation \$ -

20yr CMT as of : 10/01/10 3.400%

Discount Rate (1/2 20yr CMT) 1.700%

Discounted Irrigation Capital \$ -

Non-Discounted M&I Portion of Existing Capital Obligation \$ 15,663,060.20

Repayment Obligation - Lump Sum Option (per Article 7(a)(2)(A)) \$ 15,663,060.20

Year	Irrigation Portion of Allocated Capital Cost	
	Beginning Balance	Straight Line Repayment
	2011	\$ -
2012	\$ -	\$ -
2013	\$ -	\$ -
2014	\$ -	\$ -
2015	\$ -	\$ -
2016	\$ -	\$ -
2017	\$ -	\$ -
2018	\$ -	\$ -
2019	\$ -	\$ -
2020	\$ -	\$ -
2021	\$ -	\$ -
2022	\$ -	\$ -
2023	\$ -	\$ -
2024	\$ -	\$ -
2025	\$ -	\$ -
2026	\$ -	\$ -
2027	\$ -	\$ -
2028	\$ -	\$ -
2029	\$ -	\$ -
2030	\$ -	\$ -
		\$ -

Exhibit D
Friant Surcharge Reduction Calculation

Friant Contractor:
San Joaquin River Restoration Act

City of Fresno

Average Annual Delivery - Forecasted for 2020-2039*	51,000
Total Projected deliveries (over 20 yr period)**	
Article 7(c)	1,020,000
20 yr CMT as of 10/1/2010	4.050%
1/2 20 yr CMT as of 10/1/2010	2.025%
Irrigation Portion of Existing Capital Obligation	\$0
NPV at Half CMT (Repayment Obligation)	\$0
NPV at Full CMT	\$0
Financing Cost Offset: (Article 7(c)(1))	\$0
NPV of FS Reduction	\$0
Difference between Financing Cost Offset and NPV of FS Reduction	\$0
2020 Other Obligation Credit (FV of difference) (Art. 7(c)(2))***	\$0

Year	Irrigation portion of Allocated Capital Cost			CVPIA Friant Surcharges	Reduction in Friant Surcharge			2020 Other Obligation Credit Calculation (Art. 7(c)(2))
	Beginning Balance	Straight Line Repayment	Surcharge per Acre-Foot Before Reduction	Friant Surcharge Reduction per Article 7(c)(1)	Friant Surcharge due per A/F after Reduction	Projected Total Annual Credit		
2011	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2012	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2013	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2014	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2015	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2016	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2017	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2018	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2019	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2020	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2021	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2022	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2023	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2024	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2025	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2026	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2027	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2028	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2029	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2030	\$ -	\$ -	\$ 7.00		\$ 7.00	\$ 0	\$ -	
2031			\$ 7.00		\$ 7.00	\$ 0	\$ -	
2032			\$ 7.00		\$ 7.00	\$ 0	\$ -	
2033			\$ 7.00		\$ 7.00	\$ 0	\$ -	
2034			\$ 7.00		\$ 7.00	\$ 0	\$ -	
2035			\$ 7.00		\$ 7.00	\$ 0	\$ -	
2036			\$ 7.00		\$ 7.00	\$ 0	\$ -	
2037			\$ 7.00		\$ 7.00	\$ 0	\$ -	
2038			\$ 7.00		\$ 7.00	\$ 0	\$ -	
2039			\$ 7.00		\$ 7.00	\$ 0	\$ -	
		\$ -				\$ 0	\$ -	

Exhibit D
Friant Surcharge Reduction Calculation

Footnotes

* Average annual delivery forecast indicated above is a mutually agreed upon estimate of deliveries during the period 2020-2039 for purposes of calculating the Friant Surcharge reduction and related credits only.

** This figure represents the total cumulative deliveries the reduced surcharge is applicable to, but not beyond 2039. If cumulative actual deliveries exceed this amount prior to 2039, the full Friant Surcharge is applicable to deliveries in excess of this amount.

*** The difference represents the amount of financing costs that are not offset through the reduced Friant Surcharge computed on this schedule. Pursuant to Section 7(c)(2), this amount shall offset the Contractor's other outstanding or future obligations. After 2020, the contractor's other obligations shall be reduced in the following order to fully offset this amount: 1) Payments or prepayments due for O&M expenses and, to the extent applicable, 2) Additional Capital Obligation.

@ Amount of reduction in Friant Surcharge is computed using FPV of Financing Costs adjusted to Yr 2020. Annual Friant Surcharge reduction to fully offset Financing costs is computed and presented on per a/f basis. Friant surcharge may be reduced up to \$3 per a/f.

Friant Surcharge (FS) Reduction Calculations

FV of Total Financing Cost for Offset	\$	-
Annual Credit Target	\$	-
FS Reduction w/o limit	\$	-
FS Reduction limit	\$	(3.00)

EXHIBIT E

Restated Contract¹

M&I Only
Contract No. 14-06-200-8901D

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF RECLAMATION
Central Valley Project, California

CONTRACT BETWEEN THE UNITED STATES
AND
CITY OF FRESNO
PROVIDING FOR PROJECT WATER SERVICE FROM
FRIANT DIVISION AND
FOR FACILITIES REPAYMENT

Table of Contents

<u>Article No.</u>	<u>Title</u>	<u>Page No.</u>
	Preamble	1
	Explanatory Recitals	1
1	Definitions.....	6
2	Effective Date Of Contract	11
3	Water To Be Made Available And Delivered To The Contractor.....	12
4	Time For Delivery Of Water.....	19
5	Point Of Diversion And Responsibility For Distribution Of Water	21
6	Measurement Of Water Within The Service Area.....	23
7	Rates, Method Of Payment For Water, And Accelerated Repayment of Facilities ..	25
8	Non-Interest Bearing Operation And Maintenance Deficits	33
9	Recovered Water Account	33
10	Sales, Transfers, And Exchanges Of Water.....	33
11	Application Of Payments And Adjustments.....	37
12	Temporary Reductions—Return Flows	38
13	Constraints On The Availability Of Water	39
14	Unavoidable Groundwater Percolation.....	41
15	Acreage Limitation	41
16	Rules, Regulations, And Determinations.....	41
17	Protection Of Water And Air Quality	42
18	Water Acquired By The Contractor Other Than From The United States	42
19	Opinions And Determinations	44

¹ Pursuant to subdivision (b) of Article 2 of the Contract to which this exhibit is attached, this Exhibit "E" makes no substantive revisions to the Contract to which it is attached and is prepared solely as a matter of administrative convenience. In this Exhibit "E", references to "Contract" or "this Contract" refers to this Restated Contract.

20	Coordination And Cooperation.....	45
21	Charges For Delinquent Payments.....	46
22	Equal Employment Opportunity	47
23	General Obligation—Benefits Conditioned Upon Payment.....	48
24	Compliance With Civil Rights Laws And Regulations	48
25	Privacy Act Compliance	49
26	Contractor To Pay Certain Miscellaneous Costs	49
27	Water Conservation	49
28	Existing Or Acquired Water Or Water Rights.....	51
29	Operation And Maintenance By Operating Non-Federal Entity	51
30	Contingent On Appropriation Or Allotment Of Funds.....	53
31	Books, Records, And Reports.....	53
32	Assignment Limited—Successors And Assigns Obligated.....	54
33	Severability	54
34	Resolution Of Disputes	55
35	Officials Not To Benefit	55
36	Changes In Contractor’s Service Area.....	56
37	Federal Laws.....	56
38	Emergency Reserve Fund	57
39	Medium For Transmitting Payment.....	57
40	Notices	57
41	Confirmation Of Contract.....	57
42	Contract Drafting Considerations	58

1 UNITED STATES
2 DEPARTMENT OF THE INTERIOR
3 BUREAU OF RECLAMATION
4 Central Valley Project, California

5 CONTRACT BETWEEN THE UNITED STATES
6 AND
7 CITY OF FRESNO
8 PROVIDING FOR PROJECT WATER SERVICE
9 FROM FRIANT DIVISION AND
10 FACILITIES REPAYMENT

11 THIS CONTRACT, made this 22nd day of December, 2010, is entered
12 into pursuant to the Act of June 17, 1902, (32 Stat. 388), and acts amendatory or supplementary
13 thereto, including but not limited to: the Acts of August 26, 1937 (50 Stat. 844), as amended and
14 supplemented, August 4, 1939 (53 Stat. 1187), as amended and supplemented, June 21, 1963 (77
15 Stat. 68), October 12, 1982 (96 Stat. 1262), October 27, 1986 (100 Stat. 3050), as amended, Title
16 XXXIV of the Act of October 30, 1992 (106 Stat. 4706), and Title X, Subtitle A, of the Act of
17 March 30, 2009 (123 Stat. 1349), also referred to as the San Joaquin River Restoration
18 Settlement Act hereinafter referred to as SJRRSA, all collectively hereinafter referred to as
19 Federal Reclamation law, between THE UNITED STATES OF AMERICA, hereinafter referred
20 to as the United States and the CITY OF FRESNO, hereinafter referred to as the Contractor, a
21 public agency of the State of California, duly organized, existing, and acting pursuant to the laws
22 thereof, with its principal place of business in California;

23 WITNESSETH, That

24 EXPLANATORY RECITALS

25 [1st] WHEREAS, the United States has constructed and is operating the Central Valley
26 Project, California, for diversion, storage, carriage, distribution and beneficial use, for flood
27 control, irrigation, municipal, domestic, industrial, fish and wildlife mitigation, protection and

28 restoration, generation and distribution of electric energy, salinity control, navigation and other
29 beneficial uses, of waters of the Sacramento River, the American River, the Trinity River, and
30 the San Joaquin River and their tributaries; and

31 [2nd] WHEREAS, the United States constructed Friant Dam (thereby creating Millerton
32 Lake) and the Friant-Kern and Madera Canals, hereinafter collectively referred to as the Friant
33 Division Facilities, which will be used in part for the furnishing of water to the Contractor
34 pursuant to the terms of this Contract; and

35 [3rd] WHEREAS, the United States and the Contractor entered into Contract Number
36 14-06-200-8901 which established terms for the delivery to the Contractor of Project Water from
37 the Friant Division from March 1, 1966 through February 28, 2006; and

38 [4th] WHEREAS, the Contractor and the United States have, pursuant to subsection
39 3404(c)(1) of the Central Valley Project Improvement Act (CVPIA), subsequently entered into a
40 Binding Agreement, identified as Binding Agreement No. 14-06-200-8901-BA, which sets out
41 the terms pursuant to which the Contractor agreed to renew the existing contract before its
42 expiration date after completion of the programmatic environmental impact statement, and
43 subsequently entered into a long-term renewal contract identified as Contract Number
44 14-06-200-8901-LTR1, which provided for continued water service to Contractor through
45 February 28, 2045, and is herein referred to as the "Existing Contract"; and

46 [5th] WHEREAS, pursuant to Section 8 of the Act of June 17, 1902 (32 Stat. 388), the
47 United States has acquired water rights and other rights to the flows of the San Joaquin River,
48 including without limitation the permits issued as the result of Decision 935 by the California
49 State Water Resource Control Board and the contracts described in subdivision (n) of Article 3
50 of this Contract, pursuant to which the Contracting Officer develops, diverts, stores and delivers

51 Project Water stored or flowing through Millerton Lake in accordance with State and Federal law
52 for the benefit of Project Contractors in the Friant Division and for other specified Project
53 purposes; and

54 [6th] WHEREAS, the water supplied to the Contractor pursuant to this Contract is
55 Project Water developed through the exercise of the rights described in the fifth (5th) Explanatory
56 Recital of this Contract; and

57 [7th] WHEREAS, as a result of litigation entitled “Natural Resources Defense Council,
58 et al. v Kirk Rogers, et al.” No. CIV-S-88-1658LLK/GGH, certain contractors from the Friant
59 Division entered into a Stipulation of Settlement dated September 13, 2006, (the “Settlement”),
60 which settlement prescribes a Restoration Goal and a Water Management Goal and which
61 Settlement was subsequently confirmed and implemented through the SJRRSA; and

62 [8th] WHEREAS, the SJRRSA authorizes and directs the Secretary to convert the
63 Existing Contract to a repayment contract under clause (1) in the proviso to the first sentence of
64 subsection (c) (hereinafter referred to as subsection (c)(1)) of Section 9 of the Act of August 4,
65 1939, no later than December 31, 2010, and further directs that such contract shall require the
66 repayment of the Contractor’s allocated share of construction costs in lump sum payment by
67 January 31, 2014, which funds will in turn be made available for implementation of the
68 Settlement and SJRRSA, and which costs otherwise would have been payable through annual
69 water rates, with full repayment by 2030; and

70 [9th] WHEREAS, such repayment of costs will assist the United States with
71 implementation of actions required under the Settlement and the SJRRSA and provide the
72 Contractor the benefits provided in Section 10010 of the SJRRSA; and

73 [10th] WHEREAS, Section 2 of the Act of June 21, 1963 (1963 Act) provides that if the
74 other party to any long-term contract for municipal, domestic, or industrial water supply so
75 requests, The Secretary shall provide in any contract entered into under subsection (c)(1) of
76 Section 9 of the Act of August 4, 1939 (repayment contract) that such party to the contract
77 “shall, during the term of the contract and any renewal thereof and subject to fulfillment of all
78 obligations thereunder, have a first right for the purposes stated in the contract (to which the
79 holders of any other type of contract for municipal, domestic, or industrial water supply shall be
80 subordinate) to a stated share or quantity of the project’s water supply available for municipal,
81 domestic, or industrial use”; and

82 [11th] Omitted; and

83 [12th] WHEREAS, the Contractor has demonstrated to the satisfaction of the
84 Contracting Officer that the Contractor has utilized the Project Water supplies available to it for
85 reasonable and beneficial use and/or has demonstrated projected future demand for water use
86 such that the Contractor has the capability and expects to utilize fully for reasonable and
87 beneficial use the quantity of Project Water to be made available to it pursuant to this Contract;
88 and

89 [13th] WHEREAS, water obtained from the Central Valley Project has been relied upon
90 by urban and agricultural areas within California for more than fifty (50) years and is considered
91 by the Contractor as an essential portion of its water supply; and

92 [14th] WHEREAS, the economies of regions within the Central Valley Project,
93 including the Contractor’s, depend upon the continued availability of water, including water
94 service from the Central Valley Project; and

95 [15th] WHEREAS, the Secretary intends through coordination, cooperation, and
96 partnerships to pursue measures to improve water supply, water quality, and reliability of the
97 Project for all Project purposes; and

98 [16th] WHEREAS, the mutual goals of the United States and the Contractor include: to
99 provide for reliable Project Water supplies; to control costs of those supplies; to achieve
100 repayment of the Central Valley Project as required by law; to guard reasonably against Project
101 Water shortages; to achieve a reasonable balance among competing demands for use of Project
102 Water; and to comply with all applicable environmental statutes, all consistent with the legal
103 obligations of the United States relative to the Central Valley Project; and

104 [17th] WHEREAS, any time during the Year the Contracting Officer determines that a
105 need exists to evacuate water from Millerton Lake in order to prevent or minimize spill or to
106 meet flood control criteria (currently referred to as “uncontrolled season”), taking into
107 consideration, among other things, anticipated upstream reservoir operations and the most
108 probable forecast of snowmelt and runoff projections for the upper San Joaquin River, Friant
109 Division Project Contractors utilize a portion of their undependable Class 2 Water in their
110 service areas to, among other things, assist in the management and alleviation of groundwater
111 overdraft in the Friant Division service area, provide opportunities for restoration of the San
112 Joaquin River below Friant Dam, minimize flooding along the San Joaquin River, encourage
113 optimal water management, and maximize the reasonable and beneficial use of the water; and

114 [18th] WHEREAS, the parties desire and intend that this Contract not provide a
115 disincentive to the Friant Division Project Contractors continuing to carry out the beneficial
116 activities set out in the Explanatory Recital immediately above; and

117 [19th] WHEREAS, the United States has determined that the Contractor has fulfilled all
118 of its obligations under the Existing Contract; and

119 [20th] WHEREAS, this Contract allows the Contractor to retain a sustainable water
120 supply, and provides greater certainty regarding the cost and long-term integrity of its Central
121 Valley Project water supplies.

122 NOW, THEREFORE, in consideration of the mutual and dependent covenants herein
123 contained, it is hereby mutually agreed by the parties hereto as follows:

124 DEFINITIONS

125 1. When used herein, unless otherwise distinctly expressed or manifestly
126 incompatible with the intent of the parties as expressed in this Contract, the term:

127 (a) "Additional Capital Obligation" shall mean any additional construction
128 costs or other capitalized costs incurred after the effective date of this Contract or not reflected in
129 the Existing Capital Obligation as provided in Section 10010(a)(3)(B) of the SJRRSA and any
130 amounts payable by Contractor as determined through the final adjustment described and
131 required by Section 10010(b) of the SJRRSA;

132 (b) "Calendar Year" shall mean the period January 1 through December 31,
133 both dates inclusive;

134 (c) "Charges" shall mean the payments required by Federal Reclamation law
135 in addition to the Rates specified in this Contract as determined annually by the Contracting
136 Officer pursuant to this Contract and consistent with the SJRRSA;

137 (d) "Class 1 Water" shall mean that supply of water stored in or flowing
138 through Millerton Lake which, subject to the contingencies hereinafter described in Articles 3,

139 12, and 13 of this Contract, will be available for delivery from Millerton Lake and the
140 Friant-Kern and Madera Canals as a dependable water supply during each Year;

141 (e) "Class 2 Water" shall mean that supply of water which can be made
142 available subject to the contingencies hereinafter described in Articles 3, 12, and 13 of this
143 Contract for delivery from Millerton Lake and the Friant-Kern and Madera Canals in addition to
144 the supply of Class 1 Water. Because of its uncertainty as to availability and time of occurrence,
145 such water will be undependable in character and will be furnished only if, as, and when it can be
146 made available as determined by the Contracting Officer;

147 (f) "Condition of Shortage" shall mean a condition respecting the Project
148 during any Year such that the Contracting Officer is unable to deliver sufficient water to meet the
149 Contract Total;

150 (g) "Contracting Officer" shall mean the Secretary of the Interior's duly
151 authorized representative acting pursuant to this Contract or applicable Federal Reclamation law
152 or regulation;

153 (h) "Contract Total" shall mean the maximum amount of Class 1 Water plus
154 the maximum amount of Class 2 Water specified in subdivision (a) of Article 3 of this Contract
155 and is the stated share or quantity of the Project's available water supply to which the Contractor
156 shall have a first right, in accordance with the 1963 Act and the terms of this Contract, upon the
157 Contractor's complete payment of the Repayment Obligation, notwithstanding any Additional
158 Capital Obligation that may later be established;

159 (i) "Contractor's Service Area" shall mean the area to which the Contractor is
160 permitted to provide Project Water under this Contract as described in Exhibit "A" attached

161 hereto, which may be modified from time to time in accordance with Article 36 of this Contract
162 without amendment of this Contract;

163 (j) "CVPIA" shall mean the Central Valley Project Improvement Act, Title
164 XXXIV of the Act of October 30, 1992 (106 Stat. 4706);

165 (k) Omitted;

166 (l) Omitted;

167 (m) "Existing Capital Obligation" shall mean the remaining amount of
168 construction costs of the Contractor identified in the Central Valley Project Irrigation Water
169 Rates and/or Municipal and Industrial Water Rates, respectively, dated January 25, 2007, as
170 adjusted to reflect payments not reflected in such schedule, pursuant to Section 10010(a)(3)(A)
171 of the SJRRSA. The Contracting Officer has computed the Existing Capital Obligation in a
172 manner consistent with the SJRRSA and such amount is set forth in Exhibits "C-1", incorporated
173 herein by reference;

174 (n) "Financing Costs", for purposes of computing the reduction of certain
175 charges as specified in subdivision (c) of Article 7 of this Contract, shall mean the difference
176 between the net present value of the Existing Capital Obligation discounted using the full
177 Treasury rate and the Existing Capital Obligation discounted using one-half the Treasury rate, as
178 set forth in Section 10010(d)(3) of the SJRRA;

179 (o) Omitted;

180 (p) Omitted;

181 (q) Omitted;

182 (r) "Irrigation Water" shall mean water made available from the Project that
183 is used primarily in the production of agricultural crops or livestock, including domestic use
184 incidental thereto, and watering of livestock;

185 (s) Omitted;

186 (t) "Long Term Historic Average" shall mean the average of the final forecast
187 of Water Made Available to the Contractor pursuant to this Contract and the contracts referenced
188 in the third (3rd) and fourth (4th) Explanatory Recitals of this Contract;

189 (u) "Municipal and Industrial (M&I) Water" shall mean Water Made
190 Available from the Project other than Irrigation Water made available to the Contractor. M&I
191 Water shall include water used for human use and purposes such as the watering of landscaping
192 or pasture for animals (e.g., horses) which are kept for personal enjoyment or water delivered to
193 land holdings operated in units of less than five (5) acres unless the Contractor establishes to the
194 satisfaction of the Contracting Officer that the use of water delivered to any such landholding is a
195 use described in subdivision (r) of this Article of this Contract;

196 (v) Omitted;

197 (w) "Operation and Maintenance" or "O&M" shall mean normal and
198 reasonable care, control, operation, repair, replacement (other than Capital replacement), and
199 maintenance of Project facilities;

200 (x) "Operating Non-Federal Entity" shall mean the Friant Water Authority, or
201 its successor, a Non-Federal entity, which has the obligation to operate and maintain all or a
202 portion of the Friant Division Facilities pursuant to an agreement with the United States and
203 which may have funding obligations with respect thereto;

204 (y) Omitted;

205 (z) "Project" shall mean the Central Valley Project owned by the United
206 States and managed by the Department of the Interior, Bureau of Reclamation;

207 (aa) "Project Contractors" shall mean all parties who have a long-term water
208 service contract or repayment contract for Project Water from the Project with the United States
209 pursuant to Federal Reclamation law;

210 (bb) "Project Water" shall mean all water that is developed, diverted, stored, or
211 delivered by the Secretary in accordance with the statutes authorizing the Project and in
212 accordance with the terms and conditions of water rights acquired pursuant to California law;

213 (cc) "Rates" shall mean the payments for O&M costs as determined annually
214 by the Contracting Officer in accordance with the then-existing applicable water ratesetting
215 policies for the Project, as described in subdivision (a) of Article 7 of this Contract and
216 illustrated in Exhibit "B", attached hereto;

217 (dd) "Recovered Water Account" shall mean the program, as defined in the
218 Settlement, to make water available to all of the Friant Division Project Contractors who provide
219 water to meet interim flows or restoration flows for the purpose of reducing or avoiding the
220 impact of the interim flows and restoration flows on such contractors;

221 (ee) "Repayment Obligation", as provided in subdivision (a)(2)(A) of Article 7
222 of this Contract, shall be the Existing Capital Obligation, as defined herein, discounted by
223 one-half of the Treasury rate and computed consistent with the provisions of Section
224 10010(a)(3)(A) of the SJRRSA to be paid by January 31, 2014;

225 (ff) "Secretary" shall mean the Secretary of the Interior, a duly appointed
226 successor, or an authorized representative acting pursuant to any authority of the Secretary and
227 through any agency of the Department of the Interior;

228 (gg) "Settlement" shall mean the Stipulation of Settlement dated September 13,
229 2006, the Order Approving Stipulation of Settlement, and the Judgment and further orders issued
230 by the Court pursuant to the terms and conditions of the Settlement in Natural Resources
231 Defense Council, et al. v. Rodgers, et al., No. CIV-S-88-1658 LLJ/GGH;

232 (hh) Omitted;

233 (ii) "Water Delivered" or "Delivered Water" shall mean Project Water
234 diverted for use by the Contractor at the point(s) of delivery approved by the Contracting
235 Officer;

236 (jj) "Water Made Available" shall mean the estimated amount of Project
237 Water that can be delivered to the Contractor for the upcoming Year as declared by the
238 Contracting Officer, pursuant to subdivision (a) of Article 4 of this Contract;

239 (kk) "Water Management Goal" shall mean the goal of the Settlement to
240 reduce or avoid adverse water supply impacts to all the Friant Division Project Contractors that
241 may result from the interim flows and restoration flows provided for in the Settlement;

242 (ll) "Water Scheduled" shall mean Project Water made available to the
243 Contractor for which times and quantities for delivery have been established by the Contractor
244 and Contracting Officer, pursuant to subdivision (b) of Article 4 of this Contract; and

245 (mm) "Year" shall mean the period from and including March 1 of each
246 Calendar Year through the last day of February of the following Calendar Year.

247 EFFECTIVE DATE OF CONTRACT

248 2. (a) This Contract shall become effective on the date first hereinabove written
249 and shall continue so long as the Contractor is making the annual payments required herein and
250 paying any other amounts owing under this Contract and applicable law, unless it is terminated

251 by the Contracting Officer by reason of a material uncured breach by the Contractor; Provided,
252 That the Contracting Officer shall not seek to terminate this Contract by reason of an asserted
253 material uncured breach by the Contractor unless it has first provided at least sixty (60) days
254 written notice of the asserted breach to the Contractor and the Contractor has failed to cure such
255 breach (or to diligently commence curative actions satisfactory to the Contracting Officer for a
256 breach that cannot be fully cured within sixty (60) days) within the sixty (60)-day notice period;
257 Provided further, That this Contract may be terminated at any time by mutual consent of the
258 parties hereto.

259 (b) The Contractor has paid the Repayment Obligation, and notwithstanding
260 any Additional Capital Obligation that may later be established, the tiered pricing component and
261 Full Cost pricing provisions of Federal Reclamation law shall no longer be applicable to the
262 Contractor.

263 (c) This Contract supersedes in its entirety and is intended to replace in full
264 the Existing Contract; Provided, That if this Contract is terminated or determined to be invalid or
265 unenforceable for any reason other than a material uncured breach of this Contract by the
266 Contractor, the Existing Contract shall not be superseded and shall be in full force and effect.

267 WATER TO BE MADE AVAILABLE AND DELIVERED TO THE CONTRACTOR

268 3. (a) During each Year, consistent with all applicable State water rights,
269 permits, and licenses, Federal law, the Settlement including the SJRRSA, and subject to the
270 provisions set forth in Articles 12 and 13 of this Contract, the Contracting Officer shall make
271 available for delivery to the Contractor from the Project 60,000 acre-feet of Class 1 Water for
272 M&I purposes. The quantity of Water Delivered to the Contractor in accordance with this

273 subdivision shall be scheduled and paid for pursuant to the provisions of Articles 4 and 7 of this
274 Contract.

275 (b) The Contractor has paid the Repayment Obligation, and notwithstanding
276 any Additional Capital Obligation that may later be established, the Contractor has a first right to
277 a stated share or quantity of the Project's water supply available for M&I uses in accordance
278 with the 1963 Act and the terms of this Contract. This right shall not be disturbed so long as the
279 Contractor fulfills all of its obligations hereunder. The quantity of water made available for
280 delivery in any given Year shall remain subject to the terms and conditions of subdivision (a) of
281 this Article of this Contract.

282 (c) The Contractor shall utilize the Project Water in accordance with all
283 applicable legal requirements.

284 (d) The Contractor shall make reasonable and beneficial use of all Project
285 Water or other water furnished pursuant to this Contract. Groundwater recharge programs,
286 groundwater banking programs, surface water storage programs, and other similar programs
287 utilizing Project Water or other water furnished pursuant to this Contract conducted within the
288 Contractor's Service Area which are consistent with applicable State law and result in use
289 consistent with applicable Federal Reclamation law will be allowed; Provided, That any direct
290 recharge program(s) is (are) described in the Contractor's Water Conservation Plan submitted
291 pursuant to Article 27 of this Contract; Provided further, That such Water Conservation Plan
292 demonstrates sufficient lawful uses exist in the Contractor's Service Area so that using a
293 long-term average, the quantity of Delivered Water is demonstrated to be reasonable for such
294 uses and in compliance with Federal Reclamation law. Groundwater recharge programs,
295 groundwater banking programs, surface water storage programs, and other similar programs

296 utilizing Project Water or other water furnished pursuant to this Contract conducted outside the
297 Contractor's Service Area may be permitted upon written approval of the Contracting Officer,
298 which approval will be based upon environmental documentation, Project Water rights, and
299 Project operational concerns. The Contracting Officer will address such concerns in regulations,
300 policies, or guidelines.

301 (e) The Contractor, through this Contract, shall comply with requirements
302 applicable to the Contractor in biological opinion(s) prepared as a result of the consultation
303 regarding the execution of the Existing Contract undertaken pursuant to Section 7 of the
304 Endangered Species Act of 1973, as amended, as well as the requirements of any other biological
305 opinions applicable to Project Water delivery under this Contract, that are within the
306 Contractor's legal authority to implement. The Existing Contract, which evidences in excess of
307 44 years of diversions for M&I purposes of the quantities of water provided in subdivisions (a)
308 of Article 3 of this Contract, will be considered in developing an appropriate baseline for the
309 biological assessment(s) prepared pursuant to the ESA, and any other needed environmental
310 review. The Contractor shall comply with the limitations or requirements imposed by
311 environmental documentation applicable to the Contractor and within its legal authority to
312 implement regarding specific activities. Nothing herein shall be construed to prevent the
313 Contractor from challenging or seeking judicial relief in a court of competent jurisdiction with
314 respect to any biological opinion or other environmental documentation referred to in this Article
315 of this Contract.

316 (f) Subject to subdivisions (l) and (n) of this Article of this Contract,
317 following the declaration of Water Made Available under Article 4 of this Contract, the
318 Contracting Officer will make a determination whether Project Water, or other water available to

319 the Project, can be made available to the Contractor in addition to the Contract Total in this
320 Article of this Contract during the Year without adversely impacting the Project or other Project
321 Contractors and consistent with the Secretary's legal obligations. At the request of the
322 Contractor, the Contracting Officer will consult with the Contractor prior to making such a
323 determination. Subject to subdivisions (l) and (n) of this Article of this Contract, if the
324 Contracting Officer determines that Project Water, or other water available to the Project, can be
325 made available to the Contractor, the Contracting Officer will announce the availability of such
326 water and shall so notify the Contractor as soon as practical. The Contracting Officer will
327 thereafter meet with the Contractor and other Project Contractors capable of taking such water to
328 determine the most equitable and efficient allocation of such water. If the Contractor requests
329 the delivery of any quantity of such water, the Contracting Officer shall make such water
330 available to the Contractor in accordance with applicable statutes, regulations, guidelines, and
331 policies.

332 (g) The Contractor may request permission to reschedule for use during the
333 subsequent Year some or all of the Water Made Available to the Contractor during the current
334 Year referred to as "carryover." The Contractor may request permission to use during the
335 current Year a quantity of Project Water which may be made available by the United States to
336 the Contractor during the subsequent Year referred to as "pre-use." The Contracting Officer's
337 written approval may permit such uses in accordance with applicable statutes, regulations,
338 guidelines, and policies.

339 (h) The Contractor's right pursuant to Federal Reclamation law and applicable
340 State law to the reasonable and beneficial use of the Water Delivered pursuant to this Contract
341 shall not be disturbed so long as the Contractor shall fulfill all of its obligations under this

342 Contract. Nothing in the preceding sentence shall affect the Contracting Officer's ability to
343 impose shortages under Article 12 or subdivision (b) of Article 13 of this Contract.

344 (i) Project Water furnished to the Contractor pursuant to this Contract may be
345 delivered for purposes other than those described in subdivisions (r) and (u) of Article 1 of this
346 Contract upon written approval by the Contracting Officer in accordance with the terms and
347 conditions of such approval.

348 (j) The Contracting Officer shall make reasonable efforts to protect the water
349 rights and other rights described in the fifth (5th) Explanatory Recital of this Contract and to
350 provide the water available under this Contract. The Contracting Officer shall not object to
351 participation by the Contractor, in the capacity and to the extent permitted by law, in
352 administrative proceedings related to the water rights and other rights described in the fifth (5th)
353 Explanatory Recital of this Contract; Provided however, That the Contracting Officer retains the
354 right to object to the substance of the Contractor's position in such a proceeding. Provided
355 further, that in such proceedings the Contracting Officer shall recognize the Contractor has a
356 legal right under the terms of this Contract to use Project Water.

357 (k) Project Water furnished to the Contractor during any month designated in
358 a schedule or revised schedule submitted by the Contractor and approved by the Contracting
359 Officer shall be deemed to have been accepted by the Contractor as Class 1 Water to the extent
360 that Class 1 Water is called for in such schedule for such month and shall be deemed to have
361 been accepted as Class 2 Water to the extent Class 2 Water is called for in such schedule for such
362 month. If in any month the Contractor diverts a quantity of water in addition to the total amount
363 of Class 1 Water and Class 2 Water set forth in the Contractor's approved schedule or revised
364 schedule for such month, such additional diversions shall be charged first against the

365 Contractor's remaining Class 2 Water supply available in the current Year. To the extent the
366 Contractor's remaining Class 2 Water supply available in the current Year is not sufficient to
367 account for such additional diversions, such additional diversions shall be charged against the
368 Contractor's remaining Class 1 Water supply available in the current Year. To the extent the
369 Contractor's remaining Class 1 Water and Class 2 Water supplies available in the current Year
370 are not sufficient to account for such additional diversions, such additional diversions shall be
371 charged first against the Contractor's available Class 2 Water supply and then against the
372 Contractor's available Class 1 Water supply, both for the following Year. Payment for all
373 additional diversions of water shall be made in accordance with Article 7 of this Contract.

374 (l) If the Contracting Officer determines there is a Project Water supply
375 available at Friant Dam as the result of an unusually large water supply not otherwise storable for
376 Project purposes or infrequent and otherwise unmanaged flood flows of short duration, such
377 water will be made available to the Contractor and others under Section 215 of the Act of
378 October 12, 1982, pursuant to the priorities specified below if the Contractor enters into a
379 temporary contract with the United States not to exceed one (1) year for the delivery of such
380 water or as otherwise provided for in Federal Reclamation law and associated regulations. Such
381 water may be identified by the Contractor either (i) as additional water to supplement the supply
382 of Class 1 Water and/or Class 2 Water made available to it pursuant to this Contract or, (ii) upon
383 written notification to the Contracting Officer, as water to be credited against the Contractor's
384 Class 2 Water supply available pursuant to this Contract. The Contracting Officer shall make
385 water determined to be available pursuant to this subsection according to the following priorities:
386 first, to contractors for Class 1 Water and/or Class 2 Water within the Friant Division; second, to
387 contractors in the Cross Valley Division of the Project. The Contracting Officer will consider

388 requests from other parties for Section 215 Water for use within the area identified as the Friant
389 Division service area in the environmental assessment developed in connection with the
390 execution of the Existing Contract.

391 (m) Nothing in this Contract, nor any action or inaction of the Contractor or
392 Contracting Officer in connection with the implementation of this Contract, is intended to
393 override, modify, supersede or otherwise interfere with any term or condition of the water rights
394 and other rights referred in the fifth (5th) Explanatory Recital of this Contract.

395 (n) The rights of the Contractor under this Contract are subject to the terms of
396 the contract for exchange waters, dated July 27, 1939, between the United States and the San
397 Joaquin and Kings River Canal and Irrigation Company, Incorporated, et al., (hereinafter referred
398 to as the Exchange Contractors), Contract No. I1r-1144, as amended. The United States agrees
399 that it will not deliver to the Exchange Contractors thereunder waters of the San Joaquin River
400 unless and until required by the terms of said contract, and the United States further agrees that it
401 will not voluntarily and knowingly determine itself unable to deliver to the Exchange
402 Contractors entitled thereto from water that is available or that may become available to it from
403 the Sacramento River and its tributaries or the Sacramento-San Joaquin Delta those quantities
404 required to satisfy the obligations of the United States under said Exchange Contract and under
405 Schedule 2 of the Contract for Purchase of Miller and Lux Water Rights (Contract I1r-1145,
406 dated July 27, 1939).

407 (o) Pursuant to and consistent with section 10004 of SJRRSA and Paragraph
408 16 of the Settlement, the Contracting Officer is required to develop and implement a plan for
409 recirculation, recapture, reuse, exchange or transfer of water released for restoration flows or
410 interim flows, as those terms are defined in the Settlement, to reduce or avoid impacts to water

411 deliveries caused by said restoration flows or interim flows and water developed through such
412 activities may be made available (i) to the Contractor without the need of an additional contract,
413 and/or (ii) to others on behalf of the Contractor under terms mutually acceptable to the
414 Contractor and the Contracting Officer that are consistent with the Water Management Goal.

415 TIME FOR DELIVERY OF WATER

416 4. (a) On or about February 20 of each Calendar Year, the Contracting Officer
417 shall announce the Contracting Officer's initial declaration of the Water Made Available. The
418 declaration will be updated monthly and more frequently if necessary, based on then-current
419 operational and hydrologic conditions and a new declaration with changes, if any, to the Water
420 Made Available will be made. The Contracting Officer shall provide forecasts of Project
421 operations and the basis of the estimate, with relevant supporting information, upon the written
422 request of the Contractor. Concurrently with the declaration of the Water Made Available, the
423 Contracting Officer shall provide the Contractor with the updated Long Term Historic Average.
424 The declaration of Project operations will be expressed in terms of both Water Made Available
425 and the Long Term Historic Average.

426 (b) On or before each March 1 and at such other times as necessary, the
427 Contractor shall submit to the Contracting Officer a written schedule, satisfactory to the
428 Contracting Officer, showing the monthly quantities of Project Water to be delivered by the
429 United States to the Contractor pursuant to this Contract for the Year commencing on such
430 March 1. The Contracting Officer shall use all reasonable means to deliver Project Water
431 according to the approved schedule for the Year commencing on such March 1.

432 (c) The Contractor shall not schedule Project Water in excess of the quantity
433 of Project Water the Contractor intends to put to reasonable and beneficial use within the

434 Contractor's Service Area, or to sell, transfer or exchange pursuant to Article 10 of this Contract
435 or bank pursuant to subdivision (d) of Article 3 of this Contract during any Year.

436 (d) Subject to the conditions set forth in subdivision (a) of Article 3 of this
437 Contract, the United States shall deliver Project Water to the Contractor in accordance with the
438 initial schedule submitted by the Contractor pursuant to subdivision (b) of this Article, or any
439 written revision(s), satisfactory to the Contracting Officer, thereto submitted within a reasonable
440 time prior to the date(s) on which the requested change(s) is/are to be implemented; Provided,
441 That the total amount of water requested in that schedule or revision does not exceed the
442 quantities announced by the Contracting Officer pursuant to the provisions of subdivision (a) of
443 Article 3 of this Contract, and the Contracting Officer determines that there will be sufficient
444 capacity available in the appropriate Friant Division Facilities to deliver the water in accordance
445 with that schedule; Provided further, That the Contractor shall not schedule the delivery of any
446 water during any period as to which the Contractor is notified by the Contracting Officer or
447 Operating Non-Federal Entity that Project facilities required to make deliveries to the Contractor
448 will not be in operation because of scheduled O&M.

449 (e) The Contractor may, during the period from and including November 1 of
450 each Year through and including the last day of February of that Year, request delivery of any
451 amount of the Class 1 Water estimated by the Contracting Officer to be made available to it
452 during the following Year. The Contractor may, during the period from and including January 1
453 of each Year (or such earlier date as may be determined by the Contracting Officer) through and
454 including the last day of February of that Year, request delivery of any amount of Class 2 Water
455 estimated by the Contracting Officer to be made available to it during the following Year. Such
456 water shall hereinafter be referred to as pre-use water. Such request must be submitted in writing

457 by the Contractor for a specified quantity of pre-use and shall be subject to the approval of the
458 Contracting Officer. Payment for pre-use water so requested shall be at the appropriate Rate(s)
459 for the following Year in accordance with Article 7 of this Contract and shall be made in
460 advance of delivery of any pre-use water. The Contracting Officer shall deliver such pre-use
461 water in accordance with a schedule or any revision thereof submitted by the Contractor and
462 approved by the Contracting Officer, to the extent such water is available and to the extent such
463 deliveries will not interfere with the delivery of Project Water entitlements to other Friant
464 Division contractors or the physical maintenance of the Project facilities. The quantities of
465 pre-use Water Delivered pursuant to this subdivision shall be deducted from the quantities of
466 water that the Contracting Officer would otherwise be obligated to make available to the
467 Contractor during the following Year; Provided, That the quantity of pre-use water to be
468 deducted from the quantities of either Class 1 Water or Class 2 Water to be made available to the
469 Contractor in the following Year shall be specified by the Contractor at the time the pre-use
470 water is requested or as revised in its first schedule for the following Year submitted in
471 accordance with subdivision (b) of this Article of this Contract, based on the availability of the
472 following Year water supplies as determined by the Contracting Officer.

473 POINT OF DIVERSION AND RESPONSIBILITY FOR DISTRIBUTION OF WATER

474 5. (a) Project Water scheduled pursuant to subdivision (b) of Article 4 of this
475 Contract shall be delivered to the Contractor at a point or points of delivery either on Project
476 facilities or another location or locations mutually agreed to in writing by the Contracting Officer
477 and the Contractor.

478 (b) The Contracting Officer, the Operating Non-Federal Entity, or other
479 appropriate entity shall make all reasonable efforts to maintain sufficient flows and levels of

480 water in the Friant-Kern Canal to deliver Project Water to the Contractor at specific turnouts
481 established pursuant to subdivision (a) of this Article of this Contract.

482 (c) The Contractor shall not deliver Project Water to land outside the
483 Contractor's Service Area unless approved in advance by the Contracting Officer. The
484 Contractor shall deliver Project Water in accordance with applicable Federal Reclamation law.

485 (d) All Water Delivered to the Contractor pursuant to this Contract shall be
486 measured and recorded with equipment furnished, installed, operated, and maintained by the
487 United States, the Operating Non-Federal Entity or other appropriate entity as designated by the
488 Contracting Officer (hereafter "other appropriate entity") at the point or points of delivery
489 established pursuant to subdivision (a) of this Article of this Contract. Upon the request of either
490 party to this Contract, the Contracting Officer shall investigate, or cause to be investigated by the
491 responsible Operating Non-Federal Entity, the accuracy of such measurements and shall take any
492 necessary steps to adjust any errors appearing therein. For any period of time when accurate
493 measurements have not been made, the Contracting Officer shall consult with the Contractor and
494 the responsible Operating Non-Federal Entity prior to making a final determination of the
495 quantity delivered for that period of time.

496 (e) Neither the Contracting Officer nor any Operating Non-Federal Entity
497 shall be responsible for the control, carriage, handling, use, disposal, or distribution of Project
498 Water Delivered to the Contractor pursuant to this Contract beyond the delivery points specified
499 in subdivision (a) of this Article of this Contract. The Contractor shall indemnify the United
500 States, its officers, employees, agents, and assigns on account of damage or claim of damage of
501 any nature whatsoever for which there is legal responsibility, including property damage,
502 personal injury, or death arising out of or connected with the control, carriage, handling, use,

503 disposal, or distribution of such Project Water beyond such delivery points, except for any
504 damage or claim arising out of: (i) acts or omissions of the Contracting Officer or any of its
505 officers, employees, agents, or assigns, including any responsible Operating Non-Federal Entity,
506 with the intent of creating the situation resulting in any damage or claim; (ii) willful misconduct
507 of the Contracting Officer or any of its officers, employees, agents, or assigns, including any
508 responsible Operating Non-Federal Entity; (iii) negligence of the Contracting Officer or any of
509 its officers, employees, agents, or assigns including any responsible Operating Non-Federal
510 Entity; or (iv) damage or claims resulting from a malfunction of facilities owned and/or operated
511 by the United States or responsible Operating Non-Federal Entity; Provided, That the Contractor
512 is not the Operating Non-Federal Entity that owned or operated the malfunctioning facility(ies)
513 from which the damage claim arose.

514 MEASUREMENT OF WATER WITHIN THE SERVICE AREA

515 6. (a) The Contractor has established a measurement program satisfactory to the
516 Contracting Officer and all surface water delivered for M&I purposes within the Contractor's
517 Service Area is measured at each M&I service connection. The water measuring devices or
518 water measuring methods of comparable effectiveness must be acceptable to the Contracting
519 Officer. The Contractor shall be responsible for installing, operating, and maintaining and
520 repairing all such measuring devices and implementing all such water measuring methods at no
521 cost to the United States. The Contracting Officer acknowledges that the Contractor has a
522 metering plan (Exhibit "F") setting forth the milestones and schedule that the Contractor will
523 implement to comply with the requirements of this Article. The Contractor shall provide an
524 annual written report to the Contracting Officer describing the Contractor's metering plan
525 implementation progress. The Contractor shall use the information obtained from such water

526 measuring devices or water measuring methods to ensure its proper management of the water, to
527 bill water users for water delivered by the Contractor; and, if applicable, to record water
528 delivered for M&I purposes by customer class as defined in the Contractor's water conservation
529 plan provided for in Article 27 of this Contract. Nothing herein contained, however, shall
530 preclude the Contractor from establishing and collecting any charges, assessments, or other
531 revenues authorized by California law.

532 (b) To the extent the information has not otherwise been provided, upon
533 execution of this Contract, the Contractor shall provide to the Contracting Officer a written
534 report describing the measurement devices or water measuring methods being used or to be used
535 to implement subdivision (a) of this Article of this Contract and identifying the M&I service
536 connections or alternative measurement programs approved by the Contracting Officer, at which
537 such measurement devices or water measuring methods are being used, and, if applicable,
538 identifying the locations at which such devices and/or methods are not yet being used including a
539 time schedule for implementation at such locations. The Contracting Officer shall advise the
540 Contractor in writing within sixty (60) days as to the adequacy of, and necessary modifications,
541 if any, of the measuring devices or water measuring methods identified in the Contractor's report
542 and if the Contracting Officer does not respond in such time, they shall be deemed adequate. If
543 the Contracting Officer notifies the Contractor that the measuring devices or methods are
544 inadequate, the parties shall within sixty (60) days following the Contracting Officer's response,
545 negotiate in good faith the earliest practicable date by which the Contractor shall modify said
546 measuring devices and/or measuring methods as required by the Contracting Officer to ensure
547 compliance with subdivision (a) of this Article of this Contract.

548 (c) All new surface water delivery systems installed within the Contractor's
549 Service Area after the effective date of this Contract shall also comply with the measurement
550 provisions described in subdivision (a) of this Article of this Contract.

551 (d) The Contractor shall inform the Contracting Officer and the State of
552 California in writing by April 30 of each Year of the monthly volume of surface water delivered
553 within the Contractor's Service Area during the previous Year.

554 (e) The Contractor shall inform the Contracting Officer and the Operating
555 Non-Federal Entity on or before the twentieth (20th) calendar day of each month of the quantity
556 of M&I Water taken during the preceding month.

557 (f) Omitted.

558 RATES, METHOD OF PAYMENT FOR WATER,
559 AND ACCELERATED REPAYMENT OF FACILITIES

560 7. (a) The Contractor's cost obligations for all Delivered Water shall be
561 determined in accordance with: (i) the Secretary's ratesetting policy for Irrigation Water adopted
562 in 1988 and the Secretary's then-existing ratesetting policy for M&I Water, consistent with the
563 SJRRSA, and such ratesetting policies shall be amended, modified, or superseded only through a
564 public notice and comment procedure; (ii) applicable Federal Reclamation law and associated
565 rules and regulations, or policies; and (iii) other applicable provisions of this Contract.

566 (1) The Contractor shall pay the United States as provided for in this
567 Article of this Contract for the Delivered Water at Rates and Charges determined in accordance
568 with policies for Irrigation Water and M&I Water. The Contractor's Rates shall be established to
569 recover its estimated reimbursable costs included in the O&M component of the Rate and
570 amounts established to recover other charges and deficits, other than the construction costs. The

571 Rates for O&M costs and Charges shall be adjusted, as appropriate, in accordance with the
572 provisions of the SJRRSA.

573 (2) Omitted.

574 (A) Omitted.

575 (B) Project construction costs or other capitalized costs

576 attributable to capital additions to the Project incurred after the effective date of this Contract or

577 that are not reflected in the schedule referenced in Exhibit "C-1" and properly assignable to the

578 Contractor, shall be repaid as prescribed by the SJRRSA without interest except as required by

579 law. Consistent with Federal Reclamation law, interest shall continue to accrue on the M&I

580 portion of unpaid Project construction costs or other capitalized cost assigned to the Contractor

581 until such costs are paid. Increases or decreases in Project construction costs or other capitalized

582 costs assigned to the Contractor caused solely by annual adjustment of Project construction costs

583 or other capitalized costs assigned to each Central Valley Project contractor by the Secretary

584 shall not be considered in determining the amounts to be paid pursuant to this subdivision

585 (a)(2)(B), but will be considered under subdivision (b) of this Article. A separate repayment

586 agreement shall be established by the Contractor and the Contracting Officer to accomplish

587 repayment of all additional Project construction costs or other capitalized costs assigned to the

588 Contractor within the timeframe prescribed by the SJRRSA subject to the following:

589 (1) If the collective annual Project construction costs or

590 other capitalized costs that are incurred after the effective date of this Contract and properly

591 assignable to the contractors are less than \$5,000,000, then the portion of such costs properly

592 assignable to the Contractor shall be repaid in not more than five (5) years after notification of

593 the allocation. This amount is the result of a collective annual allocation of Project construction

594 costs to the contractors exercising contract conversions; Provided, That the reference to the
595 amount of \$5,000,000 shall not be a precedent in any other context.

596 (2) If the collective annual Project construction costs or
597 other capitalized costs that are incurred after the effective date of this Contract and properly
598 assignable to the contractors are \$5,000,000 or greater, then the portion of such costs properly
599 assignable to the Contractor shall be repaid as provided by applicable Federal Reclamation law.
600 This amount is the result of a collective annual allocation of Project construction costs to the
601 contractors exercising contract conversions; Provided, That the reference to the amount of
602 \$5,000,000 shall not be a precedent in any other context.

603 (b) Consistent with Section 10010(b) of the SJRRSA, following a final cost
604 allocation by the Secretary upon completion of the construction of the Central Valley Project, the
605 amounts paid by the Contractor shall be subject to adjustment to reflect the effect of any
606 reallocation of Project construction costs or other capitalized costs assigned to the Contractor
607 that may have occurred between the determination of Contractor's Existing Capital Obligation
608 and the final cost allocation. In the event that the final cost allocation, as determined by the
609 Secretary, indicates that the costs properly assignable to the Contractor, as determined by the
610 Contracting Officer, are greater than the Existing Capital Obligation and other amounts of
611 Project construction costs or other capitalized costs paid by the Contractor, then the Contractor
612 shall be obligated to pay the remaining allocated costs. The term of such additional repayment
613 contract shall be no less than one (1) year and no more than ten (10) years, however, mutually
614 agreeable provisions regarding the rate of repayment of such amount may be developed by the
615 parties. In the event that the final cost allocation, as determined by the Secretary, indicates that
616 the costs properly assignable to the Contractor, as determined by the Contracting Officer, are less

617 than the Existing Capital Obligation and other amounts of Project construction costs or other
618 capitalized costs paid by the Contractor, then the Contracting Officer shall credit such
619 overpayment as an offset against any outstanding or future obligation of the Contractor,
620 consistent with the SJRRSA. This Contract shall be implemented in a manner consistent with
621 Section 10010(f) of the SJRRSA.

622 (c) Prior to July 1 of each Calendar Year, the Contracting Officer shall
623 provide the Contractor an estimate of the Charges for Project Water that will be applied to the
624 period October 1, of the current Calendar Year, through September 30, of the following Calendar
625 Year, and the basis for such estimate. The Contractor shall be allowed not less than two (2)
626 months to review and comment on such estimates. On or before September 15 of each Calendar
627 Year, the Contracting Officer shall notify the Contractor in writing of the Charges to be in effect
628 during the period October 1 of the current Calendar Year, through September 30 of the following
629 Calendar Year, and such notification shall revise Exhibit "B". Charges shall be subject to
630 reduction consistent with the SJRRSA based upon the average annual delivery amount agreed to
631 by the Contracting Officer and the Contractor.

632 (1) For the years 2020 through 2039 inclusive, Charges shall reflect
633 the reduction on a per acre-foot basis consistent with Section 10010(d)(1) of the SJRRSA.
634 Exhibit "D" sets forth the reduction in Charges to offset the Financing Costs as prescribed in
635 Section 10010(d)(1) of the SJRRSA; Provided, That if the Secretary determines such Charges are
636 otherwise needed, an equivalent reduction will be made to O&M costs consistent with such
637 provisions of the SJRRSA. Consistent with Section 10010(d)(1) of the SJRRSA and as shown in
638 Exhibit "D", the Friant Surcharge reduction has been calculated based upon the anticipated
639 average annual water deliveries, for the purpose of this reduction only, mutually agreed upon by

640 the Secretary and the Contractor for the period from January 1, 2020 through December 31,
641 2039. The Friant Surcharge reduction shall remain fixed and shall only be applied to Water
642 Delivered pursuant to this Contract to which the Friant Surcharge applies (including but not
643 limited to water transferred, banked, or exchanged), commencing on January 1, 2020 until such
644 volume of Water Delivered equals 1,020,000 acre-feet or December 31, 2039, whichever occurs
645 first.

646 (2) Further, to fully offset the Financing Costs, Contractor shall be
647 entitled to a reduction in other outstanding or future obligations of the Contractor in accordance
648 with Section 10010(d)(2) of the SJRRSA. The amount of such further reduction in outstanding
649 or future obligations of the Contractor after October 1, 2019 has been computed by the
650 Contracting Officer, and as computed, such amount is set forth in Exhibit "D".

651 (d) Prior to October 1 of each Calendar Year, the Contracting Officer shall
652 make available to the Contractor an estimate of the Rates for Project Water for the following
653 Year and the computations and cost allocations upon which those Rates are based. The
654 Contractor shall be allowed not less than two (2) months to review and comment on such
655 computations and cost allocations. By December 31 of each Calendar Year, the Contracting
656 Officer shall provide the Contractor with the final Rates to be in effect for the upcoming Year,
657 and such notification shall revise Exhibit "B". The O&M component of the Rate may be
658 reduced as provided in the SJRRSA.

659 (e) At the time the Contractor submits the initial schedule for the delivery of
660 Project Water for each Year pursuant to subdivision (b) of Article 4 of this Contract, the
661 Contractor shall make an advance payment to the United States equal to the total amount payable
662 pursuant to the applicable Rate(s) set under subdivision (a) of this Article of this Contract, for the

663 Project Water scheduled to be delivered pursuant to this Contract during the first two (2)
664 calendar months of the Year. Before the end of the first month and before the end of each
665 calendar month thereafter, the Contractor shall make an advance payment to the United States, at
666 the Rate(s) set under subdivision (a) of this Article of this Contract, for the Water Scheduled to
667 be delivered pursuant to this Contract during the second month immediately following.

668 Adjustments between advance payments for Water Scheduled and payments at Rates due for
669 Water Delivered shall be made before the end of the following month; Provided, That any
670 revised schedule submitted by the Contractor pursuant to Article 4 of this Contract which
671 increases the amount of Water Delivered pursuant to this Contract during any month shall be
672 accompanied with appropriate advance payment, at the Rates then in effect, to assure that Project
673 Water is not delivered to the Contractor in advance of such payment. In any month in which the
674 quantity of Water Delivered to the Contractor pursuant to this Contract equals the quantity of
675 Water Scheduled and paid for by the Contractor, no additional Project Water shall be delivered
676 to the Contractor unless and until an advance payment at the Rates then in effect for such
677 additional Project Water is made. Final adjustment between the advance payments for the Water
678 Scheduled and payments for the quantities of Water Delivered during each Year pursuant to this
679 Contract shall be made as soon as practicable but no later than April 30th of the following Year,
680 or sixty (60) days after the delivery of Project Water carried over under subdivision (g) of Article
681 3 of this Contract if such water is not delivered by the last day of February.

682 (f) The Contractor shall also make a payment in addition to the Rate(s) in
683 subdivision (e) of this Article of this Contract to the United States for Water Delivered, at the
684 Charges then in effect, before the end of the month following the month of delivery. The
685 payments shall be consistent with the quantities of Irrigation Water and M&I Water Delivered as

686 shown in the water delivery report for the subject month prepared by the Contracting Officer.
687 Such water delivery report shall be the basis for payment of Charges by the Contractor, and shall
688 be provided to the Contractor by the Contracting Officer (as applicable) within five (5) days after
689 the end of the month of delivery. The water delivery report shall be deemed a bill basis for
690 payment of Charges for Water Delivered. Adjustment for overpayment or underpayment of
691 Charges shall be made through the adjustment of payments due to the United States for Charges
692 for the next month. Any amount to be paid for past due payment of Charges shall be computed
693 pursuant to Article 21 of this Contract.

694 (g) The Contractor shall pay for any Water Delivered under subdivision (d),
695 (f), or (g) of Article 3 of this Contract as determined by the Contracting Officer pursuant to
696 applicable statutes, associated regulations, any applicable provisions of guidelines or ratesetting
697 policies; Provided, That the Rate for Water Delivered under subdivision (d) of Article 3 of this
698 Contract shall be no more than the otherwise applicable Rate for Irrigation Water or M&I Water
699 under subdivision (a) of this Article of this Contract.

700 (h) Payments to be made by the Contractor to the United States under this
701 Contract may be paid from any revenues available to the Contractor.

702 (i) All revenues received by the United States from the Contractor relating to
703 the delivery of Project Water or the delivery of non-project water through Project facilities shall
704 be allocated and applied in accordance with Federal Reclamation law and the associated rules or
705 regulations, the then-existing Project Ratesetting policies for M&I Water and consistent with the
706 SJRRSA.

707 (j) The Contracting Officer shall keep its accounts, pertaining to the
708 administration of the financial terms and conditions of its long-term contracts, in accordance

709 with applicable Federal standards so as to reflect the application of Project costs and revenues.

710 The Contracting Officer shall, each Year upon request of the Contractor, provide to the

711 Contractor a detailed accounting of all Project and Contractor expense allocations, the

712 disposition of all Project and Contractor revenues, and a summary of all water delivery

713 information. The Contracting Officer and the Contractor shall enter into good faith negotiations

714 to resolve any discrepancies or disputes relating to accountings, reports, or information.

715 (k) The parties acknowledge and agree that the efficient administration of this

716 Contract is their mutual goal. Recognizing that experience has demonstrated that mechanisms,

717 policies, and procedures used for establishing Rates, Charges, and/or for making and allocating

718 payments, other than those set forth in this Article of this Contract, may be in the mutual best

719 interest of the parties, it is expressly agreed that the parties may enter into agreements to modify

720 the mechanisms, policies, and procedures for any of those purposes while this Contract is in

721 effect without amending this Contract.

722 (l) (1) Omitted.

723 (2) Omitted.

724 (3) Omitted.

725 (m) Rates under the respective ratesetting policies will be established to

726 recover only reimbursable O&M (including any deficits) costs of the Project, as those terms are

727 used in the then-existing Project ratesetting policies, and consistent with the SJRRSA, and

728 interest, where appropriate, except in instances where a minimum Rate is applicable in

729 accordance with the relevant Project ratesetting policy. Changes of significance in practices

730 which implement the Contracting Officer's ratesetting policies will not be implemented until the

731 Contracting Officer has provided the Contractor an opportunity to discuss the nature, need, and
732 impact of the proposed change.

733 (n) Except as provided in subsections 3405(a)(1)(B) and 3405(f) of the
734 CVPIA, the Rates for Project Water transferred by the Contractor shall be the Contractor's Rates
735 adjusted upward or downward to reflect the changed costs of delivery (if any) incurred by the
736 Contracting Officer in the delivery of the transferred Project Water to the transferee's point of
737 delivery in accordance with the then-existing Central Valley Project Ratesetting Policy.

738 NON-INTEREST BEARING OPERATION AND MAINTENANCE DEFICITS

739 8. Omitted.

740 RECOVERED WATER ACCOUNT

741 9. (a) Notwithstanding any other provisions of this Contract, water delivered to
742 the Contractor under its Recovered Water Account as provided at Paragraph 16(b) of the
743 Settlement and affirmed by Section 10004(a)(5) of the SJRRSA shall be at the total cost of
744 \$10.00 per acre foot. Recovered Water Account water provided to the Contractor shall be
745 administered at a priority for delivery lower than Class 2 Water and higher than Section 215
746 Water.

747 (b) The manner in which the Recovered Water Account will be administered
748 will be developed in accordance with subdivision (k) of Article 7 of this Contract, the SJRRSA,
749 and Paragraph 16 of the Settlement.

750 SALES, TRANSFERS, AND EXCHANGES OF WATER

751 10. (a) The right to receive Project Water provided for in this Contract may be
752 sold, transferred, or exchanged to others for reasonable and beneficial uses within the State of
753 California if such sale, transfer, or exchange is authorized by applicable Federal and State laws,

754 and applicable guidelines or regulations then in effect. No sale, transfer, or exchange of Project
755 Water under this Contract may take place without the prior written approval of the Contracting
756 Officer, except as provided for in subdivisions (b) and (c) of this Article of this Contract. No
757 such Project Water sales, transfers, or exchanges shall be approved, where approval is required,
758 absent compliance with appropriate environmental documentation including but not limited to
759 the National Environmental Policy Act and the Endangered Species Act. Such environmental
760 documentation must include, as appropriate, an analysis of groundwater impacts and economic
761 and social effects, including environmental justice, of the proposed Project Water sales, transfers
762 and exchanges on both the transferor/exchanger and transferee/exchange recipient.

763 (b) In order to facilitate efficient water management by means of Project
764 Water sales, transfers, or exchanges of the type historically carried out among Project
765 Contractors located within the same geographical area and to allow the Contractor to participate
766 in an accelerated water transfer program, the Contracting Officer has prepared, as appropriate,
767 necessary environmental documentation including, but not limited to, the National
768 Environmental Policy Act and the Endangered Species Act analyzing annual Project Water sales,
769 transfers, or exchanges among Contractors within the same geographical area and the
770 Contracting Officer has determined that such Project Water sales, transfers, and exchanges
771 comply with applicable law.

772 (c) Project Water sales, transfers, and exchanges analyzed in the
773 environmental documentation referenced in subdivision (b) of this Article of this Contract, shall
774 be conducted with advance notice to the Contracting Officer and the Contracting Officer's
775 written acknowledgement of the transaction, but shall not require prior written approval by the
776 Contracting Officer.

777 (d) For Project Water sales, transfers, or exchanges to qualify under
778 subdivision (b) of this Article of this Contract such Project Water sale, transfer, or exchange
779 must: (i) be for irrigation purposes for lands irrigated within the previous three (3) years, for
780 M&I use, groundwater recharge, groundwater banking, similar groundwater activities, surface
781 water storage, or fish and wildlife resources; not lead to land conversion; and be delivered to
782 established cropland, wildlife refuges, groundwater basins or M&I use; (ii) occur within a single
783 Year; (iii) occur between a willing seller and a willing buyer or willing exchangers; (iv) convey
784 water through existing facilities with no new construction or modifications to facilities and be
785 between existing Project Contractors and/or the Contractor and the United States, Department of
786 the Interior; and (v) comply with all applicable Federal, State, and local or tribal laws and
787 requirements imposed for protection of the environment and Indian Trust Assets, as defined
788 under Federal law.

789 (e) The environmental documentation and the Contracting Officer's
790 compliance determination for transactions described in subdivision (b) of this Article of this
791 Contract shall be reviewed every five (5) years and updated, as necessary, prior to the expiration
792 of the then-existing five (5) year period. All subsequent environmental documentation shall
793 include an alternative to evaluate not less than the quantity of Project Water historically sold,
794 transferred, or exchanged within the same geographical area.

795 (f) Consistent with Section 10010(e)(1) of the SJRRSA, any agreement
796 providing for sale, transfer, or exchange of Project Water that is not used for interim flows or
797 restoration flows pursuant to Paragraphs 13 and 15 of the Settlement, shall be deemed to satisfy
798 the requirements of CVPIA section 3405(a)(1)(A) and (I); Provided, That such sales, transfers, or
799 exchanges comply with sub-division (f)(1) and (f)(2) below.

800 (1) Project Water sales, transfers, and exchanges conducted under the
801 provisions of subdivision (f) of this Article of this Contract shall not require the Contracting
802 Officer's concurrence as to compliance with CVPIA 3405(a)(1)(A) and (I); Provided, That the
803 Contractor shall, for Project Water sales, transfers, or exchanges, with a term greater than one (1)
804 year, provide ninety (90) days written advance notification to the Contracting Officer and
805 similarly thirty (30) days written advance notification of any Project Water sale, transfer, or
806 exchange with a term of less than one (1) year. The Contracting Officer shall promptly make
807 such notice publicly available.

808 (2) The Contractor's thirty (30) days or ninety (90) days advance
809 written notification pursuant to subdivision (f)(1) of this Article of this Contract shall explain
810 how the proposed Project Water sales, transfers, or exchanges are intended to reduce, avoid, or
811 mitigate impacts to Project Water deliveries caused by interim or restoration flows or is
812 otherwise intended to facilitate the Water Management Goal as described in the SJRRSA. The
813 Contracting Officer shall promptly make such notice publicly available.

814 (3) In addition, the Contracting Officer shall, at least annually, make
815 available publicly a compilation of the number of Project Water sales, transfers, and exchange
816 agreements implemented in accordance with sub-divisions (f)(1) and (f)(2) of this Article of this
817 Contract.

818 (4) Project Water sold, transferred, or exchanged under an agreement
819 that meets the terms of subdivisions (f)(1) and (f)(2) of this Article of this Contract shall not be
820 counted as a replacement or an offset for purposes of determining reductions to Project Water
821 deliveries to any Friant Division Project Contractor except as provided in Paragraph 16(b) of the
822 Settlement.

823 (g) Notwithstanding any Additional Capital Obligation that may later be
824 established, in the case of a sale or transfer of Irrigation Water to another contractor which is
825 otherwise subject to the acreage limitations, reporting, and Full Cost pricing provisions of the
826 RRA, such sold or transferred Irrigation Water shall not be subject to such RRA provisions,
827 however, in the case of a sale or transfer of Irrigation Water to the Contractor from another
828 contractor which is subject to RRA provisions, such RRA provisions shall apply to delivery of
829 such water.

830 APPLICATION OF PAYMENTS AND ADJUSTMENTS

831 11. (a) The amount of any overpayment by the Contractor of the Contractor's
832 O&M, Capital, and deficit (if any) obligations for the Year shall be applied first to any current
833 liabilities of the Contractor arising out of this Contract then due and payable. Overpayments of
834 more than One Thousand Dollars (\$1,000) shall be refunded at the Contractor's request. In lieu
835 of a refund, any amount of such overpayment, at the option of the Contractor, may be credited
836 against amounts to become due to the United States by the Contractor. With respect to
837 overpayment, such refund or adjustment shall constitute the sole remedy of the Contractor or
838 anyone having or claiming to have the right to the use of any of the Project Water supply
839 provided for herein. All credits and refunds of overpayments shall be made within thirty (30)
840 days of the Contracting Officer obtaining direction as to how to credit or refund such
841 overpayment in response to the notice to the Contractor that it has finalized the accounts for the
842 Year in which the overpayment was made.

843 (b) All advances for miscellaneous costs incurred for work requested by the
844 Contractor pursuant to Article 26 of this Contract shall be adjusted to reflect the actual costs
845 when the work has been completed. If the advances exceed the actual costs incurred, the

846 difference will be refunded to the Contractor. If the actual costs exceed the Contractor's
847 advances, the Contractor will be billed for the additional costs pursuant to Article 26 of this
848 Contract.

849 TEMPORARY REDUCTIONS—RETURN FLOWS

850 12. (a) The Contracting Officer shall make all reasonable efforts to optimize
851 delivery of the Contract Total subject to: (i) the authorized purposes and priorities of the Project;
852 (ii) the requirements of Federal law and the Settlement; and (iii) the obligations of the United
853 States under existing contracts, or renewals thereof, providing for water deliveries from the
854 Project.

855 (b) The Contracting Officer or Operating Non-Federal Entity may temporarily
856 discontinue or reduce the quantity of Water Delivered to the Contractor as herein provided for
857 the purposes of investigation, inspection, maintenance, repair, or replacement of any of the
858 Project facilities or any part thereof necessary for the delivery of Project Water to the Contractor,
859 but so far as feasible the Contracting Officer or Operating Non-Federal Entity will give the
860 Contractor due notice in advance of such temporary discontinuance or reduction, except in case
861 of emergency, in which case no notice need be given; Provided, That the United States shall use
862 its best efforts to avoid any discontinuance or reduction in such service. Upon resumption of
863 service after such reduction or discontinuance, and if requested by the Contractor, the United
864 States will, if possible, deliver the quantity of Project Water which would have been delivered
865 hereunder in the absence of such discontinuance or reduction.

866 (c) The United States reserves the right to all seepage and return flow water
867 derived from Water Delivered to the Contractor hereunder which escapes or is discharged
868 beyond the Contractor's Service Area; Provided, That this shall not be construed as claiming for

869 the United States any right as seepage or return flow to water being used pursuant to this
870 Contract for surface irrigation or underground storage either being put to reasonable and
871 beneficial use pursuant to this Contract within the Contractor's Service Area by the Contractor or
872 those claiming by, through, or under the Contractor. For purposes of this subdivision,
873 groundwater recharge, groundwater banking and all similar groundwater activities will be
874 deemed to be underground storage.

875 CONSTRAINTS ON THE AVAILABILITY OF WATER

876 13. (a) In its operation of the Project, the Contracting Officer will use all
877 reasonable means to guard against a Condition of Shortage in the quantity of water to be made
878 available to the Contractor pursuant to this Contract. In the event the Contracting Officer
879 determines that a Condition of Shortage appears probable, the Contracting Officer will notify the
880 Contractor of said determination as soon as practicable.

881 (b) If there is a Condition of Shortage because of errors in physical operations
882 of the Project, drought, other physical causes beyond the control of the Contracting Officer or
883 actions taken by the Contracting Officer to meet legal obligations, including but not limited to
884 obligations pursuant to the Settlement then, except as provided in Article 19 of this Contract, no
885 liability shall accrue against the United States or any of its officers, agents, or employees for any
886 damage, direct or indirect, arising therefrom.

887 (c) The United States shall not execute contracts which together with this
888 Contract, shall in the aggregate provide for furnishing Class 1 Water in excess of 800,000
889 acre-feet per Year or Class 2 Water in excess of 1,401,475 acre-feet per Year; Provided, That,
890 subject to subdivision (l) of Article 3 of this Contract, the limitation placed on Class 2 Water
891 contracts shall not prohibit the United States from entering into temporary contracts of one year

892 or less in duration for delivery of Project Water to other entities if such water is not necessary to
893 meet the schedules as may be submitted by all Friant Division Project Contractors entitled to
894 receive Class 1 Water and/or Class 2 Water under their contracts. Nothing in this subdivision
895 shall limit the Contracting Officer's ability to take actions that result in the availability of new
896 water supplies to be used for Project purposes and allocating such new supplies; Provided, That
897 the Contracting Officer shall not take such actions until after consultation with the Friant
898 Division Project Contractors.

899 (d) The Contracting Officer shall not deliver any Class 2 Water pursuant to
900 this or any other contract heretofore or hereafter entered into any Year unless and until the
901 Contracting Officer determines that the cumulative total quantity of Class 1 Water specified in
902 subdivision (c) of this Article of this Contract will be available for delivery in said Year. If the
903 Contracting Officer determines there is or will be a shortage in any Year in the quantity of
904 Class 1 Water available for delivery, the Contracting Officer shall apportion the available Class 1
905 Water among all Contractors entitled to receive such water that will be made available at Friant
906 Dam in accordance with the following:

907 (1) A determination shall be made of the total quantity of Class 1
908 Water at Friant Dam which is available for meeting Class 1 Water contractual commitments, the
909 amount so determined being herein referred to as the available supply.

910 (2) The total available Class 1 supply shall be divided by the Class 1
911 Water contractual commitments, the quotient thus obtained being herein referred to as the
912 Class 1 apportionment coefficient.

913 (3) The total quantity of Class 1 Water under Article 3 of this Contract
914 shall be multiplied by the Class 1 apportionment coefficient and the result shall be the quantity of

915 Class 1 Water required to be delivered by the Contracting Officer to the Contractor for the
916 respective Year, but in no event shall such amount exceed the total quantity of Class 1 Water
917 specified in subdivision (a) of Article 3 of this Contract.

918 (e) If the Contracting Officer determines there is less than the quantity of
919 Class 2 Water which the Contractor otherwise would be entitled to receive pursuant to Article 3
920 of this Contract, the quantity of Class 2 Water which shall be furnished to the Contractor by the
921 Contracting Officer will be determined in the manner set forth in paragraphs (1), (2), and (3), of
922 subdivision (d) of this Article of this Contract substituting the term "Class 2" for the term "Class
923 1."

924 (f) In the event that in any Year there is made available to the Contractor, by
925 reason of any shortage or apportionment as provided in subdivisions (a), (d), or (e) of this Article
926 of this Contract, or any discontinuance or reduction of service as set forth in subdivision (b) of
927 Article 12 of this Contract, less than the quantity of water which the Contractor otherwise would
928 be entitled to receive hereunder, there shall be made an adjustment on account of the amounts
929 already paid to the Contracting Officer by the Contractor for Class 1 Water and Class 2 Water
930 for said Year in accordance with Article 11 of this Contract.

931 UNAVOIDABLE GROUNDWATER PERCOLATION

932 14. Omitted.

933 ACREAGE LIMITATION

934 15. Omitted.

935 RULES, REGULATIONS, AND DETERMINATIONS

936 16. (a) The parties agree that the delivery of water or the use of Federal facilities
937 pursuant to this Contract is subject to Federal Reclamation law, as amended and supplemented,
938 and the rules and regulations promulgated by the Secretary of the Interior under Federal
939 Reclamation law.

940 (b) The Contracting Officer shall have the right to make determinations
941 necessary to administer this contract that are consistent with its provisions, the laws of the United
942 States and the State of California, and the rules and regulations promulgated by the Secretary of
943 the Interior. Such determinations shall be made in consultation with the Contractor.

944 (c) The terms of this Contract are subject to the Settlement and the SJRRSA.
945 Nothing in this Contract shall be interpreted to limit or interfere with the full implementation of
946 the Settlement and the SJRRSA.

947 PROTECTION OF WATER AND AIR QUALITY

948 17. (a) Project facilities used to make available and deliver water to the
949 Contractor shall be operated and maintained in the most practical manner to maintain the quality
950 of the water at the highest level possible as determined by the Contracting Officer: *Provided,*
951 *That* the United States does not warrant the quality of the water delivered to the Contractor and is
952 under no obligation to furnish or construct water treatment facilities to maintain or improve the
953 quality of water delivered to the Contractor.

954 (b) The Contractor shall comply with all applicable water and air pollution
955 laws and regulations of the United States and the State of California; and shall obtain all required
956 permits or licenses from the appropriate Federal, State, or local authorities necessary for the
957 delivery of water by the Contractor; and shall be responsible for compliance with all Federal,
958 State, and local water quality standards applicable to surface and subsurface drainage and/or
959 discharges generated through the use of Federal or Contractor facilities or project water provided
960 by the Contractor within the Contractor's Project Water Service Area.

961 (c) This article shall not affect or alter any legal obligations of the Secretary
962 to provide drainage or other discharge services.

963 WATER ACQUIRED BY THE CONTRACTOR
964 OTHER THAN FROM THE UNITED STATES

965 18. (a) Omitted.

966 (b) Notwithstanding any Additional Capital Obligation that may later be
967 established, water or water rights now owned or hereafter acquired by the Contractor other than
968 from the United States pursuant to this Contract and Irrigation Water furnished pursuant to the
969 terms of this Contract may be simultaneously transported through the same distribution facilities
970 of the Contractor without the payment of fees to the United States and without application of

971 Federal Reclamation law to Water Delivered pursuant to this Contract or to lands which receive
972 Water Delivered to Contractor pursuant to this Contract.

973 (c) Water or water rights now owned or hereafter acquired by the Contractor,
974 other than from the United States or adverse to the Project or its contractors (i.e., non-project
975 water), may be stored, conveyed and/or diverted through Project facilities, other than Friant
976 Division Facilities, subject to the completion of appropriate environmental documentation, with
977 the approval of the Contracting Officer and the execution of any contract determined by the
978 Contracting Officer to be necessary, consistent with the following provisions:

979 (1) The Contractor may introduce non-project water into Project
980 facilities and deliver said water to lands within the Contractor's Service Area subject to payment
981 to the United States and/or to any applicable Operating Non-Federal Entity of an appropriate rate
982 as determined by the Contracting Officer. In addition, if electrical power is required to pump
983 non-project water, the Contractor shall be responsible for obtaining the necessary power and
984 paying the necessary charges therefor.

985 (2) Delivery of such non-project water in and through Project facilities
986 shall only be allowed to the extent such deliveries do not: (i) interfere with other Project
987 purposes as determined by the Contracting Officer; (ii) reduce the quantity or quality of water
988 available to other Project Contractors; (iii) interfere with the delivery of contractual water
989 entitlements to any other Project Contractors; (iv) interfere with the physical maintenance of the
990 Project facilities; or (v) result in the United States incurring any liability or unreimbursed costs
991 or expenses thereby.

992 (3) Neither the United States nor the Operating Non-Federal Entity
993 shall be responsible for control, care or distribution of the non-project water before it is

994 introduced into or after it is delivered from the Project facilities. The Contractor hereby releases
995 and agrees to defend and indemnify the United States and the Operating Non-Federal Entity, and
996 their respective officers, agents, and employees, from any claim for damage to persons or
997 property, direct or indirect, resulting from Contractor's diversion or extraction of non-project
998 water from any source.

999 (4) Diversion of such non-project water into Project facilities shall be
1000 consistent with all applicable laws, and if involving groundwater, consistent with any
1001 groundwater management plan for the area from which it was extracted.

1002 (5) After Project purposes are met, as determined by the Contracting
1003 Officer, the United States and the Contractor shall share priority to utilize the remaining capacity
1004 of the facilities declared to be available by the Contracting Officer for conveyance and
1005 transportation of non-project water prior to any such remaining capacity being made available to
1006 non-project contractors.

1007 (d) Non-project water may be stored, conveyed and/or diverted through Friant
1008 Division Facilities, subject to the prior completion of appropriate environmental documentation
1009 and approval of the Contracting Officer without execution of a separate contract, consistent with
1010 subdivisions (c)(1) through (c)(5) of this Article and any other condition determined to be
1011 appropriate by the Contracting Officer.

1012 OPINIONS AND DETERMINATIONS

1013 19. Where the terms of this Contract provide for actions to be based upon the opinion
1014 or determination of either party to this Contract, said terms shall not be construed as permitting
1015 such action to be predicated upon arbitrary, capricious, or unreasonable opinions or
1016 determinations. Both parties, notwithstanding any other provisions of this Contract, expressly

1017 reserve the right to seek relief from and appropriate adjustment for any such arbitrary, capricious,
1018 or unreasonable opinion or determination. Each opinion or determination by either party shall be
1019 provided in a timely manner. Nothing in this Article of this Contract is intended to or shall affect
1020 or alter the standard of judicial review applicable under Federal law to any opinion or
1021 determination implementing a specific provision of Federal law embodied in statute or
1022 regulation.

1023 COORDINATION AND COOPERATION

1024 20. (a) In order to further their mutual goals and objectives, the Contracting
1025 Officer and the Contractor shall communicate, coordinate, and cooperate with each other, and
1026 with other affected Project Contractors, in order to improve the operation and management of the
1027 Project. The communication, coordination, and cooperation regarding operations and
1028 management shall include, but not limited to, any action which will or may materially affect the
1029 quantity or quality of Project Water supply, the allocation of Project Water supply, and Project
1030 financial matters including, but not limited to, budget issues. The communication, coordination,
1031 and cooperation provided for hereunder shall extend to all provisions of this Contract. Each
1032 party shall retain exclusive decision making authority for all actions, opinions, and
1033 determinations to be made by the respective party.

1034 (b) It is the intent of the Secretary to improve water supply reliability. To
1035 carry out this intent:

1036 (1) The Contracting Officer will, at the request of the Contractor,
1037 assist in the development of integrated resource management plans for the Contractor. Further,
1038 the Contracting Officer will, as appropriate, seek authorizations for implementation of
1039 partnerships to improve water supply, water quality, and reliability.

1040 (2) The Secretary will, as appropriate, pursue program and project
1041 implementation and authorization in coordination with Project Contractors to improve the water
1042 supply, water quality, and reliability of the Project for all Project purposes.

1043 (3) The Secretary will coordinate with Project Contractors and the
1044 State of California to seek improved water resource management.

1045 (4) The Secretary will coordinate actions of agencies within the
1046 Department of the Interior that may impact the availability of water for Project purposes.

1047 (5) The Contracting Officer shall periodically, but not less than
1048 annually, hold division level meetings to discuss Project operations, division level water
1049 management activities, and other issues as appropriate.

1050 (c) Without limiting the contractual obligations of the Contracting Officer
1051 hereunder, nothing in this Contract shall be construed to limit or constrain the Contracting
1052 Officer's ability to communicate, coordinate, and cooperate with the Contractor or other
1053 interested stakeholders or to make decisions in a timely fashion as needed to protect health,
1054 safety, physical integrity of structures or facilities, or the Contracting Officer's ability to comply
1055 with applicable laws.

1056 CHARGES FOR DELINQUENT PAYMENTS

1057 21. (a) The Contractor shall be subject to interest, administrative and penalty
1058 charges on delinquent installments or payments. When a payment is not received by the due
1059 date, the Contractor shall pay an interest charge for each day the payment is delinquent beyond
1060 the due date. When a payment becomes sixty (60) days delinquent, the Contractor shall pay an
1061 administrative charge to cover additional costs of billing and processing the delinquent payment.
1062 When a payment is delinquent ninety (90) days or more, the Contractor shall pay an additional
1063 penalty charge of six (6) percent per year for each day the payment is delinquent beyond the due
1064 date. Further, the Contractor shall pay any fees incurred for debt collection services associated
1065 with a delinquent payment.

1066 (b) The interest charge rate shall be the greater of the rate prescribed quarterly
1067 in the Federal Register by the Department of the Treasury for application to overdue payments,

1068 or the interest rate of one-half of one (0.5) percent per month prescribed by Section 6 of the
1069 Reclamation Project Act of 1939 (Public Law 76-260). The interest charge rate shall be
1070 determined as of the due date and remain fixed for the duration of the delinquent period.

1071 (c) When a partial payment on a delinquent account is received, the amount
1072 received shall be applied, first to the penalty, second to the administrative charges, third to the
1073 accrued interest, and finally to the overdue payment.

1074 EQUAL EMPLOYMENT OPPORTUNITY

1075 22. During the performance of this Contract, the Contractor agrees as follows:

1076 (a) The Contractor will not discriminate against any employee or applicant for
1077 employment because of race, color, religion, sex, disability, or national origin. The Contractor
1078 will take affirmative action to ensure that applicants are employed, and that employees are
1079 treated during employment, without regard to their race, color, religion, sex, disability, or
1080 national origin. Such action shall include, but not be limited to the following: employment,
1081 upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination;
1082 rates of pay or other forms of compensation; and selection for training, including apprenticeship.
1083 The Contractor agrees to post in conspicuous places, available to employees and applicants for
1084 employment, notices to be provided by the Contracting Officer setting forth the provisions of this
1085 nondiscrimination clause.

1086 (b) The Contractor will, in all solicitations or advertisements for employees
1087 placed by or on behalf of the Contractor, state that all qualified applicants will receive
1088 consideration for employment without regard to race, color, religion, sex, disability, or national
1089 origin.

1090 (c) The Contractor will send to each labor union or representative of workers
1091 with which it has a collective bargaining agreement or other contract or understanding, a notice,
1092 to be provided by the Contracting Officer, advising the labor union or workers' representative of
1093 the Contractor's commitments under Section 202 of Executive Order 11246 of September 24,
1094 1965, and shall post copies of the notice in conspicuous places available to employees and
1095 applicants for employment.

1096 (d) The Contractor will comply with all provisions of Executive Order No.
1097 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary
1098 of Labor.

1099 (e) The Contractor will furnish all information and reports required by
1100 Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the
1101 Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and
1102 accounts by the Contracting Agency and the Secretary of Labor for purposes of investigation to
1103 ascertain compliance with such rules, regulations, and orders.

1104 (f) In the event of the Contractor's noncompliance with the nondiscrimination
1105 clauses of this contract or with any of such rules, regulations, or orders, this contract may be
1106 canceled, terminated or suspended in whole or in part and the Contractor may be declared
1107 ineligible for further Government contracts in accordance with procedures authorized in
1108 Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and
1109 remedies invoked as provided in Executive Order 11246 of September 24, 1965 or by rule,
1110 regulation, or order of the Secretary of Labor, or as otherwise provided by law.

1111 (g) The Contractor will include the provisions of paragraphs (1) through (7) in
1112 every subcontract or purchase order unless exempted by the rules, regulations, or orders of the
1113 Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24,
1114 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor
1115 will take such action with respect to any subcontract or purchase order as may be directed by the
1116 Secretary of Labor as a means of enforcing such provisions, including sanctions for
1117 noncompliance: *Provided, however*, that in the event the Contractor becomes involved in, or is
1118 threatened with, litigation with a subcontractor or vendor as a result of such direction, the
1119 Contractor may request the United States to enter into such litigation to protect the interests of
1120 the United States.

1121 GENERAL OBLIGATION—BENEFITS CONDITIONED UPON PAYMENT

1122 23. (a) The obligation of the Contractor to pay the United States as provided in
1123 this Contract is a general obligation of the Contractor notwithstanding the manner in which the
1124 obligation may be distributed among the Contractor's water users and notwithstanding the
1125 default of individual water users in their obligations to the Contractor.

1126 (b) The payment of charges becoming due hereunder is a condition precedent
1127 to receiving benefits under this Contract. The United States shall not make water available to the
1128 Contractor through Project facilities during any period in which the Contractor may be in arrears
1129 in the advance payment of water rates due the United States. The Contractor shall not furnish
1130 water made available pursuant to this Contract for lands or parties which are in arrears in the
1131 advance payment of water rates levied or established by the Contractor.

1132 (c) With respect to subdivision (b) of this Article of this Contract, the
1133 Contractor shall have no obligation to require advance payment for water rates which it levies.

1134 COMPLIANCE WITH CIVIL RIGHTS LAWS AND REGULATIONS

1135 24. (a) The Contractor shall comply with Title VI of the Civil Rights Act of 1964
1136 (42 U.S.C. 2000d), Section 504 of the Rehabilitation Act of 1975 (P.L. 93-112, as amended), the
1137 Age Discrimination Act of 1975 (42 U.S.C. 6101, et seq.) and any other applicable civil rights
1138 laws, as well as with their respective implementing regulations and guidelines imposed by the
1139 U.S. Department of the Interior and/or Bureau of Reclamation.

1140 (b) These statutes require that no person in the United States shall, on the
1141 grounds of race, color, national origin, handicap, or age, be excluded from participation in, be
1142 denied the benefits of, or be otherwise subjected to discrimination under any program or activity
1143 receiving financial assistance from the Bureau of Reclamation. By executing this Contract, the
1144 Contractor agrees to immediately take any measures necessary to implement this obligation,
1145 including permitting officials of the United States to inspect premises, programs, and documents.

1146 (c) The Contractor makes this agreement in consideration of and for the
1147 purpose of obtaining any and all Federal grants, loans, contracts, property discounts, or other
1148 Federal financial assistance extended after the date hereof to the Contractor by the Bureau of
1149 Reclamation, including installment payments after such date on account of arrangements for
1150 Federal financial assistance which were approved before such date. The Contractor recognizes
1151 and agrees that such Federal assistance will be extended in reliance on the representations and
1152 agreements made in this Article, and that the United States reserves the right to seek judicial
1153 enforcement thereof.

1154 PRIVACY ACT COMPLIANCE

1155 25. Omitted.

1156 CONTRACTOR TO PAY CERTAIN MISCELLANEOUS COSTS

1157 26. In addition to all other payments to be made by the Contractor pursuant to this
1158 Contract, the Contractor shall pay to the United States, within sixty (60) days after receipt of a
1159 bill and detailed statement submitted by the Contracting Officer to the Contractor for such
1160 specific items of direct cost incurred by the United States for work requested by the Contractor
1161 associated with this Contract plus indirect costs in accordance with applicable Bureau of
1162 Reclamation policies and procedures. All such amounts referred to in this Article of this
1163 Contract shall not exceed the amount agreed to in writing in advance by the Contractor. This
1164 Article of this Contract shall not apply to costs for routine contract administration.

1165 WATER CONSERVATION

1166 27. (a) Prior to the delivery of water provided from or conveyed through
1167 Federally constructed or Federally financed facilities pursuant to this Contract, the Contractor
1168 shall be implementing an effective water conservation and efficiency program based on the

1169 Contractor's water conservation plan that has been determined by the Contracting Officer to
1170 meet the conservation and efficiency criteria for evaluating water conservation plans established
1171 under Federal law. The water conservation and efficiency program shall contain definite water
1172 conservation objectives, appropriate economically feasible water conservation measures, and
1173 time schedules for meeting those objectives. Continued Project Water delivery pursuant to this
1174 Contract shall be contingent upon the Contractor's continued implementation of such water
1175 conservation program. In the event the Contractor's water conservation plan or any revised
1176 water conservation plan completed pursuant to subdivision (d) of this Article of this Contract
1177 have not yet been determined by the Contracting Officer to meet such criteria, due to
1178 circumstances which the Contracting Officer determines are beyond the control of the
1179 Contractor, water deliveries shall be made under this Contract so long as the Contractor
1180 diligently works with the Contracting Officer to obtain such determination at the earliest
1181 practicable date, and thereafter the Contractor immediately begins implementing its water
1182 conservation and efficiency program in accordance with the time schedules therein.

1183 (b) Should the amount of M&I Water Delivered pursuant to subdivision (a) of
1184 Article 3 of this Contract equal or exceed two thousand (2,000) acre-feet per Year, the
1185 Contractor shall implement the Best Management Practices identified by the time frames issued
1186 by the California Urban Water Conservation Council for such M&I Water unless any such
1187 practice is determined by the Contracting Officer to be inappropriate for the Contractor.

1188 (c) The Contractor shall submit to the Contracting Officer a report on the
1189 status of its implementation of the water conservation plan on the reporting dates specified in the
1190 then-existing conservation and efficiency criteria established under Federal law.

1191 (d) At five (5) -year intervals, the Contractor shall revise its water
1192 conservation plan to reflect the then-existing conservation and efficiency criteria for evaluating
1193 water conservation plans established under Federal law and submit such revised water
1194 management plan to the Contracting Officer for review and evaluation. The Contracting Officer
1195 will then determine if the water conservation plan meets Reclamation's then-existing
1196 conservation and efficiency criteria for evaluating water conservation plans established under
1197 Federal law.

1198 (e) If the Contractor is engaged in direct groundwater recharge, such activity
1199 shall be described in the Contractor's water conservation plan.

1200 EXISTING OR ACQUIRED WATER OR WATER RIGHTS

1201 28. Except as specifically provided in Article 18 of this Contract, the provisions of
1202 this Contract shall not be applicable to or affect non-project water or water rights now owned or
1203 hereafter acquired by the Contractor or any user of such water within the Contractor's Service
1204 Area. Any such water shall not be considered Project Water under this Contract. In addition,
1205 this Contract shall not be construed as limiting or curtailing any rights which the Contractor or
1206 any water user within the Contractor's Service Area acquires or has available under any other
1207 contract pursuant to Federal Reclamation law.

1208 OPERATION AND MAINTENANCE BY OPERATING NON-FEDERAL ENTITY

1209 29. (a) The O&M of a portion of the Project facilities which serve the Contractor,
1210 and responsibility for funding a portion of the costs of such O&M, have been transferred to the
1211 Operating Non-Federal Entity by separate agreement between the United States and the
1212 Operating Non-Federal Entity. That separate agreement shall not interfere with or affect the
1213 rights or obligations of the Contractor or the United States hereunder.

1214 (b) The Contracting Officer has previously notified the Contractor in writing
1215 that the O&M of a portion of the Project facilities which serve the Contractor has been
1216 transferred to the Operating Non-Federal Entity, and therefore, the Contractor shall pay directly
1217 to the Operating Non-Federal Entity, or to any successor approved by the Contracting Officer
1218 under the terms and conditions of the separate agreement between the United States and the
1219 Operating Non-Federal Entity described in subdivision (a) of this Article of this Contract, all
1220 rates, charges or assessments of any kind, including any assessment for reserve funds, which the
1221 Operating Non-Federal Entity or such successor determines, sets or establishes for (i) the O&M
1222 of the portion of the Project facilities operated and maintained by the Operating Non-Federal
1223 Entity or such successor, or (ii) the Friant Division's share of the operation, maintenance and
1224 replacement costs for physical works and appurtenances associated with the Tracy Pumping
1225 Plant, the Delta-Mendota Canal, the O'Neill Pumping/Generating Plant, the federal share of the
1226 O'Neill Forebay, the Mendota Pool, and the federal share of San Luis Unit joint use conveyance
1227 and conveyance pumping facilities. Such direct payments to the Operating Non-Federal Entity
1228 or such successor shall not relieve the Contractor of its obligation to pay directly to the United
1229 States the Contractor's share of the Project Rates and Charges, except to the extent the Operating
1230 Non-Federal Entity collects payments on behalf of the United States in accordance with the
1231 separate agreement identified in subdivision (a) of this Article of this Contract.

1232 (c) For so long as the O&M of any portion of the Project facilities serving the
1233 Contractor is performed by the Operating Non-Federal Entity, or any successor thereto, the
1234 Contracting Officer shall adjust those components of the Rates for Water Delivered under this
1235 Contract representing the cost associated with the activity being performed by the Operating
1236 Non-Federal Entity or its successor.

1237 (d) In the event the O&M of the Project facilities operated and maintained by
1238 the Operating Non-Federal Entity is re-assumed by the United States during the term of this
1239 Contract, the Contracting Officer shall so notify the Contractor, in writing, and present to the
1240 Contractor a revised Exhibit "B" which shall include the portion of the Rates to be paid by the
1241 Contractor for Project Water under this Contract representing the O&M costs of the portion of
1242 such Project facilities which have been re-assumed. The Contractor shall, thereafter, in the
1243 absence of written notification from the Contracting Officer to the contrary, pay the Rates and
1244 Charges specified in the revised Exhibit "B" directly to the United States in compliance with
1245 Article 7 of this Contract.

1246 CONTINGENT ON APPROPRIATION OR ALLOTMENT OF FUNDS

1247 30. The expenditure or advance of any money or the performance of any obligation of
1248 the United States under this Contract shall be contingent upon appropriation or allotment of
1249 funds. Absence of appropriation or allotment of funds shall not relieve the Contractor from any
1250 obligations under this Contract. No liability shall accrue to the United States in case funds are
1251 not appropriated or allotted.

1252 BOOKS, RECORDS, AND REPORTS

1253 31. (a) The Contractor shall establish and maintain accounts and other books and
1254 records pertaining to administration of the terms and conditions of this Contract, including: the
1255 Contractor's financial transactions, water supply data, and Project land and right-of-way
1256 agreements; the water users' land-use (crop census), land ownership, land-leasing and water use
1257 data; and other matters that the Contracting Officer may require. Reports thereon shall be
1258 furnished to the Contracting Officer in such form and on such date or dates as the Contracting
1259 Officer may require. Subject to applicable Federal laws and regulations, each party to this
1260 Contract shall have the right during office hours to examine and make copies of the other party's
1261 books and records relating to matters covered by this Contract.

1262 (b) Notwithstanding the provisions of subdivision (a) of this Article of this
1263 Contract, no books, records, or other information shall be requested from the Contractor by the
1264 Contracting Officer unless such books, records, or information are reasonably related to the

1265 administration or performance of this Contract. Any such request shall allow the Contractor a
1266 reasonable period of time within which to provide the requested books, records, or information.

1267 (c) At such time as the Contractor provides information to the Contracting
1268 Officer pursuant to subdivision (a) of this Article of this Contract, a copy of such information
1269 shall be provided to the Operating Non-Federal Entity.

1270 ASSIGNMENT LIMITED—SUCCESSORS AND ASSIGNS OBLIGATED

1271 32. (a) The provisions of this Contract shall apply to and bind the successors and
1272 assigns of the parties hereto, but no assignment or transfer of this Contract or any right or interest
1273 therein shall be valid until approved in writing by the Contracting Officer.

1274 (b) The assignment of any right or interest in this Contract by either party
1275 shall not interfere with the rights or obligations of the other party to this Contract absent the
1276 written concurrence of said other party.

1277 (c) The Contracting Officer shall not unreasonably condition or withhold
1278 approval of any proposed assignment.

1279 SEVERABILITY

1280 33. In the event that a person or entity who is neither (i) a party to a Project contract,
1281 nor (ii) a person or entity that receives Project Water from a party to a Project contract, nor
1282 (iii) an association or other form of organization whose primary function is to represent parties to
1283 Project contracts, brings an action in a court of competent jurisdiction challenging the legality or
1284 enforceability of a provision included in this Contract and said person, entity, association, or
1285 organization obtains a final court decision holding that such provision is legally invalid or
1286 unenforceable and the Contractor has not intervened in that lawsuit in support of the plaintiff(s),
1287 the parties to this Contract shall use their best efforts to (i) within thirty (30) days of the date of
1288 such final court decision identify by mutual agreement the provisions in this Contract which

1289 must be revised and (ii) within three (3) months thereafter promptly agree on the appropriate
1290 revision(s). The time periods specified above may be extended by mutual agreement of the
1291 parties. Pending the completion of the actions designated above, to the extent it can do so
1292 without violating any applicable provisions of law, the United States shall continue to make the
1293 quantities of Project Water specified in this Contract available to the Contractor pursuant to the
1294 provisions of this Contract which were not found to be legally invalid or unenforceable in the
1295 final court decision.

1296 RESOLUTION OF DISPUTES

1297 34. Should any dispute arise concerning any provisions of this Contract, or the
1298 parties' rights and obligations thereunder, the parties shall meet and confer in an attempt to
1299 resolve the dispute. Prior to the Contractor commencing any legal action, or the Contracting
1300 Officer referring any matter to Department of Justice, the party shall provide to the other party
1301 thirty (30) days written notice of the intent to take such action; Provided, That such notice shall
1302 not be required where a delay in commencing an action would prejudice the interests of the party
1303 that intends to file suit. During the thirty (30) day notice period, the Contractor and the
1304 Contracting Officer shall meet and confer in an attempt to resolve the dispute. Except as
1305 specifically provided, nothing herein is intended to waive or abridge any right or remedy that the
1306 Contractor or the United States may have.

1307 OFFICIALS NOT TO BENEFIT

1308 35. No Member of or Delegate to Congress, Resident Commissioner, or official of the
1309 Contractor shall benefit from this Contract other than as a water user or landowner in the same
1310 manner as other water users or landowners.

1311

CHANGES IN CONTRACTOR'S SERVICE AREA

1312

1313

1314

36. (a) While this Contract is in effect, no change may be made in the Contractor's Service Area or boundaries, by inclusion or exclusion of lands, dissolution, consolidation, merger, or otherwise, except upon the Contracting Officer's written consent.

1315

1316

1317

1318

1319

1320

1321

1322

1323

1324

1325

1326

(b) Within thirty (30) days of receipt of a request for such a change, the Contracting Officer will notify the Contractor of any additional information required by the Contracting Officer for processing said request, and both parties will meet to establish a mutually agreeable schedule for timely completion of the process. Such process will analyze whether the proposed change is likely to: (i) result in the use of Project Water contrary to the terms of this Contract; (ii) impair the ability of the Contractor to pay for Project Water furnished under this Contract or to pay for any Federally-constructed facilities for which the Contractor is responsible; and (iii) have an impact on any Project Water rights applications, permits, or licenses. In addition, the Contracting Officer shall comply with the National Environmental Policy Act and the Endangered Species Act. The Contractor will be responsible for all costs incurred by the Contracting Officer in this process, and such costs will be paid in accordance with Article 26 of this Contract.

1327

FEDERAL LAWS

1328

1329

1330

1331

1332

1333

37. By entering into this Contract, the Contractor does not waive its rights to contest the validity or application in connection with the performance of the terms and conditions of this Contract of any Federal law or regulation; Provided, That the Contractor agrees to comply with the terms and conditions of this Contract unless and until relief from application of such Federal law or regulation to the implementing provision of the Contract is granted by a court of competent jurisdiction.

1334

EMERGENCY RESERVE FUND

1335

38. The Contractor and Contracting Officer acknowledge that the requirements to

1336

establish and maintain a minimum reserve fund account to finance extraordinary O&M costs of

1337

Friant Division Facilities is and will continue to be administered under Contract No.

1338

8-07-20-X0356 titled Agreement To Transfer The Operation, Maintenance And Replacement

1339

And Certain Financial And Administrative Activities Related To The Friant-Kern Canal And

1340

Associated Works, dated March 1, 1998 as amended, supplemented, assigned, or renewed.

1341

MEDIUM FOR TRANSMITTING PAYMENT

1342

39. (a) All payments from the Contractor to the United States under this contract

1343

shall be by the medium requested by the United States on or before the date payment is due. The

1344

required method of payment may include checks, wire transfers, or other types of payment

1345

specified by the United States.

1346

(b) Upon execution of the contract, the Contractor shall furnish the

1347

Contracting Officer with the Contractor's taxpayer's identification number (TIN). The purpose

1348

for requiring the Contractor's TIN is for collecting and reporting any delinquent amounts arising

1349

out of the Contractor's relationship with the United States.

1350

NOTICES

1351

40. Any notice, demand, or request authorized or required by this Contract shall be

1352

deemed to have been given, on behalf of the Contractor, when mailed, postage prepaid, or

1353

delivered to the Area Manager, South-Central California Area Office, 1243 "N" Street, Fresno,

1354

California 93721, and on behalf of the United States, when mailed, postage prepaid, or delivered

1355

to the City of Fresno, Public Utilities Director, 2600 Fresno Street, Room 3065, Fresno,

1356

California 93721-3624. The designation of the addressee or the address may be changed by

1357

notice given in the same manner as provided in this Article of this Contract for other notices.

1358

CONFIRMATION OF CONTRACT

1359

41. The Contractor, after the execution of this Contract, shall promptly provide to the

1360

Contracting Officer a decree of a court of competent jurisdiction of the State of California,

1361

confirming the execution of this Contract. The Contractor shall furnish the United States a

1362

certified copy of the final decree, the validation proceedings, and all pertinent supporting records

1363

of the court approving and confirming this Contract, and decreeing and adjudging it to be lawful,

1364

valid, and binding on the Contractor.

1365

CONTRACT DRAFTING CONSIDERATIONS

1366

42. Articles 1 through 7, Articles 9 through 13, subdivision (c) of Article 16, Articles

1367

18 through 20, subdivision (c) of Article 23, Articles 26 through 29, subdivisions (b) and (c) of

1368

Article 31, subdivisions (b) and (c) of Article 32, Articles 33 through 34, subdivision (b) of

1369

Article 36, and Articles 37 through 38 of this Contract have been drafted, negotiated, and

1370

reviewed by the parties hereto, each of whom is sophisticated in the matters to which this

1371

Contract pertains, and no one party shall be considered to have drafted the stated Articles.

1372 IN WITNESS WHEREOF, the parties hereto have executed this Contract as of the day
1373 and year first above written.

**EXHIBIT F
METERING PLAN**

Completion Date	Item	Comments	Status
03/05*	Contract effective		
01/06	Implementation study	Select and obtain consultant regarding implementation study	City's consultant HDR Engineering completes the Residential Meter Implementation Plan in January of 2008. City of Fresno City Council adopted Negative Declaration and Implementation Plan on June 24, 2008.
01/06	Submit progress report to Bureau		Progress Report (dated February 27, 2006) sent to Ms. Barbara Hidleburg of US Bureau of Reclamation.
12/06	Confirmation of existing meters	Verify integrity and servicing of existing meters	Letter summarizing water meter testing results (dated January 19, 2007) sent to Ms. Barbara Hidleburg of US Bureau of Reclamation.
01/07	Submit progress report to Bureau		Progress Report (dated January 24, 2007) sent to Ms. Barbara Hidleburg of US Bureau of Reclamation.
06/07	Secure installation contract	Begin implementation of consultant recommendations	City executed multiple "small" pilot meter installation contracts. In 2006, the City executed two contracts for a total of 931 SFR installations. In 2007, the City executed one contract for a total of 580 SFR installations.
12/07	Draft rate ordinance	Initial development of tiered rate structure	In mid-2008 initiate rate study to convert from residential flat rate to a revenue neutral volumetric rate. Approximately 24,000 existing commercial, industrial, municipal, and multi-family accounts are billed on a volumetric rate.
01/08	Submit progress report to Bureau		Progress Report (dated January 31, 2008) sent to Ms. Barbara Hidleburg of US Bureau of Reclamation.
01/08	Initiate retrofit	Begin installation of meters on existing dwellings	In 2008, the City continued to execute additional "small" contracts to install 155 meter boxes and spools, and complete add'l service transfers
12/08	Meter installation progress	29% (30,000 of approximately 105,000 units installed)	See above items. As indicated in submitted Progress Reports, large scale installation of new water meters not yet underway.
01/09	Submit progress report to Bureau		Progress Report (dated January 15, 2009) sent to Ms. Barbara Hidleburg of US Bureau of Reclamation. Mr. David Woolley of USBR responded with a "Receipt Letter" dated March 30, 2009.

**EXHIBIT F
METERING PLAN**

Completion Date	Item	Comments	Status
12/09	Meter installation progress	43% (45,000 units)	As of January 25, 2010, 19,536 new meter boxes (not meters) have been installed. As indicated in submitted Progress Reports, large scale installation of new water meters not yet underway.
01/10	Submit progress report to Bureau		Progress Report (dated January 25, 2010) sent to Ms. Valerie Curley of US Bureau of Reclamation.
03/10	Impose new rate ordinance (fees based on metered use)	New rate structure applicable to currently metered customers. Rates to be effective as new meter installations occur.	On 11/5/09, the Council of the City of Fresno adopted Resolution No. 2009-231 (Ratifying the Proposition 218 Process According to California Constitution Article XIII D and Adopting a Residential Metered Water Rate), and Resolution 2009-232 (487th Amendment to MFS Res. 80-420 Adopting Residential Metered Water Rates in the Water Fee Section Under the Department of Public Utilities).
12/10	Meter installation progress	62% (65,000 units)	On June 2010, City issued Notice to Proceed to Vulcan Construction & Maintenance, Inc. for Requirement Contract NO. 1 for Water Meter Installation. Shortly thereafter, City issued Notice to Proceed to Measurement Control Systems for Requirement Contract NO. 2 for Water Meter Installation. Both contracts require installation of 10,500 water meters each between months of July - December 2010, resulting in 21,000 total new meter installs by end of December 2010. Both contracts can be extended two more years and can ultimately include 55,000 meter installations each (111,000 total). As of 9/2/10, approximately 4.5% (5,016) new meters installed through Requirement Contract Nos. 1 & 2.
01/11	Submit progress report to Bureau		
12/11	Adopt new rate ordinance	81% (85,000 units)	
01/12	Submit compliance report to Bureau		
12/12	Meter installation progress	100% (105,000 units)	
01/13	Submit completion report	Retrofit complete	

Schedule subject to change due to unforeseen circumstances.

*This date will be revised at the time the contract is executed on behalf of the United States.

COOPERATIVE AGREEMENT BETWEEN FRESNO IRRIGATION DISTRICT AND CITY OF FRESNO FOR WATER UTILIZATION AND CONVEYANCE

FRESNO COUNTY, CALIFORNIA
MAY 25 1976
H. L. MASINI, County Recorder

FEE \$

1 THIS AGREEMENT, entered into as of this 25th day of
2 May, 1976, by and between the FRESNO IRRIGATION
3 DISTRICT, a public corporation, (herein called the "DISTRICT"),
4 and the CITY OF FRESNO, a municipal corporation, (herein called
5 "CITY");

6 W I T N E S S E T H:

7 WHEREAS, Fresno Irrigation District is an irrigation dis-
8 trict organized and existing under the laws of the State of
9 California and is the owner of certain water rights and a water
10 distribution system for the distribution of water within the
11 District, and the City of Fresno is a municipal corporation
12 wholly within the exterior boundaries of said District and is
13 the owner of a water distribution system delivering water to
14 lands both in and outside the exterior boundaries of said City;
15 and

16 WHEREAS, District and City have heretofore entered into
17 a cooperative program of water utilization between said parties
18 evidenced by a written agreement for such water utilization and
19 conveyance dated August 12, 1970, which by its terms and by the
20 terms of amendments thereto will terminate on May 30, 1976; and

21 WHEREAS, District and City wish to continue with said
22 cooperative program and to make and enter into a new contract for
23 water utilization and conveyance; and

24 WHEREAS, this agreement is specifically authorized by, and
25 entered into pursuant to Chapter 9 (commencing with Section 26170),
26 Part 10, Division 11 of the California Water Code, and

27 WHEREAS, by agreement dated January 12, 1961, between City
28 and the United States of America (herein called the "City Bureau
29 Contract"), City is required and/or is entitled to purchase
30 certain water herein called City's Bureau Water from the United
31 States, commencing in 1966; and

32 ////

To be recorded without fee on behalf of Fresno Irrigation District & City

1 WHEREAS, the District has entered into certain contracts
 2 with the United States (herein called the "District Bureau
 3 Contracts") for a supplemental supply of water from the Friant-
 4 Kern Canal and for storage in Pine Flat Reservoir on the Kings
 5 River, which said District Bureau Contracts are more particularly
 6 described as follows:

7 Contract Between the United States of America
 8 and Fresno Irrigation District Providing for
 9 the Payment of the District's Share of the
 10 Cost of Pine Flat Dam and Reservoir Allocated
 11 to Irrigation, dated December 23, 1963,

12 Contract for Operation and Maintenance of
 13 Irrigation Storage Space of Pine Flat
 14 Reservoir, dated December 23, 1963,

15 Kings River Allocation Contract, dated
 16 December 23, 1963,

17 Contract between the United States and Fresno
 18 Irrigation District Providing for Water
 19 Service, dated July 20, 1964,

20 Conveyance and Covenants in Compromise and
 21 Settlement of Fresno Slough Claims, dated
 22 April 23, 1965,

23 and has entered into other contracts with the members of the
 24 Kings River Water Association (herein called the "District Intra-
 25 Association Agreements"), relating to Kings River and storage in
 26 Pine Flat Reservoir, which said contracts are more particularly
 27 described as follows:

28 Water Right Indenture, dated May 3, 1927,

29 Administrative Agreement and Monthly Diversion
 30 Schedule dated May 3, 1927,

31 Agreement Supplementing and Amending Water
 32 Right Indenture Dated May 3, 1927, and
 Supplementing and Amending Administrative
 Agreement Dated May 3, 1927, Relating to
 Kings River Water Association, and Amended
 Monthly Diversion Schedule, dated June 1, 1949,

Agreement Admitting Kings River Water District
 As a Member of Kings River Water Association
 and Agreement Re: Centerville Bottoms
 Schedule, dated September 10, 1963,

////

1 Agreement Supplementing and Amending Water
2 Right Indenture Dated May 3, 1927, and
3 Administrative Agreement Dated May 3, 1927,
4 Each as Amended and Supplemented June 1,
5 1949, Relating to Kings River Water
6 Association, dated September 10, 1963, and

7 WHEREAS, it is recognized by District and City that the
8 District is primarily charged with the distribution and delivery
9 of water within the District for agricultural use and that its
10 canals and distribution system must primarily be used for that
11 purpose, and

12 WHEREAS, it is recognized by both the District and the
13 City that many inhabitants of the District also require water for
14 domestic, industrial or fire protection purposes which may be
15 supplied to them by the City, and

16 WHEREAS, it is recognized by District and City that both
17 are charged with the protection and preservation of the under-
18 ground water supply;

19 NOW, THEREFORE, it is mutually agreed as follows:

20 1. Term. The term of this agreement shall be for a
21 period commencing on the date it is executed and ending at
22 12:00 o'clock p.m. on the last day of February in the year 1981
23 and thereafter, until terminated by either party as of the last
24 day of February of any subsequent year by written notice to the
25 other party mailed prior to September 1st of the previous year.
26 Forthwith upon the execution of this agreement the previous
27 agreement between the parties above referred to dated August 12,
28 1970, and all amendments thereto shall be terminated and shall
29 be of no further force or effect, except that City agrees to
30 pay District any monies owing or to become owing to District
31 under and according to the terms of said previous agreement.

32 2. Approval by United States. Immediately upon the
execution of this contract by the parties hereto, it shall be

////

1 presented to the United States for its approval and in the event
2 of its disapproval by the United States it shall become in-
3 effective and unenforceable for any purpose until such approval
4 has been obtained.

5 This contract shall be at all times subject to all of the
6 terms and conditions of the City Bureau Contract, the District
7 Bureau Contracts and the District Intra-Association Agreements
8 and to the extent that any agreement contained herein is con-
9 trary to or inconsistent with any term or condition of those
10 contracts or agreements, this contract shall be unenforceable.
11 In the event any such agreement contained herein shall become
12 unenforceable, the entire contract may be terminated by the
13 party adversely affected as of the last day of February of the
14 next succeeding year, by written notice served upon the other
15 party on or before the first day of September of the year pre-
16 ceding such termination.

17 3. Definition. For the purpose of this agreement, the
18 following words shall be defined as follows:

- 19 a. "City Water Service Area" means all lands within
20 the city limits of the City of Fresno, and also
21 all lands outside the city limits of the City
22 of Fresno which are within the exterior
23 boundaries of District to which the City now
24 delivers water or hereafter consents to deliver
25 water by means of its City Water System and
26 which are not hereafter designated or assessed
27 by the District as lands receiving or to
28 receive District Water Service from the District.
- 29 b. "Included Area" means that portion of the City
30 Water Service Area which is a part of the District.
31
32

////

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

- c. "Excluded Area" means that portion of the City Water Service Area which is not a part of the District.
- d. "City Water System" means the conduits, pipes and other facilities owned by the City and used by the City to convey water to lands whether in or outside the City.
- e. "District Water Service" means the furnishing of water by the District directly to lands within the District by means of canals, ditches or pipelines owned or under the control of the District, or by any means under the control of the District other than pumping conducted by the water user directly from the underground water supply upon the lands receiving such water.
- f. "Surface Water Supply" means all water available or received by any means other than pumping from the underground water supply.
- g. "Agricultural Use" means the use of water primarily in the production of agricultural crops or livestock including but not restricted to domestic use incidental to such agricultural purposes, the watering of livestock and underground water replenishment.
- h. "Municipal, Industrial and Domestic Uses" means the use of water other than for Agricultural Use.
- 1. "Water Year" means October 1st of one year through September 30th of the next year.
- 4. Determination of Areas. A map showing the City Water Service Area, the Included Area and the Excluded Area and clearly indicating the total number of acres in each area

////

1 as of the first day of March, 1976, entitled "City Water Service
2 Area, Included Area and Excluded Area as Defined in Cooperative
3 Agreement Between Fresno Irrigation District and City of Fresno,"
4 shall be prepared in duplicate by the Water Division of the City
5 of Fresno and approved in duplicate and in writing upon said map
6 by the Director of Public Works of the City and by the Manager
7 of the District. When so approved, said map shall be in-
8 corporated herein by reference as Exhibit A and shall become a
9 part hereof. One duplicate so approved shall be kept in the
10 office of the City and one in the office of the District. Said
11 map shall be amended and reapproved by both parties as of the
12 first day of March, 1977, and as of the first day of March of
13 each succeeding year thereafter; provided, however, that the
14 City shall keep the District currently advised on a monthly
15 basis of any new lands outside of the Fresno City Limits to
16 which it commences or consents to deliver water and the District
17 shall keep the City so advised as to any new lands designated
18 or assessed by it as lands receiving or to receive District
19 Water Service. When so amended and reapproved as of the first
20 day of March of each year, said map shall conclusively establish
21 the boundaries of and the acreage in each area for all purposes
22 of this agreement.

23 In computing the acreage in each of the areas above
24 referred to, the entire acreage shall be measured including
25 properties that may be exempt from assessment for taxation and
26 including adjacent streets, alleys, roads, highways and other
27 public ways to the center lines thereof.

28 Said map shall also show the area within which the
29 District's water shall be made available to the City under
30 Paragraph No. 6 hereof. Said area shall be designated on said
31 map as "District's Water Delivery Area".
32

////

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32

5. Payment by City to District. The City shall pay to the District each year in which this contract is effective, in lieu of assessments by the District upon lands in the Included Area (pursuant to Water Code Section 26671, subdivision 1 b) a total sum of money calculated as follows:

a. A sum calculated by multiplying the number of acres in the Included Area as of the first day of March of that year by the assessed value per acre generally assigned by the District in that year to other lands in the District receiving District Water Service (not including the assessed value assigned to lands where the service is obtained by the pumping of water from the District's canals) multiplied by the assessment rate determined by the District in that year for the next year's District operations, and also

b. A sum calculated by multiplying the number of acres in the Excluded Area as of the first day of March of that year by the assessed value per acre generally assigned by the District in that year to other lands in the District (not including lands in Freewater County Water District, or lands annexed from Trimmer Springs Water District or other lands which for any reason are subject to specially assessed valuations) which do not receive District Water Service, multiplied by the assessment rate determined by the District in that year for the next year's District operations.

Said payment shall be paid each year as follows:

60% of each said payment shall be paid on or before the 20th day of December, and the remaining 40% shall be paid on or before the 20th day of June, of the next succeeding year.

////

1 In the event of the disapproval of this agreement by the United
2 States or of any other termination of this agreement during any
3 calendar year, the total amount to be paid on or before
4 December 20th of that year and/or June 20th of the next year
5 shall still be paid.

6 Time shall be of the essence for the making of the above
7 payments. If any such payment is not made on the date provided,
8 the City shall pay to the District in addition to said payment
9 costs and penalties equal to those provided by law to be paid by
10 landowners within the District for the late payment of assess-
11 ments. These penalties are in addition to any other remedy
12 which the District may have against the City because of the City's
13 failure to pay said payment as above provided.

14 6. Water Made Available to City. Subject to all other
15 provisions of this agreement, the District shall make available
16 to the City during each calendar year (pursuant to Water Code
17 Section 26671, subsection 2) for distribution and use within the
18 Included Area of the City, at such times as shall be determined
19 by the Manager of the District, that proportion of the total
20 water diverted by the District from the Surface Water Supply
21 available to it for such year, as the acreage of the Included
22 Area, appearing on the map designated as Exhibit A, as of the
23 first day of March preceding that water year, bears to the
24 acreage of the total area in the District (including the Included
25 Area) receiving a Surface Water Supply from the District. Said
26 water shall be made available to the City in the District's
27 canals at such point or points along such canals within the area
28 designated on Exhibit A as "District's Water Delivery Area" as
29 may be designated by the City and approved by the District and
30 shall be taken from the District's canals by and at the expense
31 of the City in a manner approved by District. The City must act
32

////

1 reasonably in designating such points or points of delivery and
2 the District must act reasonably in approving or disapproving
3 such point or points of delivery. The District shall not be
4 required to make such water available to the City at any point or
5 points which will interfere with the operation or maintenance
6 of the District's distribution system or water delivery schedule.
7 Such water may be used by the City only within the Included Area
8 for Municipal, Industrial and Domestic Uses and for Agricultural
9 Uses incidental thereto, and within the District's Water Delivery
10 Area for recharge of the underground water supply by percolation.

11 No water which has been received by the District either
12 as Class 1 or Class 2 water under its contract with the United
13 States for water service from the Friant-Kern Canal, dated
14 July 20, 1964, or which has been stored by the District in Pine
15 Flat Reservoir under the District's contracts with the United
16 States providing for such storage, dated December 23rd, 1963,
17 shall be made available to the City.

18 The City shall not sell, transfer or exchange any of
19 said water to or with any other person or entity. However, this
20 provision shall not prevent the City from entering into separate
21 agreements with any other entity which may have a similar
22 agreement with the District for the distribution and use of
23 water received from the District under such agreements, provided
24 such separate agreements are entered into with the written
25 consent of the District first had and obtained and are subject
26 to all the terms and conditions of this agreement and the
27 District's agreements with such other entities.

28 7. Water Entitlements of Lands in Included Area. The
29 owners of lands within the Included Area covered by this agree-
30 ment shall each year be entitled to receive and use from the
31 water so made available by the District to the City, or from
32

////

1 other water available to the City, an amount of water sufficient
2 to supply his reasonable and beneficial needs, limited however to
3 his proportionate share of the water made available by the
4 District to the City under this agreement based upon the ratio
5 which the number of acres owned by him bears to the total number
6 of acres of land within the Included Area. The City may charge
7 such rates as it may determine for the service of water to such
8 lands; provided, however, no distinction shall be made between
9 the rate charged for water received by the City from the District
10 under this agreement and water obtained by the City from other
11 sources.

12 8. Conveyance of City's Bureau Water. Under the City's
13 contract with the United States providing for Water Service,
14 dated January 12, 1961, the City may, under the circumstances
15 therein provided, decrease the quantity of City's Bureau Water
16 required to be furnished each year to the City by the United
17 States pursuant to said contract. City agrees that so long as
18 this contract with District remains in effect, it will not
19 decrease the quantity of City's Bureau Water to be accepted and
20 paid for by it under Schedule A in Paragraph 3(A) of said
21 contract with the United States, without the consent of District.

22 At the request of the City, the District shall convey
23 for the City, in the District's canals, all or such portion
24 of the City's Bureau Water which the City shall receive from
25 the United States under the City Bureau Contract and which is
26 not conveyed by other means. City's Bureau Water shall be
27 taken into the District's canals at the diversion point or
28 points on the Friant-Kern Canal where water is delivered to the
29 District or the City under their agreements with the United
30 States, and shall be conveyed in such canals and delivered to the
31 City at such points along such canals as may be designated by the
32

////

1 City and approved by the District. The City must act reasonably
2 in designating such point or points of delivery and the District
3 must act reasonably in approving or disapproving such point or
4 points of delivery. The District shall not be required to make
5 such water available to the City at any point or points which
6 will interfere with the operation or maintenance of the District's
7 distribution system or water delivery schedule. Such water shall
8 be received by the City in the District's canals and taken from
9 the District's canals by and at the expense of the City in a
10 manner approved by the District.

11 It is agreed that if and when the City shall establish a
12 diversion point and/or facility of its own on the Friant-Kern
13 Canal for the purpose of receiving its Bureau Water, the District
14 shall have the right to use said diversion facility for its own
15 purposes as well as for the purpose of receiving the City's
16 Bureau Water for conveyance into the District, providing that
17 City's Bureau Water shall take precedence of use of the diversion
18 facility.

19 Whenever the City's Bureau Water is requested by the City,
20 the District shall have the right to exchange and to convey for the
21 City in place thereof other water in similar quality and equal
22 quantity at the point of delivery (except sewer effluent or indus-
23 trial wastes) available to the District, and to take and use such
24 water available under the City's Bureau Contract for its own uses
25 at such times and in such manner as may be determined by the District.

26 It is understood that the conveyance by the District of
27 its own water to landowners served by it within the District
28 (including lands within the City in the Included Area) shall
29 have priority over the conveyance of the City's Bureau Water and
30 that nothing herein contained shall require the District to
31 convey City's Bureau Water at any time when, because of lack of
32 canal capacity or otherwise, the conveyance of such water would

////

1 make it impossible or impractical for the District to convey its
2 own water upon the schedules established by the District. How-
3 ever, it is understood that in determining whether at any time
4 the District's canals have the capacity to convey the City's
5 Bureau Water, the conveyance of that water shall have priority
6 over the conveyance of any water brought into the District by
7 the City of Clovis, or the Fresno County Waterworks District
8 No. 19, or any other entity with which the District may have a
9 similar contract; provided, however, that in the event additional
10 canal capacity is provided by the City or any other such entity
11 at its expense to accommodate its own water, that entity's water
12 shall have priority in that additional space.

13 If it becomes necessary, the City and the District will
14 consider the enlargement of the District's canals for the pur-
15 pose of conveying City's Bureau Water, the City to pay that
16 portion of the cost of such enlargement as is for its benefit.
17 In the event of such enlargement, all lands or easements acquired
18 in connection therewith, and all additions or improvements in or
19 to the District's canals shall become the property of the
20 District but the City shall have priority in the use of such
21 additional capacity during the term of this contract. The
22 District shall not be bound to so enlarge any of its said canals,
23 and neither party shall be required to participate in or pay for
24 any such enlargement, without its consent.

25 9. Schedules of Delivery and Conveyance of Water. The
26 District will make available to and convey for the City the
27 water herein agreed to be made available to the City pursuant
28 to paragraph 6, at such times during the water year as shall be
29 determined by the District. Insofar as practicable and feasible,
30 the District will attempt to make such water available to City
31 from the District's water supply on the same water schedule that
32

////

1 other landowners in the District receive water and in such a
2 manner as to provide the same in a continuous flow at all times
3 when water is running in the canal or canals by which such water
4 is conveyed for the City's use, but in making such determination
5 the District will take into consideration the capacity and
6 condition of said canals, the availability of water which may be
7 taken or used by the City under the terms of this agreement and
8 under the terms of the District's contracts with the United
9 States and the rules, regulations and directives of the Bureau of
10 Reclamation in connection therewith, the needs and requirements
11 of other landowners in the District, including the needs and
12 requirements of excess landowners, the entitlements of the
13 District to natural flow or unstored water from the Kings River,
14 the requirements of the contracts between the District and the
15 City of Clovis and Fresno County Waterworks District No. 19 and
16 all other factors pertaining to the distribution, apportionment
17 and use of water available to the District. Such delivery and
18 conveyance schedules may be adjusted from time to time by the
19 District in a manner reasonably calculated to best serve the needs
20 of the District and the City.

21 Subject to the same limitations of feasibility, the
22 District will convey City's Bureau Water at such times as the
23 City may request, provided, however, that the District shall
24 not be required to convey water for the City in any canal at
25 any time when work is being done upon said canal for construction,
26 improvement or maintenance and if the City requests the District
27 to convey water in any canal during any time when water is not
28 being run in said canal for other landowners, the District may
29 condition the conveyance of its said water upon payment by the
30 City of any additional cost incurred by the District because
31 thereof.

32

////

1 10. Conveyance Losses. The City shall assume and bear
2 all conveyance losses for all water furnished by the District to
3 the City or conveyed by the District for the City under this
4 agreement. Conveyance losses chargeable to the City shall be
5 computed by multiplying the losses in that portion of any canal
6 used for such conveyance, during the period such water is being
7 so conveyed, by the total amount of water being conveyed for
8 the City in that canal during such time, divided by the total
9 amount of water flowing in that portion of that canal during the
10 same period.

11 11. Use by District of Water Not Used by City. In the
12 event the City is unable to use or does not use any part of the
13 water made available to it by the District within the area
14 designated on Exhibit A as "District's Water Delivery Area" under
15 this agreement for the purposes, at the times and in the manner
16 herein provided, the City shall lose the right to receive such
17 water, and the District shall have the right to take and use such
18 water for purposes of irrigation and percolation in such manner as
19 it may determine. In such event, insofar as the canals and
20 facilities of the District will permit, and insofar as otherwise
21 may be practicable and equitable as to other landowners, the
22 District will use such water for irrigation or percolation in areas
23 in the City or east or northeast of the City, and will discuss its
24 use with the City before it is used elsewhere. However, the
25 ultimate decision concerning such use of such water shall be
26 within the discretion of the District.

27 In the event the City is unable to use or does not use any
28 part of City's Bureau Water it is required to take under its
29 City Bureau Contract when and as required under that contract
30 or under the terms of this agreement, the City shall nevertheless
31 take and pay for said water and the District shall have the right
32 to use such water for purposes of irrigation and percolation but

////

1 the City may require the District to so use such water at such
2 locations as it may direct; provided, however, in the event the
3 City does not direct the location at which said water shall be
4 used in time that it may be so used or in the event the canals
5 and facilities of the District will not permit the conveyance of
6 such water to such location when so directed, or if for any
7 other reason the conveyance of such water to such location at
8 that time is not feasible or practicable, District shall have
9 the right to use such water upon the same conditions as are
10 provided in the previous paragraph for water made available to
11 the City by the District.

12 Such use of any such water by the District as provided in
13 this paragraph shall not relieve the City from any payments
14 required to be made by it under the City Bureau Contract or
15 under the terms of this agreement and its use by the District
16 shall not require any payment from the District to the City.

17 12. Water Rights Not Transferred. Nothing in this agree-
18 ment authorizes or shall be construed or deemed to constitute the
19 sale or transfer of a water right from either party to the other.

20 13. City's Sewage Effluent. The City will retain its
21 sewage effluent within the boundaries of the District for the
22 term of this contract, except with the written consent of the
23 District first had and obtained.

24 14. No Warranty of Quality. The character or quality of
25 the water furnished or conveyed hereunder may vary from time to
26 time for reasons including, but not restricted to, the application
27 by the United States or the District of toxic chemicals to
28 control aquatic and ditch bank weeds, and the open canals of the
29 District are always subject to possible pollution from outside
30 sources. The District does not guarantee in any respect or
31 assume any responsibility for the chemical, bacterial or other
32

////

1 quality of the water made available to the City or conveyed for
2 the City through the District's facilities.

3 15. Indemnity. The City and the District each agree to
4 indemnify the other and save the other free and harmless of and
5 from any and all liability, damage, loss, cost or expense,
6 incurred or suffered by the other, by reason of damage to the
7 property of the other or injury to any other person or property
8 arising out of its own conduct, acts, omissions or faults, in
9 connection with any matter related to this contract.

10 CITY OF PRESNO, A Municipal
11 Corporation

12 By: [Signature]
13 Title: Director of Public Works

14 Attest:

15
16 [Signature]
17 City Clerk

18 (City)

19 FRESNO IRRIGATION DISTRICT

20 APPROVED AS TO FORM
21 SPENCER THOMAS, JR., City Attorney

22 By: Wayne N. Witchy
Assistant

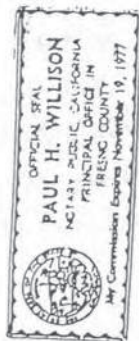
23 By: F. A. Preuss
President

24 Date: MAY 20 1976

Attest: [Signature]
Secretary

(District)

State of California,
County of Fresno



ss. On this 25th day of May in the year one thousand nine
hundred and seventy-six before me, Paul H. Willison
a Notary Public in and for said County and State, residing therein, duly commissioned and sworn,
personally appeared F. A. Preuss
known to me to be the President, and
Ardys T. Gorder
known to me to be the Secretary of the Fresno Irrigation District
the corporation that executed the within instrument, and known to me to be the person S who executed
the within instrument on behalf of the corporation therein named, and acknowledged to me that such cor-
poration executed the within instrument pursuant to its by-laws or a resolution of its board of directors.
IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal at my office
in said County, the day and year in this Certificate above written.

[Signature]
Notary Public in and for said County and State

Appendix J

Schedule of Current and Proposed
Schedule of Rates, Fees, and Charges
for Public Water Service

ATTACHMENT 1
Schedule of Current and Proposed Schedule of Rates, Fees, and Charges for Public Water Service
City of Fresno, CA

Item	<i>effective dates ></i>					
	Current	3/30/2015 FY15	7/1/2015 FY16	7/1/2016 FY17	7/1/2017 FY18	7/1/2018 FY19
Quantity Rates, \$/HCF						
Single Family	\$0.610	\$0.92	\$1.09	\$1.28	\$1.50	\$1.74
All Others	\$0.745	\$0.92	\$1.09	\$1.28	\$1.50	\$1.74
Meter Charges, \$/month						
Domestic						
¾-inch	\$10.03	\$8.50	\$9.30	\$10.50	\$11.90	\$13.50
1.0-inch	\$13.51	\$11.20	\$12.30	\$13.80	\$15.80	\$17.90
1.5-inch	\$18.89	\$13.00	\$14.40	\$16.10	\$18.40	\$20.80
2.0-inch	\$27.09	\$22.10	\$24.40	\$27.30	\$31.30	\$35.30
3.0-inch	\$45.07	\$33.00	\$36.40	\$40.80	\$46.70	\$52.80
4.0-inch	\$63.03	\$50.00	\$55.00	\$62.00	\$70.00	\$79.00
6.0-inch	\$99.01	\$95.00	\$105.00	\$118.00	\$135.00	\$152.00
8.0-inch	\$152.96	\$441.00	\$487.00	\$545.00	\$624.00	\$705.00
10.0-inch	\$179.83	\$696.00	\$768.00	\$860.00	\$984.00	\$1,113.00
12.0-inch	na	\$914.00	\$1,009.00	\$1,131.00	\$1,293.00	\$1,462.00
Irrigation						
¾-inch	\$10.03	\$6.70	\$7.40	\$8.30	\$9.50	\$10.70
1.0-inch	\$13.51	\$8.40	\$9.30	\$10.40	\$11.80	\$13.40
1.5-inch	\$18.89	\$9.50	\$10.50	\$11.70	\$13.40	\$15.20
2.0-inch	\$27.09	\$15.10	\$16.70	\$18.70	\$21.30	\$24.10
3.0-inch	\$45.07	\$21.80	\$24.10	\$27.00	\$30.80	\$34.90
4.0-inch	\$63.03	\$32.00	\$36.00	\$40.00	\$46.00	\$51.00
6.0-inch	\$99.01	\$60.00	\$66.00	\$74.00	\$85.00	\$96.00
8.0-inch	\$152.96	\$273.00	\$301.00	\$337.00	\$386.00	\$436.00
10.0-inch	\$179.83	\$429.00	\$474.00	\$531.00	\$607.00	\$687.00
12.0-inch	na	\$564.00	\$622.00	\$697.00	\$797.00	\$901.00
Private Fire Protection Service Charges, \$/month						
Fire Hydrants	\$23.94	\$28.80	\$31.70	\$35.40	\$40.40	\$45.60
Fire Service Connections						
1.0-inch	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70
1.5-inch	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70
2.0-inch	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70
2.5-inch	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70
4.0-inch	\$23.94	\$9.90	\$10.90	\$12.20	\$13.90	\$15.70
6.0-inch	\$35.94	\$28.80	\$31.70	\$35.40	\$40.40	\$45.60
8.0-inch	\$47.92	\$62.00	\$68.00	\$76.00	\$87.00	\$98.00
10.0-inch	\$59.90	\$111.00	\$122.00	\$136.00	\$155.00	\$175.00
12.0-inch	\$71.88	\$178.00	\$196.00	\$219.00	\$250.00	\$283.00

Appendix K

Draft Resolution for the Implementation
of the Water Shortage Contingency Plan

The following draft resolution is
provided as an example only.

RESOLUTION NO. 200__ - ____

Adopted by the Fresno City Council

_____, 200__

IMPLEMENTING STAGE ~~[1]~~~~[2]~~~~[3]~~~~[4]~~ OF THE CITY OF FRESNO WATER SHORTAGE
CONTINGENCY PLAN

BACKGROUND

The City of Fresno has three water supply sources: (1) Surface water from the Central Valley Project (CVP); (2) surface water from the Fresno Irrigation District (FID); and (3) local groundwater. The CVP supplies are provided to the City per the City's agreement with the United States Bureau of Reclamation (Bureau). FID supplies are provided to the City per the City's agreement with FID. Both surface water supplies are potentially subject to reduced deliveries during dry years. Existing regulations do not directly limit the use or expansion of groundwater pumping activities by the City; however, water quality issues or declining groundwater levels due to drought conditions may potentially limit future groundwater supplies.

Normally, the City's water supplies are adequate to meet the City's water demands. However, because of ~~[on-going drought conditions statewide]~~~~[the required shutdown of the City's Water Treatment Plant due to _____]~~~~[loss of groundwater production capacity due to _____]~~~~[for describe other event]~~, the Fresno City Council has determined that it is necessary to enact additional water conservation measures and water use restrictions, in addition to those already included in the City Municipal Code (Section 6-520 Wastage of Water), in order to reduce water use within the City's water service area.

City staff developed the City's original Water Shortage Contingency Plan in 1993. The original Water Shortage Contingency Plan was adopted by the Fresno City Council in 1994 and submitted to the California Department of Water Resources. The City's Water Shortage

**DRAFT RESOLUTION FOR USE BY CITY IF
WATER SHORTAGE CONTINGENCY PLAN
NEEDS TO BE IMPLEMENTED**

Contingency Plan was updated in 200__, was included in the City's Urban Water Management Plan Update, and was adopted by the Fresno City Council on _____, 200__.

The updated Water Shortage Contingency Plan includes four water conservation stages for a reduction in water use of up to 50 percent.

<u>Water Conservation Stage</u>	<u>Water Use Reduction Goal</u>
Stage 1: Minimal Shortage	Up to 10%
Stage 2: Moderate Shortage	10 to 25%
Stage 3: Severe Shortage	25 to 35%
Stage 4: Critical Shortage	35 to 50%

Each water conservation stage includes specific water conservation measures and water use restrictions designed to conserve water. Implementation of the water conservation stages shall be cumulative, meaning that implementation of a higher stage shall also include implementation of all lower stages. For example, if Stage 2 is to be implemented, all of the provisions in Stage 1 shall also be implemented. If Stage 3 is to be implemented, all of the provisions in Stages 1 and 2 shall also be implemented. If Stage 4 is to be implemented, all of the provisions in Stages 1, 2 and 3 shall also be implemented.

BASED ON THE FACTS SET FORTH IN THE BACKGROUND, THE CITY COUNCIL RESOLVES AS FOLLOWS:

Section 1. That the foregoing recitals are true and correct.

Section 2. That, based on the *[on-going statewide drought conditions][failure of the Water Treatment Plant][loss of groundwater production capacity]*, the Fresno City Council hereby declares that a water shortage emergency condition prevails within the water service area of the City and that water use within the City must be reduced by *[10, 25, 35, 50]* percent.

***DRAFT RESOLUTION FOR USE BY CITY IF
WATER SHORTAGE CONTINGENCY PLAN
NEEDS TO BE IMPLEMENTED***

Section 3. The required water use reduction described in Section 2 necessitates implementation of Stage [1, 2, 3, 4] of the City's Water Shortage Contingency Plan. The water conservation measures and water use restrictions for Stage [1, 2, 3, 4] are described below. Implementation of Stage [1, 2, 3, 4] shall be cumulative and shall also include implementation of the provisions of the Stages [1, 2, 3].

Stage 1 includes the following water conservation measures and water use restrictions for a reduction in water use of 10 percent:

1. The City shall initiate a public information/media campaign to:
 - a. Notify all customers of the water shortage and the need to conserve water,
 - b. Mail information to every customer explaining the importance of significant water use reductions,
 - c. Provide practical information to customers on ways to improve water use efficiency, and
 - d. Publicize and expand the toilet retrofit and other efficiency programs.
2. The City shall request customers to voluntarily reduce their water use by 10 percent. Such request shall include information on practical ways for customers to reduce their water use.
3. The City shall increase its water waste patrols to enforce the provisions of Fresno Municipal Code (Section 6-520 Wastage of Water).
4. All of the provisions of Fresno Municipal Code (Section 6-520 Wastage of Water) including, but not limited to, the three day per week outdoor irrigation schedule, no outdoor irrigation allowed on Mondays, and allowable times for outdoor irrigation, shall be enforced.

Stage 2 includes the following water conservation measures and water use restrictions for a reduction in water use of 25 percent:

**DRAFT RESOLUTION FOR USE BY CITY IF
WATER SHORTAGE CONTINGENCY PLAN
NEEDS TO BE IMPLEMENTED**

1. All of the provisions of Stage 1 shall be implemented as stated above, unless otherwise modified by these Stage 2 provisions.
2. The City shall intensify its public information campaign to inform the City's water customers of the need for water conservation and the provisions enacted by this Resolution.
3. The City shall further increase its water waste patrols to enforce the provisions of Fresno Municipal Code (Section 6-520 Wastage of Water).
4. Outdoor irrigation shall be limited to two days per week from March 2 to November 30. Locations bearing a street address ending in an odd number shall be permitted to irrigate only on Tuesday and Saturday. Locations bearing a street address ending in an even number shall be permitted to irrigate only on Wednesday or Sunday. There shall be no water irrigation on Mondays, Thursdays, or Fridays. Landscape irrigation shall only be allowed between the hours of *[insert hours—Municipal code already prohibits irrigation between 11:00 am and 7:00 pm and 6:00 am to 8:00 am]. [or allow only irrigation of trees and shrubs, but not turf]*.
5. Outdoor irrigation shall be prohibited from December 1 to March 1.
6. Car washing shall be allowed with the use of a bucket only (a hose equipped with a shut-off nozzle may be used for a quick rinse).

Stage 3 includes the following water conservation measures, water use restrictions and water use allotments for a reduction in water use of 35 percent:

1. All of the provisions of Stages 1 and 2 shall be implemented as stated above, unless otherwise modified by these Stage 3 provisions.
2. The City shall continue its public information campaign to inform the City's water customers of the need for water conservation and the provisions enacted by this Resolution.
3. The City shall intensify its leak detection program.

**DRAFT RESOLUTION FOR USE BY CITY IF
WATER SHORTAGE CONTINGENCY PLAN
NEEDS TO BE IMPLEMENTED**

4. Outdoor irrigation shall be limited to one day per week using manual application only from March 2 to November 30. Use of automatic sprinkler systems shall be prohibited. Locations bearing a street address ending in an odd number shall be permitted to irrigate only on Saturday. Locations bearing a street address ending in an even number shall be permitted to irrigate only on Sunday. There shall be no water irrigation on Mondays, Tuesdays, Wednesdays, Thursdays, or Fridays. Landscape irrigation shall be prohibited between the hours of *[insert hours—Municipal code already prohibits irrigation between 11:00 am and 7:00 pm and 6:00 am to 8:00 am]. [or allow only irrigation of trees and shrubs, but not turf]*.
5. Outdoor irrigation shall be prohibited from December 1 to March 1.
6. Car washing shall be allowed with the use of a bucket only (a hose equipped with a shut-off nozzle may be used for a quick rinse).
7. The City shall not issue building permits or install meters for new accounts which had not received building permits before the water shortage emergency declaration [or continue to allow building permits, but do not allow new landscaping to be installed].
8. The following water use allotments shall be established:
 - a. Single-family residential customers: 110 percent of average normal wintertime residential per capita water use based on January/February *[insert year]* actual water use.
 - b. Multi-family residential customers: 110 percent of average normal wintertime residential per capita water use based on January/February *[insert year]* actual water use.
 - c. Commercial/institutional customers: 85 percent of average annual usage based on *[insert year]* actual water use.
 - d. Industrial customers: 85 percent of average annual usage based on *[insert year]* actual water use.

**DRAFT RESOLUTION FOR USE BY CITY IF
WATER SHORTAGE CONTINGENCY PLAN
NEEDS TO BE IMPLEMENTED**

- e. Landscape irrigation customers: 50 percent of average annual usage based on *[insert year]* actual water use.
9. Compliance with the water use allotments listed above shall be assessed by the City on a monthly basis. Metered customers found not to be in compliance with the enacted water use allotments shall be subject to penalties in accordance with Section 6-520 of the City Municipal Code.

Stage 4 includes the following water conservation measures, water use restrictions and water use allotments for a reduction in water use of 50 percent:

1. All of the provisions of Stages 1, 2 and 3 shall be implemented as stated above, unless otherwise modified by these Stage 4 provisions.
2. The City shall continue its public information campaign to inform the City's water customers of the need for water conservation and the provisions enacted by this Resolution.
3. Outdoor irrigation of shall be prohibited.
4. No restaurant, hotel, café, cafeteria or other public place where food is sold, served, or offered for sale, shall serve drinking water to any customer unless expressly requested.
5. The use of potable water to clean, fill or maintain decorative fountains, lakes or ponds unless such water is reclaimed shall be prohibited.
6. The use of potable water for construction, compaction, dust control, street or parking lot sweeping, building wash down where non-potable or recycled water is sufficient shall be prohibited.
7. The use of potable water for sewer system maintenance or fire protection training without prior approval by the City Manager shall be prohibited.

**DRAFT RESOLUTION FOR USE BY CITY IF
WATER SHORTAGE CONTINGENCY PLAN
NEEDS TO BE IMPLEMENTED**

8. The use of potable water to wash sidewalks, walkways, driveways, parking lots, open ground or other hard surfaced areas except where necessary for public health or safety shall be prohibited.
9. Allowing potable water to escape from breaks within the customer's plumbing system for more than twenty-four (24) hours after the customer is notified or discovers the break shall be prohibited.
10. Washing cars, boats, trailers, aircraft, or other vehicles except to wash such vehicles at commercial or fleet vehicle washing facilities using water recycling equipment shall be prohibited.
11. Covers for swimming pools shall be required when not in use.
12. The use of outdoor misters shall be prohibited.
13. The following water use allotments shall be established:
 - a. Single-family residential customers: 95 percent of average normal wintertime residential per capita water use based on January/February *[insert year]* actual water use.
 - b. Multi-family residential customers: 95 percent of average normal wintertime residential per capita water use based on January/February *[insert year]* actual water use.
 - c. Commercial/institutional customers: 65 percent of average annual usage based on *[insert year]* actual water use.
 - d. Industrial customers: 75 percent of average annual usage based on *[insert year]* actual water use.
 - e. Landscape irrigation customers: 0 percent of average annual usage based on *[insert year]* actual water use.
14. Compliance with the water use allotments listed above shall be assessed by the City on a monthly basis. Metered customers found not to be in

***DRAFT RESOLUTION FOR USE BY CITY IF
WATER SHORTAGE CONTINGENCY PLAN
NEEDS TO BE IMPLEMENTED***

compliance with the enacted water use allotments shall be subject to penalties in accordance with Section 6-520 of the City Municipal Code.

Section 4. Implementation of Stage *[3, 4]* *[or continuation of Stage 1 or 2 or higher stages for more than two consecutive years]* of the City's Water Shortage Contingency Plan will include a water rate increase of *[____]* percent over water rates in place at the time of approval of this resolution. Said water rate increase will apply to all water customers, both flat rate and metered, and shall remain in effect until modified or revoked by the City.

Section 5. Notices required to be given pursuant to the provisions of this Resolution shall be in writing and may be combined with water service bills, or other written communications, and shall be delivered personally, or by posting with the United States Postal Service, and addressed to the last known address shown on the City's billing records for the user to whom given, or to the owner of the premises to which water service of such user pertains, shown on the last equalized assessment role of the Fresno County Assessor.

Section 6. That the City Manager is hereby authorized and empowered to delegate his or her authority hereunder to such assistants, deputies, officers, employees, or agents of the City as he or she shall designate, and to establish such rules, regulations, and procedures, and to prepare or furnish such forms, as he or she deems necessary or appropriate to carry out the provisions of this Resolution.

Section 7. In the event any person shall violate any of the provisions of this Resolution, the violations and penalties set forth in the Fresno Municipal Code Section 6-520 Wastage of Water shall apply. Appeals of a notice of violation shall be in accordance Fresno Municipal Code.

Section 8. In the event that any provision of this Resolution conflicts with any provision of any other ordinance, resolution, regulation, rule, order, or permit of this City, the

**DRAFT RESOLUTION FOR USE BY CITY IF
WATER SHORTAGE CONTINGENCY PLAN
NEEDS TO BE IMPLEMENTED**

provisions of this Resolution shall govern and control over the provisions in conflict therewith.

Section 9. The Fresno City Council declares this Resolution to be necessary as an emergency measure for the immediate preservation of public peace, health or safety for the reasons set forth in Section 2. This Resolution shall be effective upon its adoption, and shall remain effective until the conditions described in Section 2 are resolved, under which case this Resolution shall be rescinded, or until conditions described in Section 2 worsen, thus requiring additional action by the City Council, under which case a subsequent Resolution will be considered for adoption.

Adopted by the City of Fresno City Council on _____, 200__ by the following vote:

Ayes: _____

Noes: _____

Abstain: _____

Absent: _____

Mayor

Attest:

City Clerk



Fresno • Clovis • Visalia • Bakersfield • Modesto • Los Banos • Chico
www.ppeng.com • info@ppeng.com