2010 URBAN WATER MANAGEMENT PLAN

Prepared for

City of Fresno

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WEST YOST ASSOCIATES

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ES.1 OVERVIEW

This 2010 Urban Water Management Plan (UWMP) has been prepared for the City of Fresno (City) by West Yost Associates (West Yost). This 2010 UWMP for the City describes the current and future water use, sources of supply and their reliability, and existing and planned conservation measures.

This 2010 UWMP complies with the Urban Water Management Planning Act, which was originally established by Assembly Bill 797 (AB 797) on September 21, 1983. The law requires water suppliers in California providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet per year (af/yr) of water to prepare and adopt an UWMP every five years.

Several changes to the Urban Water Management Planning Act have been approved in recent years. Revisions to the act include requiring a robust supply and demand comparison, as well as detailed discussion of groundwater resources, water recycling and desalination. Also, this 2010 UWMP is also required to comply with the requirements of the Water Conservation Act of 2009 (Senate Bill x7-7) which was enacted in November 2009. SBx7-7 requires urban retail water suppliers, such as the City, to develop per capita water use targets to be met by 2015 and 2020. The overall statewide objective of SBx7-7 is to reduce per capita water use by 20 percent by the year 2020.

Information and data presented in this 2010 UWMP reflects the information and data available at the time of preparation and generally reflects available water supply production and demand data through December 2011. Water supply and demand projections are provided in five-year increments to the year 2035 to provide for a 20+ year planning horizon.

ES.2 PLAN ADOPTION

The Fresno City Council adopted this 2010 UWMP on November 29, 2012. A copy of the adoption resolution is included in Appendix C.

Following plan adoption, the 2010 UWMP was submitted to the Department of Water Resources (DWR) and to the California State Library. This 2010 UWMP will also be submitted to DWR using the DWR On-line Submittal Tool (DOST).

A copy of the adopted 2010 UWMP was provided to Fresno County within 30 days of adoption.

Within 30 days of submitting the adopted 2010 UWMP to DWR, copies of the adopted 2010 UWMP will be made available to the public during normal business hours at the City of Fresno Department of Public Utilities Water Division (1910 University Avenue, Fresno). A copy of the adopted 2010 UWMP will also be available on the City's Water Division webpage (www.fresnowater.org).

Should this 2010 UWMP be amended or changed, copies of amendments or changes to the plan shall be submitted to DWR, the California State Library, and any city or county within which the City provides water supplies within 30 days after adoption.

ES.3 COMPLIANCE WITH THE URBAN WATER MANAGEMENT PLANNING ACT

This 2010 UWMP complies with the requirements of the Urban Water Management Planning Act, first established in 1983, and amended by recently enacted legislation. DWR prepared a *Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan* (2010 DWR Guidebook) dated March 2011. The DWR Guidebook provides detailed information and suggestions to comply with the UWMP Act requirements.

Table ES-1 provides a cross-reference between the DWR-suggested tables and the tables provided in this 2010 UWMP. The chapters and sections of this 2010 UWMP also contain references to the provisions of the UWMP Act in *italics* to demonstrate compliance with the UWMP Act.

DWR's Urban Water Management Plan Checklist, as provided in the 2010 UWMP Guidebook, has been completed by West Yost to demonstrate the plan's compliance with applicable requirements. A copy of the completed checklist is included in Appendix J.

Table ES-1. Location of DWR Recommended Data Tables

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1.1 PURPOSE

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

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.

The Urban Water Management Planning Act (UWMP Act) was originally established by Assembly Bill 797 (AB 797) on September 21, 1983. Passage of this law was recognition by state legislators that water is a limited resource and a declaration that efficient water use and conservation would be actively pursued throughout the state. The law requires water suppliers in California providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet per year (af/yr) of water to prepare and adopt an Urban Water Management Plan (UWMP) every five years. The City of Fresno (City) is a water retailer. In 2010, the City supplied 147,052 acre-feet (af)[1] of potable water to 130,317 water services[2] in the City of Fresno water service area, and is therefore subject to the requirements of the UWMP Act.

Several changes to the Urban Water Management Planning Act have been approved in recent years. Revisions to the Act include requiring a robust supply and demand comparison, as well as detailed discussion of groundwater resources, water recycling and desalination. Also, this 2010 UWMP is also required to comply with the requirements of the Water Conservation Act of 2009 (Senate Bill x7-7, or SBx7-7) which was enacted in November 2009. SBx7-7 requires urban retail water suppliers, such as the City of Fresno, to develop per capita water use targets to be met by 2015 and 2020. The overall statewide objective of SBx7-7 is to reduce per capita water use by 20 percent by the year 2020.

A copy of the current version of the Urban Water Management Planning Act and the Water Conservation Act of 2009 is provided in Appendix A of this document.

1.2 PLAN OVERVIEW

This 2010 UWMP for the City describes the current and future water use, sources of supply and its reliability, and existing and planned water conservation (demand management) measures. This 2010 UWMP contains the appropriate sections and tables required per California Water Code Division 6, Part 2.6 (UWMP Act) (included in Appendix A of this document), and has been prepared based on guidance provided by DWR in their March 2011 "Guidebook to Assist Urban Water Suppliers to Prepare a 2010 Urban Water Management Plan" (DWR 2010 Guidebook). To demonstrate the completeness of this 2010 UWMP, the UWMP checklist provided in the DWR 2010 Guidebook has been completed and is included in Appendix J.

[1] Source: City of Fresno Production Statistics (prdstats.xls), water supply shown is for 2010 calendar year.

[2] Source: City of Fresno Public Water System Statistics for 2010 calendar year.

This 2010 UWMP was adopted by the City of Fresno City Council on November 29, 2012. A copy of the resolution adopting the 2010 UWMP is included in Appendix C.

1.3 PLAN CONTENTS, ORGANIZATION AND FORMAT

This 2010 UWMP has been organized into the following chapters and appendices.

- Chapter 1: Introduction
- Chapter 2: Plan Preparation, Coordination and Adoption
- Chapter 3: Water Service Area
- Chapter 4: Water Supply
- Chapter 5: Water Supply Reliability
- Chapter 6: Water Demand
- Chapter 7: Comparison of Supply and Demand
- Chapter 8: Demand Management Measures
- Chapter 9: Water Shortage Contingency Plan
- Chapter 10: Recycled Water

Appendices to this UWMP include the following additional information:

- Appendix A: Urban Water Management Planning Act and Water Conservation Act of 2009
- Appendix B: Agency and Public Notices Regarding UWMP Preparation and Adoption
- Appendix C: City Council Resolution Adopting the 2010 UWMP
- Appendix D: USBR and FID Water Supply Contracts and Agreements
- Appendix E: Fresno Area Regional Groundwater Management Plan
- Appendix F: City Municipal Code Water Regulations and Provisions
- Appendix G: Water Conservation Best Management Practices Reporting
- Appendix H: Draft Resolution for the Implementation of the Water Shortage Contingency Plan
- Appendix I: Compliance with the Water Conservation Act of 2009 (Senate Bill x7-7)
- Appendix J: DWR UWMP Checklist

To demonstrate compliance with applicable water codes, applicable water code provisions are shown in *italics* at the beginning of each chapter or section. Furthermore, to demonstrate completeness and assist DWR in their review of this 2010 UWMP, where applicable, tables in this 2010 UWMP include corresponding DWR table numbers from DWR's Guidebook for

Preparation of a 2010 Urban Water Management Plan (see Table ES-1 in the Executive Summary showing table cross-references).

1.4 GLOSSARY OF TERMS AND ACRONYMS

The following terms and acronyms have been used throughout this 2010 UWMP to improve document clarity and readability.

ADAF	Average day annual flow
ADWF	Average dry weather flow
af	Acre-feet
afa, af/yr	Acre-feet per year
Bakman	Bakman Water Company
BMPs	Best Management Practices
BOD	Biological Oxygen Demand
Bureau	United States Bureau of Reclamation
CEQA	California Environmental Quality Act
cfs	Cubic feet per second
CI	Commercial and industrial
CII	Commercial, industrial and institutional
CIMIS	California Irrigation Management Information System
City	City of Fresno
CSUF	California State University, Fresno
CUWCC	California Urban Water Conservation Council
CVP	Central Valley Project
CVWAC	Central Valley Water Awareness Committee
DMMs	Demand Management Measures; fourteen water conservation measures included in the UWMP Act
DOF	State of California Department of Finance
DWR	State of California Department of Water Resources
Et_o	Evapotranspiration
FARGMP	Fresno Area Regional Groundwater Management Plan
FID	Fresno Irrigation District
FMFCD	Fresno Metropolitan Flood Control District
FY	Fiscal year
FYP	Flex Your Power
GIS	Geographic Information System
gpcd	Gallons per capita per day

gpd	Gallons per day
GWMP	Groundwater Management Plan
HCF	Hundred cubic feet
Herndon	Herndon Water Company
KRWA	Kings River Water Association
MEF	Modified Energy Factor
MG	Million gallons
mgd	Million gallons per day
mg/L	Milligrams per liter
MOU	Memorandum of Understanding
NRDC	National Resources Defense Council
OES	Office of Emergency Services
Park Van Ness	Park Van Ness Mutual Water Company
PG&E	Pacific Gas and Electric Company
Pinedale	Pinedale County Water District
RWQCB	Regional Water Quality Control Board
RWRF	Regional Wastewater Reclamation Facility
SOI	Sphere of Influence
SWTF	Surface Water Treatment Facility
TDS	Total Dissolved Solids
TSS	Total Suspended Solids
UAFW	Unaccounted-for Water
ULFT	Ultra Low Flush Toilet
USBR	United States Bureau of Reclamation
UWMP	Urban Water Management Plan
UWMP Act	Urban Water Management Planning Act; enacted in 1983; establishes requirements for a UWMP
West Yost	West Yost Associates; preparer of this UWMP
WF	Water Factor
WMP	Water Master Plan
WRCC	Western Regional Climate Center
WRF	Wastewater Reclamation Facility
WRIME	Water Resources & Information Management Engineering, Inc.; preparer of regional groundwater model (see Chapter 4)

2.1 PLAN PREPARATION AND COORDINATION

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

10620 (e) The urban water supplier may prepare the plan with its own staff, by contract, or in cooperation with other governmental agencies.

In November 2011, the City of Fresno (City) authorized West Yost Associates (West Yost) to prepare the City's 2010 UWMP. The information contained herein is based on data obtained from City staff, data included in available water supply planning documents, and review and update of data contained in the City's previous UWMPs. The City's first UWMP was prepared in 1986; the City's UWMP was then updated in 1993 and again in 2008.

As discussed in Chapter 4, this 2010 UWMP is consistent with the City's future water supply plan recommended in the City's Metropolitan Water Resources Management Plan Update (Metro Plan Update)[1].

Although the City regularly coordinates with other agencies and water purveyors in the area (see Section 2.1.2), the City has prepared this 2010 UWMP on its own, not as part of a regional alliance.

2.1.1 Public Involvement

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

The City has actively encouraged community participation in water management activities and specific water-related projects. The City's public participation program includes both active and passive means of obtaining input from the community, such as mailings, public meetings, and web-based communication. The City's website describes on-going projects and posts announcements of planned rate increases to fund these water projects. Also, in 2006, the City formed a Utility Advisory Committee (UAC) to develop and implement a community outreach and education program to seek customer input and participation with regard to future utility rates.

As part of development of this 2010 UWMP update, following completion of the Draft UWMP, the City allowed a public review period following noticing and prior to adoption to allow ample time for public comments to be developed and received. During the public comment period, the Draft UWMP update was made available at the City's offices during normal business hours,

[1] City of Fresno Metropolitan Water Resources Management Plan, Phase 2 Development and Evaluation of Future Water Supply Plan, Final Report, prepared by West Yost Associates, June 2010.

distributed to interested parties (see Section 2.1.2 below), and made available at the Fresno County Public Library.

A public hearing to discuss the Draft UWMP was held on November 8, 2012. Noticing for the public hearing was conducted pursuant to Section 6066 of the Government Code. Also, per California Water Code Section 10621, notice regarding the public hearing was sent to the other local water purveyors and Fresno County 60 days prior to the public hearing date (see Section 2.1.2 below). Public hearing notices are included in Appendix B.

In accordance with the requirements of SBx7-7, Water Code section 10608.26, a public hearing was held on March 29, 2012 to discuss the City's proposed per capita water use targets for 2015 and 2020. Further information on the City's compliance with SBx7-7 is provided in Chapter 6 and Appendix I.

The City will make the adopted 2010 UWMP available for public review by maintaining a copy at the City's Department of Public Utilities Water Division office (located at 1910 East University Avenue) and posting a copy on the City Water Division's webpage at www.fresnowater.org.

2.1.2 Other Agency Involvement

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.

10621 (b) Every urban water supplier required to prepare a plan pursuant to this part shall 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 regularly coordinates with the City of Clovis, the Fresno Irrigation District (FID), Fresno County and other water purveyors in the Fresno area, including the Bakman Water District, Pinedale Water District, and others to discuss and coordinate water supply issues of common concern and interest. At least 60 days prior to the public hearing on the Draft 2010 UWMP, the City notified the County, FID and the other local water purveyors regarding the preparation of this 2010 UWMP. Prior to the public hearing, copies of the Draft 2010 UWMP were distributed for their review and comment. Copies of the agency notices are provided in Appendix B. Applicable comments were then incorporated into the final adopted 2010 UWMP. Within 30 days of plan adoption, a copy of this 2010 UWMP (including the water supply reliability section (see Chapter 5)) was provided to Fresno County in accordance with the requirements of the UWMP Act. Table 2-1 provides a summary of coordination with these other agencies.

Table 2-1. Coordination with Appropriate Agencies (DWR Table 1)

Agency	Participated in UWMP Development	Notified 60 days Prior to Public Hearing	Commented on Draft UWMP	Attended Public Meetings	Was Contacted for Assistance	Sent Copy of Draft UWMP	Sent Notice of Intention to Adopt	Not Involved/ No Info.
Bakman Water Company	✓	✓				✓ [(a)]	✓	
City of Clovis	✓	✓				✓	✓	
Fresno County	✓	✓				✓	✓	
Fresno Irrigation District (FID)	✓	✓				✓	✓	
Fresno Metropolitan Flood Control District (FMFCD)	✓	✓	✓			✓ [(a)]	✓	
Friant Water Users Authority	✓	✓				✓ [(a)]	✓	
Garfield Irrigation District	✓	✓				✓ [(a)]	✓	
Malaga County Water District	✓	✓				✓ [(a)]	✓	
Pinedale County Water District	✓	✓				✓ [(a)]	✓	

[(a)] These agencies were not sent hard copies of the Draft UWMP, but were notified of the availability of the Draft UWMP on the City's website.

2.2 PLAN ADOPTION

10642. After the hearing, the plan shall be adopted as prepared or as modified after the hearing.

The Fresno City Council adopted this 2010 UWMP on November 29, 2012 (see City Resolution in Appendix C). The City will submit the adopted 2010 UWMP to DWR, the California State Library, and Fresno County within 30 days after its adoption, as required by Section 10644 of the UWMP Act.

2.3 PLAN REVIEW AND UPDATE

10640. The supplier shall …. periodically review the plan as required by Section *10621, and any amendments or changes required as a result of that review shall be adopted pursuant to this article.*

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.

10621 (c) The amendments to, or changes in, the plan shall be adopted and filed in the manner set forth in Article 3.

The City will periodically review the adopted 2010 UWMP to determine if any revisions or updates are warranted. Amendments or changes to the UWMP will be adopted pursuant to the requirements of the UWMP Act. Copies of amendments or changes to the UWMP will be submitted to the DWR, the California State Library, and Fresno County within 30 days after adoption.

Per the UWMP Act, the next required update of the City's UWMP will be due to DWR by December 31, 2015.

2.4 PLAN IMPLEMENTATION

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

The implementation plan provided in the City's previous UWMP, adopted in 2008, was reviewed during the preparation of this 2010 UWMP. City's future water conservation plan, described in this 2010 UWMP, takes an incremental, but realistic, approach to an aggressive long-term goal, reducing the per capita water consumption by 20 percent in accordance with the requirements of SBx7-7 and balancing aquifer usage. The City will strive to go above and beyond the water conservation programs proposed in this 2010 UWMP and expedite the construction of new facilities and the implementation of new programs to ensure that the use of available water resources is maximized in the future. A full discussion of the City's water conservation efforts is included in Chapter 8 of this 2010 UWMP.

2.5 COMPLIANCE WITH THE CALIFORNIA ENVIRONMENTAL QUALITY ACT

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

Per Section 10652 of the California Water Code, the California Environmental Quality Act (CEQA) does not apply to the preparation and adoption of UWMPs or the implementation of potential actions included in the Water Shortage Contingency Plan (per Section 10632 of the California Water Code) (see Chapter 9). However, in compliance with CEQA requirements, as part of the Metro Plan Update, the City will be preparing an Environmental Impact Report for the proposed future water supply plan discussed in this UWMP.

2.6 RESOURCE MAXIMIZATION AND IMPORT MINIMIZATION

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.

Water management tools have been used by the City to help maximize water resources and reduce the need for new supplies. The City has been committed to integrating water conservation into future supply and demand solutions for many years.

In 1957, the City was one of the first in the State of California to pass a water waste ordinance and, in 1978, the City implemented time-of-day outdoor water use restrictions to help optimize water use. Today, the City continues to implement numerous water conservation programs, including an aggressive public information program and school education program. In 2006, the City implemented a residential toilet retrofit program which has been extremely successful, and in late 2007, the City implemented a high-efficiency clothes washer rebate program. In late 2012, the City will be completing its residential water meter program, involving the installation of over 100,000 water meters for single-family homes. With the completion of this program, all of the City's water service connections will be metered, and the City and its customers will be able to work more closely together to optimize future water use.

By reducing the demand of current water customers and assuring that all new water uses are efficient, the amount of water the City will need to serve existing and future customers and the need for new supplies will be reduced.

3.1 WATER SERVICE AREA DESCRIPTION

10631 (a) Describe the service area of the supplier; including current and projected population, climate and other demographic factors affecting the supplier's water management planning. The project population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

The City currently encompasses over 110 square miles and the City Water Division serves an estimated service area population of 509,265 people (as of January 1, 2012)[1]. In 1989, the City Water Division acquired numerous County water facilities and began serving customers previously served by the County. This added a significant number of customers to the City's water service area. With the exception of the Bakman Water Company (Bakman), Pinedale County Water District (Pinedale), Park Van Ness Mutual Water Company (Park Van Ness), California State University at Fresno (CSUF), and private groundwater users located within County islands, the City currently serves the entire area encompassed by its City Limits and Sphere of Influence (SOI). The SOI is coincident with the General Plan Boundary and therefore, includes all lands planned to be annexed by the City by buildout of the General Plan[2]. Figure 3-1 shows the City's water service area.

3.2 WATER 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 United States Census Bureau (U.S. Census), the City's population increased from 10,818 persons in 1900 to 60,685 in 1940, and 218,202 in 1980. According to the U.S. Census, the City population was 354,282 in 1990, 427,652 in 2000, and 494,665 in 2010[3].

The historical and projected water service area population was estimated using data collected from the City, U.S. Census, and the California Department of Finance (DOF). As described above, the City's water service area is encompassed by its City Limits and SOI; however, there are portions of the City Limits and SOI area which are served by others. The methodology used to develop existing and future water service area population estimates is described below.

3.2.1 Historical Water Service Area Population

The City's service area population has been estimated using data from the U.S. Census and DOF to the extent that it is available. The City evaluated 2000 Census tract population data for the overall Fresno area and population corresponding to the areas that the City does not serve were subtracted out as shown in Table 3-1. As shown in Table 3-1, the resulting population for the City's service area for 2000 was about 4,800 people greater than the City's population (based on California DOF data).

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[1] See Section 3.2.1 and Table 3-2 for discussion of City of Fresno water service area population.

[2] As described in the 2025 Fresno General Plan (prepared by City of Fresno Planning & Development Department, February 2002). The City is currently in the process of updating its General Plan with a planning horizon of 2035.

[3] U.S. Census website (www.census.gov).

Table 3-1. City of Fresno Water Service Area Population in 2000	
Population Area	Associated Population
Total Population for Fresno Area Census Tracts (April 1, 2000)	501,048
Subtraction of Population for Census Tracts or Portions of Census Tracts Not Served by City:	
Bakman Water District	(13,767)
Pinedale County Water District	(9,996)
City of Clovis	(7,972)
Outside of SOI	(14,577)
Unserved County Areas	(8,425)
Unserved City Areas	(6,003)
Adjustment for Census Blocks with Partial Service Only	(7,915)
Total Adjustment	(68,655)
Total Population Served by City of Fresno (April 1, 2000)	432,393
Total Population Served by City of Fresno in 2000 (December 31, 2000)[a]	**438,381**
Total Population for City of Fresno in 2000 (January 1, 2001)[b]	433,574

[a] Increased from April 1, 2000 estimate by 1.38% based on DOF percentage increase for the City of Fresno from April 2000 to December 2000.
[b] Based on the California DOF Report E-4 for City of Fresno.

Based on the City's service area population calculated for 2000, pre-2000 service area populations were estimated by reducing the 2000 service area population in accordance with the California DOF annual population percentage change for the City of Fresno. Similarly, post-2000 service area populations were estimated by increasing the 2000 service area population in accordance with the California DOF annual population percentage change for the City of Fresno.

The City's historical service area population from 1991 to 2011 is summarized in Table 3-2 and shown in Figure 3-2.

Table 3-2. City of Fresno Historical Water Service Area Population

Year	City of Fresno Population (per California Department of Finance Report E-4 and E-5)[a]	Annual Percentage Change in City of Fresno Population (per California Department of Finance Report E-4)	Estimated Service Area Population[b]
1991	379,823	3.72%	384,034
1992	389,144	2.45%	393,458
1993	395,649	1.67%	400,035
1994	401,317	1.43%	405,766
1995	406,338	1.25%	410,843
1996	410,813	1.10%	415,367
1997	414,597	0.92%	419,193
1998	419,629	1.21%	424,281
1999	425,778	1.47%	430,498
2000	433,574	1.83%	438,381
2001	440,193	1.53%	445,073
2002	447,548	1.67%	452,510
2003	452,909	1.20%	457,930
2004	457,786	1.08%	462,861
2005	463,405	1.23%	468,542
2006	470,817	1.60%	476,037
2007	477,499	1.42%	482,793
2008	487,353	2.06%	492,756
2009	494,053	1.37%	499,530
2010	497,561	0.71%	503,077
2011	505,009	1.23%	509,265

(a) Population for each calendar year is based on the January 1 population for the following year (*e.g.,* 2000 population is based on January 1, 2001 population). Data for 2010 and 2011 based on California Department of Finance *Report E-1 Population Estimates for Cities, Counties, and the State*, dated May 2012.

(b) 2000 service area population is derived based on 2000 Census data for the City of Fresno Metropolitan area, minus population for areas not served by the City (population for Census tracts not served by City subtracted out) (see Table 3-1). Pre-2000 service area population was determined by reducing the 2000 service area population in accordance with DOF annual percentage population change for City of Fresno. Post-2000 service area population was determined by increasing the 2000 service area population in accordance with DOF annual percentage population change for City of Fresno.

3.2.2 Projected Future Water Service Area Population

In the future, the population of the City's water service area is anticipated to continue to grow as additional development and redevelopment occurs within the City's SOI. The City is currently in the process of updating its General Plan to include growth through 2035. The Fresno Council of Governments (Fresno COG) has projected a 2035 County-wide population of 1,290,000, with

61 percent of that population being in the City of Fresno (786,000 people)[4]. This population projection equates to an average growth rate of about 1.82 percent.

Figure 3-3 shows the projected future population to be served by the City Water Division based on the Fresno COG projection for 2035[5]. For reference purposes, the population projection used in the City's previous UWMP is also shown, which was based on the City's 2025 General Plan buildout projected population of 790,955 people. The average growth rate corresponding to this previous projection was about 2 percent per year. As noted previously, the City is currently in the process of updating its General Plan with a 2035 planning horizon. As shown in Figure 3-3, the projected 2035 population is consistent with the previously projected 2025 population, and represents a 10-year shift in the buildout of the City's General Plan SOI.

Table 3-3 summarizes the projected population estimate for the City's water service area based on the Fresno COG population projection for 2035.

Table 3-3. Population - Current and Projected[(a)] (DWR Table 2)

	2010	2015	2020	2025	2030	2035	Data Source
City of Fresno Water Service Area Population	503,077	547,466	599,271	655,979	718,052	786,000	Fresno Council of Governments

(a) Based on Fresno Council of Governments 2035 projection for Fresno County (1,290,000), with 61 percent of that population being in the City of Fresno (reference: Fresno General Plan and Development Code Update, Alternatives Report, prepared by City of Fresno, et. al., March 2012).

3.3 SERVICE AREA CHARACTERISTICS

3.3.1 Water Customers

In 2010, the City had approximately 130,317 water service connections[6]. Approximately 84 percent of these connections were single-family residential. The remaining 16 percent of the connections were multi-family residential, commercial/institutional, industrial, landscape irrigation, and fire service connections. Table 3-4 provides a summary of the City's water service connections in 2010.

[4] Fresno General Plan and Development Code Update, Alternatives Report, prepared by City of Fresno, et. al., March 2012.

[5] An adjustment to the projected City population for 2035 has not been made to account to water service customers located outside City limits. As described in Section 3.2.1, the City's service area population has been historically about 4,300 to 4,800 more than the City of Fresno population. However, this equates to only about 0.6 percent of the projected 2035 population and is considered insignificant for the purposes of this 2010 UWMP.

[6] Source: City of Fresno Public Water System Statistics Report for Calendar Year 2010.

Table 3-4. City of Fresno 2010 Water Service Connections[a]		
Land Use Type	Number of Service Connections in 2010	Percent of Total Connections
Single-Family Residential	109,058	83.7%
Multi-Family Residential	7,315	5.6%
Commercial/Institutional	8,044	6.2%
Industrial	92	0.001%
Landscape Irrigation	2,995	2.3%
Other	0	0.0%
Fire Service	2,813	2.2%
Total Connections	130,317	100.0%

(a) City of Fresno Public Water System Statistics Report for Calendar Year 2010.

3.3.2 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 3-5 which shows the average monthly temperature and rainfall for a weather station located near the Fresno airport. Average evapotranspiration (Et_o) is based on data from a monitoring station located at Fresno State University.

Table 3-5. City of Fresno Climate Data

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Average Et_o, inches[a]	0.85	1.63	3.23	5.23	6.96	7.97	8.65	7.64	5.41	3.59	1.68	0.85	53.69
Average Max Temperature, °F[b]	54.6	61.5	67.0	74.4	83.5	91.7	98.3	96.3	90.7	79.7	65.3	54.7	76.5
Average Min Temperature, °F[b]	37.6	40.7	43.8	48.0	54.3	60.5	65.7	63.9	59.6	51.2	42.4	37.3	50.4
Average Rainfall, inches[b]	2.09	1.90	1.89	1.03	0.36	0.16	0.01	0.01	0.15	0.53	1.13	1.64	10.89

(a) Source: CIMIS Website: wwwcimis.water.ca.gov, Station 80 Fresno State (1988 to Present), Monthly Average Eto Report, August 2006 (downloaded July 17, 2012).
(b) Source: Data from Western Regional Climate Center (http://www.wrcc.dri.edu) for Fresno WSO AP, California. Period of Record 7/1/48 to 6/30/2012 (downloaded July 17, 2012).

These climate characteristics highly influence the City's water use. 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.

3.3.3 Other Demographic Factors

A number of other demographic factors also influence water use in the City. As shown in Table 3-4, most of the City's water customers are single-family residential homes, which have historically not been metered. Because these customers have been billed on a monthly flat rate structure, they have been unaware of the water that they actually use and have had no real incentive for water conservation. This undoubtedly has contributed somewhat to the high water demands experienced in the City in past years, especially in the summer months. As described in Chapter 2, in late 2012, the City will be completing its residential water meter program, involving the installation of over 100,000 water meters for single-family homes. With the completion of this program, all of the City's water service connections will be metered, and the City and its customers will be able to work more closely together to optimize future water use. As this occurs, residential water demands, especially during the summertime, will likely decrease.

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.

3.4 EXISTING WATER SYSTEM

3.4.1 Historical Overview

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" Streets. 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. Some of these original "permanent pipes" are still an integral part of 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 as the City's primary water supply source, and there are presently about 270 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.

In 2004, the City also began treating surface water supplies for direct potable use at its new Surface Water Treatment Facility (SWTF). The SWTF located in northeast Fresno currently provides about 14 percent of the City's potable water supplies[7].

3.4.2 Existing Water System

The City's existing water system consists of about 1,777 miles of transmission and distribution pipelines, 270 operational groundwater wells, a 30 million gallon per day (mgd) surface water treatment facility, storage facilities, and booster pump facilities. The distribution system is divided into four quasi-pressure zones to help regulate minimum and maximum system pressures in the various topographic areas of the City. Figure 3-4 shows the City's existing water system facilities.

[7] Based on 2011 production data (Source: pumpingstats.xls obtained from City). Total water production in 2011 was 140,089 acre-feet. Deliveries from the Surface Water Treatment Facility were 20,216 acre-feet. Remaining production of 119,813 acre-feet was from groundwater.

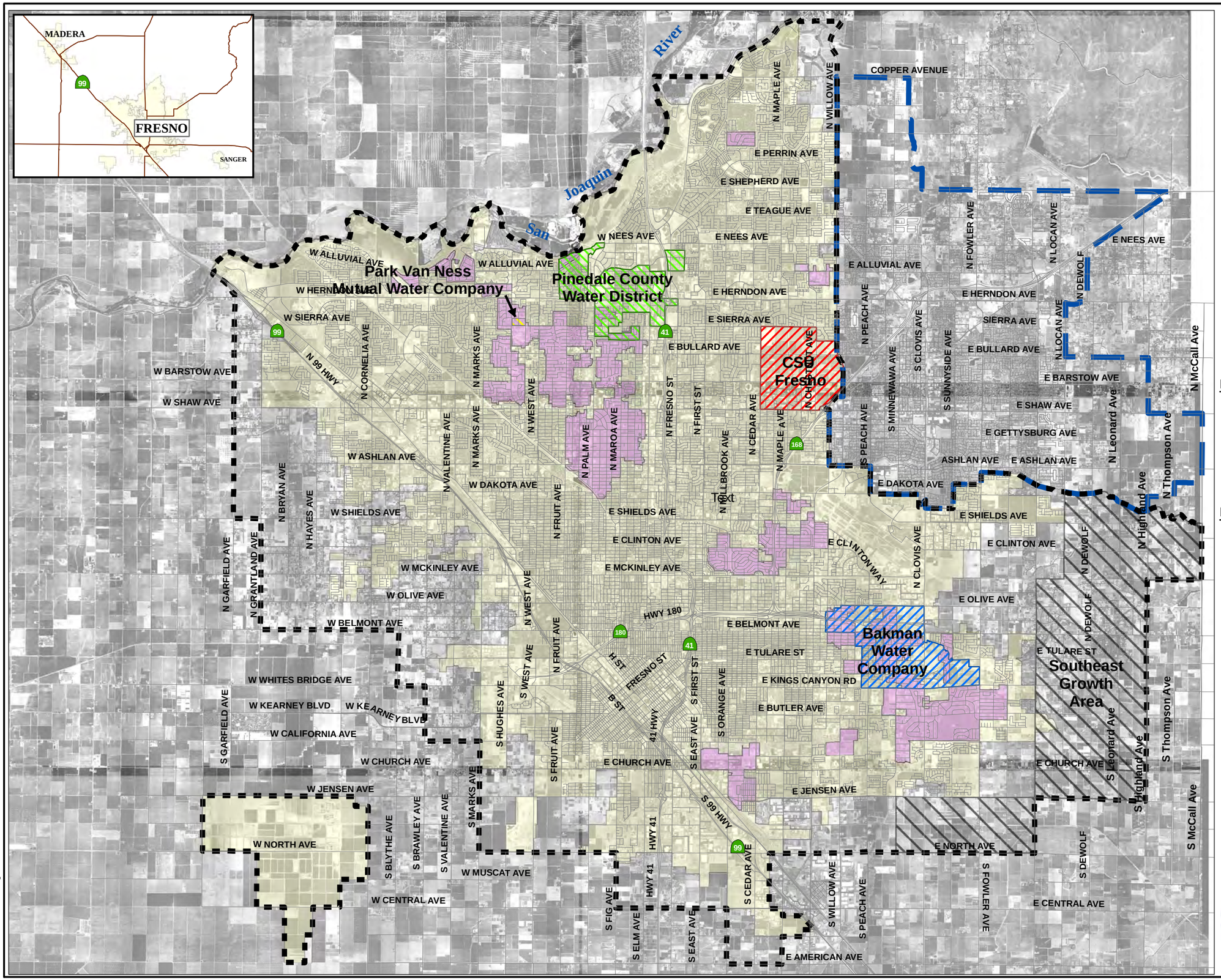


FIGURE 3-1

City of Fresno 2010 Urban Water Management Plan

WATER SERVICE AREA

N

0 1 2 4
Scale in Miles

NOTES:

LEGEND:

- Fresno Sphere of Influence
- Clovis Sphere of Influence
- Pinedale County Water District
- Bakman Water Company
- California State University, Fresno
- Park Van Ness Mutual Water Company
- Southeast Growth Area
- County Island
- City Limit

City of FRESNO

WEST YOST ASSOCIATES
Consulting Engineers

O:\C\439\021110\GIS\Figure 3-1.mxd

Figure 3-2. City of Fresno Historical Population

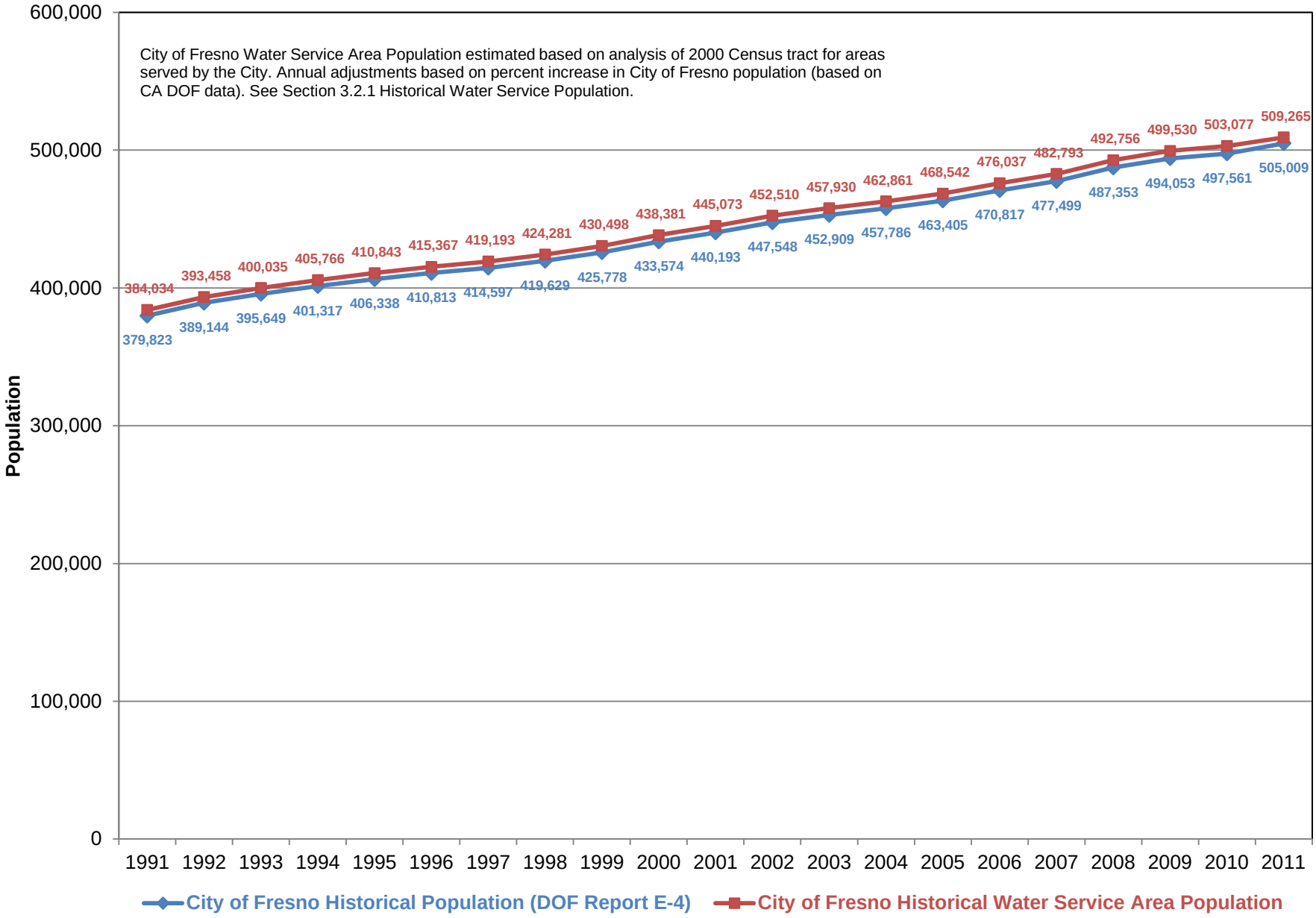


Figure 3-3. City of Fresno Water Service Area Population Projections

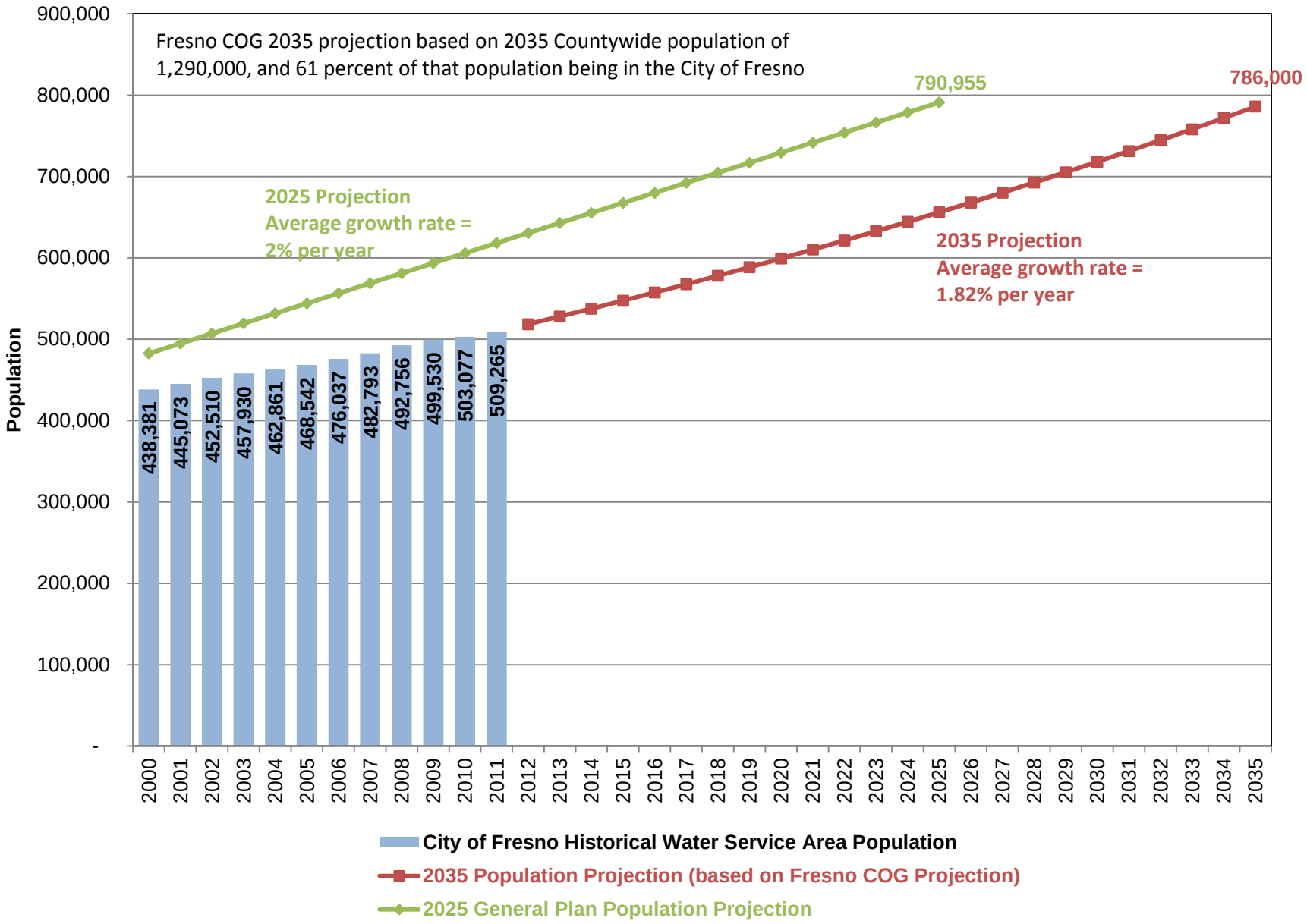
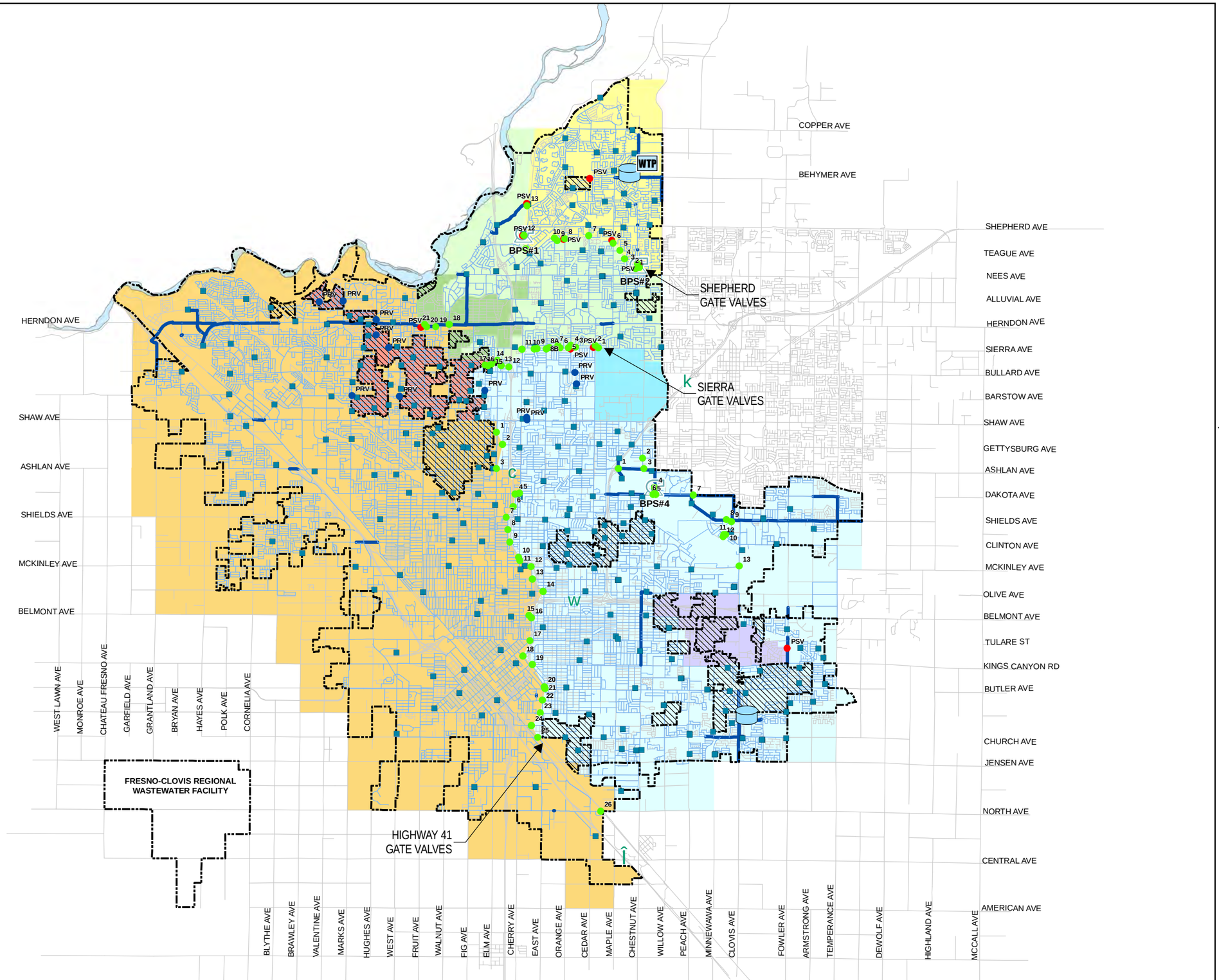


FIGURE 3-4

City of Fresno 2010 Urban Water Management Plan EXISTING WATER DISTRIBUTION SYSTEM



Notes
1. Boundaries are approximated based on gate valve locations shown by GIS information provided by City Staff.

N

0 1 2
Scale in Miles

LEGEND

- WTP Surface Water Treatment Facility
- Booster Pump Station
- Existing City Wells
- Existing Storage Tank
- Closed or Partially Closed Gate Valve Location
- PSV Location
- Fluoride District PRV Location
- County Islands
- Existing City Limit
- Existing 14-inch and Smaller Pipelines
- Existing 16-inch and Larger Pipelines

Quasi Pressure Zones

- Shepherd
- Sierra A
- Sierra B (Pinedale County Water District)
- Highway 41
- Highway 41 B (CA State University Fresno)
- Highway 41C (Backman Water Company)
- Westside
- Fluoride District

City of FRESNO

WEST YOST ASSOCIATES Consulting Engineers

O:\C1439\021110\GIS\Figure 3-4

4.1 EXISTING SUPPLY SOURCES

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

The City of Fresno currently uses groundwater and treated surface water to meet its demands. These existing supply sources are described below.

4.1.1 Surface Water Supplies

The City of Fresno currently has three sources of surface water supplies:

- Surface water supplies available from FID contract;
- Surface water supplies available from USBR; and
- Surface Water Supply Available through the City's Wastewater Recycled Exchange Agreement with FID.

These available surface water supplies are treated at the City's Surface Water Treatment Facility (SWTF) located in northeast Fresno. The existing SWTF currently has a design capacity of 30 million gallons per day (mgd). Based on this design capacity, assuming that the SWTF is down for one month of the year for maintenance activities, the SWTF can provide up to approximately 30,800 af/yr of treated surface water supply. Each of the surface water supply sources is described below.

4.1.1.1 Surface Water Supplies Available through the City's FID Contract

On May 25, 1976, the City signed a contract with FID for delivery of the City's pro rata share of FID's water entitlements on the Kings River. The contract specifically excludes any of FID's Class 2 USBR entitlement and any water stored in Pine Flat Reservoir by FID. A copy of the City's contract with FID is provided in Appendix D of this UWMP. This supply from FID is a wholesale water supply.

4.1.1.1.1 FID Water Entitlements on the Kings River

The Kings River Water Association (KRWA) allocates entitlements to Kings River contractors on a daily basis; these entitlements are allocated among the contractors using a methodology that estimates the flow in the Kings River before construction of Pine Flat Reservoir (*i.e.*, the project). Once KRWA calculates the "pre-project" entitlement, FID has the option of releasing the entire entitlement for downstream diversion, or storing a portion of the entitlement within Pine Flat Reservoir for use at a later date. As discussed previously, the City's portion of FID's Kings River water does not include water stored in Pine Flat Reservoir.

Water delivered from the Kings River is of extremely good quality, as these waters originate from snowmelt in the high sierras that has not been subjected to detrimental influences.

4.1.1.1.2 Percent Allocation of FID Supply to the City

In accordance with the City's 1976 agreement with FID, the actual water supply available to the City is a percentage of FID's diversion from the Kings River. The percentage is based on the ratio of the total area annexed by the City, compared to the total area within FID's water service area, including the area served by the City. Hence, the water available to the City through its contract with FID will increase over time as the City annexes additional lands within FID's water service area.

Table 4-1 presents the City's estimated future allocation percentages and FID surface water available for the City to purchase during normal years based on its 1976 agreement with FID. The City's percentage allocation for 2005 was provided by FID, while the allocations for 2010 through 2035 were calculated by West Yost. As noted, the allocation for 2035 is based on the previous presented allocation for 2025 (from City's previous UWMP Table 4-2) due to the shift in the City's General Plan buildout from 2025 to 2035. As shown, the percentage of FID's total Kings River diversion available to the City increases over time. Availability and reliability of the Kings River supply during other hydrologic conditions is discussed in Chapter 5 of this UWMP.

Table 4-1. Projected Allocation and Availability of FID Kings River Diversion to the City of Fresno

	2005	2010	2015	2020	2025	2030	2035
Projected City Allocation[(a)], %	23.63%	25.10%	26.57%	28.04%	29.50%	30.97%	32.44%
FID Kings River Diversions Available to the City in Normal Years[(b)], af/yr	92,200	97,900	103,600	109,300	115,100	120,800	126,500
Actual Deliveries to City, af/yr	124,034	132,541	--	--	--	--	--

(a) Allocation in 2005 was provided by FID. Allocation for 2035 is based on previous 2025 allocation (from City's previous UWMP Table 4-2) due to shift in General Plan buildout from 2025 to 2035. The allocation for other years is based on interpolation.
(b) Projected City allocation (%) x 390,000 af/yr (estimated normal year diversion by FID, see additional discussion in Chapter 5).

4.1.1.2 Surface Water Available Under the City's USBR Contract

The City recently renewed its contract with the USBR[1]. USBR oversees diversions from the San Joaquin River through the Friant-Kern Canal of the Central Valley Project (CVP). The USBR owns the Friant-Kern Canal and the Friant Water Authority maintains and operates the Friant-Kern Canal. The City's total entitlement from the USBR is 60,000 acre-feet per year of Class 1 water. A copy of the City's contract with the USBR is provided in Appendix D of this UWMP. This supply from the USBR is a wholesale supply.

USBR Class 1 water is generally water available from Millerton Lake, and is a very dependable water supply, regardless of the type of hydrologic water year. Class 2 water is generally any

[1] The City now has a permanent Repayment Contract with the USBR authorized under Section 9(d) of the Reclamation Project Act of 1939.

excess water available as determined by USBR, and is not considered as dependable as Class 1 water.

The water from the San Joaquin River is of extremely good quality; these waters also originate from snowmelt in the high sierras that have not been subjected to detrimental influences.

Table 4-2 presents the USBR surface water available to the City during normal years (about 97 percent of total entitlement). Availability and reliability during other hydrologic conditions is discussed in Chapter 5 of this UWMP.

Table 4-2. USBR Entitlement Available to the City during Normal Years

	2005	2010	2015	2020	2025	2030	2035
Normal Years, af/yr	58,200	58,200	58,200	58,200	58,200	58,200	58,200
Actual Deliveries to City, af/yr	60,222	61,375	--	--	--	--	--

4.1.1.3 Surface Water Supply Available through the City's Wastewater Recycled Exchange

In addition to the contracts with FID, as described above for a portion of its Kings River entitlement, the City also has a contract with FID that allows the City to pump groundwater developed through the percolation of previously treated wastewater effluent. This percolated water is then extracted and pumped into FID canals for delivery to downstream customers.

In return, the agreement states that FID will provide the City with surface water from either its Kings River entitlement or its Class 2 USBR water "insofar as is feasible and practical." The quantity of surface water that FID is required to 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.

Historically, the City has percolated as much as 65,100 af of treated effluent, and pumped as much as 32,300 af per year into FID canals. Over the maximum 10-year period from 1996 to 2005, the City pumped 230,327 af into FID canals, exceeding the 100,000 af limit. Discussions with City staff indicate that, to date, the City has not requested that FID supply surface water to the City to replace the groundwater pumped into the FID delivery canals. However, based on a 46 percent return from FID, the City should be able to obtain 13,800 af of Kings River water from FID. For planning purposes, it was assumed that "insofar as is feasible and practical" implied that FID could supply up to 13,800 af of surface water supply during all hydrologic conditions. This supply from FID is a wholesale water supply.

The quality of the surface water that the City would receive through this FID contract is identical to the water quality it receives from either the Kings River or the USBR.

Table 4-3 presents the recycled exchange water available to the City during normal years. As shown, the City has not taken delivery of this water supply. Availability and reliability during other hydrologic conditions is discussed in Chapter 5 of this UWMP.

Table 4-3. Recycled Exchange Water Available to the City during Normal Years

	2005	2010	2015	2020	2025	2030	2035
Normal Years, af/yr	13,800	13,800	13,800	13,800	13,800	13,800	13,800
Actual Deliveries to City, af/yr	0	0	--	--	--	--	--

4.1.1.4 Treatment of Surface Water Supplies

Table 4-4 shows the City's total surface water supplies as compared to its planned surface water treatment capacity. As shown, in Normal years, the City is projected to have sufficient surface water supplies for treatment, with additional surface water supplies available for intentional recharge. The City's plans for additional surface water treatment and expanded intentional recharge is described in Section 4.2.

Table 4-4. Projected Availability of Treated Water Supplies during Normal Years

Treatment Facility	Projected Future Surface Water Supplies and Treatment Capacity, af/yr				
	2015	2020	2025	2030	2035
Total Surface Water Supply in Normal Years (FID Kings River + USBR CVP + FID Exchange)	175,600	181,300	187,100	192,800	198,500
Planned Surface Water Treatment Capacity					
Existing Northeast SWTF	30,800	30,800	30,800	30,800	30,800
Expansion of Existing Northeast SWTF	--	20,600	20,600	20,600	20,600
New Southeast SWTF	72,000	72,000	72,000	72,000	72,000
Total Surface Water Treatment Capacity (see Section 4.2.2)	102,800	123,400	123,400	123,400	123,400
Surface Water Supplies to be Treated at City's SWTFs (see Section 4.2.2)	102,800	123,400	123,400	123,400	123,400
Remaining Surface Water Available for Intentional Recharge (see Section 4.2.3)	72,800	57,900	63,700	69,400	75,100

4.1.2 Groundwater Supplies

4.1.2.1 Groundwater Overview

The City is one of many water purveyors that use groundwater from the Kings Subbasin, which is part of the greater San Joaquin Valley Groundwater Basin (SJV Basin). The City currently operates approximately 270 municipal supply wells within the Kings Subbasin, and until late 2004, relied solely on pumped groundwater to meet the water demands within its service area.

4.1.2.2 Groundwater Management

10631 (b)(1) A copy of any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section *10750), or any other specific authorization for groundwater management.*

In 2006, the Fresno Area Regional Groundwater Management Plan (FARGMP) was prepared to comply with AB 3030 and SB 1938. Participating agencies, including the City, adopted the FARGMP in 2006. Participating agencies and adoption dates are listed in Table 4-5.

Table 4-5. Groundwater Management Plan Participants

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 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 Fresno Area Regional Groundwater Management Plan is provided in Appendix E of this UWMP.

4.1.2.3 Description of Groundwater Basin

10631 (b)(2) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For those basins for which a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For basins that have not been adjudicated, information as to whether the department has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition.

As described below, the City of Fresno overlies the Kings Subbasin of the San Joaquin Valley Groundwater Basin. The Kings Subbasin (DWR Basin No. 5-22.08) underlies Fresno, Kings, and Tulare Counties and has a surface area of 976,000 acres (1,530 square miles). The Kings Subbasin has not been adjudicated. However, as described further in Section 4.1.2.3.6, the Kings Subbasin was identified in DWR's Bulletin 118-80 to be in a critical condition of overdraft.

4.1.2.3.1 Basin Location

The SJV Basin comprises the southern portion of the Great Central Valley of California, and is bounded to the north by the Sacramento-San Joaquin Delta and Sacramento Valley, to the east by the Sierra Nevadas, to the south by the San Emigdio and Tehachapi Mountains, and to the west by the Coast Ranges.

The Kings Subbasin, located within the southern half of the SJV Basin, is bounded to the north by the San Joaquin River, to the east by the alluvium-granite rock interface of the Sierra Nevada foothills, and to the west by the Delta-Mendota and Westside Subbasins. The Kings Subbasin is bounded to the south by the northern boundary of the Empire West Side Irrigation District, the southern fork of the Kings River, the southern boundary of the Laguna Irrigation District, the northern boundary of the Kings County Water District, and the western boundary of Stone Corral Irrigation District. Figure 4-1 illustrates the location of the City relative to the boundaries of the Kings Subbasin.

4.1.2.3.2 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 northwest Fresno. 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.

Figure 4-2 presents an idealized geologic cross-section that illustrates the general depth of various lithologic features within the Kings Subbasin near the City.

4.1.2.3.3 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 4-6 summarizes the pump test data by general geographic location within the City (*i.e.*, North, South, East, and West Fresno). As shown in Table 4-6, the northwestern and southwestern portions of the City have wells with higher transmissivities and higher specific capacities.

Table 4-6. Summary of Groundwater Pump Tests within the City of Fresno[(a)]

Area of the City	Date Range	Range of Pumping Rates, gpm	Range of Transmissivities, gpd/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

[(a)] All data provided by Kenneth D. Schmidt and Associates.

4.1.2.3.4 Current Water Level Elevation and Flow Direction

Water surface elevations for the shallow groundwater zone range from less than 190 feet to more than 300 feet above mean sea level, and a large cone of depression extends from Herndon Avenue to Jensen Avenue in the north-south direction, and from Maple Avenue and Brawley Avenue in the east-west direction. There is a large mound of groundwater near the Regional Water Reclamation Facility (RWRF), which is due to the City's percolation of treated effluent.

Water surface elevations for the deeper groundwater zone ranged from 185 to 230 feet above mean sea level, with a larger cone of depression extending to the northeast to a greater extent than the cone of depression observed for the shallow groundwater zone. The cone of depression within the deep groundwater bearing zone is likely associated with the development of new "moderately" deep groundwater wells constructed since the late 1980's in the northern portion of the City. The groundwater recharge mound, near the wastewater treatment plant, is not present in the deeper aquifer zone.

4.1.2.3.5 Historical Water Level Trends

Groundwater levels in the Fresno area have declined by an average of about 1.5 feet per year since 1990. The slowest groundwater-level declines (less than 0.5 feet per year) were generally observed in the southwestern portion of the City's downtown area, while groundwater-level declines increased to 1.0 foot per year northeast of the downtown area. Average groundwater-level declines as high as 1.5 feet per year were primarily observed in the northern and southeastern (near the Fresno Air Terminal) portions of the City. The largest average annual groundwater-level declines (3.0 feet per year) were observed in the northeastern area of the City, near Clovis.

4.1.2.3.6 Groundwater Overdraft

Groundwater overdraft is defined by DWR as the condition of a groundwater basin or subbasin in which the amount of water withdrawn by pumping exceeds the amount of water that recharges the basin over a period of years, during which the water supply conditions approximate average conditions[2]. In the DWR Bulletin 118-80 Ground Water Basins in California, published in 1980, critical overdraft was defined as follows:

> *A basin is subject to critical conditions of overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts.*

In DWR Bulletin 118-80, eleven basins, including the Kings Subbasin, were identified as being in a critical condition of overdraft. The overdraft status of these basins was not re-evaluated by DWR in the DWR Bulletin 118-03; however, the DWR Bulletin 118-03 does acknowledge the groundwater recharge programs being conducted by the City of Fresno, FID, and FMFCD within the Kings Subbasin to ensure that groundwater will continue to be a viable water supply in the future. As described below, one of the City's key objectives is to balance its groundwater operations by the year 2025, whereby groundwater pumpage equals groundwater recharge, to minimize the potential for further groundwater level declines and water quality impacts.

[2] Chapter 6 Basic Groundwater Concepts, DWR Bulletin 118 California's Groundwater, Update 2003.

4.1.2.4 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.

4.1.2.5 Estimated Groundwater Yield for the City

The estimated groundwater yield for the City has been estimated based on natural groundwater recharge and intentional groundwater recharge. These are described below.

4.1.2.5.1 Natural Recharge

With the completion of the groundwater model for the Metro Plan Update, average annual natural recharge for existing conditions has been estimated to be approximately 37,000 af/yr for the City SOI area, which includes the Pinedale, Bakman, and CSUF areas. In the future, as additional urbanization is assumed to occur, the groundwater model projects that the average natural groundwater recharge within the Fresno SOI will decrease to about 27,000 af/yr by 2025.

The City currently makes up about 68 percent of the pumpage within the SOI[3]; therefore, it is assumed that about 68 percent of the natural recharge is currently available to the City. However, as the City expands into the SOI, the percent allocated to the City will continue to increase, until the entire natural recharge of the SOI, 27,000 af/yr, will be available to the City.

4.1.2.5.2 Net Subsurface Inflow

The groundwater model prepared for the Metro Plan Update, estimates net subsurface inflow for the Fresno SOI to be approximately 65,000 af/yr. It is unclear how much of this net subsurface inflow is available to the City; however, for purposes of this UWMP, it is estimated that 22,500 af/yr of net subsurface inflow is currently available to the City (as of 2010). However, as the City balances its future groundwater operations, subsurface inflows and outflows should also

[3] Estimate for 2010 interpolated based on 2007 data. In 2007, the estimated percentage was 64 percent based on the average City pumpage 1990 to 2006 (139,000 af/yr) as compared to SOI pumpage of 218,000 af/yr (WRIME November 2007 IGSM Report).

be balanced and cancel each other out. Therefore, by 2025, it is assumed that there is no net subsurface inflow available to the City.

4.1.2.5.3 Intentional Groundwater Recharge with Surface Water

There are a number of groundwater recharge basins in and around the City of Fresno operated by FMFCD, FID, the City of Fresno, and the City of Clovis. The City currently recharges these groundwater basins with surface water using several recharge facilities within its service area. A majority of these facilities are located in the north-central portion of the City, away from future expansion areas, such as the Southeast Growth Area. Additionally, some of the FMFCD basins are actually dual use (recharge and recreation) basins.

Since 1990, the City's maximum annual recharge has been 62,000 af/yr (in 2003), and has averaged approximately 48,900 af/yr (1990 to 2011 average), with the majority of the recharge occurring at Leaky Acres and the FMFCD facilities (via interties provided by the City to the FMFCD basins). The overall variability to recharge water within each facility is due to a number of factors, which include pond availability, water delivery season, pond maintenance, or length of wet seasons. In 2007, due to various factors including operational issues at existing recharge facilities and dry year conditions, the intentional recharge was only 38,100 af/yr. In recent years, however, recharge operations have improved (in 2010, the recharge was 53,121 af). As described below, in the future, the City plans to significantly expand intentional groundwater recharge facilities to balance future groundwater operations.

Table 4-7 summarizes the estimated groundwater yield based on natural recharge, subsurface inflow, and intentional groundwater recharge.

Table 4-7. Current (2010) Groundwater Pumping Rights

Basin Name	Current (2010) Pumping Right, af/yr
San Joaquin Valley Groundwater Basin: Kings Subbasin	
Natural Recharge	24,400[(a)]
Net Subsurface Inflow	22,500[(b)]
Intentional Recharge	53,100[(c)]
Total Estimated Groundwater Yield	100,000

(a) Based on the City's 2010 estimated portion (68 percent) of Fresno SOI natural recharge (35,900 af/yr) (total natural recharge estimated to be available in 2010) based on work completed by WRIME in conjunction with the Metro Plan Update. In the future, this natural recharge within the Fresno SOI will further decrease to 27,000 af/yr as additional urbanization occurs; however, the City's portion will increase to 100 percent of SOI at buildout of the SOI in 2035.
(b) Based on estimated subsurface inflow currently available to the City (based on estimated 30,000 af/yr available in 2005 and decreasing to 0 af/yr by 2025 as the City balances its groundwater operations).
(c) Based on 2010 intentional recharge. In the future, the City plans to increase intentional recharge to balance future groundwater operations (see Table 4-9).

4.1.2.6 Groundwater Pumpage

4.1.2.6.1 Current Groundwater Pumpage

10631 (b)(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.

Groundwater pumpage by the City over the last five years is summarized in Table 4-8. As discussed previously, prior to 2004, the City relied 100 percent on groundwater. Since the SWTF was completed in 2004, reliance on groundwater has decreased somewhat.

Table 4-8. Groundwater – Volume Pumped (DWR Table 18)

Basin Name	Metered or Unmetered	2006	2007	2008	2009	2010
San Joaquin Valley Groundwater Basin: Kings Subbasin, af/yr	See Footnote[a]	136,050	145,148	148,006	138,254	128,578
Groundwater Pumped (Total)		136,050	145,148	148,006	138,254	128,578
% of Total Supply		87.4%	87.6%	88.0%	87.6%	87.4%

[a] Most of the City's groundwater wells have meters which measure the actual flow from the well. However, some of the City's wells do not have meters installed; flow from these wells is estimated based on the time of use and estimated flow rate. The City is in the process of installing meters on all of its wells.

As shown in Table 4-8, groundwater pumpage over the last five years has exceeded the current estimated groundwater yield of approximately 100,000 af/yr (based on natural recharge, net subsurface inflow, and intentional groundwater recharge) (see Table 4-7). As described below, in the future the City plans to reduce groundwater pumpage quantities while at the same time increasing intentional groundwater recharge such that groundwater operations can be balanced by the year 2025 (see Table 4-11).

4.1.2.6.2 Projected Groundwater Pumpage

10631 (b)(4) A detailed description and analysis of the amount and location of groundwater that is projected to be pumped by the urban water supplier. The description and analysis shall be based on information that is reasonably available, including, but not limited to, historic use records.

Table 4-9 summarizes the groundwater projected to be pumped by the City in the future in normal years. As shown, groundwater will continue to be an important component of the City's supplies, even with the continued and proposed expanded availability of surface water supplies. In the coming years, as part of the City's overall future water supply plan (described below), the City will decrease groundwater pumpage, while at the same time, increasing intentional groundwater recharge activities (further described below), such that groundwater operations can be in balance (*i.e.*, annual pumpage equal to annual recharge) by the year 2025.

Table 4-9. Groundwater – Volume Projected to be Pumped (DWR Table 19)					
Basin Name	2015	2020	2025	2030	2035
San Joaquin Valley Groundwater Basin: Kings Subbasin, af/yr	76,100	61,800	53,500	69,200	85,000
% of Total Supply	42%	33%	26%	32%	36%

As shown in Table 4-9, the amount of groundwater to be pumped in the future, as a percentage of total water supply, decreases over time as other water supply sources are expanded or introduced (see additional discussion below).

4.1.3 Recycled Water Supplies

As described in Chapter 10, disinfected tertiary recycled water from the North Fresno Water Reclamation Facility (WRF) has been used to irrigate the Copper River Golf Course. The permitted capacity of the WRF is 0.71 mgd (average monthly flow) and 1.07 mgd (maximum daily flow). The plant is master planned for expansion to 1.25 mgd average monthly flow at buildout.

As shown in Table 4-10, projected recycled water supplies from the North Fresno WRF range from about 750 af/yr to about 1,000 af/yr.

Table 4-10. Recycled Water Supplies Available to the City during Normal Years							
	2005	2010	2015	2020	2025	2030	2035
Normal Years, af/yr	0	750	1,000	1,000	1,000[(a)]	1,000[(a)]	1,000[(a)]
Actual Deliveries to City, af/yr	0	176	--	--	--	--	--
[(a)] Does not include planned additional recycled water from the City's RWRF (see Section 4.2.4).							

4.2 PLANNED SUPPLY PROJECTS AND PROGRAMS

10631 (h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section *10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.*

As part of the City's Metro Plan Update, the City has developed a future water supply plan to meet future demands using currently available and new water supply sources. The plan consists of several components including:

- Expansion of the City's water conservation program,
- Expansion of the City's surface water treatment capacity,
- Continued use of groundwater in coordination with expansion of the City's intentional groundwater recharge program, and
- Development of a recycled water program for landscape irrigation use.

The projected use of these existing and future water supplies to meet future demands is shown on Figure 4-3. As described in Chapter 6, the City's projected water demands presented in this 2010 UWMP are based on compliance with SBx7-7 and are lower than the previous land use based water demands presented in the City's Metro Plan Update. For purposes of this 2010 UWMP, and to be conservative, projected supplies are based on the higher Metro Plan Update projected demands so that if for some reason the City cannot comply with the SBx7-7 targets, there will still be adequate supplies to meet additional demands.

Each of these supplies is described below.

4.2.1 Expansion of Water Conservation Program

Although technically not a new water supply, additional water conservation will be an important part of the City's future water supply plan. This is because additional water conservation will reduce projected demands, and thereby reduce the need for additional future supplies. The City currently has an extensive water conservation program in place (see Chapter 8), and additional conservation is anticipated as a result of the completion of the City's Residential Water Metering Program in late 2012. The City's overall per capita water use has dropped significantly in recent years. This drop can be attributed to several factors including the City's on-going water conservation programs and the increased awareness by the City's water customers of the need for water conservation. However, the drop in per capita water use may also be attributed to the recent poor economic conditions leading to vacant homes and closed businesses. The City will need to continue its water conservation efforts and introduce new water conservation programs to ensure compliance with the Water Conservation Act of 2009 (SBx7-7) per capita water use targets for 2015 and 2020 (further discussion of these per capita water use targets is provided in Chapter 6).

4.2.2 Expansion of Surface Water Treatment Capacity

Figure 4-3 shows the amount of surface water proposed to be treated at the City's existing, expanded, and new surface water treatment facilities in the future. As shown, surface water treatment capacity is proposed to increase from the current capacity of 30 mgd (30,800 af/yr) to 140 mgd (123,400 af/yr) by 20205. This increase in treatment capacity is proposed to occur as follows:

- Existing Northeast SWTF:
  - Currently 30 mgd (30,800 af/yr)
  - To be expanded to 60 mgd by 2020 (total 51,400 af/yr[4])
- New Southeast SWTF:
  - New 80 mgd by 2015 (total 72,000 af/yr[5])

Available surface water supplies not treated for direct use are proposed to be used for intentional groundwater recharge and/or groundwater banking (see below), so that essentially all of the City's available surface water supplies are utilized in the future.

Planned future treatment capacity is also based on the ability to keep the surface water treatment facilities operating at full capacity under most hydrologic conditions. Reliability of the City's surface water supply in critically dry years is discussed further in Chapter 5.

4.2.3 Expansion of Groundwater Recharge Program

As shown in Figure 4-3, future groundwater pumpage is assumed to decrease from current quantities as the City increases its surface water treatment capacity. However, in order to balance future groundwater operations (*i.e.*, annual pumpage equal to annual recharge), and to offset the decrease in subsurface inflow (described above), intentional groundwater recharge operations will need to be increased.

As shown in Table 4-11, intentional groundwater recharge is projected to increase gradually over time, up to 75,100 af/yr by 2035, while natural groundwater recharge decreases over time (as described above). The increase in intentional recharge is assumed to occur due to the increased use of existing recharge basins and/or construction of new recharge basins and maximizing the use of available surface water supplies.

[4] Annual treatment capacity for expanded Northeast SWTF is based on 50 mgd average capacity for 11 months of the year.

[5] Annual treatment capacity for new Southeast SWTF is based on 70 mgd average capacity for 11 months of the year.

Table 4-11. Projected Future Groundwater Recharge

	2015	2020	2025	2030	2035
Natural Groundwater Recharge, af/yr[(a)]	25,400	26,100	26,600	26,900	27,000
Net Subsurface Inflow, af/yr[(b)]	15,000	7,500	0	0	0
Intentional Groundwater Recharge, af/yr[(c)]	53,100	53,100	63,700	69,400	75,100
Total Groundwater Recharge, af/yr[(d)]	93,500	86,700	90,300	96,300	102,100
Total Groundwater Pumpage, af/yr (from Table 4-9)	76,100	61,800	53,500	69,200	85,000
Net Groundwater Recharge, af/yr (Pumpage)	17,400	24,900	36,800	27,100	17,100

(a) Represents City's portion of natural recharge within Fresno SOI.
(b) Represents City's portion of net subsurface inflow within Fresno SOI. Assume to be zero when groundwater operations are balanced in 2025.
(c) 2015 and 2020 intentional recharge based on 2010 recharge quantity. For 2025, 2030 and 2035, represents potential intentional recharge under normal year supply conditions, assuming that all available surface water supplies that are not treated for direct use are used for intentional groundwater recharge. Requires new recharge facilities.
(d) Based on normal year supply conditions. In dry years, when surface water supplies may be reduced, groundwater recharge may be reduced.

Based on the projected availability of treated surface water supplies beginning in 2015, the City's projected groundwater pumpage in 2015 is significantly reduced from current groundwater pumpage. This reduced groundwater pumpage provides for balanced groundwater operations (*e.g.*, groundwater recharge greater or equal to groundwater pumpage). In dry years, groundwater recharge may be reduced due to reduced availability of surface water supplies.

As noted above, expansion of the groundwater recharge program does not directly provide a new supply to the City; however, it does allow the City to bring groundwater operations into balance, whereby annual groundwater recharge is greater than or equal to annual groundwater pumpage.

4.2.4 Expanded Use of Recycled Water for Landscape Irrigation

As described in Section 4.1.3, the City currently uses recycled water at the Copper River Ranch Golf Course, located in the northern part of the City. Figure 4-3 shows the expanded use of recycled water starting in 2025. It is assumed that recycled water will be used in new growth areas and throughout the City service area, for landscape irrigation and/or other non-potable water purposes, thereby reducing the potable water demands. These potential future recycled water uses are consistent with the City's future plans to expand use of recycled water for landscape irrigation. These potential recycled water uses are based on the City's future water supply plan developed in the Metro Plan Update, and the City's recently developed Recycled Water Master Plan. Further discussion of the City's proposed future use of recycled water is provided in Chapter 10 of this UWMP.

Table 4-12 summarizes the expanded use of recycled water for landscape irrigation purposes in the future.

Table 4-12. Projected Expanded Use of Recycled Water for Landscape Irrigation Purposes

	2015	2020	2025	2030	2035
Southeast Growth Area and Other Areas Throughout the City, af/yr	0	0	24,000	24,000	24,000

4.2.5 Summary of Future Water Supply Projects

Table 4-13 provides a summary of the City's future water supply projects, and their anticipated availability in 2035. Reliability of these future supply projects is discussed further in Chapter 5.

Table 4-13. Future Water Supply Projects (DWR Table 26)

Project Name	Projected Start Date	Projected Completion Date	Potential Project Constraints	Normal-Year Supply	Single-Dry Year Supply	Multiple-Dry Year Supply		
						Year 1	Year 2	Year 3
Additional Water Conservation	On-going	On-going	Financial	See Footnote[a]				
Expansion of Surface Water Treatment Capacity	2012	2020	Financial	See Footnote[b]				
Expansion of Groundwater Recharge Program	On-going	On-going	Financial	See Footnote[c]				
Expanded Use of Recycled Water	2020	2025	Financial	24,000	24,000	24,000	24,000	24,000
			Total	24,000	24,000	24,000	24,000	24,000

(a) Additional water conservation does not directly provide a new supply to the City. Instead, it reduces water demands, thus requiring less water supplies.
(b) Expansion of the surface water treatment capacity does not directly provide a new supply to the City. Instead, it allows the City to use more surface water for direct use instead of just for groundwater recharge purposes.
(c) Expansion of the groundwater recharge program does not directly provide a new supply to the City. Instead, it allows the City to bring groundwater operations into balance, whereby annual groundwater recharge is greater than or equal to annual groundwater pumpage.

4.3 TRANSFER AND EXCHANGE OPPORTUNITIES

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

As described in Section 4.1.1.3, the City has an exchange agreement with FID which allows the City to pump groundwater developed through the percolation of previously treated wastewater effluent. This percolated water is then extracted and pumped into FID canals for delivery to downstream customers. In return, the agreement states that FID will provide the City with surface water from either its Kings River entitlement or its Class 2 USBR water "insofar as is feasible and practical." The quantity of surface water that FID is required to 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 afa of Kings River water from FID through this exchange agreement.

As this is an existing agreement which can add to the City's available surface water supplies from FID, it is included as part of the City's existing surface water supplies (described above) and is not considered to be an additional supply source. A summary of the City's water transfer and exchange opportunities is provided in Table 4-14.

Table 4-14. Transfer and Exchange Opportunities (DWR Table 20)

Transfer Agency	Transfer or Exchange	Short-term of Long-term	Proposed Volume, af/yr
FID: Pumped percolated wastewater in exchange for surface water	Exchange	Long-term	13,800
Total	--	--	13,800

4.4 DEVELOPMENT OF DESALINATED WATER

10631 (i) Describe the opportunities for development of desalinated water, including, but not limited to, ocean water, brackish water, and groundwater, as a long-term supply.

Because the City is not located in a coastal area, seawater desalination is not applicable to the City. In addition, the groundwater that underlies the City is not brackish in nature and does not require desalination. However, the City could provide financial assistance to other purveyors in exchange for water supplies. Should the need for this type of exchange arise, the City may consider one of these options in the future.

4.5 SUMMARY OF CURRENT AND PLANNED WATER SUPPLIES

Table 4-15 provides a summary of the City's current and planned water supplies to the year 2035.

Table 4-15. Water Supplies – Current and Projected, AFY (DWR Table 16)

Water Supply Sources							
Water Purchased From	Wholesaler Supply Volume (YES or NO)	2010 (actual)	2015	2020	2025	2030	2035
Fresno Irrigation District — Kings River Entitlement	YES	132,541	103,600	109,400	115,100	120,800	126,500
Fresno Irrigation District — Wastewater Recycle Exchange	YES	0	13,800	13,800	13,800	13,800	13,800
United States Bureau of Reclamation -- Central Valley Project (CVP) Class 1	YES	61,375	58,200	58,200	58,200	58,200	58,200
Supplier-produced groundwater		128,578	76,100	61,800	53,500	69,200	85,000
Supplier-produced surface water		0	0	0	0	0	0
Transfers In		0	0	0	0	0	0
Exchanges In		0	0	0	0	0	0
Recycled Water		176	1,000	1,000	25,000	25,000	25,000
Desalinated Water		0	0	0	0	0	0
Other		0	0	0	0	0	0
Total		322,670	252,700	244,200	265,600	287,000	308,500

Table 4-16 shows the City's available wholesale supply sources through 2035.

Table 4-16. Wholesale Supplies – Existing and Planned Sources of Water, AFY (DWR Table 17)

Wholesale Sources	Contracted Volume	2015	2020	2025	2030	2035
Fresno Irrigation District — Kings River Entitlement	See Footnote[(a)]	103,600	109,400	115,100	120,800	126,500
Fresno Irrigation District— Wastewater Recycled Exchange	13,800	13,800	13,800	13,800	13,800	13,800
United States Bureau of Reclamation-- Central Valley Project (CVP) Class 1	60,000	58,200	58,200	58,200	58,200	58,200

[(a)] The actual water supply available to the City is a percentage of FID's diversion from the Kings River. The percentage is based on the ratio of the total area annexed by the City, compared to the total area within FID's water service area, including the area served by the City. Hence, the water available to the City through its contract with FID will increase over time as the City annexes additional lands within FID's water service area.

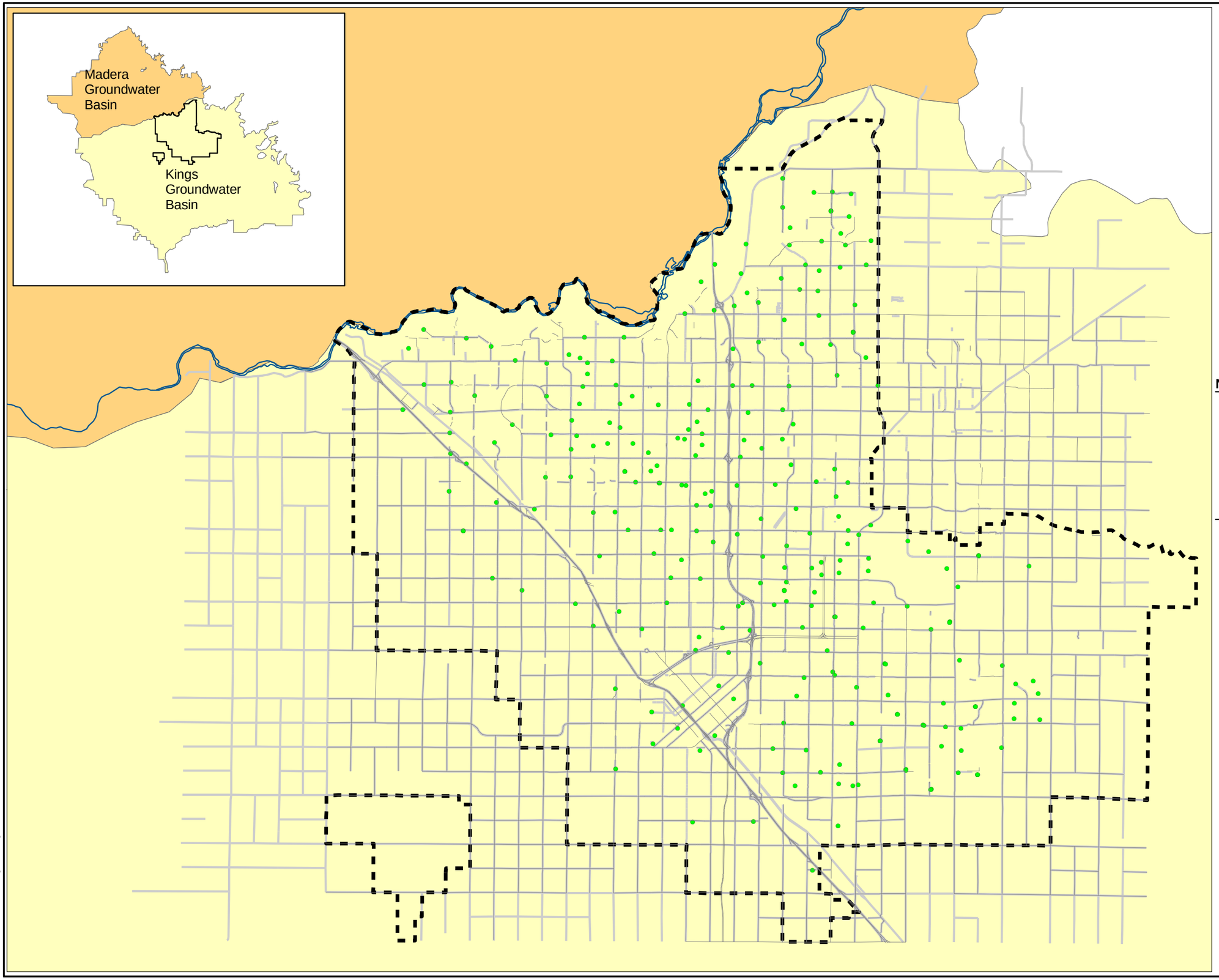


FIGURE 4-1

City of Fresno
2010 Urban Water Management Plan

KINGS GROUNDWATER SUBBASIN

NOTES:

LEGEND:

- City of Fresno Sphere of Influence
- Active City of Fresno Well
- Kings Groundwater Subbasin
- Madera Groundwater Subbasin

City of FRESNO

WEST YOST ASSOCIATES
Consulting Engineers

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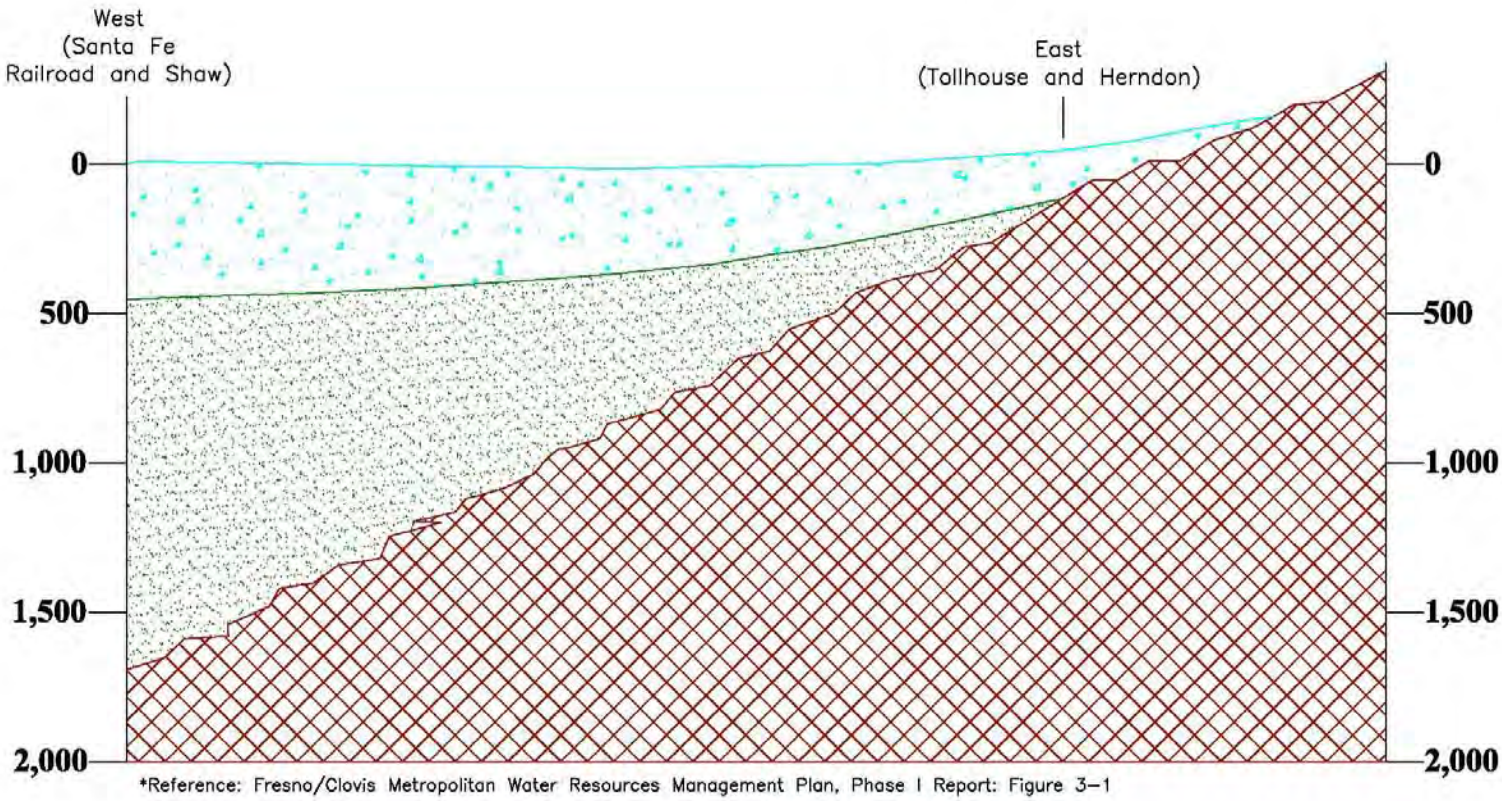

LEGEND

- Older Alluvium
- Quaternary Deposits
- Bedrock

FIGURE 4-2

City of Fresno
2010 Urban Water Management Plan
IDEALIZED EAST-WEST
GEOLOGIC CROSS-SECTION

WEST YOST ASSOCIATES
Consulting Engineers

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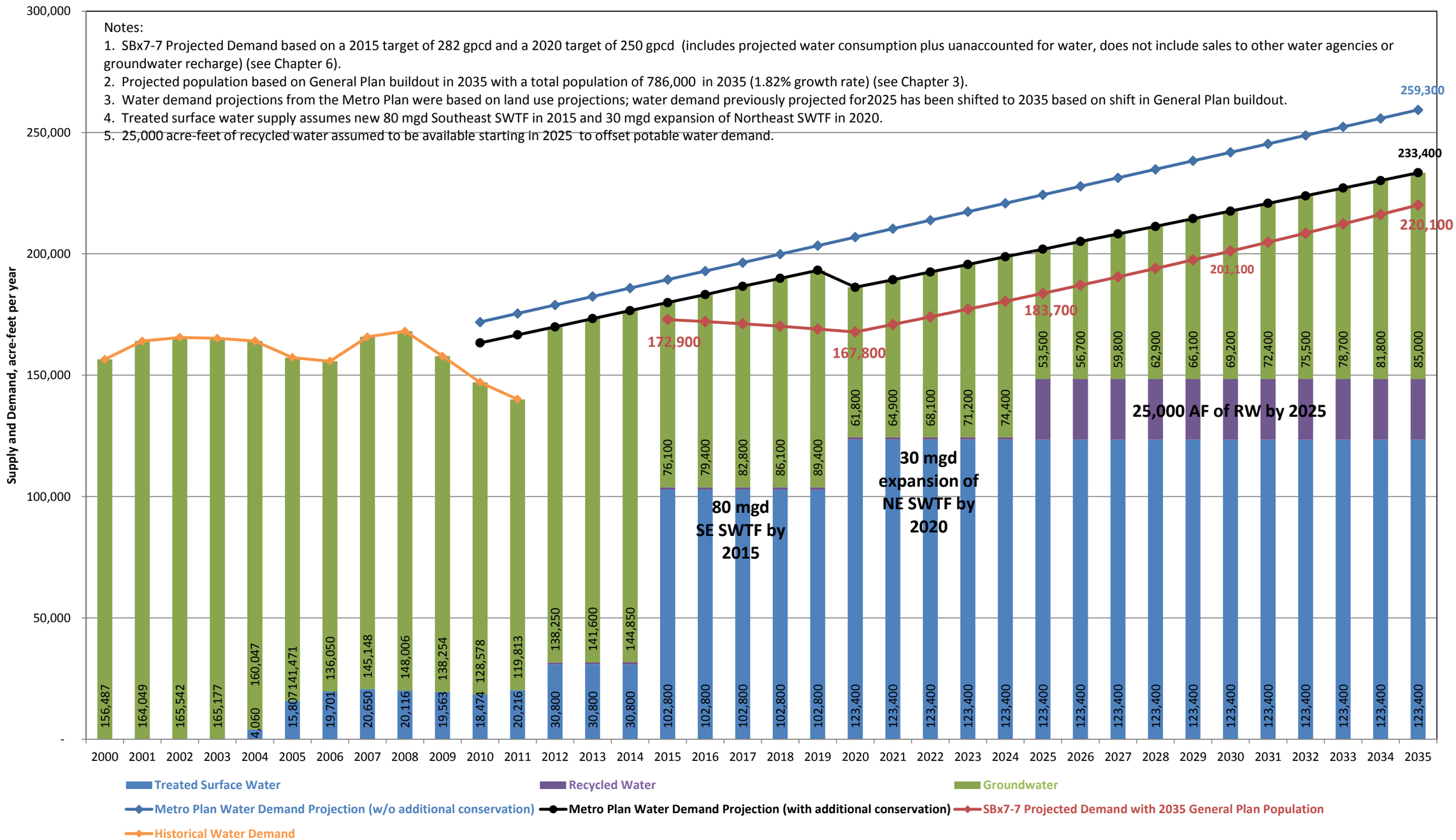
Figure 4-3. City of Fresno Future Supply vs. Demand
(assuming buildout of the General Plan in 2035) (with SBx7-7 demands)



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Last Revised: 08-09-12

10631 (c) 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:

(1) An average water year

(2) A single-dry water year

(3) Multiple-dry water years

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 possible.

5.1 RELIABILITY OF SURFACE WATER SUPPLIES

In September 2006, the 2006 Settlement Agreement was filed in the U.S. District Court in Sacramento that ended an 18-year legal dispute over the operation of Friant Dam. The 2006 Settlement Agreement resolved legal claims brought by a coalition of conservation and fishing groups, which were led by the National Resources Defense Council (NRDC). The 2006 Settlement Agreement provides for substantial river channel improvements and sufficient water flow to sustain a salmon fishery upstream from the confluence of the Merced River tributary, while still providing water supply to the Friant Division of the CVP. As part of the 2006 Settlement Agreement, water year types were developed and simulated for the contracts in the Friant Division of the CVP. The water year types used in the Settlement Agreement included: Wet, Normal-wet, Normal-dry, Dry, Critical-high and Critical-low.

A normal year was assumed equal to the average of a Normal-wet year and Normal-dry year for supply comparison purposes. Water year classification was used during this evaluation of supply reliability to help estimate the water supply expected to be available during various hydrologic conditions.

5.1.1 Reliability of Surface Water Supplies from the City's FID Contract

For the analysis of the reliability of surface water supplies from the City's FID contract, West Yost used the 2006 Settlement Agreement as a proxy to help project Kings River availability during various hydrologic conditions because the KRWA does not provide this information; as described in Chapter 4, KRWA determines the "pre-project" entitlements on a daily basis. KRWA further divides the entitlements into a portion delivered to the contracts and a portion stored in Pine Flat Reservoir. Using the defined Settlement Agreement conditions provided a common base from which to compare the reliability of both supplies, while also allowing for better accounting for demand reductions during drier hydrologic periods.

Table 5-1 summarizes the average and proposed "applicable" diversions for FID, by hydrologic year classification based on available data from 1964 to 2002. Because a Normal year was not defined in the 2006 Settlement Agreement, the Normal year diversion is estimated to be approximately 390,000 af (based on the weighted average of Normal-wet years and Normal-dry years).

Table 5-1. Available FID Diversion Quantity based on the 2006 Settlement Agreement

Water Year Classification	Total Diversion between 1964 and 2002 by Water Year Classification, af [1]	Number of Years within Water Year Classification [2]	Average Diversion by Water Year Classification, af[(a)] [3] = [1]/[2]	Proposed Diversion Quantity, for Water Supply Planning, af [4]
Wet	5,149,216	11	468,111	468,100
Normal-wet	3,839,518	9	426,613	426,600
Normal[(b)]	Normal Year not defined in 2006 Settlement Agreement			390,000
Normal-dry	3,571,299	10	357,130	357,100
Dry	2,244,530	7	320,647	320,600
Critical-high	232,257	1	232,257	232,200
Critical-low	202,300	1	202,300	202,300

(a) Average entitlement calculated by dividing the total entitlement by the number of years.
(b) Normal year assumed equal to the weighted average of Normal-wet and Normal-dry for this analysis.

The surface water available for the City to purchase, based on its 1976 agreement with FID, was determined by multiplying the percentage allocation (presented in Chapter 4, Table 4-1) by the adopted "applicable" diversion quantities summarized in Table 5-1. Table 5-2 presents the Kings River water available to the City, based on hydrologic water year classification defined by the 2006 Settlement Agreement.

Table 5-2. FID Kings River Diversions Available to the City

Classification	FID Kings River Diversions Available to the City[(a)], af/yr						
	2005	2010	2015	2020	2025	2030	2035
Wet	110,600	117,500	124,400	131,200	138,100	145,000	151,900
Normal-wet	100,800	107,100	113,300	119,600	125,900	132,100	138,400
Normal	92,200	97,900	103,600	109,300	115,100	120,800	126,500
Normal-dry	84,400	89,600	94,900	100,100	105,400	110,600	115,800
Dry	75,800	80,500	85,200	89,900	94,600	99,300	104,000
Critical-high	54,900	58,300	61,700	65,100	68,500	71,900	75,300
Critical-low	47,800	50,800	53,700	56,700	59,700	62,700	65,600

(a) Based on hydrologic year classification as defined by the 2006 Settlement Agreement.

5.1.2 Reliability of Surface Water Supplies from the City's USBR Contract

Similar to the FID supplies, the reliability of the City's USBR Class 1 water was also evaluated based on the 2006 Settlement Agreement. Table 5-3 summarizes the USBR water deliveries allocated to the City in the 2006 Settlement Agreement by hydrologic year classification based on simulated data from 1922 to 2003. As mentioned previously, a Normal year is not defined in the 2006 Settlement Agreement; therefore, Normal year supplies were assumed equal to the weighted average supply during a Normal-wet and Normal-dry years.

Table 5-3. Available USBR Entitlement Adopted from the 2006 Settlement Agreement

Classification	Total Delivery between 1922 and 2003, af [1]	Number of Years within Classification [2]	Average Delivery, af[(a)] [3] = [1]/[2]	Adopted Diversion Quantity, for Water Supply Planning, af
Wet	959,600	16	60,000	60,000
Normal-wet	1,499,700	25	60,000	60,000
Normal	Normal Year not defined in 2006 Settlement Agreement			58,200
Normal-dry	1,349,700	24	56,200	56,200
Dry	477,900	12	39,800	39,200
Critical-high	100,700	4	25,200	25,200
Critical-low	13,900	1	13,900	13,900

(a) Data obtained from the 2006 Settlement Agreement.
(b) The entitlement available during a critical-low year was assumed equal to the entitlement delivered in 1977 to provide additional conservatism for planning purposes.

The projected surface water available for the City to purchase from the USBR during each hydrologic year defined by the 2006 Settlement Agreement is summarized in Table 5-4. As shown in Table 5-4, the projected water supply from the USBR, during each hydrologic year type, does not change in the future. Unlike the City's contract with FID, the entitlement the City has with the USBR is not tied to growth of the City's water service area.

Table 5-4. USBR Entitlement Available to the City for Each Hydrologic Year Type

Classification	USBR Entitlement Available to the City[(a)], af/yr						
	2005	2010	2015	2020	2025	2030	2035
Wet	60,000	60,000	60,000	60,000	60,000	60,000	60,000
Normal-wet	60,000	60,000	60,000	60,000	60,000	60,000	60,000
Normal	58,200	58,200	58,200	58,200	58,200	58,200	58,200
Normal-dry	56,200	56,200	56,200	56,200	56,200	56,200	56,200
Dry	39,200	39,200	39,200	39,200	39,200	39,200	39,200
Critical-high	25,200	25,200	25,200	25,200	25,200	25,200	25,200
Critical-low	13,900	13,900	13,900	13,900	13,900	13,900	13,900

[(a)] Based on available USBR entitlement adopted from the 2006 Settlement Agreement (see Table 5-3).

5.1.3 Reliability of Surface Water Available through Recycled Water Activities

Although total wastewater flows might be reduced slightly, recycled water is essentially 100 percent reliable even during drought events. This is because wastewater flows are primarily generated from indoor water uses which are not reduced significantly during drought conditions. Therefore, the City should be able to continue to percolate treated effluent near the wastewater treatment plant under all hydrologic conditions. Based on a 16-year record, the average annual quantity of treated wastewater percolated by the City is approximately 57,200 af per year. Therefore, there appears to be sufficient percolation to allow the City to continue to pump 30,000 af/yr of groundwater (maximum annual pumpage allowed) into the FID canals (assumes 10-year maximum of 100,000 af will be overlooked, as in the past).

Based on a 46 percent return from FID on the 30,000 af/yr of previously percolated, treated effluent that is pumped from the groundwater basins and provided to FID, the City should be able to obtain 13,800 af/yr of Kings River water from FID. For planning purposes, it was assumed that language in the City's 1976 Agreements with FID regarding this issues that states "insofar as is feasible and practical…" implied that FID could supply up to 13,800 af/yr of surface water supply during all hydrologic conditions.

5.1.4 Reliability of All Surface Water Supplies under Various Hydrologic Conditions

Table 5-5 presents the total surface water available to the City under all hydrologic conditions based on the discussion provided above.

Table 5-5. Surface Water Supply Available to the City Under All Hydrologic Conditions

Classification	Surface Water Available to the City[(a)], af/yr						
	2005	2010	2015	2020	2025	2030	2035
Wet	184,400	191,300	198,200	205,000	211,900	218,800	225,700
Normal-wet	174,600	180,900	187,100	193,400	199,700	205,900	212,200
Normal	164,200	169,900	175,600	181,300	187,100	192,800	198,500
Normal-dry	154,400	159,600	164,900	170,100	175,400	180,600	185,800
Dry	128,800	133,500	138,200	142,900	147,600	152,300	157,000
Critical-high	93,900	97,300	100,700	104,100	107,500	110,900	114,300
Critical-low	75,500	78,500	81,400	84,400	87,400	90,400	93,300

[(a)] Includes surface water supplies from FID Kings River Diversions (see Table 5-2), USBR entitlement (see Table 5-4), and surface water available to the City based on the recycled water exchange agreement with FID.

As described in Chapter 4, the City's ability to use all of its available surface water supplies is limited by its current surface water treatment capacity and the capacity of its intentional recharge facilities. One of the primary objectives of the City's future water supply plan is to maximize the use of its available surface water supplies either through treatment and direct use or intentional recharge.

As shown in Table 5-6, future surface water treatment capacity has been planned such that, under most hydrologic conditions, the surface water treatment facilities can continue to operate at full capacity. Only under critically dry conditions (either Critical-High or Critical-Low) would surface water supplies be limited such that the proposed surface water treatment facilities would not be able to operate at their full production capacities. For example, in 2035, the planned surface water treatment capacity is 123,400 af/yr. However, in 2035, under Critical-low conditions, only 93,300 af/yr of surface water is available. Therefore, in 2035, under Critical-low conditions, the surface water treatment facilities would only be able to operate at about 76 percent of their full capacities (93,300 af/yr divided by 123,400 af/yr).

Table 5-6. Projected Future Surface Water Treatment Capacity

Treatment Facility	Projected Future Surface Water Treatment Capacity, af/yr				
	2015	2020	2025	2030	2035
Total Surface Water Supply in Normal Years (see Table 5-5)	175,600	181,300	187,100	192,800	198,500
Total Surface Water Supply in Dry Years (see Table 5-5)	138,200	142,900	147,600	152,300	157,000
Total Surface Water Supply in Critical-low Dry Years (see Table 5-5)	81,400	84,400	87,400	90,400	93,300
Planned Surface Water Treatment Capacity					
Existing Northeast SWTF	30,800	30,800	30,800	30,800	30,800
Expansion of Existing Northeast SWTF	--	20,600	20,600	20,600	20,600
New Southeast SWTF	72,000	72,000	72,000	72,000	72,000
Total Surface Water Treatment Capacity	102,800	123,400	123,400	123,400	123,400

5.2 RELIABILITY OF GROUNDWATER SUPPLIES

The City has relied on groundwater supplies since the City first began operating a water system in 1876. Over the years, the City's groundwater operations have changed in response to changing conditions and regulations. In the future, groundwater will continue to be an important component of the City's water supply portfolio. The primary concerns with groundwater reliability are ability to pump the required supply using existing well facilities and the quality of the groundwater. One of the primary objectives of the City's future water supply plan is to balance groundwater operations by 2025. This objective, to be achieved by increasing intentional recharge while reducing groundwater pumpage, and increasing surface water treatment facilities, will provide two benefits. Firstly, it will help to stabilize groundwater levels so that groundwater levels do not continue to decline. Secondly, it will help to mitigate the migration of contaminants within the basin and reduce the potential for additional quality issues that can occur as groundwater levels decline. Based on these operational changes, it is anticipated that the City's future groundwater supply will be reliable.

5.3 RELIABILITY OF RECYCLED WATER SUPPLIES

As discussed above, although total wastewater flows might be reduced slightly, recycled water is essentially 100 percent reliable even during drought events. This is because wastewater flows are primarily generated from indoor water uses which are not reduced significantly during drought conditions. Therefore, it is anticipated that the City should be able to continue to produce and deliver recycled water as planned in the City's future water supply plan under all hydrologic conditions.

5.4 FACTORS RESULTING IN INCONSISTENCY OF SUPPLY

Several factors can affect a supply sources reliability and consistency. As discussed above, the City's surface water supply from FID and USBR is subject to contractual conditions and potential reductions due to dry year conditions. The City's recycled water exchange with FID is also subject to institutional constraints per the City's agreement with FID. The City's groundwater supplies, although considered very reliable, do have water quality concerns, requiring the City to provide wellhead treatment on many of its wells. Recycled water, although highly regulated in its use, is considered to be a very reliable and consistent source of supply. Table 5-7 provides a summary of the potential factors which could result in supply inconsistency.

Table 5-7. Factors Resulting in Inconsistency of Supply (DWR Table 29)

Supply Source	Specific Source Name, if any	Limitation Quantification	Legal	Environmental	Water Quality	Climatic	Additional Information
Surface Water from FID	Kings River	Quantity Varies				✓	
Surface Water from USBR	CVP Class 1	60,000 af/yr				✓	
Surface Water from FID Recycled Exchange	FID	13,800 af/yr				✓	
Groundwater	Kings Subbasin	Quantity Varies			✓		
Recycled Water		Up to 25,000 af/yr					

5.5 OVERALL WATER SUPPLY RELIABILITY

5.5.1 Basis of Water Year Data and Historical Reliability

Table 5-8 shows the basis of the water year data used to determine supply reliability. For purposes of this 2010 UWMP, 1977 is assumed to be representative of the Single-Dry Water Year condition. The worst multiple-dry year sequence occurred in the six-year period from 1987 to 1992. Individual years within this six-year period were either Dry or Normal-dry.

Table 5-8. Basis of Water Year Data (DWR Table 27)

Water Year Type	Base Year(s)
Normal Water Year	2003 (Normal-Wet)
Single-Dry Water Year	1977 (Critical-low as defined by 2006 Settlement Agreement)
Multiple-Dry Water Years	1987-1992 (Dry and Normal-dry as defined by 2006 Settlement Agreement)

Table 5-9 presents a summary of the City's historical water supply reliability under the conditions and years summarized in Table 5-8.

Table 5-9. Supply Reliability – Historical Conditions (DWR Table 28)

Supply Source	Average/ Normal Water Year, af/yr	Single Dry Water Year, af/yr	Multiple Dry Water Years, af/yr				
			Year 1	Year 2	Year 3	Year 4	Year 5
	2003	1977	1987	1988	1989	1990	1991
Surface Water from FID[a]	74,408	40,460	62,246	71,557	71,287	56,337	68,954
Surface Water from USBR[b]	60,384	8,073	42,770	38,220	49,980	37,330	55,000
Surface Water from FID Recycled Exchange	0	0	0	0	0	0	0
Groundwater[c]	165,188	55,757	92,466	101,081	114,229	118,808	117,562
Recycled Water[d]	0	0	0	0	0	0	0
Total	299,980	104,290	197,482	210,858	235,496	212,475	241,516
Percent of Average/ Normal Year[e]		35%	66%	70%	78%	71%	81%

(a) Based on approximately 20 percent of FID Kings River water applicable to the FID/City agreement (see Figure 5-11 of the Metro Plan Update, Phase 1 Report). 2003 data was not available, so value shown for 2003 is based on 2002 data.
(b) From Figure 5-12 of the Metro Plan Update, Phase 1 Report.
(c) Based on actual groundwater pumpage in the years shown. 1977 data from City's 1985-1995 UWMP. Other data from City's Production Statistics for years shown.
(d) The City did not produce recycled water in the years shown.
(e) It should be noted that available supplies for FID in historical years cannot be directly compared to more recent years as the City's allocation of FID supplies changes from year to year.

5.5.2 Estimated Minimum Water Supply for Next Three Years

10632 (b) An estimate of the minimum water supply available during each of the next three water years based on the driest three-year historical sequence for the agency's water supply.

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

- Surface water from FID (Kings River),
- Surface water from the USBR (CVP),
- Previously recharged surface water supply, available through the City's groundwater recharge activities,
- Groundwater supply, and
- Recycled water supply from the North Fresno WRF.

The driest historical three-year period was 1987, 1988 and 1989, at the beginning of the 1987 to 1992 drought. Based on the 2006 Settlement Agreement, these three years were classified as Dry or Normal-dry. However, for purposes of this evaluation, it has been assumed that the minimum water supply for the next three years is based on three consecutive years with Critical-low water supply conditions. As described in Chapter 4, under these conditions, surface water deliveries from FID and USBR would be reduced significantly. Table 5-10 presents the estimated minimum water supply for the next three years.

Table 5-10. Supply Reliability – Current Water Sources (DWR Table 31)

Supply Source	Average/Normal Water Year Supply, af/yr	Multiple-Dry Year Supply, af/yr[a]		
		Year 2011	Year 2012	Year 2013
Surface Water from FID	99,040	51,380	51,960	52,540
Surface Water from USBR	58,200	13,900	13,900	13,900
Surface Water from FID Recycled Exchange	13,800	13,800	13,800	13,800
Groundwater[b]	96,100	98,700	97,400	96,100
Recycled Water	1,000	1,000	1,000	1,000
Total Supplies	268,140	178,780	178,060	177,340
Percent of Normal Year	100%	67%	66%	66%

[a] Based on Critical-low Water Supply Conditions for each supply source.
[b] Groundwater supply based on natural and current intentional groundwater recharge quantities. If needed, the City would pump additional groundwater out of storage to meet demands.

5.6 WATER QUALITY IMPACTS ON RELIABILITY

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.*

5.6.1 Surface Water

Federal and state water quality regulations related to surface water treatment are subject to on-going and future review and revision. The City's existing and future SWTFs are and will continue to be operated to meet all applicable water quality regulations. If required, modifications will be made to treatment operations to ensure compliance with applicable regulations. Therefore, it is not anticipated that future changes in surface water quality or surface water quality regulations will impact the availability or reliability of surface water supplies in the future.

5.6.2 Groundwater

Federal and state water quality regulations related to groundwater quality are subject to on-going and future review and revision. In addition, as described in Chapter 4, the groundwater basin underlying the City is subject to several chemical contaminants which have either rendered wells unusable or have required the installation of wellhead treatment systems. The City has received several legal settlements from a number of lawsuits related to groundwater contamination which has provided for the construction and on-going operation of many of these wellhead treatment systems. In the future, groundwater regulations may change or existing contaminants may migrate, requiring the construction of additional wellhead treatment systems. Planning for this potential additional wellhead treatment has been included in the City's future water supply plan. Overall, the City's future water supply plan includes reducing groundwater pumpage, so as not to cause additional water quality degradation through increased pumpage. Therefore, it is not

anticipated that future changes in groundwater quality or groundwater quality regulations will impact the availability or reliability of groundwater supplies in the future, beyond what has already been planned for.

5.6.3 Recycled Water

Federal and state water quality regulations related to recycled water are subject to on-going and future review and revision. The City's existing and future wastewater treatment facilities (RWRF, North Fresno WRF and other future facilities) are and will continue to be operated to meet all applicable water quality regulations. If required, modifications will be made to treatment operations to ensure compliance with applicable regulations. Therefore, it is not anticipated that future changes in recycled water quality or recycled water quality regulations will impact the availability or reliability of recycled water supplies in the future.

Table 5-11 indicates that there are no projected water supply changes due to water quality issues.

Table 5-11. Water Quality – Current and Projected Water Supply Impacts (DWR Table 30)

Supply Source	Description of Condition	2010	2015	2020	2025	2030	2035
Surface Water from FID	Acceptable, no changes in supply anticipated	0	0	0	0	0	0
Surface Water from USBR		0	0	0	0	0	0
Surface Water from FID Recycled Exchange		0	0	0	0	0	0
Groundwater		0	0	0	0	0	0
Recycled Water		0	0	0	0	0	0

This chapter describes the following:

- Historical Water Production and Consumption
- Future Demand Projections
- Projected Urban Water Demands
- Sales to Other Agencies
- Additional Water Uses and Losses
- Total Water Use

6.1 HISTORICAL WATER PRODUCTION

The City's water production is the combined quantity of water produced by the City's groundwater wells and City's Northeast Surface Water Treatment Facility (SWTF), while water consumption is the quantity of water actually consumed or used. As will be discussed later, the difference between production and consumption is unaccounted-for water (UAFW).

The City currently tracks all of the water produced by its wells and the Northeast SWTF. Although the City does not currently meter most of its Single Family Residences, it does meter the consumption for its other customers: Multi-Family Residential, Commercial/Institutional, Industrial, and Landscape Irrigation. As discussed in Chapter 8, the City is nearing completion of its Residential Water Metering Program for its single-family residential customers. The City tracks water use in two ways: water production records and meter (consumption) records. Both are discussed in more detail below, along with a discussion on UAFW.

Table 6-1 presents the City's historical water production between 1990 and 2011 from all of its water supply sources.

As shown in Table 6-1, the City's water production has increased from 118,808 acre-feet (af) in 1990 to a high of 168,122 af in 2008, representing a 42 percent increase. However, since 2008, the City's water production has decreased each year. Total water production in 2011 (140,089 af) was 17 percent lower than 2008 total water production, likely due to dry hydrologic conditions and poor economic conditions resulting in vacant homes and closed businesses. The City's Northeast SWTF came online in late 2004, and in 2011, the City was able to offset its groundwater use by approximately 14 percent by using treated surface water.

Table 6-1. 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	140,089	86%	14%

6.2 HISTORICAL, CURRENT AND FUTURE PER CAPITA WATER USE

6.2.1 Historical Per Capita Water Use

Based on the population served by the City from 1991 to 2011, historical per capita water production has been estimated and is presented on Figure 6-1. As shown in Figure 6-1, from 1991 to 2011, total per capita water production has varied from a low of 246 gallons per capita per day (gpcd) in 2011 to a high of 329 gpcd in 2001. The City's average total per capita water production from 1991 to 2011 was 295 gpcd.

6.2.2 Future Per Capita Water Use and Compliance with the Water Conservation Act of 2009 (SBx7-7)

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 to support the statewide reduction in urban per capita water use described in the 20 x 2020 Water Conservation Plan (DWR and others 2010). It 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 targets. This reporting is to begin with the 2010 UWMP, which is required by the Water Conservation Act of 2009.

The City's compliance with SBx7-7 is described in detail in the February 2012 technical memorandum included in Appendix I of this 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. As described in the technical memorandum and summarized below, the City utilized Target Method 1 to establish an Interim (2015) Per Capita Water Use Target of 282 gpcd, and a Final (2020) Per Capita Water Use Target of 250 gpcd.

The City held a public hearing on March 29, 2012 to discuss and adopt the Target Method and resulting interim and final targets. The following issues were discussed during the public hearing:

- Allow community input regarding the urban retail water supplier's implementation plan for complying with SBx7-7;
- Consider the economic impacts of the urban retail water supplier's implementation plan for complying with SBx7-7; and
- Adopt a method, pursuant to subdivision (b) of Section 10608.20, for determining its urban water use target.

6.2.2.1 Determination of Baseline and Target Per Capita Water Use

As described in Appendix I, the City's baseline per capita water uses were determined based on the methodologies described in DWR's October 1, 2010 *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use* (DWR Methodologies).

Consistent with DWR Methodology 1 (Gross Water Use), the City's gross water use includes purchased surface water from FID and the USBR which is treated at the City's Northeast SWTF, and groundwater pumped by the City's 270 groundwater wells from the Kings Subbasin. Metering locations area described in the memorandum provided in Appendix I.

Consistent with DWR Methodology 2 (Service Area Population), the City's service area population has been estimated using data from the U.S. Census Bureau and the California Department of Finance.

The City's baseline per capita water use was based on the parameters shown in Table 6-2.

Table 6-2. City of Fresno SBx7-7 Base Period Ranges (DWR Table 13)

Base	Parameter	Value	Units
10- to 15-year base period	2008 total water deliveries	168,122	AFY
	2008 total volume of delivered recycled water	0	AFY
	2008 recycled water as a percent of total deliveries	0	Percent
	Number of years in base period[(a)]	10	Years
	Year beginning base period range	1996	
	Year ending base period range[(b)]	2005	
5-year base period	Number of years in base period	5	Years
	Year beginning base period range	2003	
	Year ending base period range[(c)]	2007	

Units = AFY
(a) If the 2008 recycled water percent is less than 10 percent, then the first base period is a continuous 10-year period. If the amount of recycled water delivered in 2008 is 10 percent or greater; the first base period is a continuous 10- to 15-year period.
(b) The ending year must be between December 31, 2004 and December 31, 2010.
(c) The ending year must be between December 31, 2007 and December 31, 2010.

Since the City had no recycled water deliveries in 2008, a 10-year base period was used to calculate the City's baseline per capita water use (for purposes of Water Code Section 10608.20). The calculation of this 10-year baseline per capita water use is summarized in Table 6-3.

Table 6-3. City of Fresno SBx7-7 Base Daily Per Capita Water Use: 10- to 15-Year Range (DWR Table 14)

Base Period Year		Service Area Population	Daily System Gross Water Use, mgd	Annual Daily Per Capita Water Use, gpcd
Sequence Year	Calendar Year			
Year 1	1996	415,367	123,537,320	297
Year 2	1997	419,193	132,714,980	317
Year 3	1998	424,281	120,999,426	285
Year 4	1999	430,498	135,514,430	315
Year 5	2000	438,381	139,693,072	319
Year 6	2001	445,073	146,443,531	329
Year 7	2002	452,510	147,776,305	327
Year 8	2003	457,930	147,450,476	322
Year 9	2004	462,861	146,496,199	317
Year 10	2005	468,542	140,399,184	300
			Base Daily Per Capita Water Use[(a)]	313

(a) Average of annual daily per capita water use for the 10-year period from 1996 to 2005.

The calculation of the City's 5-year baseline per capita water use (for purposes of Water Code Section 10608.22) is shown in Table 6-4.

Table 6-4. City of Fresno SBx7-7 Base Daily Per Capita Water Use: 5-Year Range (DWR Table 15)

Base Period Year		Service Area Population	Daily System Gross Water Use, mgd	Annual Daily Per Capita Water Use, gpcd
Sequence Year	Calendar Year			
Year 1	2003	457,930	147,450,476	322
Year 2	2004	462,861	146,496,199	317
Year 3	2005	468,542	140,399,184	300
Year 4	2006	476,037	139,035,166	292
Year 5	2007	482,793	148,004,831	307
			Base Daily Per Capita Water Use[(a)]	307

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

As described in Appendix I, Target Method 1 (based on a 20 percent reduction from historical baseline per capita water use) provided the most favorable per capita water use targets for the City with an interim (2015) target of 282 gpcd and a final (2020) target of 250 gpcd.

In accordance with the Water Code and the SBx7-7 legislation, these interim and final targets, together with the City's projected future service area population, have been used to project the City's future water demands in this 2010 UWMP.

6.2.2.2 City Programs to Achieve Water Demand Reduction Goals

It is projected that the City's implementation of existing and future water conservation programs (described in Chapter 8) and the completion of the City's residential water metering program will result in future demands which will comply with those required by SBx7-7. However, it should be noted that actual future water demands will depend on a number of factors, and will likely be somewhat different than those projected, and will therefore need to be closely monitored and tracked to ensure compliance with SBx7-7.

The City's water conservation programs are funded by water rates. The need for additional water conservation programs to meet the SBx7-7 per capita water use targets may require additional funding, which may, in turn, impact future water rates. The additional programs and their potential financial impacts will be thoroughly evaluated by the City to minimize impacts to water rates.

6.2.2.3 Progress Toward Meeting the Urban Water Use Targets

Water Code 10608.40

Urban water retail suppliers shall report to the department on their progress in meeting their urban water use targets as part of their urban water management plans submitted pursuant to Section *10631.*

As shown in Figure 6-2, in the last 21 years, the City's per capita water use has ranged from a low of 246 gpcd to a high of 329 gpcd. In the last few years (2009 through 2011) the City's per capita water use has dropped significantly, likely as a result of recent drought conditions (and associated water conservation) and economic conditions. In fact, the City's per capita water use in 2011 (246 gpcd) already meets the City's 2020 SBx7-7 target (250 gpcd). However, the recent drop in per capita water use may not be entirely sustainable as customers revert to some of their pre-drought water use habits and more homes become occupied and businesses reopen as economic conditions improve. Therefore, the City's continued implementation of existing water conservation measures and completion of the residential water metering program is critical for the City's compliance with SBx7-7.

The City will closely monitor its per capita water use in the coming years to assess if additional programs will need to be implemented to meet the SBx7-7 2015 and 2020 per capita water use targets.

The City will report its progress in meeting the established 2015 and 2020 per capita water use targets in the 2015 and 2020 UWMPs.

6.3 HISTORICAL, CURRENT AND FUTURE WATER USE

Water Code §10631 (e)(1)(2)

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

(A) Single-family residential.
(B) Multifamily.
(C) Commercial.
(D) Industrial.
(E) Institutional and governmental.
(F) Landscape.
(G) Sales to other agencies.
(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.
(I) Agricultural.

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

6.3.1 Historical and Current Water Use

As discussed previously, the City does not currently meter single-family residential customers. However, the City does meter other customer classes, including multi-family residential, commercial/institutional, industrial, and landscape irrigation. Therefore, historical water consumption by single-family residential customers was estimated by West Yost by subtracting all metered water use and estimated UAFW (assumed to be 10 percent of total water production) from the City's total water production.

Actual water use by the City's customers, by water use sector, in 2005 is summarized in Table 6-5.

Table 6-5. Water Deliveries—Actual 2005[a] (DWR Table 3)

Water Use Sectors	2005 (Actual)				
	Metered		Non Metered		Total Deliveries, AFY
	# of Accounts	Deliveries, AFY	# of Accounts	Deliveries, AFY	
Single Family	0	0	103,513	82,747	82,747
Multi-Family	7,524	22,651			22,651
Commercial[a]	7,882	25,731			25,731
Industrial	96	3,528			3,528
Institutional/Governmental[a]					
Landscape	2,243	6,894			6,894
Agricultural	0	0			0
Other (Southeast Growth Area)	0	0			0
Other (Fire Protection)	0	0	2,568	0	0
Total[b]	17,745	58,804	106,081	82,747	141,551

[a] Institutional/governmental accounts and water use are included in the Commercial accounts and water use totals.
[b] Does not include unaccounted for water.

Actual water use by the City's customers, by water use sector, in 2010 is summarized in Table 6-6.

Table 6-6. Water Deliveries—Actual 2010[a] (DWR Table 4)

Water Use Sectors	2010 (Actual)				
	Metered		Non Metered		Total Deliveries, AFY
	# of Accounts	Deliveries, AFY	# of Accounts	Deliveries, AFY	
Single Family	199	213	108,859	74,190	74,403
Multi-Family[a]	7,315	21,087			21,087
Commercial[b]	8,044	20,754			20,754
Industrial	92	6,660			6,660
Institutional/Governmental[a]	0	0			0
Landscape	2,995	9,286			9,286
Agricultural	0	0			0
Other (Southeast Growth Area)	0	0			0
Other (Fire Protection)	0	0	2,813	0	0
Other (Misc)	0	157			157
Total[c]	18,645	58,157	111,672	74,190	132,347

[a] The number of multi-family residential accounts in 2010 was lower than in 2005 due to poor economic conditions resulting in vacant homes and disconnection of customers.
[b] Institutional/governmental accounts and water use are included in the Commercial accounts and water use totals.
[c] Does not include unaccounted for water.

6.3.2 Future Water Use

The City's 2008 UWMP used land use based water demand projections based on an evaluation of future land uses within the City's SOI as documented in the City's Metro Plan Update. Per the recently enacted SBx7-7 legislation, projected demands in the City's 2010 UWMP are required to be consistent with the City's adopted SBx7-7 targets. The City's projected water demands presented in this 2010 UWMP are based on compliance with SBx7-7 and are lower than the previous land use based water demands presented in the City's Metro Plan Update and the City's 2008 UWMP (see Figure 4-3).

Based on the City's SBx7-7 interim per capita water use target for 2015 (282 gpcd), projected water use by the City's customers, by water use sector, in 2015 is summarized in Table 6-7. As shown, with the completion of the City's residential metering program in late 2012, all of the City's customers will be metered by 2015.

Table 6-7. Water Deliveries—Projected 2015 (DWR Table 5)

Water Use Sectors	2015 (Projected)				
	Metered		Non Metered		Total Deliveries, AFY
	# of Accounts	Deliveries, AFY	# of Accounts	Deliveries, AFY	
Single Family	121,275	79,800			79,800
Multi-Family	7,861	20,600			20,600
Commercial[a]	8,884	26,933			26,933
Industrial	113	5,200			5,200
Institutional/Governmental[a]	0	0			0
Landscape	3,100	5,200			5,200
Agricultural	0	0			0
Other (Southeast Growth Area)	7,901	17,867			17,867
Other (Fire Protection)	0	0	3,168	0	0
Other (Misc)	0	0			0
Total[b]	149,134	155,600	3,168	0	155,600

[a] Institutional/governmental accounts and water use are included in the Commercial accounts and water use totals.
[b] Does not include unaccounted for water.

Based on the City's SBx7-7 final per capita water use target for 2020 (250 gpcd), projected water use by the City's customers, by water use sector, in 2020 is summarized in Table 6-8.

Table 6-8. Water Deliveries—Projected 2020 (DWR Table 6)

Water Use Sectors	2020 (Projected)				
	Metered		Non Metered		Total Deliveries, AFY
	# of Accounts	Deliveries, AFY	# of Accounts	Deliveries, AFY	
Single Family	133,691	77,441			77,441
Multi-Family	8,407	19,991			19,991
Commercial[a]	9,724	26,137			26,137
Industrial	134	5,046			5,046
Institutional/Governmental[a]	0	0			0
Landscape	3,200	5,046			5,046
Agricultural	0	0			0
Other (Southeast Growth Area)	15,802	17,338			17,338
Other (Fire Protection)	0	0	3,524	0	0
Other (Misc)	0	0			0
Total[b]	170,957	151,000	3,524	0	151,000

(a) Institutional/governmental accounts and water use are included in the Commercial accounts and water use totals.
(b) Does not include unaccounted for water.

Assuming that the City's adopted 2020 per capita water use target (250 gpcd) will also apply to future years, at least through 2035, projected water use by the City's customers, by water use sector, in 2025, 2030 and 2035 is summarized in Table 6-9.

Table 6-9. Water Deliveries—Projected (2025, 2030 and 2035) (DWR Table 7)

Water Use Sectors	Metered					
	2025		2030		2035	
	# of Accounts	Deliveries, AFY	# of Accounts	Deliveries, AFY[b]	# of Accounts	Deliveries, AFY
Single Family	146,107	84,775	158,522	92,826	170,937	101,596
Multi-Family	8,953	21,884	9,499	23,963	10,045	26,227
Commercial[a]	10,564	28,612	11,404	31,330	12,244	34,290
Industrial	155	5,524	176	6,049	197	6,620
Institutional/Governmental[a]	0	0	0	0	0	0
Landscape	3,300	5,524	3,400	6,049	3,500	6,620
Agricultural	0	0	0	0	0	0
Other (Southeast Growth Area)	23,702	18,980	31,603	20,783	39,504	22,747
Other (Fire Protection)	3,879	0	4,235	0	4,590	0
Other (Misc)		0	0	0	0	0
Total[b]	196,660	165,300	218,839	181,000	241,017	198,100

(a) Institutional/governmental accounts and water use are included in the Commercial accounts and water use totals.
(b) Does not include unaccounted for water.

6.3.3 Projected Water Demand for Lower Income Households

10631.1 (a) The water use projections required by 10631 shall include projected water use for single-family and multi-family residential housing needed for lower income households as identifies in the housing element of any city or county in the service area of the supplier.

Senate Bill 1087 (SB 1087), approved in October 2005, amended a portion of the Water Code related to the preparation of UWMPs. It requires that UWMPs include water use projections for single-family and multi-family residential lower income households as identified in the housing element of any city or county in the service area of the supplier.

Per the City's Planning and Development Department[1], the number of existing lower income households within the City was estimated based on information provided in the City's Housing Element 2008-2013 (dated June 2008). In the City's Housing Element, lower income households are listed under two categories:

- Federal Housing and Urban Development (HUD) Federally Assisted Projects, and
- Low Income Housing Tax Credit Program Projects (State Assisted Projects).

The number of lower income households in these programs is listed in Table 6-10. As shown, all of the HUD Federally Assisted Projects and most of the Low Income Housing Tax Credit Program Projects are multi-family units (*i.e.*, apartments).

Table 6-10. City of Fresno Lower Income Households

Program	Lower Income Single Family	Lower Income Multi-Family	Total Lower Income
HUD Federally Assisted Projects[(a)]	0	1,991	1,991
Low Income Housing Tax Credit Program Projects[(b)]	8	2,800	2,808
Total Lower Income Housing Units in 2008	8	4,791	4,799
Total Number of Water Connections in 2007[(c)]	107,107	8,297	115,404
Estimated Number of Housing Units per Water Connection[(d)]	1	10	--
Estimated Total Number of Housing Units in 2007 (Number of Water Connections x Housing Units per Water Connection)	107,107	82,970	190,077
Percent of Total Housing Units Estimated to be Lower Income[(e)]	0.007%	5.8%	2.5%

(a) Table 4-14, City of Fresno Housing Element dated June 2008.
(b) Table 4-15, City of Fresno Housing Element dated June 2008. Some projects listed in the Housing Element Table 4-15 were also listed in Housing Element Table 4-14 and have been subtracted out to avoid double-counting of projects.
(c) City of Fresno DWR Public Water System Statistics Report for 2007 Calendar Year.
(d) Based on January 2007 population (493,285) and assumed number of people per housing unit (about 2.9 people per single family housing unit and 2.2 people per multi-family housing unit).
(e) Total lower income units in 2008 divided by 2007 total dwelling units.

[1] E-mail from Sara Pomare, City of Fresno Planning and Development Department dated July 23, 2008.

As shown in Table 6-10, based on available data, there were approximately 4,800 lower income housing units in the City in 2008. Based on this data, the number of existing water connections for lower income households has been estimated. As shown in Table 6-10, for the single family residential units, each water service connection is assumed to serve one household unit. Therefore, for 2007, it is estimated that only 0.007 percent of the total single family residential water connections were lower income households (8 out of 107,107 total single family connections in 2007[2]).

For the multi-family residential housing units, each water service connection serves multiple housing units (*i.e.*, one water service connection serves a number of apartment units). Based on the January 2007 population (493,285) and the number of single family and multi-family water connections in 2007, and an assumed number of people per housing unit (about 2.9 people per single family housing unit and 2.2 people per multi-family housing unit), it is estimated that each multi-family water connection serves an average of 10 multi-family housing units. Therefore, the number of 2007 multi-family water connections (8,297) is estimated to serve 82,970 multi-family housing units (10 units/connection x 8,297 connections), which means that the 4,791 lower income multi-family housing units in 2008 equated to about 5.8 percent of the total multi-family housing units in 2007 (4,791 housing units out of 82,970 total multi-family housing units in 2007[3]).

These estimated percentages have been used to estimate the number of existing and future lower income households and water service connections and estimate the existing and projected future water demand for lower income households. Projected future water use by the District's low income customers is summarized in Table 6-11.

Table 6-11. Low Income Projected Water Demands, AFY (DWR Table 8)

Low Income Water Demands	2015	2020	2025	2030	2035
Single Family Residential[(a)]	5	5	6	6	7
Multi-Family Residential[(b)]	1,195	1,159	1,269	1,390	1,521
Total	1,200	1,164	1,275	1,396	1,528

(a) Based on 0.007 percent of the projected future single family residential water demand (see Table 6-10 above).
(b) Based on 5.8 percent of the projected future multi-family residential water demand (see Table 6-10 above).

6.3.4 Sales to Other Agencies

The City serves a small portion of the Pinedale County Water District (about 28 service connections in the portion east of Highway 41) and a small County area known as the Berans Tract (via two service connections). As shown in Table 6-12, the quantities of potable water sold to these agencies are quite small, constituting less than 0.1 percent of the City's total water production. These quantities are anticipated to remain essentially the same into the future.

[2] Source: City of Fresno Public Water System Statistics Report for Calendar Year 2007.

[3] Source: City of Fresno Public Water System Statistics for Calendar Year 2007.

Table 6-12. Sales to Other Agencies, AFY (DWR Table 9)

Water Distributed	2005 (actual)	2010 (actual)	2015	2020	2025	2030	2035
Pinedale County Water District	27[(a)]	29[(b)]	30	30	30	30	30
Fresno County—Berans Tract	87	67	70	70	70	70	70
Total	114[(c)]	96[(c)]	100	100	100	100	100

(a) Includes metered water uses and estimated flat rate water use for 28 homes.
(b) Includes metered water uses and estimated flat rate water use for 19 homes (flat rate water use estimates based on 2.9 people per home and 300 gpcd).
(c) The City tracks these water sales to other agencies as part of its overall water consumption. Therefore, the consumption numbers for 2005 and 2010 shown in Table 6-12 are included in the City's 2005 and 2010 water deliveries shown previously in Tables 6-5 and 6-6.

6.3.5 Additional Water Uses and Losses

Additional water uses include such uses as saline barriers and groundwater recharge. The City does not use water for saline barriers, but it does have an extensive groundwater recharge program. Water losses occur due to distribution system leaks and other unmetered water uses (such as firefighting, main flushing, etc.). These additional water uses and losses are described below.

6.3.5.1 Groundwater Recharge

The City has an extensive groundwater recharge program to replenish the groundwater basin. In addition to sending treated wastewater effluent to percolation ponds (discussed further in Chapter 10 Recycled Water), the City is currently intentionally recharging the groundwater basin with surface water using numerous recharge facilities within its service area (including Leaky Acres, Woodward Park, Chestnut Basin[4], FMFCD basins, and several local creeks and rivers). This intentional groundwater recharge totaled 51,201 af in 2011, and has averaged about 48,900 af/yr over the last 22 years (1990 to 2011). The maximum intentional recharge occurred in 2003, when approximately 62,000 af of surface water was recharged to the groundwater basin.

The ability to operate these recharge operations depends on a number of factors, including pond availability, limited water delivery season, pond maintenance, or long wet seasons. Also, many of the FMFCD basins are dual-use basins, serving both flood control and recreational purposes. For the purposes of this UWMP, it has been assumed that intentional groundwater recharge will increase in the future to help balance future groundwater operations, wherein groundwater recharge is greater than or equal to groundwater pumpage, by 2025.

[4] The Chestnut Basin is a joint venture basin between the City and FID.

As discussed above, the City's current and future expanded intentional groundwater recharge program will allow the City to balance future groundwater operations. This balanced groundwater operation will, in turn, allow the City to conjunctively use available surface water supplies together with its groundwater supplies. If surplus surface water supplies are available, they will be used for additional intentional recharge and/or groundwater banking.

6.3.5.2 Other Water Uses

The City has not and currently does not plan to utilize water for other uses such as saline water intrusion barriers or agricultural uses.

6.3.5.3 Unaccounted-For System Losses

The City's unaccounted for water (UAFW) is the difference between the recorded water production and metered consumption; however, because the City does not meter its Single Family Residential customer class, the UAFW cannot be specifically determined.

UAFW includes many uses, such as hydrant flushing/testing, construction, firefighting, system leaks, and water main breaks. A distribution system with the infrastructure age of Fresno likely has an UAFW rate of 10 percent or higher, depending on the condition of older pipelines in the system. For planning purposes in this UWMP, UAFW for the City's water system was assumed equal to 10 percent of total production.

Table 6-13 provides a summary of the City's additional water uses and losses.

Table 6-13. Additional Water Uses and Losses, AFY (DWR Table 10)

Water Use	2005 (actual)	2010 (actual)	2015	2020	2025	2030	2035
Saline Barriers							
Groundwater Recharge	43,133	53,121	53,100	53,100	63,700	69,400	75,100
Conjunctive Use							
Raw Water							
Recycled Water							
System losses	15,728	14,705	17,300	16,800	18,400	20,100	22,000
Other							
Total	58,861	67,826	70,400	69,900	82,100	89,500	97,100

6.3.6 Total Water Use

Table 6-14 summarizes the current and projected total water demands for the City's water service area through the year 2035. As described above, these future total water demands are consistent with the City's per capita water use targets for 2015 (interim target of 282 gpcd) and for 2020 and beyond (final target of 250 gpcd).

Table 6-14. Total Water Use, AFY (DWR Table 11)[a]

Water Use	2005 (actual)	2010 (actual)	2015	2020	2025	2030	2035
Total Water Deliveries	141,551	132,347	155,600	151,000	165,300	181,000	198,100
Sales to Other Water Agencies[a]	0	0	100	100	100	100	100
Additional Water Uses and Losses	58,861	67,826	70,400	69,900	82,100	89,500	97,100
Total	200,412	200,173	226,100	221,000	247,500	270,600	295,300

[a] 2005 and 2010 Sales to Other Agencies included in Total Water Deliveries.

6.4 RETAIL AGENCY DEMAND PROJECTIONS PROVIDED TO WHOLESALE SUPPLIERS

As described above, FID and the USBR provide water supplies to the District on a wholesale basis. Table 6-15 summarizes the City's demand projections provided to FID and the USBR through 2035.

Table 6-15. Retail Agency Demand Projections Provided to Wholesale Suppliers, AFY (DWR Table 12)

Wholesaler	Contracted Volume	2010 (actual)	2015	2020	2025	2030	2035
FID[a]	Varies	132,541	117,400	123,100	128,900	134,600	140,300
USBR	60,000	61,375	60,000	60,000	60,000	60,000	60,000

[a] Includes Kings River water and wastewater recycled exchange water (see Chapter 4).

Figure 6-1. City of Fresno Historical Per Capita Water Use

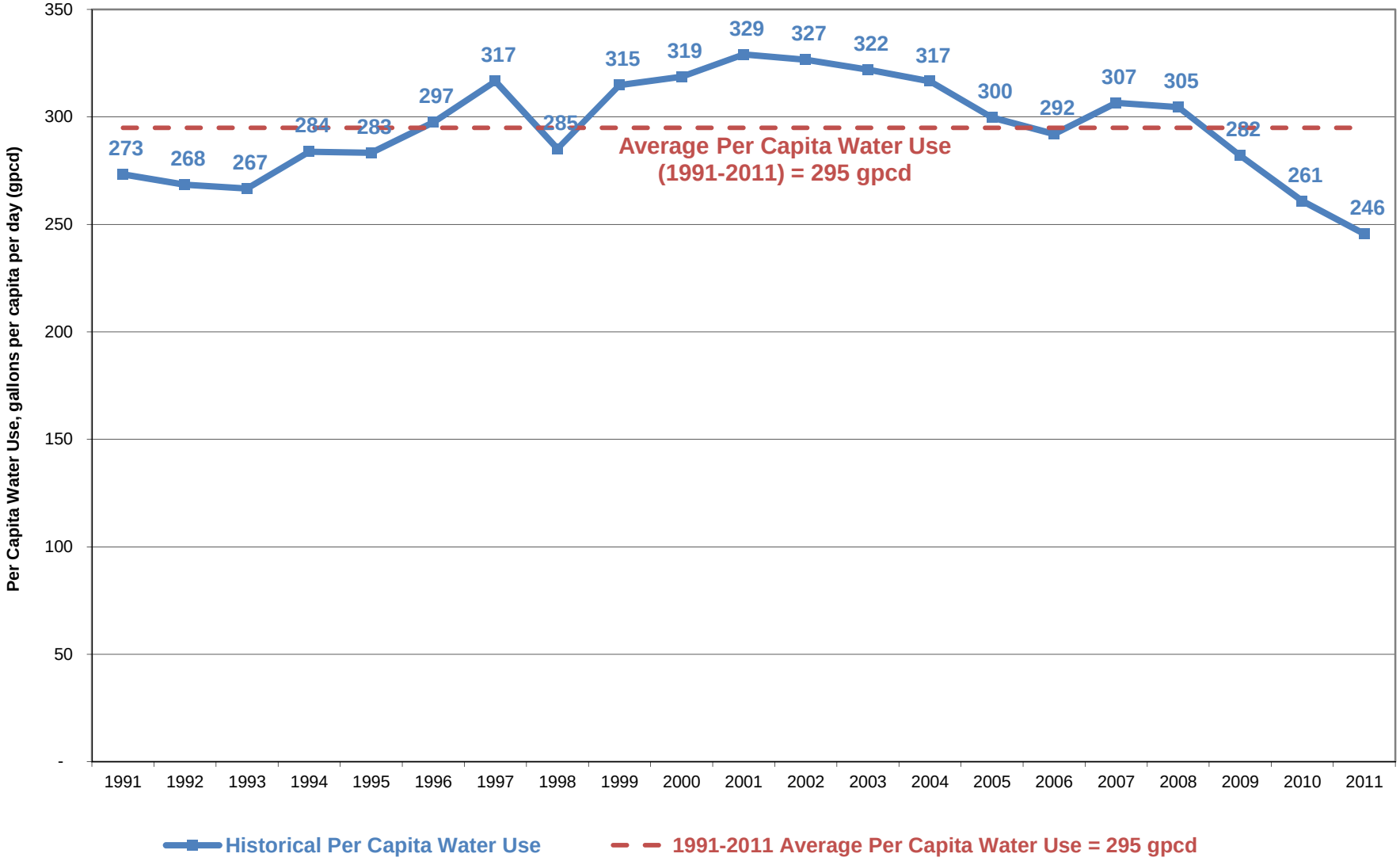
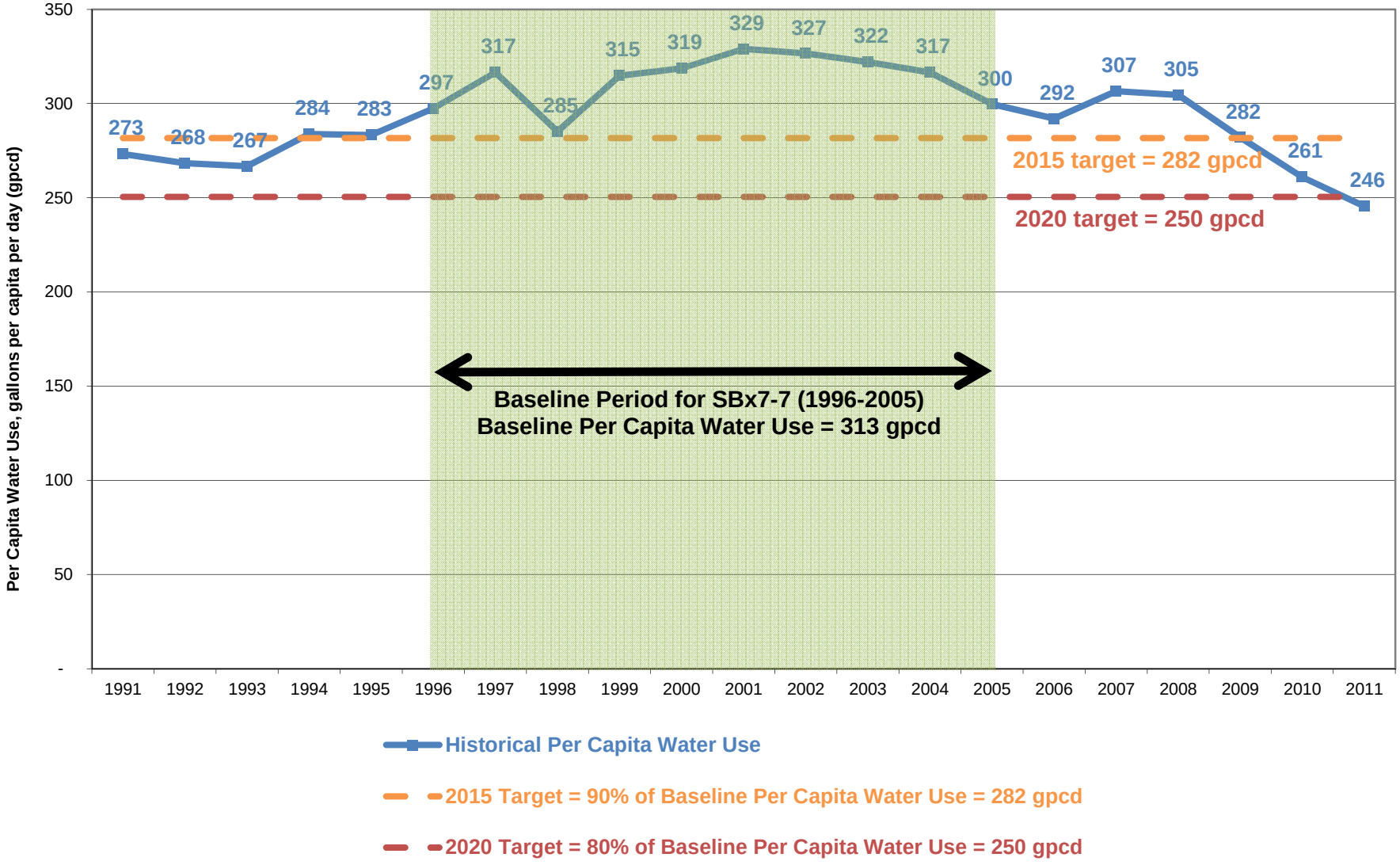


Figure 6-2. City of Fresno Historical Per Capita Water Use Compared to SBx7-7 Targets



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

7.1 NORMAL YEAR SUPPLY AND DEMAND COMPARISON

7.1.1 Normal Year Supply

As described in Chapter 5, the City's Normal Year supplies are anticipated to be as follows:

- Up to 126,500 af/yr in 2035 from FID's Kings River entitlement (increases as City's water service area increases within FID's service area);
- 13,800 af/yr from FID's wastewater recycled exchange;
- 58,200 af/yr from USBR's CVP Class 1;
- Up to 85,000 af/yr of groundwater from the Kings Subbasin; and
- Starting in 2025, up to 25,000 af/yr of recycled water.

The City's plans to use its available treated surface water supplies first and then supplement that with groundwater and recycled water as needed to meet the Normal Year demands (described below).

Table 7-1 shows the anticipated Normal Year Supplies through 2035.

Table 7-1. Normal Year Water Supply, AFY

Supply	2010 (actual)	2015	2020	2025	2030	2035
Surface Water from FID Kings River	132,541	103,600	109,400	115,100	120,800	126,500
Surface Water from FID Wastewater Recycled Exchange Wells	0	13,800	13,800	13,800	13,800	13,800
Surface Water from USBR CVP Class 1	61,375	58,200	58,200	58,200	58,200	58,200
Groundwater	128,578	76,100	61,800	53,500	69,200	85,000
Recycled Water	176	1,000	1,000	25,000	25,000	25,000
Total Supply	322,670	252,700	244,200	265,600	287,000	308,500

7.1.2 Normal Year Demand

As described in Chapter 6, the City's Normal Year demands have been projected based on assumed compliance with the City's adopted SBx7-7 per capita water use targets of 282 gpcd for 2015 and 250 gpcd for 2020 and subsequent years. Projected groundwater recharge assumes balanced groundwater operations by the City beginning in 2025, with groundwater recharge (natural and intentional) equal to or greater than groundwater pumpage.

Projected Normal Year demands through 2035 are shown in Table 7-2.

Table 7-2. Normal Year Water Demands, AFY

Supply	2010 (actual)	2015	2020	2025	2030	2035
Water Consumption[(a)]	132,347	155,600	151,000	165,300	181,000	198,100
Sales to Other Water Agencies	[(b)]	100	100	100	100	100
Groundwater Recharge	53,121	53,100	53,100	63,700	69,400	75,100
System Losses (UAFW)	14,705	17,300	16,800	18,400	20,100	22,000
Total Demand	200,173	226,100	221,000	247,500	270,600	295,300

(a) Based on compliance with City's SBx7-7 targets (282 gpcd in 2015 and 250 gpcd in 2020 and beyond).
(b) Included in water consumption.

7.1.3 Normal Year Comparison

As shown in Table 7-3, the City's Normal Year supplies are adequate to meet projected Normal Year demands.

Table 7-3. Supply and Demand Comparison—Normal Year, AFY (DWR Table 32)

Supply	2010 (actual)	2015	2020	2025	2030	2035
Supply Totals (from Table 7-1)	322,670	252,700	244,200	265,600	287,000	308,500
Demand Totals (from Table 7-2)	200,173	226,100	221,000	247,500	270,600	295,300
Difference	112,497	26,600	23,200	18,100	16,400	13,200
Difference as % of Supply	38%	11%	10%	7%	6%	4%
Difference as % of Demand	61%	12%	10%	7%	6%	4%

7.2 SINGLE DRY YEAR SUPPLY AND DEMAND COMPARISON

7.2.1 Single Dry Year Supply

As described in Chapter 5, the City's Single Dry Year supplies are anticipated to be as follows:

- Up to 65,600 af/yr in 2035 from FID's Kings River entitlement (assumes Critical-low water supply conditions) (increases as City's water service area increases within FID's service area);
- 13,800 af/yr from FID's wastewater recycled exchange;
- 13,900 af/yr from USBR's CVP Class 1 (assumes Critical-low water supply conditions);
- Up to 131,900 af/yr of groundwater from the Kings Subbasin; and
- Starting in 2025, up to 25,000 af/yr of recycled water.

It should be noted that the City's projected groundwater pumpage in single dry years is higher than Normal Year projected pumpage, but is not much higher than current (2010) groundwater pumpage. Also, under Single Dry Year conditions, it is assumed that groundwater recharge would be limited based on reduced availability of surface water supplies.

Table 7-4 shows the anticipated Single Dry Year Supplies through 2035.

Table 7-4. Single Dry Year Water Supply, AFY

Supply	2010 (actual)	2015	2020	2025	2030	2035
Surface Water from FID Kings River	132,541	53,700	56,700	59,700	62,700	65,600
Surface Water from FID Wastewater Recycled Exchange Wells	0	13,800	13,800	13,800	13,800	13,800
Surface Water from USBR CVP Class 1	61,375	13,900	13,900	13,900	13,900	13,900
Groundwater[(a)]	128,578	120,600	112,500	101,400	115,800	131,900
Recycled Water	176	1,000	1,000	25,000	25,000	25,000
Total Supply	322,670	203,000	197,900	213,800	231,200	250,200

[(a)] Groundwater pumpage in Single Dry Years is higher than in Normal Years due to limited surface water supplies.

7.2.2 Single Dry Year Demand

As described above, the City's Normal Year demands have been projected based on the City's adopted SBx7-7 per capita water use targets of 282 gpcd for 2015 and 250 gpcd for 2020 and subsequent years. As such, projected Normal Year per capita water demands are significantly lower than the City's historical per capita water demands. Therefore, additional demand reductions under Single Dry Year conditions have been assumed to be zero for this 2010 UWMP. This is a conservative assumption, as additional water conservation may be possible under Single Dry Year conditions if the City were to impose additional water use restrictions or consumption reduction methods in accordance with its Water Shortage Contingency Plan (see Chapter 9).

Projected Single Dry Year demands through 2035 are shown in Table 7-5.

Table 7-5. Single Dry Year Water Demands, AFY

Supply	2010 (actual)	2015	2020	2025	2030	2035
Water Consumption[a]	132,347	155,600	151,000	165,300	181,000	198,100
Sales to Other Water Agencies	[b]	1,00	100	100	100	100
Groundwater Recharge[c]	53,121	30,000	30,000	30,000	30,000	30,000
System Losses (UAFW)	14,705	17,300	16,800	18,400	20,100	22,000
Total Demand	200,173	203,000	197,900	213,800	231,200	250,200

[a] Based on compliance with City's SBx7-7 targets (282 gpcd in 2015 and 250 gpcd in 2020 and beyond) with no additional reduction in Single Dry Years.
[b] Included in water consumption.
[c] Groundwater recharge reduced in Single Dry Years due to limited surface water supplies.

7.2.3 Single Dry Year Comparison

As shown in Table 7-6, with increased groundwater pumpage and reduced groundwater recharge under Single Dry Year conditions, the City's Single Dry Year supplies are adequate to meet projected Single Dry Year demands.

Table 7-6. Supply and Demand Comparison—Single Dry Year, AFY (DWR Table 33)

	2010 (actual)	2015	2020	2025	2030	2035
Supply Totals (from Table 7-4)	322,670	203,000	197,900	213,800	231,200	250,200
Demand Totals (from Table 7-5)	200,173	203,000	197,900	213,800	231,200	250,200
Difference	0	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0%	0%	0%	0%	0%	0%

7.3 MULTIPLE DRY YEARS SUPPLY AND DEMAND COMPARISON

7.3.1 Multiple Dry Year Supply

As described in Chapter 5, the City's Multiple Dry Year supplies are anticipated to be as follows:

- First Year (assumed to have Critical-low water supply conditions)
  - City supplies will be the same as the Single Dry Year supplies (see discussion above)
- Second Year (assumed to have Dry water supply conditions)
  - Up to 104,000 af/yr in 2035 from FID's Kings River entitlement (assumes Dry water supply conditions) (increases as City's water service area increases within FID's service area);
  - 13,800 af/yr from FID's wastewater recycled exchange;
  - 39,200 af/yr from USBR's CVP Class 1 (assumes Dry water supply conditions);
  - Up to 91,300 af/yr of groundwater from the Kings Subbasin; and
  - Starting in 2025, up to 25,000 af/yr of recycled water.
- Third Year (assumed to have Normal Dry supply conditions)
  - Up to 115,800 af/yr in 2035 from FID's Kings River entitlement (assumes Normal Dry water supply conditions) (increases as City's water service area increases within FID's service area);
  - 13,800 af/yr from FID's wastewater recycled exchange;
  - 56,200 af/yr from USBR's CVP Class 1 (assumes Normal Dry water supply conditions);
  - Up to 85,000 af/yr of groundwater from the Kings Subbasin; and
  - Starting in 2025, up to 25,000 af/yr of recycled water.

It should be noted that under the Second Year of the Multiple Dry Year period (under Dry water supply conditions), the City would need to pump more groundwater than projected for Normal Years, and would have limited groundwater recharge as a result of limited surface water supplies. Under the Third Year of the Multiple Dry Year period (under Normal Dry water supply conditions), the City's groundwater pumpage would be the same as in the Normal Years, and groundwater recharge would not be limited.

Table 7-7 shows the anticipated Multiple Dry Year Supplies through 2035.

Table 7-7. Multiple Dry Year Water Supply, AFY

		3-Year Dry Period Beginning				
		2015	2020	2025	2030	2035
Multiple-dry year first year supply[a]	Surface Water from FID Kings River	53,700	56,700	59,700	62,700	65,600
	Surface Water from FID Wastewater Recycled Exchange Wells	13,800	13,800	13,800	13,800	13,800
	Surface Water from USBR CVP Class 1	13,900	13,900	13,900	13,900	13,900
	Groundwater	120,600	112,500	101,400	115,800	131,900
	Recycled Water	1,000	1,000	25,000	25,000	25,000
	Total Supply	203,000	197,900	213,800	231,200	250,200
Multiple-dry year second year supply[b]	Surface Water from FID Kings River	85,200	89,900	94,600	99,300	104,000
	Surface Water from FID Wastewater Recycled Exchange Wells	13,800	13,800	13,800	13,800	13,800
	Surface Water from USBR CVP Class 1	39,200	39,200	39,200	39,200	39,200
	Groundwater	86,900	77,100	64,300	77,000	91,300
	Recycled Water	1,000	1,000	25,000	25,000	25,000
	Total Supply	226,100	221,000	236,900	254,300	273,300
Multiple-dry year third year supply[c]	Surface Water from FID Kings River	94,900	100,100	105,400	110,600	115,800
	Surface Water from FID Wastewater Recycled Exchange Wells	13,800	13,800	13,800	13,800	13,800
	Surface Water from USBR CVP Class 1	56,200	56,200	56,200	56,200	56,200
	Groundwater	76,100	61,800	53,500	69,200	85,000
	Recycled Water	1,000	1,000	25,000	25,000	25,000
	Total Supply	242,000	232,900	253,900	274,800	295,800

[a] Assumes Critical-low water supply conditions.
[b] Assumes Dry water supply conditions.
[c] Assumes Normal Dry water supply conditions.

7.3.2 Multiple Dry Year Demand

As described above, the City's Normal Year demands have been projected based on the City's adopted SBx7-7 per capita water use targets of 282 gpcd for 2015 and 250 gpcd for 2020 and subsequent years. As such, projected Normal Year per capita water demands are significantly lower than the City's historical per capita water demands. Therefore, additional demand reductions under Multiple Dry Year conditions have been assumed to be zero for this 2010 UWMP. This is a conservative assumption, as additional water conservation may be possible under Multiple Dry Year conditions if the City were to impose additional water use restrictions or consumption reduction methods in accordance with its Water Shortage Contingency Plan (see Chapter 9).

Projected Multiple Dry Year demands through 2035 are shown in Table 7-8.

Table 7-8. Multiple Dry Year Water Demands, AFY

	Dry Period Beginning				
	2015	2020	2025	2030	2035
Multiple-dry year first year demand					
Water Consumption	155,600	151,000	165,300	181,000	198,100
Sales to Other Water Agencies	100	100	100	100	100
Groundwater Recharge[(a)]	30,000	30,000	30,000	30,000	30,000
System Losses (UAFW)	17,300	16,800	18,400	20,100	22,000
Total Demand	203,000	197,900	213,800	231,200	250,200
Multiple-dry year second year demand					
Water Consumption	155,600	151,000	165,300	181,000	198,100
Sales to Other Water Agencies	100	100	100	100	100
Groundwater Recharge[(b)]	53,100	53,100	53,100	53,100	53,100
System Losses (UAFW)	17,300	16,800	18,400	20,100	22,000
Total Demand	226,100	221,000	236,900	254,300	273,300
Multiple-dry year third year demand					
Water Consumption	155,600	151,000	165,300	181,000	198,100
Sales to Other Water Agencies	100	100	100	100	100
Groundwater Recharge[(c)]	53,100	53,100	63,700	69,400	75,100
System Losses (UAFW)	17,300	16,800	18,400	20,100	22,000
Total Demand	226,100	221,000	247,500	270,600	295,300

(a) Groundwater recharge reduced from Normal Years due to limited availability of surface water supplies.
(b) Groundwater recharge reduced slightly from Normal Years due to limited availability of surface water supplies.
(c) Groundwater recharge equal to Normal Years.

7.3.3 Multiple Dry Year Comparison

As shown in Table 7-9, with increased groundwater pumpage and reduced groundwater recharge under the first two years of a Multiple Dry Year conditions, the City's Multiple Dry Year supplies are adequate to meet projected Multiple Dry Year demands.

Table 7-9. Supply and Demand Comparison—Multiple Dry Year, AFY (DWR Table 34)

		3-Year Dry Period Beginning				
		2015	2020	2025	2030	2035
Multiple-dry year first year supply[a]	Supply Totals (see Table 7-7)	203,000	197,900	213,800	231,200	250,200
	Demand Totals (see Table 7-8)	203,000	197,900	213,800	231,200	250,200
	Difference	0	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%	0%
Multiple-dry year second year supply[b]	Supply Totals (see Table 7-7)	226,100	221,000	236,900	254,300	273,300
	Demand Totals (see Table 7-8)	226,100	221,000	236,900	254,300	273,300
	Difference	0	0	0	0	0
	Difference as % of Supply	0%	0%	0%	0%	0%
	Difference as % of Demand	0%	0%	0%	0%	0%
Multiple-dry year third year supply[c]	Supply Totals (see Table 7-7)	242,000	232,900	253,900	274,800	295,800
	Demand Totals (see Table 7-8)	226,100	221,000	247,500	270,600	295,300
	Difference	15,900	11,900	6,400	4,200	500
	Difference as % of Supply	7%	5%	3%	2%	0%
	Difference as % of Demand	7%	5%	3%	2%	0%

[a] Assumes Critical-low water supply conditions.
[b] Assumes Dry water supply conditions.
[c] Assumes Normal Dry water supply conditions.

8.1 OVERVIEW

The City has a long history of water conservation. A letter dated June 20, 1917 from A.G. Wishon, General Manager of the Fresno City Water Company, to water customers stated that employees would patrol neighborhoods and take action against customers who wasted water. A copy of that letter is provided as Figure 8-1.

On January 1, 1956, the City adopted an ordinance prohibiting the wastage of water. This was one of the first such ordinances passed in California on a permanent basis. The ordinance included the following provisions:

> *Section 6-520. Use of Open Hose or Faucet; Wastage of Water*[1]
>
> *(a) The use of water by means of an open hose or open faucet for irrigation purposes is prohibited. All hose used for irrigation purposes shall have attached thereto a spray nozzle or sprinkling device.*
>
> *(b) Each consumer of water shall keep all connections, faucets, hydrants, pipes, outlets and plumbing fixtures tight and free from leakage, dripping or waste of water.*
>
> *(c) The willful waste of water supplied by the City Water Division is prohibited.*
>
> *(d) The Water Division shall turn off the water connection to any property where any provision of this section is being violated and shall not turn it on again until a fee of five dollars ($5) for reconnection shall have been paid at the Water Division office in the City Hall.*

Water conservation in Fresno gained renewed emphasis during the 1976-77 drought. Conservation programs that were started then have continued and since 1981 have been supplemented with additional and expanded programs, as described in this chapter. Excerpts from the City of Fresno's current Municipal Code regarding water regulations and conservation provisions are included in Appendix F.

The City is also a partner in the U.S. Environmental Protection Agency's (USEPA) WaterSense program. WaterSense is a voluntary partnership program sponsored by the USEPA with a mission to protect the future of the nation's water supply by promoting and enhancing the market for water-efficient products and services.

On December 11, 1991, the City became a signatory agency to the CUWCC's Memorandum of Understanding (MOU) Regarding Urban Water Conservation in California. The purpose of the MOU was to expedite implementation of reasonable water conservation measures in urban areas and to establish appropriate assumptions for use in calculating estimates of reliable future water conservation savings.

[1] This Section of the City Municipal Code has been updated since it was first adopted in 1956. The latest version of Section 6-520. Wastage of Water is provided in Appendix F.

The Urban Water Management Planning Act (Water Code Section 10631 (j)) allows for an urban retail water agency that is a signatory (member) of the CUWCC to meet the Demand Management Measure (DMM) requirements by documenting that the CUWCC has determined the urban water agency is complying (coverage) with all of the provisions of the MOU. Documentation of the City's compliance status is provided in Appendix G.

8.2 CUWCC REORGANIZATION OF THE BMPS

In 2009, the CUWCC restructured the organization of its Best Management Practices (BMPs) to group them according to type. Table 8-1 provides an overview of the reorganization of the CUWCC BMPs. The 14 CUWCC BMPs have now been reorganized into two primary categories: foundational BMPs and programmatic BMPs. Although the BMP names and organization have been modified, they still correlate to the 14 DMMs identified in the UWMP Act (Water Code Section 10631(f)).

8.3 CUWCC COMPLIANCE OPTIONS

Compliance with the BMP water savings goals included in the CUWCC MOU can be accomplished in one of three ways including:

- Accomplishing the specific measures as listed in the CUWCC MOU for each BMP,
- Accomplishing a set of measures which achieves equal or greater water savings, referred to as the Flex Track Menu option, and
- Accomplishing set water savings goals as measured in gallons per capita per day consumption, referred to as the GPCD option.

8.3.1 Implementation of Specific BMP Measures

Under this option, compliance with the BMPs is based on implementation of the specific measures listed in the CUWCC MOU for each BMP. As described in this chapter, the City is implementing most of the BMPs, but may not be meeting the specific coverage requirements for each individual BMP. Therefore, the City has not selected this compliance option.

8.3.2 CUWCC Flex Track Menu Option

A new option with the recent amendments to the CUWCC MOU is the Flex Track Menu. With this option, the signatory must achieve water savings greater than or equal to that which they would have achieved using only the BMP list items. The Flex Track Menu Options would allow the City to implement water use efficiency programs not listed as a traditional best management practice and still get credit for the amount of water saved. However, the City has not implemented the Flex Track Menu Option.

Table 8-1. Demand Management Measures and CUWCC BMPs

CUWCC BMP Organization and Names (2009 MOU)				UWMP DMMs	
Type	Category	BMP#	BMP Name	DMM# (previous BMP#)	DMM Name
Foundational	Utility Operations Programs	1.1.1	Conservation Coordinator	L (12)	Water conservation coordinator
		1.1.2	Water Waste Prevention	M (13)	Water waste prohibition
		1.1.3	Wholesale Agency Assistance Programs	J (10)	Wholesale agency programs
		1.2	Water Loss Control	C (3)	System water audits, leak detection, and repair
		1.3	Metering with Commodity Rates for All New Connections and Retrofit of Existing Connections	D (4)	Metering with commodity rates for all new connections and retrofit of existing connections
		1.4	Retail Conservation Pricing	K (11)	Conservation pricing
	Education Programs	2.1	Public Information Programs	G (7)	Public information programs
		2.2	School Education Programs	H (8)	School education programs
Programmatic	Residential	3.1	Residential assistance program	A (1)	Water survey programs for single-family residential and multifamily residential customers[(a)]
				B (2)	Residential plumbing retrofit
		3.2	Landscape water survey	A (1)	Water survey programs for single-family residential and multifamily residential customers[(a)]
		3.3	High-Efficiency Clothes Washing Machine Financial Incentive Programs	F (6)	High-efficiency washing machine rebate programs
		3.4	WaterSense Specification (WSS) toilets	N (14)	Residential ultra-low-flush toilet replacement programs
	Commercial, Industrial, and Institutional	4	Commercial, Industrial, and Institutional	I (9)	Conservation programs for commercial, industrial, and institutional accounts
	Landscape	5	Landscape	E (5)	Large landscape conservation programs and incentives

Source: 2010 UWMP Guidebook, Table E-1

[(a)] Components of DMM A (Water survey programs for single-family residential and multifamily residential customers) applies to both BMP 3.1 (Residential assistance program) and BMP 3.2 (Landscape water survey)

8.3.3 GPCD Option

With the updated CUWCC MOU this reporting period, the City has an option of meeting coverage requirements by meeting a per capita water use target as defined by the CUWCC[2]. This option is referred to by CUWCC as the GPCD Option. The City has chosen this option for meeting its MOU coverage requirements for the current reporting period.

Table 8-2 documents the compliance targets required under the CUWCC GPCD compliance option for the City. This table shows the target and the highest acceptable boundary for compliance for each reporting period for the current CUWCC MOU.

Table 8-2. CUWCC Biennial GPCD Compliance Table for City of Fresno

Fiscal Year	Report	CUWCC GPCD Option Target		Highest Acceptable Bound	
		% Base	gpcd	% Base	gpcd
2010	1	96.4%	301	100%	312
2012	2	92.8%	290	96.4%	301
2014	3	89.2%	278	92.8%	290
2016	4	85.6%	267	89.2%	278
2018	5	82.0%	256	82.0%	256

The City's calculated per capita water use for the year 2010 was 260 gpcd, which met the required 2010 target for coverage compliance with the CUWCC's MOU (301 gpcd).

A copy of the City's CUWCC BMP Retail Coverage Report for 2009-10 is provided in Appendix G.

8.4 DESCRIPTION OF DMM IMPLEMENTATION

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

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

(A) Water survey programs for single-family residential and multifamily residential customers.
(B) Residential plumbing retrofit.
(C) System water audits, leak detection, and repair.
(D) Metering with commodity rates for all new connections and retrofit of existing connections.
(E) Large landscape conservation programs and incentives.
(F) High-efficiency washing machine rebate programs.
(G) Public information programs.
(H) School education programs.

[2] It should be noted that the CUWCC GPCD target is different than the SBx7-7 per capita water use targets described in Chapter 6.

(I) Conservation programs for commercial, industrial, and institutional accounts.
(J) Wholesale agency programs.
(K) Conservation pricing.
(L) Water conservation coordinator.
(M) Water waste prohibition.
(N) Residential ultra-low-flush toilet replacement programs.

(2) A schedule of implementation for all water demand management measures proposed or described in the plan.

8.4.1 DMM A: Water Survey Programs for Single Family and Multi-Family Residential Customers (CUWCC Programmatic BMP 3.0 Residential)

The City has few requests for single-family or multi-family interior water surveys. While the City does not have an aggressive media campaign for marketing surveys, it does include the information in outreach literature, website and through direct contact with customers at outreach events, tours and speakers bureau. If a request for an interior survey is received, staff is available to respond. There has been little interest in this service by single-family consumers probably because of low, flat-rate water charges. Multi-family residential customers have also shown little interest, probably due to low water rates. The City has staff available to provide interior water surveys to customers.

However, required City on-site inspections to qualify for water efficient toilet and clothes washer rebates have allowed the City an opportunity to enter customer dwellings. At that time, the City offers and performs an interior survey for willing single-family and multi-family residential customers. Water efficient hardware is also left for the resident, along with hose nozzles for the exterior and an offer to perform an exterior survey.

The City does aggressively market and perform single-family and multi-family residential exterior water surveys, which have the highest water usage. This program is staffed with two Landscape Water Conservation Representatives. Surveys are offered and cost-effective measures are recommended. The program is marketed through media, billing inserts, promotional materials, public outreach events, speaker's bureau, and the City's web site. A majority of landscape surveys result from the City's free irrigation controller setting program. At the time of the request, customers agree to an exterior survey also. During the exterior survey, City staff provide the following services:

- Landscape water-use surveys include consultation, irrigation system efficiency rating using "catch can" distribution uniformity method or in-depth valve observation method, measurement of turf and other landscaped area.
- Offer plant material tips.
- Irrigation controller setting and water budgeting recommendations with an evapotranspiration chart developed specifically for the region used to develop a written irrigation schedule for the customer.
- Offer to customer to perform interior survey.

Implementation Schedule:

- Offers for interior and exterior surveys made on an on-going basis to single-family and multi-family residential customers. Current focus is on exterior surveys.
  - The program is marketed through media, billing inserts, promotional materials, public outreach events, speaker's bureau, and the City's web site.
  - Interior and exterior surveys also being offered in conjunction with on-going toilet rebate program.
- Rebates for efficient automatic irrigation timers: Proposed for the future.

8.4.2 DMM B: Residential Plumbing Retrofit (CUWCC Programmatic BMP 3.0 Residential)

The City provides free low-flow showerheads and faucet aerators to the City's rate payers. These items are distributed based on customer request and are also available during public outreach events and during interior surveys. Recently, fewer requests for showerheads have been received from customers. This is due to the efficiency standards requiring that only low-flow showerheads be sold in this country.

Implementation Schedule:

- Distribution of plumbing retrofit kits are on-going, and provided upon customer request, during interior surveys, and at public outreach events

8.4.3 DMM C: System Water Audits, Leak Detection and Repair (CUWCC Foundational BMP 1.2 Water Loss Control)

In 2011, the City conducted an extensive water audit of water production and consumption within its water distribution system which focused on categorizing, quantifying, and tracking the water produced by the City through existing records and interviews with City staff. The audit identified discrepancies and attempted to locate and quantify the amount of water "lost" in the system. The report used methods proposed in both the "Water Audits and Loss Control Programs – Manual of Water Supply Practices, M36 (3rd Edition), by the American Water Works Association; and the "Control and Mitigation of Drinking Water Losses in Distribution Systems", by the United States Environmental Protection Agency.

The City also completed an audit for the 2010 calendar year using AWWA's free audit software. Results from the audit were included in the City's 2010 reporting to the CUWCC (see Appendix G).

The City routinely compiles and compares its water distribution system data to identify any major leaks in the system. Also, the City has conducted some localized leak detection programs:

- In 1998, approximately 60 miles of water mains were tested through a pilot leak detection program. At that time, few leaks were found.
- In 2004, a limited study was conducted in a small area of an older section of Fresno using Permalog. No leaks were detected at that time.

- In late 2011, a leak detection project was conducted on 40 miles of water distribution mains. During that survey, only two small leaks were found.

Staff is available for the timely repair of all reported leaks. The City's leak detection program will be enhanced with the completion of the Residential Water Metering Program which is anticipated to be complete by late 2012 (see DMM D).

Implementation Schedule:

- Localized leak detection programs: Conducted in 1998, 2004 and 2011
- System leak detection program: To become a priority once City is fully metered (see DMM D)
- System audit: AWWA Audit completed for 2010 calendar year; Comprehensive Water Audit Report prepared in 2011

8.4.4 DMM D: Metering with Commodity Rates (CUWCC Foundational BMP 1.3 Metering with Commodity Rates for all New Connections and Retrofit of Existing Connections)

Historically, Article XII, Section 1225 of the City's Charter prohibited the installation or required installation of water meters at single-family residential connections, and the billing of single-family residential water consumption at a metered rate. All new single-family residential connections (installed after January 1, 1992) were provided with a meter box and/or meter in accordance with State Water Code Section 525 (adopted by Senate Bill 229 (SB 229) in 1991); however, based on the City Charter, all single-family residential customers have been billed based on a monthly flat rate according to lot size. A discounted flat rate has also been provided for single-family residential customers who are senior citizens.

However, in 2003, Assembly Bill 514 (AB 514) was signed into law. Among other provisions, AB 514 enacted Water Code Section 111 that requires an urban water supplier that receives water from the Federal Central Valley Project to: (1) install water meters on all service connections to residential and non-agricultural commercial buildings located within its service area on or before January 1, 2013; and (2) charge customers for water based on the actual volume of deliveries, as measured by a water meter, on and after March 1, 2013. Compliance with this statute is one of the conditions of the City's USBR Water Supply Agreement renewal.

The requirements of SB 229 and AB 514 have superseded Article XII, Section 1225 of the City's Charter, because these state laws address a subject matter of statewide concern. Also, the State Legislature has declared that these requirements supersede and preempt all conflicting enactments of charter cities, including charter provisions.

In response to these requirements, the City has been implementing a Residential Water Metering Program to install water meters on over 100,000 single-family homes. The program is anticipated to be complete by late 2012.

Implementation Schedule:

- Metering and Billing at Commodity Rates: On-going for multi-family residential, commercial, industrial, institutional, and landscape irrigation customers.
- Single-Family Residential Water Metering Program: Scheduled to be completed by late 2012.

8.4.5 DMM E: Large Landscape Conservation Programs and Incentives (CUWCC Programmatic BMP 5.0 Landscape)

The City has a Large Landscape Conservation Program which is staffed with two Landscape Water Conservation Representatives. Landscape surveys are offered and cost-effective repair or enhancement measures are recommended. The City primarily reaches its customers through routine field monitoring, advertising in billing inserts, conservation literature, speakers bureau, tours, web site, and public outreach events. The City is in the process of identifying landscape meter accounts which serve one acre or more of landscape area. Requesting large accounts are surveyed annually and an irrigation schedule is developed within approved time frames in conjunction with the large landscape water permit program. The City is a resource to customers developing annual water budgets.

To further enhance the exterior landscape program, staff has proposed that the City begin a pilot program to offer rebates to rate payers to purchase updated and more efficient automatic irrigation timers.

The City has also adopted water conserving landscape requirements which are specified in the City Municipal Code (Section 6-522. Water Efficient Landscape Standards). These requirements define standards and procedures for the design, installation and management of landscapes in order to utilize available plant, water, land and human resources to the greatest benefit of the people of the City. A copy of the water conserving landscape requirements is provided in Appendix F.

The City is also a supporting partner in the Clovis Botanical Gardens, which serve as a demonstration garden for water conserving landscaping in the region. The City has a park strip demonstration garden at its facilities. The City has also received a grant to develop a demonstration xeriscape median island on a major street.

Implementation Schedule:

- Landscape Surveys: On-going
- Water permits for large landscape accounts: On-going
- Rebate program for efficient automatic irrigation controllers: Proposed for the future.
- Water Conserving Landscape Requirements: On-going per City Municipal Code (Section 6-522. Water Efficient Landscape Standards)

8.4.6 DMM F: High Efficiency Washing Machine Rebate Program (CUWCC Programmatic BMP 3.0 Residential)

In November 2007, the City implemented a high-efficiency clothes washer rebate program. Residential customers may receive a $50 rebate for purchasing a qualifying high-efficiency clothes washer. Clothes washers qualifying for the rebate must quality as an EnergySTAR labeled appliance and meet the Consortium for Energy Efficiency (CEE) Standards for energy and water consumption standards with a Water Factor (WF) of 6.0 or less.

PG&E also has a rebate program which the City's water customers may be eligible for, depending on what type of washing machine they purchase. A $50 rebate is available for CEE Tier 3 models with a Modified Energy Factor (MEF) of 2.2 or greater and a Water Factor (WF) of 4.5 or less.

The City also participates in the State of California's Flex Your Power (FYP) program. A letter of support for the FYP program was sent by the City at the request of the California Urban Water Conservation Council. In April 2004, the California Water Awareness Campaign and the Flex Your Power energy efficiency program joined together to promote water and energy efficient appliances. Centered around Earth Day, over 40 water agencies, including the City of Fresno, participated in the project by choosing local non-profit organizations to receive new EnergySTAR clothes washers and dryers. Information on the City's high-efficiency clothes washer and toilet rebate programs are listed on the Flex Your Power webpage.

Implementation Schedule:

- City Rebate Program: Started in November 2007
- PG&E Rebate Program: On-going
- City support of California's Flex Your Power Program: On-going

8.4.7 DMM G: Public Information Programs (CUWCC Foundational BMP 2.1 Public Information)

The City's water conservation public information program is managed in-house with the assistance of a contracted public relations firm. The firm's services include strategic planning, creative concepts, public relations, marketing, promotion, research, advertising, media placement, production and design, copy writing, event production and marketing and online services.

The City's public information program has many components including multi-media campaigns (paid and public service advertising); customer billing inserts; literature; public outreach activities, speakers bureau and inter-agency partnerships. Many of the City's water conservation materials are provided in three languages: English, Hmong and Spanish. Bilingual City conservation employees who speak these languages are also available.

The City is a member of the Central Valley Water Awareness Committee (CVWAC), which is comprised of several cities, water utilities, irrigation districts and other groups in the Central Valley. The CVWAC was created to increase the public's understanding of how water is treated,

managed and delivered to customers. The City participates in Water Awareness Month activities through its affiliation with the CVWAC.

In the past, the City has informally kept records of these related public information activities. In 2005, the City began keeping formal and accurate records of these activities for submittal to the CUWCC.

Implementation Schedule:

- Paid Advertising: On-going
- Public Service Announcements: On-going
- Water Bill Inserts, Newsletters and Brochures: On-going
- Special Events, Media Events: On-going
- Speaker's Bureau: On-going

8.4.8 DMM H: School Education Programs (CUWCC Foundational BMP 2.2 School Education)

The City works with schools in the Fresno customer service area through its School Education Program. The Water Education Coordinator is a certified teacher on contract with the City, who has developed the program and is available for presentations to students, teachers and community groups. Some of these education programs are recorded for future use.

In 2010, 43 school presentations were made (reaching 757 students), one presentation was made at a community festival, and a school poster contest was held. Six field trips were also conducted with 259 participants.

Implementation Schedule:

- School Outreach Program: On-going

8.4.9 DMM I: Conservation Programs for Commercial, Industrial and Institutional (CUWCC Programmatic BMP 4.0 Commercial, Industrial and Institutional (CII))

The City rarely receives requests regarding interior water conservation surveys for CII accounts. However, the City does conduct exterior surveys for CII accounts upon request, or as a result of routine monitoring.

The City does have an ordinance which requires water conservation devices on water-cooled refrigeration units and evaporative coolers, which are primarily associated with CII accounts. The provisions of the ordinance have been incorporated into the City Municipal Code (Section 6-519. Water Conservation Device Required). A copy of the pertinent sections of the City's Municipal Code are provided in Appendix F.

The City recently implemented a commercial toilet replacement rebate program. This program encourages the installation of High Efficiency Toilets (HETs) in businesses by offering a rebate

for each replaced toilet. As of July 1, 2012, a $50 rebate is available from the City. The program requires a pre-inspection and may require a post-inspection.

Implementation Schedule:

- Commercial, Industrial and Institutional Water Use Surveys: Upon request or during routine monitoring
- Requirements for Water Conservation Devices: On-going per City Municipal Code (Section 6-519. Water Conservation Device Required)
- Commercial High Efficiency Toilet Rebate Program: On-going
- Exterior Surveys conducted: On-going as requested

8.4.10 DMM J: Wholesale Agency Programs (CUWCC Foundational BMP 1.1.3 Wholesale Agency Assistance Programs)

The City functions primarily as a retail water purveyor for the City of Fresno water service area. The City does provide water on a wholesale basis to two limited areas within the City's water service area:

- Portion of Pinedale County Water District east of Highway 41, and
- Berans Tract portion of Fresno County.

The City provides water on a wholesale basis to a small number of customers located within the portion of the Pinedale County Water District which lies east of Highway 41. This area of Pinedale east of Highway 41 consists of approximately 28 water service connections which are essentially cut off from the remaining Pinedale system by Highway 41 and have no other water supply. These customers are billed by Pinedale, which in turn pays the City for providing the water supply.

The City also provides water on a wholesale basis to the Berans Tract area, a County island. The City serves this area via two water connections from the City.

These wholesale water service arrangements are considered to be a relatively minor part of the City's overall water system operations. Therefore, for purposes of DMM J, the City is not considered to be a water wholesaler. As such, wholesale agency programs are not considered applicable to the City.

8.4.11 DMM K: Conservation Pricing (CUWCC Foundational BMP 1.4 Conservation Pricing)

As described for DMM D, the City's single-family residential customers have historically not been metered and have been billed based on a flat rate. The current flat monthly water rate based on lot size is as shown in Table 8-3. It should be noted that per the City's Master Fee Schedule, the flat rate water service charges for single family residential customers shall sunset as of January 1, 2013 or until all single family residences are metered, whichever comes first.

Table 8-3. City of Fresno Water Rates for Unmetered Services (Single-Family Residential Only)

Customer Type	Water Service Charge (Flat Rate, per month) [a]
Single-Family Residential	
First 6,000 square feet or less of lot size	$22.87
Each additional 100 square feet	$0.228
Single-Family Residential (Senior Citizen)	
First 6,000 square feet or less of lot size	$20.56
Each additional 100 square feet	$0.204

[a] Source: City of Fresno Master Fee Schedule Amendment #510 (June 2012). All fees effective 07/01/12.

For the City's metered customers (including multi-family residential, commercial, industrial, institutional and irrigation), the City has a water rate structure which includes a monthly standby charge based on water meter size, and a uniform monthly quantity use charge based on actual monthly water use (see Table 8-4).

Table 8-4. City of Fresno Water Rates for Metered Services

Water Meter Size	Water Service Charge = Standby Charge + Quantity Charge	
	Monthly Standby Charge[a], $	Quantity Charge
¾ inch or smaller	10.03	
1-inch	13.51	Customers Other than Single Family Residential:
1 ½ inch	18.89	
2-inch	27.09	Each 100 cubic feet (HCF) = $0.745
3-inch	45.07	Each 1,000 gallons = $0.995
4-inch	63.02	Single Family Residential:
6-inch	99.01	Each 100 cubic feet (HCF) = $0.610
8-inch	152.96	Each 1,000 gallons = $0.810
10-inch	179.83	

[a] Source: City of Fresno Master Fee Schedule Amendment #510 (June 2012), All fees effective 07/01/12.

Upon completion of the Residential Water Metering Program, the City will consider future conversion from uniform metered rates to tiered rates for all metered connections in accordance with the requirements of AB514.

Implementation Schedule:

- Single-Family Residential Accounts: Until recently, metering of single-family residential accounts was prohibited by the City Charter; all single-family residential accounts have been historically billed based on a flat monthly rate. In accordance with the City's Residential Water Metering Program (see DMM D), all single-family

residential accounts will be metered by late 2012, and will be billed based on actual water consumption based on a uniform rate structure.

- All Other Accounts: Currently billed based on actual water consumption based on a uniform rate structure.
- In the future, the City will consider the implementation of a tiered rate structure.

8.4.12 DMM L: Water Conservation Coordinator (CUWCC Foundational BMP 1.1 Utility Operational Programs)

The City has a full-time Water Conservation Supervisor and permanent and contracted support staff. The water conservation coordinator and water conservation staff address the water conservation needs for the City of Fresno.

- Water Conservation Supervisor (Position created August 1988): Nora Laikam
- Support Staff:
  - One Staff Assistant
  - Two Water Conservation Representatives
  - Two Landscape Conservation Representatives
  - One CII Representative
  - One Management Analyst
  - One Administrative Clerk
  - One Education Coordinator (contracted)
  - One Landscape Services Coordinator (contracted)
  - Four seasonal temporary employees hired from April to November

Implementation Schedule:

- Water Conservation Coordinator and Support Staff: On-going

8.4.13 DMM M: Water Waste Prohibitions (CUWCC Foundational BMP 1.1 Utility Operational Programs)

The City prohibits water waste through ordinances found in the City Municipal Code (Section 6-520. Wastage of Water) (see Appendix F). The City has a water waste hotline and a reporting form on the City website, and keeps records of water waste violations. The ordinance prohibits gutter flooding and single-pass cooling systems in new connections.

Two Water Conservation Representatives monitor customer water waste through field operations. Communication to the City's diverse customer base is always taken into consideration, so representatives are bilingual, speaking English and either Hmong or Spanish. During the hot season, temporary Water Conservation Representatives are hired to monitor late night and early morning over watering. A seasonal temporary Administrative Clerk is also hired to keep up with the additional paperwork generated.

The program is marketed through media, billing inserts, promotional materials, public outreach events, speaker's bureau, and the City's web site.

Implementation Schedule:

- Water waste prohibitions: On-going per City Municipal Code (Section 6-520. Wastage of Water)
- Additional drought restrictions: Would be enacted by the City if water supply conditions required additional conservation measures (see Chapter 9. Water Shortage Contingency Plan).

8.4.14 DMM N: Residential Ultra-Low Flush Toilet Replacement Programs (CUWCC Programmatic BMP 3.0 Residential)

In March 2006, the City implemented a residential toilet replacement rebate program. This program encourages the installation of High Efficiency Toilets (HETs) in older homes by offering a rebate for each replaced toilet. As of July 1, 2012, a $50 rebate is available from the City. The program requires a pre-inspection and may require a post-inspection.

Implementation Schedule:

- Residential High Efficiency Toilet Rebate Program: On-going

8.5 DETERMINATION OF DMM IMPLEMENTATION

10631. (f)(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

10631. (f)(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.

Table 8-5 provides a summary of the City's implementation of the DMMs described herein. As discussed above, the City has been actively implementing the DMMs to the extent permissible by the City Charter, and as staffing and financial resources allow. Because the City's single-family residential water customers have not been historically metered, individual water savings by single-family residential customer have not been possible to determine. However, based on the City's annual water production, the City calculates its water conservation savings each month, by comparing current per capita water use to the previous year's per capita water use and 1985 per capita water use (a pre-drought year). As noted previously, the City is anticipating completion of its Residential Water Metering Program in late 2012. With the completion of this program, all of the City's water customers will be metered and will be billed based on actual water consumption.

Table 8-5. Overview of City's Current Water Conservation Activities

Urban Water Management Planning Act & CUWCC MOU		Implementation Status	City Water Conservation Activities
DMM/BMP Number	DMM & BMP Description		
A/1	Water survey programs for single-family residential and multi-family residential customers	Program currently in place	• Interior and exterior water surveys are offered to and performed for single-family and multi-family residential customers upon request
B/2	Residential plumbing retrofit	Program currently in place	• Low-flow showerheads and faucet aerators are provided to City customers upon request and at public outreach events
C/3	System water audits, leak detection and repair	Program currently in place	• Localized leak detection pilot programs were conducted in 1998, 2004 and 2011 • Reported leaks are responded to and repaired as quickly as possible • AWWA Audit performed for 2010 Calendar Year • Comprehensive system audit report prepared in 2011
D/4	Metering with commodity rates for all new connections and retrofit of existing connections	Program to be in place by late 2012	• Multi-family Residential, Commercial, Institutional, Industrial and Irrigation connections have always been metered and billed based on consumption (uniform rate) • Single-family Residential customers have historically not been metered and have been billed based on a flat rate. However, in accordance with SB229 and AB514, and the conditions of the CVP contract renewal, all connections, including single-family residential, are required to be metered and be billed at a metered rate by 2013. Metered billing to start in 2010 for single family residential customers with meters installed. The City's Residential Water Metering Program is anticipated to be complete by late 2012. Thereafter, all residential customers will be billed based on consumption (uniform rate)
E/5	Large landscape conservation programs and incentives	Program currently in place	• Landscape water conservation surveys are offered to and performed for residential and business customers • Permits are required for large landscapes which water more frequently than every other day • Water Conserving Landscape Requirements are included in the City Municipal Code • The City is considering a rebate program for installation of efficient irrigation timers
F/6	High-efficiency washing machine rebate programs	Program currently in place	• In November 2007, the City implemented a high-efficiency washing machine rebate program. • A PG&E rebate program is also available to City residents
G/7	Public information programs	Program currently in place	• The City has an extensive public information program which uses various media to inform customers about the importance of water conservation. The various media include: Television, Radio and Print Advertisements, Newsletters, Customer Billing Inserts, Community Outreach Events, Literature, Speakers Bureau and Water Education Tours
H/8	School education programs	Program currently in place	• The City has an extensive Water Education Program for K-12 and college students
I/9	Conservation programs for commercial, industrial and institutional (CII) accounts	Program currently in place	• Exterior water conservation surveys are offered and provided to business upon request or during routine monitoring • The City recently implemented a commercial toilet rebate program • Requirements for water conservation devices are included in the City Municipal Code
J/10	Wholesale agency programs	Not applicable	• The City serves only a small portion of the Pinedale County Water District and the Berans Tract commercial area on a wholesale basis. As such, the City is not considered to be a wholesale supplier.
K/11	Conservation pricing	Program to be in place by late 2012	• Until the passage of AB514 in 2003, the City Charter prohibited the installation of water meters and reading of water meters for billing purposes for single-family residential uses. • SB229 and AB514, and the CVP contract renewal requires that the City install meters on all connections and meter all water deliveries to customers by 2013 • Multi-family Residential, Commercial, Institutional, Industrial, and Irrigation Customers are metered and are billed based on metered consumption at a uniform rate. Single family residential metered billing to begin in 2010 for customers who have meters installed (at a uniform rate). • The City's Residential Water Metering Program is anticipated to be complete by late 2012. • In the future, the City will consider the implementation of a tiered water rate structure.
L/12	Water conservation coordinator	Program currently in place	• The City has a full-time Water Conservation Program Coordinator and support staff
M/13	Water waste prohibition	Program currently in place	• The City has a Water Waste Hotline and Reporting Form on the City Website • Water waste prohibition is included in the City Municipal Code
N/14	Residential ultra-low-flush toilet replacement program	Program currently in place	• The City implemented a residential toilet rebate program in March 2006.

Figure 6-1 in Chapter 6 shows the estimated annual per capita water use for the last 21 years (1991 through 2011) indicating that per capita water consumption has varied over the last 21 years, but has averaged about 295 gallons per capita per day (gpcd). Figure 6-1 also shows that per capita water use in the City has being decreasing since 2001, and especially over the last three years. The City's per capita water use in 2011 was 246 gpcd, which is 25 percent lower than the 2001 per capita water use of 329 gpcd. While some of the recent declines in per capita water use are likely a result of the poor economic conditions, they are also likely due in great part to the City's water conservation program.

8.6 EVALUATION OF DMMS NOT CURRENTLY IMPLEMENTED

10631 (g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation.

As shown in Table 8-5, the City currently has programs in place for most of the DMMs. The only DMMs which are not currently fully implemented are DMM D (Metering With Commodity Rates for All New Connections and Retrofit of Existing Connections) and DMM K (Conservation Pricing).

Full implementation of DMMs D and K have, until recently, been restricted by the City Charter, which prohibited metering of single-family residential connections. However, as discussed in DMM D above, SB 229 and AB 514, and the renewal of the City's CVP Water Supply Contract, requires that all connections be metered and billed based on a metered rate by 2013. The City is nearing completion of its Residential Water Metering Program. Completion of this metering program will meet the conditions of the CVP contract renewal, meet the requirements of SB 229 and AB 514, and fulfill the requirements of DMM D and DMM K.

The only DMM not being implemented by the City is DMM J (Wholesale Agency Programs), as the City is not a wholesale water provider; as such, this DMM does not apply to the City.

Figure 8-1. 1917 Fresno Water Company Letter

FRESNO CITY WATER COMPANY

CORNER H AND TULARE STREETS

W. G. KERCKHOFF, PREST.
A. C. BALCH, VICE PREST.
A. G. WISHON, GEN'L. MGR.

FRESNO, CAL.
June 20, 1917

Water Consumers:

In order that we may have ample pressure during the critical months of June, July and August for fire purposes and also for domestic use, all irrigation must be done with a sprinkler only, and not with an open butt hose, that has the effect of reducing the pressure in the locality where used. Use a sprinkler under pressure in any use of water through a hose.

We have Inspectors out, checking up all water waste, and those who persist in the waste of water or persist in an offense against the Company's rules will be served through a meter only. We urgently ask for the kindly co-operation of the Company's consumers. The Fresno City Water Company is serving more water per capita than is served to any other city in America. We have at all times tried to be liberal with our service, but there is a limit beyond which we cannot and should not go in such service.

FRESNO CITY WATER COMPANY,

A G Wishon

General Manager

AGW:EPE

10632. The plan shall provide an urban water shortage contingency plan analysis…

This chapter describes the City's Water Shortage Contingency Plan, including the following:

- Development of the City's Water Shortage Contingency Plan,
- Water use reduction plan for water supply reductions up to 50 percent,
- Planning for catastrophic interruption of water supplies,
- Mandatory prohibitions and consumption reduction methods,
- Penalties and charges for excessive use,
- Discussion of potential revenue and expenditure impacts,
- Draft Water Shortage Contingency Plan resolution, and
- Mechanisms for determining actual reductions in water use.

Appendix H of this UWMP contains a draft resolution which can be used to implement one or more stages of this Water Shortage Contingency Plan.

9.1 PLAN DEVELOPMENT

Since 1989, the City has developed and adopted the following plans in response to actual and potential water shortages:

- Drought Contingency Plan (adopted in 1989),
- Water Shortage Contingency Plan (adopted in 1994), and
- Updated Water Shortage Contingency Plan (developed as part of the City's 2005 UWMP and adopted in August 2008).

The development of each of these plans is described below.

9.1.1 Drought Contingency Plan

During the 1987 to 1992 California drought, the City experienced declining groundwater levels, requiring approximately 18 percent of the pumps in the City's wells to be lowered. Furthermore, the loss of about 20 percent of the total production capacity from wells out of service due to contaminants resulted in reduced water system pressures during peak demand periods. As a result, in June 1989, the City adopted a resolution declaring that an emergency existed which created an immediate threat of reduction in system pressures below the level needed to maintain minimum fire flows and meet domestic consumption needs.

The resolution implemented a Drought Contingency Plan, which established extraordinary measures to reduce water use. These emergency measures included immediate restrictions on outdoor watering days and hours. In 1990, these emergency measures were made permanent on a year-round basis and were the origin of the City's current summer and winter watering schedules. The measures, along with subsequent additions and updates, were incorporated into

the City's Municipal Code (Section 6-520 Wastage of Water) and are discussed later in this chapter.

9.1.2 1994 Water Shortage Contingency Plan

The City's original Water Shortage Contingency Plan was developed by City staff in 1993 in response to the 1991 California Assembly Bill 11X (AB 11X) which amended the California Water Code and mandated that every urban water supplier providing municipal water directly or indirectly to more than 3,000 customers, or supplying more than 3,000 acre-feet of water annually, develop a Water Shortage Contingency Plan. A public hearing was held on December 14, 1993 and the City's original Water Shortage Contingency Plan was adopted by City Council in January 1994.

Since the cities of Fresno and Clovis share the same groundwater aquifer, the development of the City's original Water Shortage Contingency Plan was coordinated with the City of Clovis. Also, the City's Emergency Response Plan was coordinated with the Fresno County Office of Emergency Services (OES), and water shortage planning was incorporated into the Fresno County Disaster Plan[1] (see further discussion later in this chapter under Planning for Catastrophic Water Supply Interruption).

9.1.3 Current Water Shortage Contingency Plan

An updated Water Shortage Contingency Plan was developed for inclusion in the City's 2005 UWMP and was adopted in August 2008. The updated Water Shortage Contingency Plan was based on the City's 1994 Water Shortage Contingency Plan. The overall structure of the plan remained essentially the same and included updates and revisions to reflect the operational and policy changes which occurred within the City's water system since 1994. In particular, the City now has a mutual aid water system agreement in place with the City of Clovis which includes the provision of two future interties between the Fresno and Clovis water systems for use by either or both agencies during emergencies.

9.2 WATER USE REDUCTION PLAN

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

One of the key elements of the City's Water Shortage Contingency Plan is a staged Water Use Reduction Plan (Reduction Plan). The City's 1994 Water Shortage Contingency Plan had a three-stage Reduction Plan. For the City's 2005 UWMP, an updated Water Shortage Contingency Plan was developed which included four stages to provide for increased flexibility to address water supply shortage conditions of up to 50 percent. Each stage of the Reduction Plan is generally triggered by a water shortage condition. The City has a legal responsibility to provide for the health and safety water needs of the community. To minimize the social and economic impact of water shortages, the City will manage its water supplies prudently.

[1] Source: City of Fresno Water Shortage Contingency Plan, January 1994.

It should be noted that a water shortage may trigger any stage of the Reduction Plan at any time, and that the City will determine the most appropriate stage to implement based on the actual conditions at the time of the shortage/emergency. The conditions that may trigger specific stages of the City's Reduction Plan are shown in Table 9-1. Water reduction stages may be triggered by any one or a combination of the listed conditions if they result in a loss, or impending loss, of water supply or production capacity.

Stage 1 of the Reduction Plan will be triggered when it is anticipated that there will be up to a 10 percent reduction in the City's water supply or production capacity or a key Stage 1 trigger occurs. Under this stage, the City will request customers to voluntarily reduce water consumption by 10 percent, and will enact additional specific water use restrictions (see discussion below and draft resolution in Appendix H). Subsequent Reduction Plan stages will be implemented if additional water supply or production capacity reductions occur and will include enactment of additional specific water use restrictions (see discussion below). Successive stages of the Reduction Plan will be declared only after exhausting efforts to make a prior stage successful.

Stage 2 will be triggered by a reduction of water supply or production capacity up to 25 percent (or a key Stage 2 trigger occurs); Stage 3 will be triggered by a reduction of water supply or production capacity up to 35 percent (or a key Stage 3 trigger occurs); and Stage 4 will be triggered by a reduction of water supplies up to 50 percent (or a key Stage 4 trigger occurs), and will include enactment of additional specific water use restrictions (see discussion below).

In some cases it may be necessary for the City to immediately implement an advanced stage of the Reduction Plan. This may occur during a natural disaster or when the health and safety of the persons within the City's water service area are jeopardized. The Reduction Plan and its stages are designed to be flexible so that the City can respond to the specific water supply situation occurring at a particular time.

The Reduction Plan presented herein is not intended to be construed as a binding legal document, but rather a comprehensive summary of water use reduction criteria that are built upon City Municipal Code and ordinances, DWR references, and common water industry practices. During a future drought or other water supply shortage, the draft resolution contained in Appendix H may be used as a model for the enactment of appropriate restrictions.

Table 9-1. Water Shortage Contingency – Rationing Stages to Address Water Supply Shortages (DWR Table 35)

Stage	Water Supply Conditions[a]	Percent Shortage
1	• 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 condition exists (DPH requires 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, and to avoid possible litigation, 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 reduces 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 USBR 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	Up to 10%
2	• In the third of three consecutive years, the projected volume of surface water available to the City through USBR, FID or other means such as water banking, 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 plus water available through other means such as water banking, is reduced by 25% of the long-term average, or • The volume of surface water available to the City through USBR plus water available through other means such as water banking, 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, or • Groundwater contamination condition exists (DPH 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 USBR 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	10 to 25%
3	• In the fourth of four consecutive years, the projected volume of surface water available to the City through USBR, FID or other means such as water banking, 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 plus water available through other means such as water banking, is reduced by 35% of the long-term average, or • The volume of surface water available to the City through USBR plus water available through other means such as water banking, 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, or • Groundwater contamination condition exists (DPH 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 USBR 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	25 to 35%
4	• In the fifth of five consecutive years, the projected volume of surface water available to the City through USBR, FID or other means such as water banking, 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 plus water available through other means such as water banking, is reduced by 50% of the long-term average, or • The volume of surface water available to the City through USBR plus water available through other means such as water banking, 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, or • Groundwater contamination condition exists (DPH 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	35 to 50%

[a] Water reduction stages may be triggered by any one or a combination of the listed conditions, if they result in a loss, or impending loss, of water supply or production capacity as defined by the shortage condition.

9.3 PLANNING FOR CATASTROPHIC WATER SUPPLY INTERRUPTION

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

In addition to responding to drought conditions, the City's Water Shortage Contingency Plan 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 in Table 9-2 and are described below.

Table 9-2. Potential Emergency Events and Summary of Possible Actions

Potential Emergency Events	Possible Cause of Event	Summary of Possible Actions
Loss of Surface Water Supply	Surface water contamination Water treatment facility shutdown (*i.e.,* process failure, mechanical malfunction) Major transmission pipeline break	• Use of groundwater supply, and/or • Activate interties with City of Clovis per Fresno/Clovis Mutual Aid Water System Agreement as appropriate, and/or • If necessary, implement Water Shortage Contingency Plan to reduce demands
Loss of Groundwater Supply	Groundwater contamination	• Use of other wells and/or treated surface water supply to meet demands, and/or • Activate interties with City of Clovis per Fresno/Clovis Mutual Aid Water System Agreement as appropriate, and/or • If necessary, implement Water Shortage Contingency Plan to reduce demands
Area-Wide Electrical Power Failure	Regional power outage	• Use of wells equipped with emergency back-up generators to meet demands of critical facilities, and/or • Activate interties with City of Clovis per Fresno/Clovis Mutual Aid Water System Agreement as appropriate, and/or • If necessary, implement Water Shortage Contingency Plan to reduce demands
Earthquake	Natural disaster	• Isolate pipeline breaks and repair as quickly as possible, and/or • Activate interties with City of Clovis per Fresno/Clovis Mutual Aid Water System Agreement as appropriate, and/or • Obtain emergency potable supplies from Bakman Water Company per Water Division Emergency Response Plan, and/or • If necessary, implement Water Shortage Contingency Plan to reduce demands
Flood	Natural disaster	• Isolate impacted portions of system to allow for repair as quickly as possible, and/or • Activate interties with City of Clovis per Fresno/Clovis Mutual Aid Water System Agreement as appropriate, and/or • If necessary, implement Water Shortage Contingency Plan to reduce demands

Actions that the City would take if these emergencies occurred today are outlined below.

9.3.1 Loss of Surface Water Supply

The surface water that the City obtains from the Bureau and FID is potentially subject to contamination as a result of a chemical or other contaminant spill or other event near the canals that convey surface water to the City's surface water treatment facility. Also, the surface water treatment facility and/or transmission mains leading to or from the surface water treatment facility are potentially subject to shut down due to process malfunction, mechanical failure, or pipeline breakage. If any of these events were to occur, the City could potentially lose its surface water supply for a period of time.

Under this scenario, depending on the time of year and the water demands at the time of the event, the City may be able to meet demands with minimal impacts to the overall system, or may need to increase groundwater production and/or implement the Water Shortage Contingency Plan to reduce water demands until the surface water supply can be restored. In the future, if appropriate, another alternative may be to activate one or both of the proposed interties to the Clovis water system per the Fresno/Clovis Mutual Aid Water System Agreement.

In the future, when the City constructs a second surface water treatment facility, this second facility will provide additional system redundancy, minimizing the impact of a process malfunction or failure at one of the surface water treatment facilities.

9.3.2 Loss of Groundwater Supply

Recently the City has experienced loss of groundwater production in the northwest and southeast areas of the City due to groundwater contamination in the underlying aquifer. Although this loss in production has been gradual, if the trend continues, the City will either need to replace lost groundwater production with new wells in non-contaminated areas, or increase its surface water treatment capacity to allow for the increased use of treated surface water supplies. Because the installation of new wells and/or the construction of a new water treatment facility will take time, the City may need to implement one or more stages of the Water Shortage Contingency Plan in order to reduce water demands until the loss in groundwater production can be mitigated. In the future, if appropriate, another alternative may be to activate one or both of the proposed interties to the Clovis system per the Fresno/Clovis Mutual Aid Water System Agreement.

9.3.3 Area-Wide Electrical Power Failure

If an area-wide/regional electrical power failure were to occur within the City's water service area, the City plans to maintain emergency levels of well production, especially near critical care facilities, and maintain a minimum of 20 psi within the distribution system through the use of emergency generators located at key well sites. Currently, thirty (30) of the City's wells have back-up power provisions: twenty-seven (27) have diesel generators and three (3) have natural gas generators. The City is currently in the process of installing emergency diesel generators at three (3) additional well sites and plans to install emergency diesel generators at two (2) additional well sites in 2013. This will bring the total number of well sites with emergency diesel generators to 32 by the end of 2013. In addition, the City plans to install an emergency diesel generator at the Northeast SWTF in 2013.

If the regional power failure were to last for a prolonged period of time (*i.e.*, more than 24 hours), it may be necessary to implement one or more stages of the Water Shortage Contingency Plan in order to reduce system water demands and ensure that adequate system pressures can be maintained to meet firefighting and other critical health and safety water demands during the power outage. In the future, if appropriate, another alternative may be to activate one or both of the proposed interties to the Clovis system per the Fresno/Clovis Mutual Aid Water System Agreement.

9.3.4 Earthquake

There are a number of active and potentially active faults within and adjacent to the City. Although the City is situated in an area of relatively low seismic activity by comparison to other areas of the state, the faults and fault systems that lie along the western boundaries of Fresno County, as well as other regional faults, have the potential to produce high-magnitude earthquakes throughout the county and in the City[2].

Water system infrastructure, including water treatment facilities, wells, pump stations, storage tanks, and pipelines, can be damaged during a strong earthquake. The City's facilities have been constructed in accordance with the applicable building codes to minimize potential damage during an earthquake. However, it is expected that some facilities may be damaged as the result of a strong earthquake.

In addition to the City's surface water treatment facility, the City has approximately 270 groundwater wells located throughout the distribution system. These numerous supply points within the distribution system, along with looped distribution pipelines, will allow potentially damaged portions of the City's system to be quickly isolated, by-passed and repaired, while maintaining service in non-damaged areas.

Also, two future interties with the City of Clovis are planned based on the Fresno/Clovis Mutual Aid Water System Agreement. In the Water Division Emergency Response Plan, the City has also identified the Bakman Water Company as a potential potable water supply sources in the event of an emergency. Temporary piping connecting the systems would be necessary to provide pressurized water to the City's distribution system. Also, several drinking water companies (*e.g.*, Alhambra, Arrowhead) have been identified as emergency potable water supply sources.

In the future, if the City constructs a second water treatment facility, this second facility would provide some additional system redundancy, minimizing the impact of a shutdown of one of the water treatment facilities or loss of groundwater production capacity as a result of earthquake damage.

After an earthquake, it may be necessary to implement one or more stages of the Water Shortage Contingency Plan to reduce system water demands to ensure that adequate system pressures can be maintained to meet firefighting and other critical health and safety water demands during the immediate period after an earthquake, and as facilities are restored to full operation.

[2] Source: Fresno County General Plan, October 2000.

In the future, if appropriate, another alternative may be to activate one or both of the proposed interties to the Clovis system per the Fresno/Clovis Mutual Aid Water System Agreement.

9.3.5 Flood

Since its beginning as Fresno Station in 1872, and before construction of the flood control and urban drainage system, Downtown Fresno has regularly experienced flooding. The Fresno Metropolitan Flood Control District (FMFCD) was created in 1956 for the purpose of protecting lives and property in the Fresno-Clovis metropolitan area. FMFCD oversees the north-central portion of Fresno County, between the San Joaquin and Kings Rivers, and is authorized to control storm waters within an urban and foothill watershed of approximately 400 square miles. This area includes most of the Fresno-Clovis metropolitan area, and unincorporated lands to the east and northeast. Flood control facilities within the City of Fresno include numerous storm water retention basins, along with a system of storm water inlets, siphons, underground pipelines and pump stations.[3]

As with an earthquake, water system infrastructure, including water treatment facilities, wells, pump stations, storage tanks, and pipelines, can be damaged or rendered inoperable during a flood. Although the FMFCD has constructed facilities to control flooding within the City, localized flooding may occur in portions of the City as a result of large storms or even ruptured water mains. If such an event were to occur, it is expected that some facilities may be damaged or rendered inoperable.

In addition to the City's surface water treatment facility, the City's has approximately 270 groundwater wells located throughout the distribution system. These numerous supply points within the distribution system, along with looped distribution pipelines, will allow potentially damaged or inoperable portions of the City's system to be quickly isolated, by-passed and repaired, while maintaining service at least at minimal levels in non-damaged or non-impacted areas.

After a flood, it may be necessary to implement one or more stages of the Water Shortage Contingency Plan to reduce system water demands to ensure that adequate system pressures can be maintained to meet firefighting and other critical health and safety water demands during the immediate period after a flood has occurred, and as facilities are restored to full operation.

In the future, if appropriate, another alternative may be to activate one or both of the proposed interties to the Clovis system per the Fresno/Clovis Mutual Aid Water System Agreement.

[3] Source: Fresno Metropolitan Flood Control District website, www.fresnofloodcontrol.org.

9.4 WATER USE PRIORITIES DURING WATER SHORTAGE EMERGENCIES

The City has established priorities for the use of available water, based on guidance from the California Water Code (Chapter 3. Water Shortage Emergencies) and community input[4]. The priorities, in order of importance, are:

1. Health & Safety: Interior residential (domestic and sanitation) and fire fighting
2. Commercial, Industrial & Governmental: Maintain jobs and economic base
3. Existing Landscaping: Especially trees and shrubs
4. New Demand: Projects without permits when a water shortage is declared

9.5 MANDATORY PROHIBITIONS AND RESTRICTIONS

10632 (d) Additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.

The City Municipal Code contains a section on the wastage of water and water conservation measures (Section 6-520 Wastage of Water), which outlines the mandatory prohibitions and restrictions that are in place under normal water supply conditions in the City. These measures include the following regulations and restrictions.

- Outdoor watering schedule:
  - Winter Watering Schedule: December 1 – March 1
    - Odd Numbered Addresses: Saturdays Only
    - Even Numbered Addresses: Sundays Only
    - Watering Times: Anytime
  - Summer Watering Schedule: March 2 – November 30
    - Odd Numbered Addresses: Tuesdays, Thursdays, Saturdays Only
    - Even Numbered Addresses: Wednesdays, Fridays, Sundays Only
    - Watering Times: 7:00 pm – 6:00 am
    - No Watering between 6:00 am – 7:00 pm
  - No watering on Mondays
- Installation of blue grass is prohibited.
- Watering any lawn except by use of a hose held in the person's hand or a sprinkling device is prohibited.
- Keeping, maintaining, operating, or using any water connection, hose, faucet, hydrant, pipe, outlet, or plumbing fixture which is not tight and free from leakage is prohibited.
- Willfully or negligently wasting water is prohibited.

[4] Source: City of Fresno Water Shortage Contingency Plan, January 1994.

- Flooding any part of the premises of another is prohibited.
- Sprinkling 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 is prohibited.
- Sprinkling or irrigating any yard, ground, premise, or vegetation unless the watering device is controlled by an automatic shut-off device, or a person is in immediate attendance of the hose or watering device is prohibited.
- Washing 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, is prohibited.
- Washing or rinsing 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 is prohibited.
- Lawn sprinkling system/devices shall be properly designed, installed, maintained and operated to prevent wastage of water.
- Installing or replacing air-conditioning systems (including portable systems) without a water conservation device which is properly maintained is prohibited.
- The draining of swimming pools more than once every three years, except for structural damage or cyanuric acid level over 100 parts per million, total dissolved solids over 2,500 parts per million, or calcium over 450 parts per million is prohibited. A permit is required to drain a swimming pool.

Table 9-3 lists the mandatory prohibitions associated with each Water Use Reduction Plan stage which would further restrict the allowable water uses and landscape irrigation practices during a water shortage condition. It should be noted that the actions included in each stage are cumulative, meaning that if Stage 2 is implemented, all of the measures in Stages 1 and 2 shall be implemented. If Stage 3 is implemented, all of the measures in Stages 1, 2 and 3 shall be implemented. If Stage 4 is implemented, all of the measures in Stages 1, 2, 3 and 4 shall be implemented.

Another potential mechanism used by some water utilities to conserve water use is to lower overall distribution system pressures slightly, say by 5 psi, to minimize leaks and water waste. The City can reduce system pressures City-wide using their SCADA system to change zone pressure settings.

Table 9-3. Water Shortage Contingency – Mandatory Prohibitions (DWR Table 36)

Examples of Prohibitions	Stage When Implemented
Limit summer outdoor irrigation to 2 days/week with reduced watering times [or allow only irrigation of trees and shrubs, but not turf]	2
Prohibit winter outdoor irrigation	2
Allow car washing with bucket only (a hose equipped with a shut-off nozzle may be used for a quick rinse)	2
Limit summer outdoor irrigation to 1 day/week with reduced watering times [or allow only irrigation of trees and shrubs, but not turf]	3
Prohibit all outdoor irrigation	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	4
Prohibit use of potable water to clean, fill or maintain decorative fountains, lakes or ponds unless such water is reclaimed	4
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	4
Prohibit use of potable water for sewer system maintenance or fire protection training without prior approval by the City Manager	4
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	4
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	4
Prohibit washing cars, boats, trailers, aircraft, or other vehicles except to wash such vehicles at commercial or fleet vehicle washing facilities using water recycling equipment	4
Require covers for swimming pools when not in use	4
Prohibit use of outdoor misters	4

9.6 CONSUMPTION REDUCTION METHODS

10632 (e) Consumption reduction methods in the more 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.*

9.6.1 Per Capita Health and Safety Allotments Used in 1994 Plan

The City's 1994 Water Shortage Contingency Plan included Residential Per Capita Health and Safety Water Use Allotments for the most restrictive stages of the Water Shortage Contingency Plan. These Residential Health and Safety Water Use Allotments were based on calculated minimum domestic water uses, including toilet flushing, showering, clothes washing, and kitchen and other uses. These calculated allotments equated to 50 to 68 gallons per capita per day (gpcd), which is equivalent to a water allotment of about 26 to 35 percent of the 2006 per capita residential water use of 192 gpcd. While these calculated allotments represent theoretical minimum domestic water use, they are not based on actual water use data for the City's residents, are extremely low and difficult to track, as most of the City's residential customers are not metered, and likely would not be achievable during a water shortage emergency.

9.6.2 Estimated Residential Wintertime Water Use

For the City's 2008 Water Shortage Contingency Plan, actual water use data for residential wintertime water use (*e.g.*, January and February) were utilized to calculate residential water use allotments for the most restrictive stages of the Water Shortage Contingency Plan. Wintertime water use is considered to be more representative of actual minimum domestic water use because it consists primarily of indoor domestic uses, as exterior water use is likely to be minimal during the months of January and February.

As shown in Table 9-4, metered multi-family residential water use data for the months of January and February plus estimates of unmetered single-family residential water use for the months of January and February were evaluated for 2003 through 2006. The winter-time water use was found to range from about 93 gpcd to 124 gpcd. These wintertime water uses are about 47 to 54 percent of the average annual per capita residential water use and more typical of what one would expect for interior wintertime use.

Table 9-4. Estimated Residential Wintertime Water Use

Year	Population Served[a]	Total Annual Residential Water Use, af[b]	Average Annual Residential Water Use Per Person, gpcd	Wintertime (January/ February) Residential Water use, af[b]	Average Wintertime (January/ February) Residential Water Use Per Person, gpcd	Percent of Annual Average Residential Per Capita Water Use
2003	457,511	116,747	228	10,288	124	54%
2004	466,203	110,667	212	9,619	114	54%
2005	475,061	105,398	198	8,024	93	47%
2006	484,087	103,217	192	8,579	98	51%
Average			208		107	51%

(a) As estimated by the City Water Division.
(b) Estimated based on metered annual multi-family residential water use and estimated unmetered annual single-family residential water use.

Based on this analysis, for Stage 3, a water use allotment equal to 110 percent of the average wintertime (January/February) residential water use was proposed for single-family and multi-family accounts. For Stage 4, a water use allotment equal to 95 percent of the average wintertime (January/February) residential water use was proposed for single-family and multi-family accounts. These residential water use allotments are based on meeting the required demand reductions for Stages 3 and 4 of the Water Shortage Contingency Plan and are summarized in Table 9-5.

Table 9-5. Residential Water Use Allotments For Stage 3 and 4 Water Shortages

Customer/Connection Type	Stage 3 Allotment	Stage 4 Allotment
Residential	110% of Average Wintertime (January/February) Usage	95% of Average Wintertime (January/February) Usage

As shown in Table 9-5, the residential allotment for Stage 4 is only 95 percent of average wintertime use. However, severe water conservation measures must be implemented by all to achieve the overall Stage 4 water demand reduction goal of 50 percent.

9.6.3 Non-Residential Water Use Allotments

Similar to the 1994 Water Shortage Contingency Plan, allotments were also determined by the City for non-residential customers for the most restrictive stages of the Water Shortage Contingency Plan. Like the residential allotments, these allotments were determined based on review of historical water use data, particularly wintertime water use, and required water use reductions to achieve the overall water use reduction goals of 35 percent and 50 percent, respectively, for Stages 3 and 4 of the Water Shortage Contingency Plan in conjunction with the residential allocations described above, These allotments are as follows:

- Commercial/institutional customers:
  - Stage 3: 85 percent of normal average (non-shortage) annual usage
  - Stage 4: 65 percent of normal average (non-shortage) annual usage
- Industrial customers:
  - Stage 3: 85 percent of normal average (non-shortage) annual usage
  - Stage 4: 75 percent of normal average (non-shortage) annual usage
- Landscape irrigation customers:
  - Stage 3: 50 percent of normal average (non-shortage) annual usage
  - Stage 4: 0 percent of normal average (non-shortage) annual usage

The proposed allotments for commercial/institutional, industrial and landscape irrigation customers for Stages 3 and 4 are summarized in Table 9-6.

Table 9-6. Proposed Non-Residential Water Use Allotments for Stage 3 and 4 Water Shortages

Customer/Connection Type	Stage 3 Allotment[(a)]	Stage 4 Allotment[(a)]
Commercial/Institutional	85% of Average Annual Usage	65% of Average Annual Usage
Industrial	85% of Average Annual Usage	75% of Average Annual Usage
Landscape Irrigation	50% of Average Annual Usage	0% of Average Annual Usage

[(a)] Allotments based on required demand reduction to achieve overall demand reduction of 35 percent and 50 percent for Stages 3 and 4, respectively.

Similar to Stage 4 residential allotments, the non-residential allotments for Stage 4 are quite low as compared to average annual use, and are actually somewhat lower (about 5 percent lower) than average wintertime uses for these water use sectors. However, severe water conservation measures must be implemented by all to achieve the overall Stage 4 water demand reduction goal of 50 percent.

9.6.4 Implementation of Residential and Non-Residential Water Use Allotments

Table 9-7 shows how the residential and non-residential water use allotments for Stages 3 and 4 of the Water Shortage Contingency can reduce the overall water use within the City. As shown, using 2006 as the base year, implementation of the Stage 3 allotments results in an overall water use reduction of about 39 percent. Implementation of the Stage 4 allotments results in an overall water use reduction of about 51 percent. As such, these water use reductions are consistent with the water use reduction goals for Stages 3 and 4 of the Water Use Reduction Plan.

Table 9-7. Stage 3 and 4 Water Use Allotments and Resulting Water Use Reductions

Customer/ Connection Type	2006 Annual Water Use, af	Stage 3 Reductions			Stage 4 Reductions		
		Allotment	Resulting Water Use, af	Annual Percent Reduction	Allotment	Resulting Water Use, af	Annual Percent Reduction
Single Family Residential	81,398	110% of 2006 Average Residential Wintertime Water Use: 108 gpcd	37,818	54%	95% of 2006 Average Residential Wintertime Water Use: 93 gpcd	32,661	60%
Multi-Family Residential	22,471	110% of 2006 Average Residential Wintertime Water Use: 108 gpcd	19,674	12%	95% of 2006 Average Residential Wintertime Water Use: 93 gpcd	16,991	24%
Commercial/ Institutional	24,928	85% of Average Annual Usage	21,189	15%	65% of Average Annual Usage	16,203	35%
Industrial	3,865	85% of Average Annual Usage	3,285	15%	75% of Average Annual Usage	2,899	25%
Landscape Irrigation	7,514	50% of Average Annual Usage	3,757	50%	0% of Average Annual Usage	0	100%
Total Reduction (not including UAFW)	140,175		85,722	39%		68,754	51%
Demand Reduction Goal				35%			50%

Table 9-8 provides a summary of the City's consumption reduction methods for each stage of the City's Water Shortage Contingency Plan.

Table 9-8. Water Shortage Contingency – Consumption Reduction Methods (DWR Table 37)

Examples of Consumption Reduction Methods	Stage When Implemented	Projected Demand Reduction, %
• Initiate a public information program/media campaign to: — Notify all customers of the water shortage and the need to conserve water — Mail information to every customer explaining the importance of significant water use reductions — Provide practical information to customers on ways to improve water use efficiency — Publicize and expand the toilet retrofit and other efficiency programs • Request customers to voluntarily reduce their water use by 10 percent • Increase its water waste patrols to enforce the provisions of the Fresno Municipal Code Section 6-520 Wastage of Water	1	10%
• Intensify its public information program and media campaign • Further increase water waste patrols	2	25%
• Continue its intensified public information program and media campaign • Intensify its leak detection program • Implement Stage 3 water consumption allocations for all customers (see Table 9-7) • 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]	3	35%
• Continue its intensified public information program and media campaign • Implement Stage 4 water consumption allocations for all customers (see Table 9-7)	4	50%

9.7 PENALTIES AND CHARGES

10632 (f) Penalties or charges for excessive use, where applicable.

9.7.1 Excessive Water Use

Because the City's single-family residential customers have been historically unmetered and have been billed for water use based on a monthly flat-rate, no penalties or charges could be assessed for excessive water use by a single-family residential customer.

Although all other customers are metered and billed based on actual water usage, they are currently billed based on a uniform rate structure which does not increase as usage increases and does not encourage water conservation as increasing block rates would. Furthermore, no penalties or charges for excessive water use are assessed for the City's metered customers.

As described previously, the City is nearing completion of its residential metering program and, as part of the City's compliance with AB514 (discussed in Chapter 8), on or before March 1, 2013, the City will be required to charge each customer that has a service connection for which a meter is installed based on the volume of deliveries as measured by the water meter. This likely would encourage additional water conservation and reduce excessive water use.

9.7.2 Violation of City Municipal Code Section 6-520 Wastage of Water

The City does, however, have penalties for violation of the water use restrictions outlined in the City's Municipal Code[5]. In the event any person violates any provisions of Section 6-520 of the City Municipal Code, the following shall apply:

- For the first incident of water wastage, 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 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.
- The fee for the second incident of water wastage 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.

[5] Source: City Municipal Code, Section 6-520 Wastage of Water (see Appendix F).

- The fee for the third incident of water wastage 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 wastage). 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.
- The fee for the fourth incident of water wastage 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.

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. Landscape irrigation auditors certified by the Irrigation Association would complete this work at the customer's expense.
- Require a customer to repair any defects in the watering system of such customer 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 that restoration of water service after termination be contingent on an agreement by the customer to adhere to the provisions of the Section 6-520 of the City Municipal Code.

Table 9-9 summarizes the City's penalties and charges.

Table 9-9. Water Shortage Contingency – Penalties and Charges (DWR Table 38)

Penalty or Charge	Description of Penalty or Charge	Stage
Penalty for Excess Use	Single-Family Residential Customers: • Currently billed based on flat rate • No penalty for excess use[(a)] All Other Customers: • Currently billed based on uniform metered rate • Pay for all water used • No penalty for excess use[(a)]	Always in effect
Charge for Excess Use	Single-Family Residential Customers: • Currently billed based on flat rate • No charge for excess use[(a)] All Other Customers: • Currently billed based on uniform metered rate • Pay for all water used • No additional charge for excess use[(a)]	Always in effect
Penalties for violation of the water use restrictions	Fee applied per Master Fee Resolution and provisions of Municipal Code (Section 6-520). Also, if four incidents occur within two-year period: • Require the customer to get a landscape evaluation, lawn water audit, and water budget • Require a customer to repair any defects in the watering system of such customer • Installation by the City of flow restrictors or termination of water service for exterior use • Termination of all water service to a customer • Require that restoration of water service after termination be contingent on an agreement by the customer to adhere to the provisions of the Section 6-520 of the City Municipal Code	Always in effect

[(a)] If excess use is identified, customer would be subject to penalty for violation of water use restrictions.

9.8 REVENUE AND EXPENDITURE ANALYSIS

10632 (g) An analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.

9.8.1 Potential Revenue Impacts

Based on 2010 data, approximately 60 percent of the City's revenues from water charges were derived from unmetered connections (predominately single-family residential customers) and were billed based on a monthly flat rate. The other approximately 40 percent of revenues from water charges were derived from metered customers which were billed on a metered rate based on actual water consumption. As customer water use decreases as a result of water conservation, only the portion of revenue derived from metered customers is directly impacted. Revenue from the flat rate customers would remain the same, regardless of any reduction in actual water use by those flat rate customers. Table 9-10 demonstrates the potential impacts to the City's revenue based on 2010 data as a result of implementation of the Water Shortage Contingency Plan.

Table 9-10. Potential Water Revenue Impacts During a Water Shortage

	Revenue, million $				
	2010 Revenue[(a)]	Stage 1: 10% Shortage	Stage 2: 10-25% Shortage	Stage 3: 25-35% Shortage	Stage 4: 35-50% Shortage
Anticipated Reduction in Water Sales, percent		10%	25%	35%	50%
Revenue from Flat Rate Water Charges	$36.8	$36.8	$36.8	$36.8	$36.8
Revenue from Metered Rate Water Charges[(b)]	$20.1	$18.1	$15.1	$13.1	$10.0
Other Revenues	$5.4	$5.4	$5.4	$5.4	$5.4
Total Water Revenue	$62.3	$60.3	$57.3	$55.3	$52.2
Reduction in Water Revenues, percent		3%	8%	11%	16%

(a) Source: Calendar Year 2010 revenue data received from Henry McLaughlin.
(b) Revenue from metered rate water customers assumed to decrease by same percentage as water use reduction.

As shown in Table 9-10, the current flat rate structure for single-family residential customers, although not conducive to water conservation, contributes to some stabilization of the City's water revenue stream during water shortage periods. This is demonstrated by the Stage 4 revenue reduction of only about 16 percent, even when water sales are reduced by 50 percent.

However, once the City completes its Residential Water Metering Program and converts all of its customers to metered water rates, the City will become more vulnerable to revenue impacts during periods when water use is reduced.

9.8.2 Potential Expenditure Impacts

During a water shortage, the City's expenditures for water-related services may be impacted. Expenditures may increase for a number of reasons, including the following:

- Increased conservation program costs to implement, monitor, and enforce new or more intensive water conservation programs.
- Increased staff costs for operation and maintenance of facilities to ensure efficient operation of available facilities.
- Increased costs for acquisition and treatment of additional surface water supplies, if needed to compensate for decreased groundwater supplies.
- Increased costs for groundwater pumping, if additional groundwater pumping is needed to compensate for decreased surface water supplies or if more energy is required because of increased pumping lifts associated with decreasing groundwater levels (although these increased groundwater pumping costs may be offset by overall lower groundwater production costs due to the lower overall demand).

Table 9-11 demonstrates how these costs might increase for the various stages of the City's Water Shortage Contingency Plan and how overall operating expenditures might be impacted. For this analysis, the following cost increases have been assumed:

- Conservation program costs:
  - Stage 1: 5 percent increase over pre-shortage costs
  - Stage 2: 10 percent increase over pre-shortage costs
  - Stage 3: 15 percent increase over pre-shortage costs
  - Stage 4: 25 percent increase over pre-shortage costs
- Groundwater production costs:
  - No net change over pre-shortage costs[6]
- Surface Water Treatment Facility costs:
  - 5 percent increase over pre-shortage costs for each stage (*e.g.*, 5 percent for Stage 1, 10 percent for Stage 2, etc.)
- Water supply costs:
  - 5 percent increase over pre-shortage costs for each stage (*e.g.*, 5 percent for Stage 1, 10 percent for Stage 2, etc.)

[6] A net cost increase of 0 percent is assumed for groundwater production because even though the number of wells operated may decrease due to lower demand, it will likely be more expensive to operate the remaining wells due to higher pumping lifts as a result of declining groundwater levels during drought conditions. These changes in operational cost are assumed to cancel each other out for a net cost increase of 0 percent per stage.

Table 9-11. Revenue and Expenditure Analysis WITHOUT Rate Increases
(all costs rounded to nearest $1000)

	Calendar Year 2010	Stage 1 (10% Conservation)	Stage 2 (25% Conservation)	Stage 3 (35% Conservation)	Stage 4 (50% Conservation)
Water Revenues					
Water Charges					
Flat Rate Charges	$ 36,783,000	$ 36,783,000	$ 36,783,000	$ 36,783,000	$ 36,783,000
Metered Rate Charges[a]	$ 20,141,000	$ 18,126,900	$ 15,105,750	$ 13,091,650	$ 10,070,500
interest, transfers, and other misc revenue)	$ 5,374,000	$ 5,374,000	$ 5,374,000	$ 5,374,000	$ 5,374,000
Total Water Operating Revenues	$ 62,298,000	$ 60,283,900	$ 57,262,750	$ 55,248,650	$ 52,227,500
Percent Increase **(Reduction)**		**-3%**	**-8%**	**-11%**	**-16%**
Water Expenditures					
Operating					
Administration	$ 5,012,000	$ 5,012,000	$ 5,012,000	$ 5,012,000	$ 5,012,000
Water Quality	$ 2,464,000	$ 2,464,000	$ 2,464,000	$ 2,464,000	$ 2,464,000
Water Production[b]	$ 10,610,000	$ 10,610,000	$ 10,610,000	$ 10,610,000	$ 10,610,000
Distribution Maintenance	$ 2,837,000	$ 2,837,000	$ 2,837,000	$ 2,837,000	$ 2,837,000
Meter/Cross Connection Control	$ 1,235,000	$ 1,235,000	$ 1,235,000	$ 1,235,000	$ 1,235,000
Surface Water Treatment Facility[c]	$ 2,376,000	$ 2,495,000	$ 2,614,000	$ 2,732,000	$ 2,851,000
Recharge Maintenance	$ 710,000	$ 710,000	$ 710,000	$ 710,000	$ 710,000
Conservation Service[d]	$ 1,034,000	$ 1,086,000	$ 1,137,000	$ 1,189,000	$ 1,293,000
Litigation	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000
Water Supply[e]	$ 9,650,000	$ 10,133,000	$ 10,615,000	$ 11,098,000	$ 11,580,000
ISF Charges[f]	$ 7,028,000	$ 7,028,000	$ 7,028,000	$ 7,028,000	$ 7,028,000
Services Provided to Other Divisions	$ 24,000	$ 24,000	$ 24,000	$ 24,000	$ 24,000
Subtotal Operating Expenditures	$ 43,005,000	$ 43,659,000	$ 44,311,000	$ 44,964,000	$ 45,669,000
Capital Expenditures	$ 7,113,000	$ 7,113,000	$ 7,113,000	$ 7,113,000	$ 7,113,000
Other Uncategorized Expenditures[g]	$ 10,949,000	$ 10,949,000	$ 10,949,000	$ 10,949,000	$ 10,949,000
Total Water Enterprise Expenditures	$ 61,067,000	$ 61,721,000	$ 62,373,000	$ 63,026,000	$ 63,731,000
Percent Increase **(Reduction)** in Expenditures[h]		1%	2%	3%	4%
Total Annual Surplus **(Shortfall)**	**$1,231,000**	**($1,437,000)**	**($5,110,000)**	**($7,777,000)**	**($11,504,000)**

[a] Metered Rate Charges assumed to decrease by the same percentage as total water use is reduced.

[b] Water Production from groundwater wells assumed to have no net increase (production from individual wells may increase due to increased pumping lifts, but overall demand for groundwater should decrease as demand decreases).

[c] Surface Water Treatment Facility costs assumed to increase by 5% per stage as costs to operate SWTF increase with each stage (additional surface water production requirements, overtime, *etc.*).

[d] Conservation Service costs assumed to increase 5% for Stage 1, 10% for Stage 2, 15% for Stage 3 and 25% for Stage 4 for additional staff time, advertising to educate customers about need for conservation and enforcement of conservation measures.

[e] Water Supply costs assumed to increase 5% per stage as additional surface water supplies are required to compensate for reduction in groundwater supply with each stage.

[f] ISF Charges are for services provided by other City divisions.

[g] Uncategorized Expenditures include debt service payments and some other miscellaneous expenditures.

[h] Relative to Calendar Year 2010 expenditures.

As shown in Table 9-11, with the assumed increases in certain expenditures, overall water expenditures may increase somewhat during the various stages of the Water Shortage Contingency Plan. As shown in Table 9-11, these increases in expenditures, coupled with reductions in revenue, could potentially significantly impact the City's annual surplus or shortfall.

9.8.3 Proposed Measures to Overcome Revenue and Expenditure Impacts

Table 9-12 summarizes the two primary measures that may be implemented to overcome revenue and expenditure impacts:

- Use of rate stabilization funds, and
- Drought water rate increases.

Table 9-12. Proposed Measures to Overcome Revenue and Expenditures Impacts

Name of Measure	Anticipated Effect
Use of Rate Stabilization Funds	Maintain a stable balance of revenues and expenditures
Drought Water Rate Increase	Maintain revenues at pre-water shortage levels and compensate for increased expenditures associated with the water shortage condition

Table 9-13 demonstrates how a drought water rate increase might impact the City's revenue and expenditures during various stages of the Water Shortage Contingency Plan. For this analysis, the following water rate increases have been assumed.

- Stage 1: No rate increase assumed; use of rate stabilization funds as needed
- Stage 2: 10 percent over pre-shortage rates
- Stage 3: 6 percent over Stage 2 rates; overall 16 percent over pre-shortage rates
- Stage 4: 9 percent over Stage 3 rates; overall 25 percent over pre-shortage rates
- Post-shortage: 15 percent over pre-shortage rates for a period of time to be determined

Table 9-13. Revenue and Expenditure Analysis WITH Rate Increases
(all costs rounded to nearest $1000)

	Calendar Year 2010	Stage 1 (10% Conservation)	Stage 2 (25% Conservation)	Stage 3 (35% Conservation)	Stage 4 (50% Conservation)
Rate Increase (to be applied to all flat rate and metered rate customers)					
Required Water Rate Increase by Phase		0%	10%	6.0%	9.0%
Total Required Water Rate Increase over Current Rates		0%	10%	16.0%	25.0%
Water Revenues					
Water Charges					
Flat Rate Charges	$ 36,783,000	$ 36,783,000	$ 40,461,000	$ 42,668,000	$ 45,979,000
Metered Rate Charges[a]	$ 20,141,000	$ 18,126,900	$ 16,616,000	$ 15,186,000	$ 12,588,000
interest, transfers, and other misc revenue)	$ 5,374,000	$ 5,374,000	$ 5,374,000	$ 5,374,000	$ 5,374,000
Total Water Operating Revenues	$ 62,298,000	$ 60,283,900	$ 62,451,000	$ 63,228,000	$ 63,941,000
Percent Increase **(Reduction)** in Revenue		**-3%**	**0%**	**1%**	**3%**
Water Expenditures					
Operating					
Administration	$ 5,012,000	$ 5,012,000	$ 5,012,000	$ 5,012,000	$ 5,012,000
Water Quality	$ 2,464,000	$ 2,464,000	$ 2,464,000	$ 2,464,000	$ 2,464,000
Water Production[b]	$ 10,610,000	$ 10,610,000	$ 10,610,000	$ 10,610,000	$ 10,610,000
Distribution Maintenance	$ 2,837,000	$ 2,837,000	$ 2,837,000	$ 2,837,000	$ 2,837,000
Meter/Cross Connection Control	$ 1,235,000	$ 1,235,000	$ 1,235,000	$ 1,235,000	$ 1,235,000
Surface Water Treatment Facility[c]	$ 2,376,000	$ 2,495,000	$ 2,614,000	$ 2,732,000	$ 2,851,000
Recharge Maintenance	$ 710,000	$ 710,000	$ 710,000	$ 710,000	$ 710,000
Conservation Service[d]	$ 1,034,000	$ 1,086,000	$ 1,137,000	$ 1,189,000	$ 1,293,000
Litigation	$ 25,000	$ 25,000	$ 25,000	$ 25,000	$ 25,000
Water Supply[e]	$ 9,650,000	$ 10,133,000	$ 10,615,000	$ 11,098,000	$ 11,580,000
ISF Charges[f]	$ 7,028,000	$ 7,028,000	$ 7,028,000	$ 7,028,000	$ 7,028,000
Services Provided to Other Divisions	$ 24,000	$ 24,000	$ 24,000	$ 24,000	$ 24,000
Subtotal Operating Expenses	$ 43,005,000	$ 43,659,000	$ 44,311,000	$ 44,964,000	$ 45,669,000
Capital Expenditures	$ 7,113,000	$ 7,113,000	$ 7,113,000	$ 7,113,000	$ 7,113,000
Other Uncategorized Expenditures[g]	$ 10,949,000	$ 10,949,000	$ 10,949,000	$ 10,949,000	$ 10,949,000
Total Water Operating Expenditures	$ 61,067,000	$ 61,721,000	$ 62,373,000	$ 63,026,000	$ 63,731,000
Percent Increase **(Reduction)** in Expenditures[h]		1%	2%	3%	4%
Total Annual Surplus **(Shortfall)**	**$ 1,231,000**	**$ (1,437,000)**	**$ 78,000**	**$ 202,000**	**$ 210,000**

[a] Metered Rate Charges assumed to decrease by the same percentage as total water use is reduced.

[b] Water Production from groundwater wells assumed to have no net increase (production from individual wells may increase due to increased pumping lifts, but overall demand for groundwater should decrease as

[c] Surface Water Treatment Facility costs assumed to increase by 5% per stage as costs to operate WTP increase with each stage (additional surface water production requirements, overtime, *etc.*).

[d] Conservation Service costs assumed to increase 5% for Stage 1, 10% for Stage 2, 15% for Stage 3 and 25% for Stage 4 for additional staff time, advertising to educate customers about need for conservation and enforcement of conservation measures.

[e] Water Supply costs assumed to increase 5% per stage as additional surface water supplies are required to compensate for reduction in groundwater supply with each stage.

[f] ISF Charges are for services provided by other City divisions.

[g] Uncategorized Expenditures include debt service payments and some other miscellaneous expenditures.

[h] Relative to Calendar Year 2010 expenditures.

Upon implementation of Stage 1, it has been assumed that the City will use its rate stabilization funds to compensate for lower revenues and/or higher expenditures, such that drought water rate increases would not take effect until Stage 2 of the Water Shortage Contingency Plan. However, if conditions require that the City remain in Stage 1 for more than two years, or reversing out of a higher stage into Stage 1 results in the Water Shortage Contingency Plan being implemented for more than two years, water rate increases may also be required.

It should be noted that for this analysis based on 2010 conditions and data, it has been assumed that the drought water rate increases would be applied to both flat rate water accounts and metered water accounts. Once the City completes its Residential Water Metering Program and converts all of its customers to metered water rates, only water rate increases for the metered water rates will be required. However, the revenue stabilizing benefit of the City's flat rate customers demonstrated in Table 9-10 will no longer be available. As shown in Table 9-13, the use of rate stabilization funds in Stage 1 and implementation of the drought water rate increases in Stages 2, 3 and 4 helps to stabilize the City's revenues and compensate for increased expenditures during the water shortage.

Historically, most California water agencies that have experienced water shortages have found that it required several years for individual customer water use to return to pre-shortage levels. While this continued pattern of water conservation is desirable and generally beneficial to all, it can result in continued reduced water revenues, which may have an adverse impact on the financial condition of the City's water enterprise. Therefore, in anticipation of reduced water sales following a shortage, the City's water rates would be set at 15 percent over the pre-shortage rates for a period of time to be determined based on financial conditions. Any excess revenues collected as a result of this rate adjustment would be used to re-establish the City's reserves for use in future emergencies.

9.9 DRAFT WATER SHORTAGE CONTINGENCY RESOLUTION

10632 (h) A draft water shortage contingency resolution or ordinance.

Appendix H contains a draft resolution which can be used to implement one or more stages of the Water Shortage Contingency Plan. The draft resolution is provided as a model, and the text of any resolution and/or ordinance actually adopted may vary from the draft provisions presented in Appendix H.

9.10 MECHANISMS FOR DETERMINING ACTUAL WATER USE REDUCTIONS

10632 (i) A mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.

The City's water production (including surface water treatment facility production and well production) is continuously monitored by the City's SCADA system. Under normal, non-shortage conditions, totals are reported weekly to the Water Chief of Operations, and monthly to the Water Division Manager as part of the monthly update of the "Goldbook" (the City's compilation of water production data and statistics).

During a Stage 1 or Stage 2 water shortage, production figures will be reported to the Water Chief of Operations daily. The Water Chief of Operations will then compare the weekly production to the target weekly production to verify that the reduction goal is being met. Weekly reports would be forwarded to the Water Division Manager and the Director of Public Utilities. If reduction goals are not met, the Director of Public Utilities would notify the City Manager, Mayor's Office and City Council so that corrective action (*i.e.,* implementation of additional water use restrictions) could be taken.

During a Stage 3 or Stage 4 water shortage, the procedure would remain the same, with the addition of a daily production report to the Water Division Manager.

If the water shortage is the result of a disaster, production figures will be reported to the Water Chief of Operations hourly or on demand, and to the Water Division Manager daily. Regular reports will also be provided to the City Manager, Mayor's Office, City Council, California Department of Health Services, and the City and/or Fresno County Office of Emergency Services, as warranted by the emergency.

Table 9-14 provides a summary of the reporting schedule for the various phases of the Water Shortage Contingency Plan. As shown, with each stage of the Water Shortage Contingency Plan, the water production reporting becomes more frequent, allowing Water Division staff and management to effectively monitor water use and recommend corrective action as needed.

Table 9-14. Water Production Monitoring Reporting Schedule

Stage	Reports to Water Chief of Operations	Reports to Water Division Manager	Reports to Director of Utilities	Reports to City Manager, Mayor's Office, City Council, County OES
Normal	Weekly	Monthly	Monthly	As needed
Stage 1	Daily	Weekly	Weekly	As needed
Stage 2				
Stage 3	Daily	Daily	Weekly	As needed
Stage 4				
Emergency/Disaster	Hourly or On Demand	Daily	Weekly	As needed

Table 9-15 summarizes the water use monitoring mechanisms used by the City.

Table 9-15. Water Use Monitoring Mechanisms

Mechanisms for Determining Actual Reduction	Type and Quality of Data Expected
SCADA Monitoring of Water System	Continuous monitoring of surface water treatment facility and well production
Regular Reporting of Production Data	Production figures regularly reported to Water Chief of Operations and Water Division Manager to monitor overall system water demands and demand reductions (if applicable)
Increased Reporting of Production Data During Water Shortages	Production figures reported to Water Chief of Operations, Water Division Manager and Director of Public Utilities to monitor overall system water demands and demand reductions (if applicable) Reporting to City Manager, Mayor's Office and City Council (if corrective action required) and County OES (if applicable)

Once the City completes its Residential Water Metering Program and converts all of its customers to metered water rates, the City will also be able to routinely compare total water production to total metered water consumption to further evaluate the effectiveness of water conservation programs and better quantify losses within the water system.

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.

10.1 PARTICIPATING AGENCIES

10633. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.

Table 10-1 lists the agencies involved in recycled water planning and use within the City's water service area. Also shown in Table 10-1 are the roles of each agency as related to wastewater and recycled water.

Table 10-1. Agencies Participating in Recycled Water Activities

Agency Name	Recycled Water Roles
City of Fresno—Department of Public Utilities—Wastewater Management Division	Designated sewage agency for the local metropolitan area Operates the Regional Wastewater Reclamation Facility (RWRF)
City of Clovis	Purchases wastewater capacity in the RWRF collection system to convey flow to the RWRF
Fresno Irrigation District (FID)	Receives a portion of the percolated treated wastewater effluent for distribution through their own canal systems for irrigation purposes within their service area

10.2 WASTEWATER COLLECTION AND TREATMENT SYSTEMS

10633 (a) A description of the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.

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

10.2.1 Existing Wastewater Collection Systems

The City of Fresno wastewater collection system conveys wastewater by gravity pipelines to the Fresno/Clovis Regional Wastewater Reclamation Facility (RWRF) located southwest of the City. This collection system also conveys wastewater from the City of Clovis, Pinedale Public Utility District, and the Pinedale County Water District.

The City of Fresno also recently constructed the North Fresno Wastewater Reclamation Facility (North Fresno WRF) to serve the residential and commercial development and golf course in a portion of northeast Fresno.

The City of Clovis has also built a satellite treatment plant that treats 2.8 mgd of wastewater that was formerly discharged to the Fowler Trunk Sewer Main. The City of Clovis is planning to expand the capacity of this new treatment facility to 8.4 mgd in the future. Because the North Trunk intercepts the Fowler Trunk, this will reduce the City of Clovis' flow to the RWRF.

10.2.2 Existing Wastewater Treatment Systems

10.2.2.1 Regional Wastewater Reclamation Facility

The RWRF serves the cities of Fresno and Clovis; the Pinedale Water District and Pinedale Utilities District, both of which are within the city limits of Fresno; and some areas within Fresno County not within the city limits of Fresno or Clovis. The RWRF treats domestic, commercial, and industrial wastewater from this service area. The RWRF has a rated capacity of 88 million gallons per day (mgd), but the annual average daily flows are approximately 70 mgd (80,000 AFY). The City of Clovis owns 9.3 mgd of the treatment capacity, while the City of Fresno owns the remaining treatment capacity. The City of Fresno is responsible for day-to-day operations at the RWRF, and is the responsible entity for ensuring regulatory compliance with the RWRF's Waste Discharge Requirements (WDRs).

The RWRF is an activated sludge facility producing undisinfected secondary effluent. The majority of the wastewater treated at the RWRF is discharged to percolation ponds. Approximately ten percent of the total secondary undisinfected effluent flow is delivered directly to neighboring farmland for restricted irrigation of feed/fodder and fiber crops. Approximately 19 to 43 percent of the RWRF percolated effluent is extracted and delivered to FID. The unused percolated effluent remains in the groundwater basin where it migrates laterally to the southwest. The remaining percolated effluent could be extracted for other non-potable beneficial uses.

Table 10-2 presents the projected quantity of wastewater collected and treated at the RWRF, and the quantity available for recycled water use. As shown, the City currently uses most of the treated effluent for direct use on farmland and incidental percolation to groundwater.

In the future, based on a recently completed Recycled Water Master Plan[1], the City is planning to provide tertiary treatment at the RWRF and/or at other satellite wastewater treatment plants to supply tertiary treated recycled water for landscape irrigation in new growth areas and existing landscaped areas throughout the City's service area.

10.2.2.2 North Fresno Wastewater Reclamation Facilities (WRF) Satellite Plant

The North Fresno WRF was recently constructed to serve the residential and commercial development and golf course in a portion of northeast Fresno. It was constructed with sequencing batch reactor (SBR) technology for secondary treatment, cloth media filtration for tertiary treatment, and sodium hypochlorite for disinfection. The permitted capacity of the plant is 0.71 mgd average monthly flow and 1.07 mgd maximum daily flow. Recycled water in excess of turf demands can be dechlorinated and discharged to a nearby percolation basin, which is owned by the Fresno Metropolitan Flood Control District.

As shown in Table 10-2, Projected recycled water use for the North Fresno WRF ranges from about 750 af/yr to about 1,000 af/yr at buildout.

[1] City of Fresno Recycled Water Master Plan, prepared by Carollo Engineers, December 2010.

Table 10-2. Recycled Water – Wastewater Collection and Treatment (DWR Table 21)

	Treatment Level	Wastewater Collected and Treated and Available for Recycled Water Use[a], af/yr						
		2005 (actual)	2010 (actual)	2015	2020	2025	2030	2035[e]
Wastewater Collected and Treated at RWRF								
Combined Inflow to RWRF from Fresno and Clovis	Untreated	78,400	83,846	90,900	98,300	105,600	113,000	120,300
Outflow from RWRF:	Undisinfected Secondary							
Fresno Portion		68,200	73,546	80,100	86,900	93,700	100,500	107,300
Clovis Portion		10,200	10,300	10,800	11,400	11,900	12,500	13,000
Wastewater Collected and Treated at North Fresno WRF								
Outflow from North Fresno WRF	Tertiary	0	750	1,000	1,000	1,000	1,000	1,000
Total Wastewater Collected and Treated in City of Fresno Service Area		**68,200**	**74,296**	**81,100**	**87,900**	**94,700**	**101,500**	**108,300**
Volume that Meets Recycled Water Standard								
RWRF (Fresno Portion)	Undisinfected Secondary[b]	65,300	72,274	77,500	83,550	65,600	71,650	77,700
	Tertiary[c]	0	0	0	0	24,000	24,000	24,000
North Fresno WRF	Tertiary	0	176	1,000	1,000	1,000	1,000	1,000
Total Volume that Meets Recycled Water Standard[d]		**65,300**	**72,450**	**78,500**	**84,550**	**90,600**	**96,650**	**102,700**

(a) Based on Table 6-6, City of Fresno Metro Plan Update Final Report dated December 2007, updated to take into account the City's future water supply plan as being developed under Phase 2 of the Metro Plan Update.
(b) To be used for direct use on farmland or sent to incidental percolation ponds.
(c) The tertiary treatment may be provided at the RWRF and/or other satellite wastewater treatment plants.
(d) Does not include evaporation from RWRF percolation ponds (see Table 10-3).
(e) Projections for 2035 are based on 2008 UWMP projections for 2025; projections have been shifted out 10 years based on Fresno COG's projected 2035 population which is equal to the previous 2025 projected population (see Chapter 3).

As shown in Table 10-3, no wastewater from the RWRF is currently discharged to surface water. However, some is lost to evaporation from the incidental percolation ponds. This non-discharge operation is anticipated to continue into the future.

Table 10-3. Recycled Water – Non-Recycled Wastewater Disposal (DWR Table 22)

Method of Disposal	Treatment Level	Wastewater Disposal (Non-Recycled)[a], af/yr						
		2005 (actual)	2010 (actual)	2015	2020	2025	2030	2035[b]
Discharged to Surface Water	Undisinfected Secondary	0	0	0	0	0	0	0
Evaporation from Percolation Ponds		2,900	3,551	4,000	4,400	4,800	5,200	5,600
	Total	2,900	3,551	4,000	4,400	4,800	5,200	5,600

(a) Table 6-6, City of Fresno Metro Plan Update Final Report dated December 2007.
(b) Projections for 2035 are based on 2008 UWMP projections for 2025; projections have been shifted out 10 years based on Fresno COG's projected 2035 population which is equal to the previous 2025 projected population (see Chapter 3).

10.3 CURRENT RECYCLED WATER USE

10633. (c) A description of the recycled water currently being used in the supplier's service, including, but not limited to, the type, place, and quantity of use.

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

The total quantity of wastewater treated at the RWRF, except for what is lost to evaporation in the incidental percolation ponds (see Table 10-3), is currently used to either directly irrigate City of Fresno and privately owned farmland, or is sent to the incidental percolation basins. A portion of the treated wastewater effluent which incidentally percolates to the groundwater basin is pumped from the groundwater basin and discharged into the FID canal system. Evaporation from the surface of these percolation ponds accounts for the balance of the wastewater effluent (see Table 10-3).

Table 10-4 summaries the current (2010) uses of the City's portion of the RWRF treated effluent, and compares them to the projected 2010 uses as documented in the City's previous UWMP.

Table 10-4. Recycled Water - 2005 UWMP Use Projection Compared to 2010 Actual (DWR Table 24)

Use Type	2010 Actual Use, af	2005 Projection for 2010, af[(a)]
Agricultural Irrigation	9,793	7,600
Landscape Irrigation		
Commercial Irrigation		
Golf Course Irrigation	25	750
Wildlife Habitat		
Wetlands		
Industrial Reuse		
Groundwater Recharge		
Seawater Barrier		
Geothermal Barrier		
Indirect Potable Reuse		
Other (percolation)	62,481	73,400
Total	72,299	81,750

[(a)] Table 10-6, City of Fresno UWMP dated August 2008.

10.4 POTENTIAL AND PROJECTED RECYCLED WATER USE

10633 (d) A description and quantification of the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.
(e) The projected use of recycled water within the supplier's service area at the end of 5, 10, 15 and 20 years

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 af/yr by 2020 and by an additional 300,000 af/yr by 2030. The City's expansion of recycled water use is in support of these statewide goals.

Table 10-5 provides a summary of the potential future recycled water uses by the City. These potential future recycled water uses are based on the City's future plans to expand use of recycled water for landscape irrigation in new growth areas and throughout the City service area. As described in Chapter 4, the City's future water supply plan includes a recycled water supply for landscape irrigation starting in 2025. It is assumed that recycled water will be used throughout the City and in the Southeast Growth Area for landscape irrigation purposes and other non-potable uses.

Table 10-5. Recycled Water – Potential Future Use (DWR Table 23)

Method of Disposal	Description	Feasibility	Potential Recycled Water Use[a,b], af/yr				
			2015	2020	2025	2030	2035
Agricultural Irrigation	Undisinfected Secondary	Yes	7,600	7,600	7,600	7,600	7,600
Landscape Irrigation	Tertiary	Yes	1,000	1,000	25,000	25,000	25,000
Commercial Irrigation							
Golf Course Irrigation							
Wildlife Habitat							
Wetlands							
Industrial Reuse							
Groundwater Recharge							
Seawater Barrier							
Geothermal Barrier							
Indirect Potable Reuse							
Other (percolation)	Undisinfected Secondary	Yes	69,900	75,950	58,000	86,550	70,100
Total			78,500	84,550	90,600	96,650	102,700

(a) Based on Table 6-6, City of Fresno Metro Plan Update Final Report dated December 2007, updated to take into account the City's future water supply plan as being developed under Phase 2 of the Metro Plan Update.
(b) Based on City of Fresno portion of RWRF Outflow and North Fresno WRF outflow only. City of Clovis portion of RWRF outflow not included.

10.5 METHODS TO ENCOURAGE RECYCLED WATER USE

10633 (f) A description of actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.

As described in this chapter, the majority of the future use of recycled water is currently projected to be generally consistent with current recycled water uses (*e.g.*, direct use on farmland and sent to incidental percolation basins). However, as a result of the City's Metro Plan Update and recently completed Recycled Water Master Plan, urban reuse for landscape irrigation purposes and other non-potable uses is also planned for the future. To encourage and support future urban recycled water use, the City will consider the following future policies and actions with regard to recycled water use:

- Adopt a recycled water ordinance and rules and regulations to encourage and/or require existing and new users to install purple pipe and use recycled water for irrigation on parks, common areas, roadway medians, etc.
- Look for opportunities to install purple pipe near existing landscaped areas (*e.g.*, parks, sports fields) (*i.e.*, piggyback on other pipeline installation/replacement projects).
- Install purple pipe to high-profile areas such as City Hall.
- Begin an industrial outreach program to bring industries into the recycled water program, and build purple pipeline segments to serve these industries.
- Continue public outreach and education for the public and potential users to increase community acceptance of recycled water for irrigation and industrial use.
- Further develop partnerships with FID, Clovis, and others to maximize available water resources.
- Allow new development to create "new" supplies by participation in the implementation of recycled water facilities.
- Provide additional staff and program-specific financial resources required to implement/manage the future recycled water use program.

Table 10-6 provides a summary of future methods to encourage future recycled water use.

Table 10-6. Methods to Encourage Recycled Water Use (DWR Table 25)

Actions	Acre-feet of Recycled Water Use to Result from this Action					
	2010	2015	2020	2025	2030	2035
Adopt recycled water ordinance and rules and regulations to encourage and/or require existing and new users to install purple pipe and use recycled water for irrigation on parks, common areas, roadway medians, *etc*.	0	0	0	24,000	24,000	24,000
Implement public outreach and education program						
Install purple pipe to high-profile areas such as City Hall						
Implement industrial outreach program						
Total	0	0	0	24,000	24,000	24,000

10.6 OPTIMIZING THE USE OF RECYCLED WATER

10633 (g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculation uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

In the recently completed Recycled Water Master Plan, several key opportunities for implementing reuse in the City were identified, namely:

- Urban reuse;
- Unrestricted agricultural reuse/exchange; and
- Groundwater recharge.

Urban reuse provides an opportunity for near-term implementation of recycled water projects and would offset existing uses of the City's potable supplies and some private wells. Unrestricted agricultural reuse and exchange with FID are also near-term opportunities that would provide the City with credit for additional potable water supply. Groundwater recharge with recycled water is a longer-term program that would supplement potable water supplies and provide a barrier to prevent groundwater migration away from the City. Each of these opportunities is further described below.

10.6.1 Urban Reuse

Urban reuse provides an opportunity to implement recycled water projects that directly offset potable water and are highly visible to the community. Urban reuse, however, requires the most intensive distribution system since users are spread out across the City. Preliminary recycled water distribution system alignments have been selected based on prioritizing delivery to customers with the highest demands. These larger users are generally land-intensive parks, cemeteries and golf courses that are located around the outskirts of the City. Smaller users and future development areas were also identified to be served directly off the main distribution pipelines or from "laterals" off the main distribution system pipelines. The proposed distribution system forms a ring around the City, with laterals towards the City center that can be used to serve future infill development.

10.6.2 Agricultural Reuse/Exchange

Agricultural reuse provides the largest opportunity for recycled water use (in terms of volume), since demand is nearly unlimited. The benefit of potable water offset, however, can only be achieved if FID (or another agency) is willing to increase its recycled water use and trade recycled water for substituted surface water. Whether the City can realize this benefit depends on negotiations with FID, and the City having adequate facilities to take advantage of the surface water made available through the exchange.

10.6.3 Groundwater Recharge

Groundwater recharge is an opportunity to directly augment the City's potable supply, and provide a use for recycled water during the winter. Groundwater recharge locations will be influenced by the City's ability to identify and purchase sites for recharge basins that have six months of hydraulic separation from drinking water wells. At this time, the west side of the City, closest to the RWRF, appears best to serve recharge opportunities as there are sites available with soils that are conducive to recharge, and there are relatively few wells located nearby. A source of diluent water would be required (at a contribution ratio of 4:1 diluent to recycled water). Diluent water sources include USBR surface water, FID surface water, or storm water provided by Fresno Metropolitan Flood Control District (FMFCD). Percolation rates are highest on the west side of town, where it is also cheapest to supply water from the RWRF.

APPENDIX A

Urban Water Management Planning Act and
Water Conservation Act of 2009

Section K: California Water Code, Division 6, Part 2.6: Urban Water Management Planning

The following sections of California Water Code Division 6, Part 2.6, are available online at http://www.leginfo.ca.gov/calaw.html.

Chapter 1. General Declaration and Policy	§10610-10610.4
Chapter 2. Definitions	§10611-10617
Chapter 3. Urban Water Management Plans	
Article 1. General Provisions	§10620-10621
Article 2. Contents of Plans	§10630-10634
Article 2.5. Water Service Reliability	§10635
Article 3. Adoption And Implementation of Plans	§10640-10645
Chapter 4. Miscellaneous Provisions	§10650-10656

Chapter 1. General Declaration and Policy

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

10610.2.

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

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

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

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

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

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

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

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

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

(9) The quality of source supplies can have a significant impact on water management strategies and supply reliability.

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

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

(a) The management of urban water demands and efficient use of water shall be actively pursued to protect both the people of the state and their water resources.

(b) The management of urban water demands and efficient use of urban water supplies shall be a guiding criterion in public decisions.

(c) Urban water suppliers shall be required to develop water management plans to actively pursue the efficient use of available supplies.

Chapter 2. Definitions

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

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

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

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

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

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

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

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

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

Chapter 3. Urban Water Management Plans

Article 1. General Provisions

10620.

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

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

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

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

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

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

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

10621.

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

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

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

Article 2. Contents of Plans

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

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

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

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

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

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

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

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

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

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

(A) An average water year.

(B) A single dry water year.

(C) Multiple dry water years.

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

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

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

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

(H) Saline water intrusion barriers, groundwater recharge, or conjunctive use, or any combination thereof.

(I) Agricultural.

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

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

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

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

(B) Residential plumbing retrofit.

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

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

(E) Large landscape conservation programs and incentives.

(F) High-efficiency washing machine rebate programs.

(G) Public information programs.

(H) School education programs.

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

(J) Wholesale agency programs.

(K) Conservation pricing.

(L) Water conservation coordinator.

(M) Water waste prohibition.

(N) Residential ultra-low-flush toilet replacement programs.

(2) A schedule of implementation for all water demand management measures proposed or described in the plan.

(3) A description of the methods, if any, that the supplier will use to evaluate the effectiveness of water demand management measures implemented or described under the plan.

(4) An estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the supplier's ability to further reduce demand.

(g) An evaluation of each water demand management measure listed in paragraph (1) of subdivision (f) that is not currently being implemented or scheduled for implementation. In the course of the evaluation, first consideration shall be given to water demand management measures, or combination of measures, that offer lower incremental costs than expanded or additional water supplies. This evaluation shall do all of the following:

(1) Take into account economic and noneconomic factors, including environmental, social, health, customer impact, and technological factors.

(2) Include a cost-benefit analysis, identifying total benefits and total costs.

(3) Include a description of funding available to implement any planned water supply project that would provide water at a higher unit cost.

(4) Include a description of the water supplier's legal authority to implement the measure and efforts to work with other relevant agencies to ensure the implementation of the measure and to share the cost of implementation.

(h) Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use as established pursuant to subdivision (a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs, other than the demand management programs identified pursuant to paragraph (1) of subdivision (f), that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in average, single-dry, and multiple-dry water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

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

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

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

10631.1.

(a) The water use projections required by Section 10631 shall include projected water use for single-family and multifamily residential housing needed for lower income households, as defined in Section 50079.5 of the Health and Safety Code,

as identified in the housing element of any city, county, or city and county in the service area of the supplier.

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

10631.5.

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

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

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

(4) (A) Notwithstanding paragraph (1), the department shall determine that an urban water supplier is eligible for a water management grant or loan even though the supplier is not implementing all of the water demand management measures described in Section 10631, if an urban water supplier submits to the department for approval documentation demonstrating that a water demand management measure is not locally cost effective. If the department determines that the documentation submitted by the urban water supplier fails to demonstrate that a water demand management measure is not locally cost effective, the

department shall notify the urban water supplier and the agency administering the grant or loan program within 120 days that the documentation does not satisfy the requirements for an exemption, and include in that notification a detailed statement to support the determination.

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

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

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

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

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

(i) Compliance on an individual basis.

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

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

(3) The department shall not deny eligibility to an urban water supplier in compliance with the requirements of this section that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the water demand management measures described in Section 10631.

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

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

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

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

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

Legislature no later than January 1, 2010, and every five years thereafter. The department shall review the panel report and include in the final report to the Legislature the department's recommendations and comments regarding the panel process and the panel's recommendations.

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

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

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

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

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

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

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

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

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

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

10633. The plan shall provide, to the extent available, information on recycled water and its potential for use as a water source in the service area of the urban water

supplier. The preparation of the plan shall be coordinated with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area, and shall include all of the following:

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

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

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

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

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

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

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

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

Article 2.5. Water Service Reliability

10635.

(a) Every urban water supplier shall include, as part of its urban water management plan, an assessment of the reliability of its water service to its customers during normal, dry, and multiple dry water years. This water supply and demand

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

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

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

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

Article 3. Adoption and Implementation of Plans

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

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

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

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

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

10644.

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

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

(c) (1) For the purpose of identifying the exemplary elements of the individual plans, the department shall identify in the report those water demand management measures adopted and implemented by specific urban water suppliers, and identified pursuant to Section 10631, that achieve water savings significantly above the levels established by the department to meet the requirements of Section 10631.5.

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

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

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

Chapter 4. Miscellaneous Provisions

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

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

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

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

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

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

10654. An urban water supplier may recover in its rates the costs incurred in preparing its plan and implementing the reasonable water conservation measures included in the plan. Any best water management practice that is included in the plan that is identified in the “Memorandum of Understanding Regarding Urban Water Conservation in California” is deemed to be reasonable for the purposes of this section.

10655. If any provision of this part or the application thereof to any person or circumstances is held invalid, that invalidity shall not affect other provisions or

applications of this part which can be given effect without the invalid provision or application thereof, and to this end the provisions of this part are severable.

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

Section L: California Water Code, Division 6, Part 2.55: Water Conservation

The following sections of California Water Code Division 6, Part 2.55, are available online at http://www.leginfo.ca.gov/calaw.html.

Chapter 1. General Declarations and Policy	§10608-10608.8
Chapter 2. Definitions	§10608.12
Chapter 3. Urban Retail Water Suppliers	§10608.16-10608.44

Legislative Counsel's Digest

Senate Bill No. 7
Chapter 4

An act to amend and repeal Section 10631.5 of, to add Part 2.55 (commencing with Section 10608) to Division 6 of, and to repeal and add Part 2.8 (commencing with Section 10800) of Division 6 of, the Water Code, relating to water.

[Approved by Governor November 10, 2009. Filed with Secretary of State November 10, 2009.]

Legislative Counsel's Digest

SB 7, Steinberg. Water conservation.

(1) Existing law requires the Department of Water Resources to convene an independent technical panel to provide information to the department and the Legislature on new demand management measures, technologies, and approaches. "Demand management measures" means those water conservation measures, programs, and incentives that prevent the waste of water and promote the reasonable and efficient use and reuse of available supplies.

This bill would require the state to achieve a 20% reduction in urban per capita water use in California by December 31, 2020. The state would be required to make incremental progress towards this goal by reducing per capita water use by at least 10% on or before December 31, 2015. The bill would require each urban retail water supplier to develop urban water use targets and an interim urban water use target, in accordance with specified requirements. The bill would require agricultural water suppliers to implement efficient water management practices. The bill would require the department, in consultation with other state agencies, to develop a single standardized water use reporting form. The bill, with certain exceptions, would provide that urban retail water suppliers, on and after July 1, 2016, and agricultural water suppliers, on and after July 1, 2013, are not eligible for state water grants or loans unless they comply with the water conservation requirements established by the bill. The bill would repeal, on July 1, 2016, an existing requirement that conditions

eligibility for certain water management grants or loans to an urban water supplier on the implementation of certain water demand management measures.

(2) Existing law, until January 1, 1993, and thereafter only as specified, requires certain agricultural water suppliers to prepare and adopt water management plans.

This bill would revise existing law relating to agricultural water management planning to require agricultural water suppliers to prepare and adopt agricultural water management plans with specified components on or before December 31, 2012, and update those plans on or before December 31, 2015, and on or before December 31 every 5 years thereafter. An agricultural water supplier that becomes an agricultural water supplier after December 31, 2012, would be required to prepare and adopt an agricultural water management plan within one year after becoming an agricultural water supplier. The agricultural water supplier would be required to notify each city or county within which the supplier provides water supplies with regard to the preparation or review of the plan. The bill would require the agricultural water supplier to submit copies of the plan to the department and other specified entities. The bill would provide that an agricultural water supplier is not eligible for state water grants or loans unless the supplier complies with the water management planning requirements established by the bill.

(3) The bill would take effect only if SB 1 and SB 6 of the 2009–10 7th Extraordinary Session of the Legislature are enacted and become effective.

The people of the State of California do enact as follows:

SECTION 1. Part 2.55 (commencing with Section 10608) is added to Division 6 of the Water Code, to read:

Part 2.55. Sustainable Water Use and Demand Reduction

Chapter 1. General Declarations and Policy

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

(a) Water is a public resource that the California Constitution protects against waste and unreasonable use.

(b) Growing population, climate change, and the need to protect and grow California's economy while protecting and restoring our fish and wildlife habitats make it essential that the state manage its water resources as efficiently as possible.

(c) Diverse regional water supply portfolios will increase water supply reliability and reduce dependence on the Delta.

(d) Reduced water use through conservation provides significant energy and environmental benefits, and can help protect water quality, improve streamflows, and reduce greenhouse gas emissions.

(e) The success of state and local water conservation programs to increase efficiency of water use is best determined on the basis of measurable outcomes related to water use or efficiency.

(f) Improvements in technology and management practices offer the potential for increasing water efficiency in California over time, providing an essential water management tool to meet the need for water for urban, agricultural, and environmental uses.

(g) The Governor has called for a 20 percent per capita reduction in urban water use statewide by 2020.

(h) The factors used to formulate water use efficiency targets can vary significantly from location to location based on factors including weather, patterns of urban and suburban development, and past efforts to enhance water use efficiency.

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

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

(a) Require all water suppliers to increase the efficiency of use of this essential resource.

(b) Establish a framework to meet the state targets for urban water conservation identified in this part and called for by the Governor.

(c) Measure increased efficiency of urban water use on a per capita basis.

(d) Establish a method or methods for urban retail water suppliers to determine targets for achieving increased water use efficiency by the year 2020, in accordance with the Governor's goal of a 20-percent reduction.

(e) Establish consistent water use efficiency planning and implementation standards for urban water suppliers and agricultural water suppliers.

(f) Promote urban water conservation standards that are consistent with the California Urban Water Conservation Council's adopted best management practices and the requirements for demand management in Section 10631.

(g) Establish standards that recognize and provide credit to water suppliers that made substantial capital investments in urban water conservation since the drought of the early 1990s.

(h) Recognize and account for the investment of urban retail water suppliers in providing recycled water for beneficial uses.

(i) Require implementation of specified efficient water management practices for agricultural water suppliers.

(j) Support the economic productivity of California's agricultural, commercial, and industrial sectors.

(k) Advance regional water resources management.

10608.8.

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

(2) Because an urban agency is not required to meet its urban water use target until 2020 pursuant to subdivision (b) of Section 10608.24, an urban retail water supplier's failure to meet those targets shall not establish a violation of law for purposes of any state administrative or judicial proceeding prior to January 1, 2021. Nothing in this paragraph limits the use of data reported to the department or the board in litigation or an administrative proceeding. This paragraph shall become inoperative on January 1, 2021.

(3) To the extent feasible, the department and the board shall provide for the use of water conservation reports required under this part to meet the requirements of Section 1011 for water conservation reporting.

(b) This part does not limit or otherwise affect the application of Chapter 3.5 (commencing with Section 11340), Chapter 4 (commencing with Section 11370), Chapter 4.5 (commencing with Section 11400), and Chapter 5 (commencing with Section 11500) of Part 1 of Division 3 of Title 2 of the Government Code.

(c) This part does not require a reduction in the total water used in the agricultural or urban sectors, because other factors, including, but not limited to, changes in agricultural economics or population growth may have greater effects on water

use. This part does not limit the economic productivity of California's agricultural, commercial, or industrial sectors.

(d) The requirements of this part do not apply to an agricultural water supplier that is a party to the Quantification Settlement Agreement, as defined in subdivision (a) of Section 1 of Chapter 617 of the Statutes of 2002, during the period within which the Quantification Settlement Agreement remains in effect. After the expiration of the Quantification Settlement Agreement, to the extent conservation water projects implemented as part of the Quantification Settlement Agreement remain in effect, the conserved water created as part of those projects shall be credited against the obligations of the agricultural water supplier pursuant to this part.

Chapter 2. Definitions

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

(a) “Agricultural water supplier” means a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. “Agricultural water supplier” includes a supplier or contractor for water, regardless of the basis of right, that distributes or sells water for ultimate resale to customers. “Agricultural water supplier” does not include the department.

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

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

(2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

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

(c) “Baseline commercial, industrial, and institutional water use” means an urban retail water supplier's base daily per capita water use for commercial, industrial, and institutional users.

(d) “Commercial water user” means a water user that provides or distributes a product or service.

(e) “Compliance daily per capita water use” means the gross water use during the final year of the reporting period, reported in gallons per capita per day.

(f) “Disadvantaged community” means a community with an annual median household income that is less than 80 percent of the statewide annual median household income.

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

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

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

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

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

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

(i) “Institutional water user” means a water user dedicated to public service. This type of user includes, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions.

(j) “Interim urban water use target” means the midpoint between the urban retail water supplier's base daily per capita water use and the urban retail water supplier's urban water use target for 2020.

(k) "Locally cost effective" means that the present value of the local benefits of implementing an agricultural efficiency water management practice is greater than or equal to the present value of the local cost of implementing that measure.

(l) "Process water" means water used for producing a product or product content or water used for research and development, including, but not limited to, continuous manufacturing processes, water used for testing and maintaining equipment used in producing a product or product content, and water used in combined heat and power facilities used in producing a product or product content. Process water does not mean incidental water uses not related to the production of a product or product content, including, but not limited to, water used for restrooms, landscaping, air conditioning, heating, kitchens, and laundry.

(m) "Recycled water" means recycled water, as defined in subdivision (n) of Section 13050, that is used to offset potable demand, including recycled water supplied for direct use and indirect potable reuse, that meets the following requirements, where applicable:

(1) For groundwater recharge, including recharge through spreading basins, water supplies that are all of the following:

(A) Metered.

(B) Developed through planned investment by the urban water supplier or a wastewater treatment agency.

(C) Treated to a minimum tertiary level.

(D) Delivered within the service area of an urban retail water supplier or its urban wholesale water supplier that helps an urban retail water supplier meet its urban water use target.

(2) For reservoir augmentation, water supplies that meet the criteria of paragraph (1) and are conveyed through a distribution system constructed specifically for recycled water.

(n) "Regional water resources management" means sources of supply resulting from watershed-based planning for sustainable local water reliability or any of the following alternative sources of water:

(1) The capture and reuse of stormwater or rainwater.

(2) The use of recycled water.

(3) The desalination of brackish groundwater.

(4) The conjunctive use of surface water and groundwater in a manner that is consistent with the safe yield of the groundwater basin.

(o) "Reporting period" means the years for which an urban retail water supplier reports compliance with the urban water use targets.

(p) "Urban retail water supplier" means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.

(q) "Urban water use target" means the urban retail water supplier's targeted future daily per capita water use.

(r) "Urban wholesale water supplier," means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.

Chapter 3. Urban Retail Water Suppliers

10608.16.

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

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

10608.20.

(a) (1) Each urban retail water supplier shall develop urban water use targets and an interim urban water use target by July 1, 2011. Urban retail water suppliers may elect to determine and report progress toward achieving these targets on an individual or regional basis, as provided in subdivision (a) of Section 10608.28, and may determine the targets on a fiscal year or calendar year basis.

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

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

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

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

(A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard. Upon completion of the department's 2016 report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the Legislature by statute.

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

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

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

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

(A) Consider climatic differences within the state.

(B) Consider population density differences within the state.

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

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

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

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

(c) If the department adopts a regulation pursuant to paragraph (4) of subdivision (b) that results in a requirement that an urban retail water supplier achieve a reduction in daily per capita water use that is greater than 20 percent by December 31, 2020, an urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may limit its urban water use target to a reduction of not more than 20 percent by December 31, 2020, by adopting the method described in paragraph (1) of subdivision (b).

(d) The department shall update the method described in paragraph (4) of subdivision (b) and report to the Legislature by December 31, 2014. An urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may adopt a new urban daily per capita water use target pursuant to this updated method.

(e) An urban retail water supplier shall include in its urban water management plan required pursuant to Part 2.6 (commencing with Section 10610) due in 2010 the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

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

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

(h) (1) The department, through a public process and in consultation with the California Urban Water Conservation Council, shall develop technical methodologies and criteria for the consistent implementation of this part, including, but not limited to, both of the following:

(A) Methodologies for calculating base daily per capita water use, baseline commercial, industrial, and institutional water use, compliance daily per capita water use, gross water use, service area population, indoor residential water use, and landscaped area water use.

(B) Criteria for adjustments pursuant to subdivisions (d) and (e) of Section 10608.24.

(2) The department shall post the methodologies and criteria developed pursuant to this subdivision on its Internet Web site, and make written copies

available, by October 1, 2010. An urban retail water supplier shall use the methods developed by the department in compliance with this part.

(i) (1) The department shall adopt regulations for implementation of the provisions relating to process water in accordance with subdivision (l) of Section 10608.12, subdivision (e) of Section 10608.24, and subdivision (d) of Section 10608.26.

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

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

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

10608.24.

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

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

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

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

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

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

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

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

(e) When developing the urban water use target pursuant to Section 10608.20, an urban retail water supplier that has a substantial percentage of industrial water use in its service area, may exclude process water from the calculation of gross water use to avoid a disproportionate burden on another customer sector.

(f) (1) An urban retail water supplier that includes agricultural water use in an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) may include the agricultural water use in determining gross water use. An urban retail water supplier that includes agricultural water use in determining gross water use and develops its urban water use target pursuant to paragraph (2) of subdivision (b) of Section 10608.20 shall use a water efficient standard for agricultural irrigation of 100 percent of reference evapotranspiration multiplied by the crop coefficient for irrigated acres.

(2) An urban retail water supplier, that is also an agricultural water supplier, is not subject to the requirements of Chapter 4 (commencing with Section 10608.48), if the agricultural water use is incorporated into its urban water use target pursuant to paragraph (1).

10608.26.

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

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

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

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

(b) In complying with this part, an urban retail water supplier may meet its urban water use target through efficiency improvements in any combination among its customer sectors. An urban retail water supplier shall avoid placing a disproportionate burden on any customer sector.

(c) For an urban retail water supplier that supplies water to a United States Department of Defense military installation, the urban retail water supplier's implementation plan for complying with this part shall consider the United States Department of Defense military installation's requirements under federal Executive Order 13423.

(d) (1) Any ordinance or resolution adopted by an urban retail water supplier after the effective date of this section shall not require existing customers as of the effective date of this section, to undertake changes in product formulation, operations, or equipment that would reduce process water use, but may provide technical assistance and financial incentives to those customers to implement efficiency measures for process water. This section shall not limit an ordinance or resolution adopted pursuant to a declaration of drought emergency by an urban retail water supplier.

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

10608.28.

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

(1) Through an urban wholesale water supplier.

(2) Through a regional agency authorized to plan and implement water conservation, including, but not limited to, an agency established under the Bay Area Water Supply and Conservation Agency Act (Division 31 (commencing with Section 81300)).

(3) Through a regional water management group as defined in Section 10537.

(4) By an integrated regional water management funding area.

(5) By hydrologic region.

(6) Through other appropriate geographic scales for which computation methods have been developed by the department.

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

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

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

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

10608.42. The department shall review the 2015 urban water management plans and report to the Legislature by December 31, 2016, on progress towards achieving a 20-percent reduction in urban water use by December 31, 2020. The report shall include recommendations on changes to water efficiency standards or urban water use targets in order to achieve the 20-percent reduction and to reflect updated efficiency information and technology changes.

10608.43. The department, in conjunction with the California Urban Water Conservation Council, by April 1, 2010, shall convene a representative task force consisting of academic experts, urban retail water suppliers, environmental organizations, commercial water users, industrial water users, and institutional water users to develop alternative best management practices for commercial, industrial, and institutional users and an assessment of the potential statewide water use efficiency improvement in the commercial, industrial, and institutional sectors that would result from implementation of these best management practices. The taskforce, in conjunction with the department, shall submit a report to the Legislature by April 1, 2012, that shall include a review of multiple sectors within commercial, industrial, and institutional users and that shall recommend water use efficiency standards for

commercial, industrial, and institutional users among various sectors of water use. The report shall include, but not be limited to, the following:

(a) Appropriate metrics for evaluating commercial, industrial, and institutional water use.

(b) Evaluation of water demands for manufacturing processes, goods, and cooling.

(c) Evaluation of public infrastructure necessary for delivery of recycled water to the commercial, industrial, and institutional sectors.

(d) Evaluation of institutional and economic barriers to increased recycled water use within the commercial, industrial, and institutional sectors.

(e) Identification of technical feasibility and cost of the best management practices to achieve more efficient water use statewide in the commercial, industrial, and institutional sectors that is consistent with the public interest and reflects past investments in water use efficiency.

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

APPENDIX B

Agency and Public Notices Regarding UWMP Preparation and Adoption

Notice of Preparation dated July 26, 2012

(60-day Notice to Fresno County and Other Stakeholders)

City of
FRESNO
Department of Public Utilities

Water Division
1910 East University Avenue
Fresno, California 93703-2927
559-621-5300 – FAX 559-488-1024
www.fresno.gov

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July 26, 2012

Ronald Jacobsma
Frinat Water Authority
4969 E. McKinley Ave, Ste 201, Fresno, CA 93727

Subject: Notice of Preparation for City of Fresno 2010 Urban Water Management Plan Update

Dear Mr. Jacobsma:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), 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 2010 UWMP. The City's last UWMP was adopted in August 2008.

The City is currently reviewing their previous UWMP and other available water supply planning documents in preparation for the 2010 UWMP update. We invite your agency's participation in this update process. A draft of the updated 2010 UWMP will be made available for public review, and a public hearing will be scheduled in late 2012 to hear public comments, and discuss and consider adoption of the 2010 UWMP.

In the meantime, if you would like more information regarding the City of Fresno 2010 UWMP Update, please contact Mr. Martin Wendels at:

City of Fresno
Department of Public Utilities, Water Division
1910 East University Avenue
Fresno, CA 93703
Phone: (559) 621-5315
Fax: (559) 457-1182
E-Mail: martin.wendels@fresno.gov

Sincerely,

Martin Wendels
Project Manager

City of
FRESNO
Department of Public Utilities

Water Division
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July 26, 2012

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

Subject: Notice of Preparation for City of Fresno 2010 Urban Water Management Plan Update

Dear Mr. Woodworth:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), 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 2010 UWMP. The City's last UWMP was adopted in August 2008.

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Sincerely,

Martin Wendels
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July 26, 2012

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

Subject: Notice of Preparation for City of Fresno 2010 Urban Water Management Plan Update

Dear Mr. Holcomb:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), 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 2010 UWMP. The City's last UWMP was adopted in August 2008.

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July 26, 2012

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

Subject: Notice of Preparation for City of Fresno 2010 Urban Water Management Plan Update

Dear Mr. Bakman:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), 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 2010 UWMP. The City's last UWMP was adopted in August 2008.

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Sincerely,

Martin Wendels
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July 26, 2012

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

Subject: Notice of Preparation for City of Fresno 2010 Urban Water Management Plan Update

Dear Ms. Koehn:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), 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 2010 UWMP. The City's last UWMP was adopted in August 2008.

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Sincerely,

Martin Wendels
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July 26, 2012

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

Subject: Notice of Preparation for City of Fresno 2010 Urban Water Management Plan Update

Dear Mr. Weaver:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), 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 2010 UWMP. The City's last UWMP was adopted in August 2008.

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Martin Wendels
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July 26, 2012

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

Subject: Notice of Preparation for City of Fresno 2010 Urban Water Management Plan Update

Dear Mr. Serrato:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), 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 2010 UWMP. The City's last UWMP was adopted in August 2008.

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July 26, 2012

Bob Van Wyk
Fresno Metrpolitain Flood Control District
5469 East Olive Ave, Fresno, CA 93727

Subject: Notice of Preparation for City of Fresno 2010 Urban Water Management Plan Update

Dear Mr. Van Wyk:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), 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 2010 UWMP. The City's last UWMP was adopted in August 2008.

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Martin Wendels
Project Manager

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July 26, 2012

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

Subject: Notice of Preparation for City of Fresno 2010 Urban Water Management Plan Update

Dear Mr. Franklin:

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), 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 2010 UWMP. The City's last UWMP was adopted in August 2008.

The City is currently reviewing their previous UWMP and other available water supply planning documents in preparation for the 2010 UWMP update. We invite your agency's participation in this update process. A draft of the updated 2010 UWMP will be made available for public review, and a public hearing will be scheduled in late 2012 to hear public comments, and discuss and consider adoption of the 2010 UWMP.

In the meantime, if you would like more information regarding the City of Fresno 2010 UWMP Update, please contact Mr. Martin Wendels at:

City of Fresno
Department of Public Utilities, Water Division
1910 East University Avenue
Fresno, CA 93703
Phone: (559) 621-5315
Fax: (559) 457-1182
E-Mail: martin.wendels@fresno.gov

Sincerely,

Martin Wendels
Project Manager

Notice of Availability of Draft UWMP and Public Hearing
(dated October 23, 2012)

City of
FRESNO
Department of Public Utilities

Water Division
1910 East University Avenue
Fresno, California 93703-2927
559-621-5300 – FAX 559-488-1024
www.fresno.gov

Providing Life's Essential Services

October 23, 2012

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

Subject: Review of Draft for City of Fresno 2010 Urban Water Management Plan Update

Dear Paul Woodworth,

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), 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 2010 UWMP. The City's last UWMP was adopted in August 2008.

The City has completed its draft 2010 UWMP update and has scheduled a public hearing for the review of the updated UWMP on Thursday, November 8, 2012 at 10:15am at the City Council Chambers at the City of Fresno City Hall located at 2600 Fresno Street. It is anticipated that the draft 2010 UWMP will be formally adopted that day as well.

At this time we invite your agency to review the draft 2010 UWMP located at http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/importantdocuments.htm and forward your comments to me no later than end of day Wednesday, November 7, 2012 at:

City of Fresno
Department of Public Utilities, Water Division
1910 East University Avenue
Fresno, CA 93703

Phone: (559) 621-5315
Fax: (559) 457-1182
E-Mail: martin.wendels@fresno.gov

Sincerely,

Martin Wendels
Project Manager

City of
FRESNO
Department of Public Utilities

Water Division
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559-621-5300 – FAX 559-488-1024
www.fresno.gov

Providing Life's Essential Services

October 23, 2012

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

Subject: Review of Draft for City of Fresno 2010 Urban Water Management Plan Update

Dear Russ Holcomb,

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), 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 2010 UWMP. The City's last UWMP was adopted in August 2008.

The City has completed its draft 2010 UWMP update and has scheduled a public hearing for the review of the updated UWMP on Thursday, November 8, 2012 at 10:15am at the City Council Chambers at the City of Fresno City Hall located at 2600 Fresno Street. It is anticipated that the draft 2010 UWMP will be formally adopted that day as well.

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E-Mail: martin.wendels@fresno.gov

Sincerely,

Martin Wendels
Project Manager

City of
FRESNO
Department of Public Utilities

Water Division
1910 East University Avenue
Fresno, California 93703-2927
559-621-5300 – FAX 559-488-1024
www.fresno.gov

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October 23, 2012

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

Subject: Review of Draft for City of Fresno 2010 Urban Water Management Plan Update

Dear Tim Bakman,

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), 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 2010 UWMP. The City's last UWMP was adopted in August 2008.

The City has completed its draft 2010 UWMP update and has scheduled a public hearing for the review of the updated UWMP on Thursday, November 8, 2012 at 10:15am at the City Council Chambers at the City of Fresno City Hall located at 2600 Fresno Street. It is anticipated that the draft 2010 UWMP will be formally adopted that day as well.

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1910 East University Avenue
Fresno, CA 93703

Phone: (559) 621-5315
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E-Mail: martin.wendels@fresno.gov

Sincerely,

Martin Wendels
Project Manager

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Department of Public Utilities

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October 23, 2012

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

Subject: Review of Draft for City of Fresno 2010 Urban Water Management Plan Update

Dear Lisa Koehn,

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), 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 2010 UWMP. The City's last UWMP was adopted in August 2008.

The City has completed its draft 2010 UWMP update and has scheduled a public hearing for the review of the updated UWMP on Thursday, November 8, 2012 at 10:15am at the City Council Chambers at the City of Fresno City Hall located at 2600 Fresno Street. It is anticipated that the draft 2010 UWMP will be formally adopted that day as well.

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1910 East University Avenue
Fresno, CA 93703

Phone: (559) 621-5315
Fax: (559) 457-1182
E-Mail: martin.wendels@fresno.gov

Sincerely,

Martin Wendels
Project Manager

City of
FRESNO
Department of Public Utilities

Water Division
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Fresno, California 93703-2927
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www.fresno.gov

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October 23, 2012

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

Subject: Review of Draft for City of Fresno 2010 Urban Water Management Plan Update

Dear Alan Weaver,

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), 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 2010 UWMP. The City's last UWMP was adopted in August 2008.

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1910 East University Avenue
Fresno, CA 93703

Phone: (559) 621-5315
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Sincerely,

Martin Wendels
Project Manager

City of
FRESNO
Department of Public Utilities

Water Division
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www.fresno.gov

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October 23, 2012

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

Subject: Review of Draft for City of Fresno 2010 Urban Water Management Plan Update

Dear Gary Serrato,

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), 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 2010 UWMP. The City's last UWMP was adopted in August 2008.

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Fresno, CA 93703

Phone: (559) 621-5315
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Sincerely,

Martin Wendels
Project Manager

City of
FRESNO
Department of Public Utilities

Water Division
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Fresno, California 93703-2927
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www.fresno.gov

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October 23, 2012

Bob Van Wyk
Fresno Metrpolitain Flood Control District
5469 East Olive Ave, Fresno, CA 93727

Subject: Review of Draft for City of Fresno 2010 Urban Water Management Plan Update

Dear Bob Van Wyk,

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), 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 2010 UWMP. The City's last UWMP was adopted in August 2008.

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City of Fresno
Department of Public Utilities, Water Division
1910 East University Avenue
Fresno, CA 93703

Phone: (559) 621-5315
Fax: (559) 457-1182
E-Mail: martin.wendels@fresno.gov

Sincerely,

Martin Wendels
Project Manager

City of
FRESNO
Department of Public Utilities

Water Division
1910 East University Avenue
Fresno, California 93703-2927
559-621-5300 – FAX 559-488-1024
www.fresno.gov

Providing Life's Essential Services

October 23, 2012

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

Subject: Review of Draft for City of Fresno 2010 Urban Water Management Plan Update

Dear Jason Franklin,

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), 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 2010 UWMP. The City's last UWMP was adopted in August 2008.

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Department of Public Utilities, Water Division
1910 East University Avenue
Fresno, CA 93703

Phone: (559) 621-5315
Fax: (559) 457-1182
E-Mail: martin.wendels@fresno.gov

Sincerely,

Martin Wendels
Project Manager

City of
FRESNO
Department of Public Utilities

Water Division
1910 East University Avenue
Fresno, California 93703-2927
559-621-5300 – FAX 559-488-1024
www.fresno.gov

Providing Life's Essential Services

October 23, 2012

Ronald Jacobsma
Friant Water Authority
4969 E. McKinley Ave, Ste 201, Fresno, CA 93727

Subject: Review of Draft for City of Fresno 2010 Urban Water Management Plan Update

Dear Ronald Jacobsma,

In accordance with the Urban Water Management Planning Act (California Water Code Sections 10610 to 10657), 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 2010 UWMP. The City's last UWMP was adopted in August 2008.

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City of Fresno
Department of Public Utilities, Water Division
1910 East University Avenue
Fresno, CA 93703

Phone: (559) 621-5315
Fax: (559) 457-1182
E-Mail: martin.wendels@fresno.gov

Sincerely,

Martin Wendels
Project Manager

Notice of Public Hearing as published in The Fresno Bee
(October 24, 2012 and October 31, 2012)

Account: 6218507CIT Class: 894 Last user: APACHECO
Ad Start: 10/24/12 Ad Stop: 10/31/12 Total Cost: $717.36 Run Days: wed Page 1 Black

PUBLIC NOTICE

#45136
NOTICE OF PUBLIC HEARING
CITY OF FRESNO
URBAN WATER MANAGEMENT PLAN

The City of Fresno (City) will hold a public hearing at 10:15 a.m. on Thursday, November 8, 2012 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 Urban Water Management Plan (UWMP) dated October 2012. The Draft UWMP addresses current and projected water supply availability and reliability and provides a comparison with current and projected water demands through the year 2035. The Draft UWMP also describes the City's current and planned water conservation programs, compliance with the Water Conservation Act of 2009, 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 UWMP at the public hearing. A copy of the Draft UWMP can be found at City Hall (2600 Fresno Street), the City of Fresno Public Utilities Department Water Division office (1910 East University Avenue), and the Fresno County Public Library (2420 Mariposa Street). A copy of the Draft UWMP is also on the Public Utilities-Water Division page of the City of Fresno website. Click on Important Documents atwww.fresno.gov/water. Comments may be submitted by calling the Water Division at (559)621-5315, or by writing to Mr. Martin Wendels, Project Manager, City of Fresno Water Division, 1910 East University Avenue, Fresno, CA 93703. All comments must be received by no later than November 7, 2012.

Fresno Bee
Notice of Public Hearing
October 24, 2012 & October 31, 2012

November 8, 2012 Staff Report for UMWP Public Hearing

City of FRESNO **REPORT TO THE CITY COUNCIL**

AGENDA ITEM NO.	10:15am
COUNCIL MEETING	11/08/12
APPROVED BY	
DEPARTMENT DIRECTOR	
CITY MANAGER	

November 8, 2012

FROM: PATRICK N. WIEMILLER, Director
Department of Public Utilities

BY: MARTIN A. QUERIN, PE, Assistant Director
Department of Public Utilities – Water Division For

SUBJECT: PUBLIC HEARING TO DISCUSS AND CONSIDER ADOPTION OF THE UPDATED 2010 URBAN WATER MANAGEMENT PLAN AS PER THE URBAN WATER MANAGEMENT PLANNING ACT AND RESOLUTION ADOPTING UPDATED 2010 URBAN WATER MANAGEMENT PLAN

RECOMMENDATION

Staff recommends that City Council:

Adopt a Resolution accepting and adopting the City's Updated 2010 Urban Water Management Plan (2010 UWMP).

EXECUTIVE SUMMARY

The City of Fresno (City) currently has over 130,000 active service connections and provided 147,052 acre-feet of potable water to customers in 2010. Therefore, the City is required to comply with the requirements of the Urban Water Management Planning Act, which was originally established by Assembly Bill 797 (AB797) on September 21, 1983.

Adoption of an Urban Water Management Plan is required every five years by the Urban Water Management Planning Act for urban retail water suppliers that "directly provide potable municipal water to more than 3,000 end users or that supply more than 3,000 acre-feet of potable water annually at retail for municipal purposes". The proposed Updated 2010 Urban Water Management Plan complies with requirements of the Water Conservation Act of 2009 (Senate Bill x7-7) and the Urban Water Management Planning Act.

BACKGROUND

In November 2011, the City entered into an agreement with West Yost Associates to develop the City's 2010 UWMP. Urban Water Management Plans (UWMP) are required to be updated and submitted to the State Department of Water Resources (DWR) every five years under the Urban Water Management Planning Act (UWMPA). In November 2009, Senate Bill x7-7 (SBx7-7), the Water Conservation Act of 2009, was signed into law as part of a comprehensive water legislation package. The Water Conservation Act addresses both urban and agricultural water conservation and sets a goal of achieving a 20 percent statewide reduction in urban per capita water use by the year 2020 (i.e., "20 by 2020"), and directs urban retail water suppliers to establish an "interim" per capita water use target to be met by 2015 and a "final" per capita water use target to be met by 2020. In January 2012, West Yost Associates developed a Technical Memorandum which established the base per-capita water usage for the City water system and compared per-capita water use targets based on

the four methodologies developed by the DWR. On March 29, 2012 City Council held a Public Hearing to consider approval of the Methodology Consumption Calculation for determining urban water use targets and subsequently adopted the per-capita water use targets per the West Yost Technical Memorandum. The adopted per capita water use targets have been used to project future water demands in the City's updated 2010 UWMP.

In order to fulfill the objectives of the 2025 General Plan and retain a long-term sustainable water supply the City must fund and implement the fourteen Demand Management Measures set forth in the UWMP. Additionally, in order to balance groundwater usage and fulfill the objectives of the 2025 General Plan the City must significantly expand and/or construct surface water treatment facilities, groundwater recharge facilities, a recycled water system and water conservation efforts. In the event that conditions warrant, the City is prepared to implement mandatory prohibitions and water use restrictions as described in the Water Shortage Contingency Plan, a component of the UWMP.

The Draft 2010 UWMP was and is available to the public and stakeholders for review and comment. A copy of the Draft 2010 UWMP was placed at the City Clerk's Office at City Hall (2600 Fresno Street), City of Fresno Public Utilities Department Water Division Office (1910 East University Ave.) and the Fresno County Library (2420 Mariposa Street). Additionally, the Draft 2010 UWMP was accessible on the City of Fresno website. Required legal postings were made on October 24, 2012 and October 31, 2012 respectively.

With the completion of the Updated 2010 UWMP water supply and demand projections are provided in five-year increments to the year 2035 to provide for a 20+ year planning horizon. Completion of the UWMP fulfills compliance with the UWMPA and enables the City to be eligible for State Water Management grants or loans.

The adopted Updated 2010 UWMP will be submitted to DWR and the California State Library. Copies of the Updated 2010 UWMP will be provided to Fresno County and other stakeholders, and will be made available for public review at City offices and on the City's website.

ENVIRONMENTAL FINDING

Per Section 10652 of the California Water Code, the California Environmental Quality Act (CEQA) does not apply to the preparation and adoption of UWMPs or the implementation of potential actions included in the Water Shortage Contingency Plan (per Section 10632 of the California Water Code).

FISCAL IMPACT

Long-term fiscal impacts from the reduction of water consumption will be factored into future rate structuring. The impact of the adoption of the SBx7-7 per-capita water use targets is expected to be a decrease in the per-capita water consumption. Consultant agreement is funded.

Attachment: Resolution

*** UWMP may be found at:
http://www.fresno.gov/Government/DepartmentDirectory/PublicUtilities/Watermanagement/importantdocuments.htm

RESOLUTION NO._____

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

RECITALS

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 August 19, 2008; 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 20-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 water usage (eliminate overdraft) by 2025, and if successful, will constitute a customer-wide reduction of water usage by 20%; and

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, installation of water meters and expansion of the existing water conservation program; and

WHEREAS, the City Council on March 29, 2012, adopted interim (2015) and final (2020) 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

Date Adopted:
Date Approved:
Effective Date:
City Attorney Approval: S.C.

WHEREAS, the City of Fresno water customers currently, as of 2010, use approximately 260 gallons of water per person per day and through the implementation of fourteen Demand Management Measures, it is expected that the water usage will be reduced to approximately 243 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, etc., as required by Water Code Section 10641; and

WHEREAS, prior to the public hearing the City made the draft UWMP available for public inspection and placed copies for public review at the City of Fresno Department of Public Utilities 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 October 24, 2012 and October 31, 2012, respectively, the City published notices in The Fresno Bee that on November 8, 2012 at 10:15 a.m. a public hearing regarding the draft UWMP would be held in Council Chambers at which public comment on the plan would be received. Additionally notices of the date and time of the public hearing were sent to the County of Fresno and other stakeholders as required by Water Code Section 10642; and

WHEREAS, on November 8, 2012 at 10:15 a.m. the public hearing was conducted in Council Chambers at which the public was provided the opportunity to comment on the 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 2010 Urban Water Management Plan.

2. The City Manager is hereby authorized and directed to file the City of Fresno 2010 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.

* * * * * * * * * * * * * * *

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

I, YVONNE SPENCE, 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 _____ day of _____, 2012.

AYES :
NOES :
ABSENT :
ABSTAIN :

Mayor Approval: _____, 2012
Mayor Approval/No Return: _____, 2012
Mayor Veto: _____, 2012
Council Override Vote: _____, 2012

YVONNE SPENCE, CMC
City Clerk

BY:_____
Deputy

APPROVED AS TO FORM:
JAMES C. SANCHEZ
CITY ATTORNEY

BY:_____
Deputy Date

atty:secty[doc name/disk] REV. 05-01-12

APPENDIX C

City Council Resolution Adopting the 2010 UWMP

RESOLUTION NO. 2012-214

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

RECITALS

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WHEREAS, the City of Fresno water customers currently, as of 2010, use approximately

260 gallons of water per person per day and through the implementation of fourteen Demand Management Measures, it is expected that the water usage will be reduced to approximately 243 gpcd by the year 2020; and

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WHEREAS, on October 24, 2012 and October 31, 2012, respectively, the City published notices in The Fresno Bee that on November 8, 2012 at 10:15 a.m. a public hearing regarding the draft UWMP would be held in Council Chambers at which public comment on the plan would be received. Additionally notices of the date and time of the public hearing were sent to the County of Fresno and other stakeholders as required by Water Code Section 10642; and

WHEREAS, on November 8, 2012 at 10:15 a.m. the public hearing was conducted in Council Chambers at which the public was provided the opportunity to comment on the 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 2010 Urban Water Management Plan.

2. The City Manager is hereby authorized and directed to file the City of Fresno 2010 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.

* * * * * * * * * * * * * * *

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

I, YVONNE SPENCE, 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 29th day of November, 2012.

AYES : Baines, Borgeas, Brand, Quintero, Westerlund, Xiong, Olvier
NOES : None
ABSENT : None
ABSTAIN : None

YVONNE SPENCE, CMC
City Clerk

BY: Yvonne Spence
Deputy

APPROVED AS TO FORM:
FRANCINE M. KANNE
INTERIM CITY ATTORNEY

BY: 12/4/12
Deputy Date

atty:secty[doc name/disk] REV. 05-01-12

APPENDIX D

USBR and FID Water Supply Contracts and Agreements

- USBR Contract
- FID Contract

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

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Exhibit E Restated Contract
Exhibit F Metering Plan

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
FACILITIES REPAYMENT

THIS CONTRACT, made this 22nd day of December, 2010, is entered into pursuant to the Act of June 17, 1902, (32 Stat. 388), and acts amendatory or supplementary thereto, including but not limited to: the Acts of August 26, 1937 (50 Stat. 844), as amended and supplemented, August 4, 1939 (53 Stat. 1187), as amended and supplemented, June 21, 1963 (77 Stat. 68), October 12, 1982 (96 Stat. 1262), October 27, 1986 (100 Stat. 3050), as amended, Title XXXIV of the Act of October 30, 1992 (106 Stat. 4706), and Title X, Subtitle A, of the Act of March 30, 2009 (123 Stat. 1349), also referred to as the San Joaquin River Restoration Settlement Act hereinafter referred to as SJRRSA, all collectively hereinafter referred to as Federal Reclamation law, between THE UNITED STATES OF AMERICA, hereinafter referred to as the United States and the CITY OF FRESNO, hereinafter referred to as the Contractor, a public agency of the State of California, duly organized, existing, and acting pursuant to the laws thereof, with its principal place of business in California;

WITNESSETH, That

EXPLANATORY RECITALS

[1st] WHEREAS, the United States has constructed and is operating the Central Valley Project, California, for diversion, storage, carriage, distribution and beneficial use, for flood

control, irrigation, municipal, domestic, industrial, fish and wildlife mitigation, protection and restoration, generation and distribution of electric energy, salinity control, navigation and other beneficial uses, of waters of the Sacramento River, the American River, the Trinity River, and the San Joaquin River and their tributaries; and

[2nd] WHEREAS, the United States constructed Friant Dam (thereby creating Millerton Lake) and the Friant-Kern and Madera Canals, hereinafter collectively referred to as the Friant Division Facilities, which will be used in part for the furnishing of water to the Contractor pursuant to the terms of this Contract; and

[3rd] WHEREAS, the United States and the Contractor entered into Contract Number 14-06-200-8901 which established terms for the delivery to the Contractor of Project Water from the Friant Division from March 1, 1966 through February 28, 2006; and

[4th] WHEREAS, the Contractor and the United States have, pursuant to subsection 3404(c)(1) of the Central Valley Project Improvement Act (CVPIA), subsequently entered into a Binding Agreement, identified as Binding Agreement No. 14-06-200-8901-BA, which sets out the terms pursuant to which the Contractor agreed to renew the existing contract before its expiration date after completion of the programmatic environmental impact statement, and subsequently entered into a long-term renewal contract identified as Contract Number 14-06-200-8901-LTR1, which provided for continued water service to Contractor through February 28, 2045, and is herein referred to as the "Existing Contract"; and

[5th] WHEREAS, pursuant to Section 8 of the Act of June 17, 1902 (32 Stat. 388), the United States has acquired water rights and other rights to the flows of the San Joaquin River, including without limitation the permits issued as the result of Decision 935 by the California

State Water Resource Control Board and the contracts described in subdivision (n) of Article 3 of this Contract, pursuant to which the Contracting Officer develops, diverts, stores and delivers Project Water stored or flowing through Millerton Lake in accordance with State and Federal law for the benefit of Project Contractors in the Friant Division and for other specified Project purposes; and

[6th] WHEREAS, the water supplied to the Contractor pursuant to this Contract is Project Water developed through the exercise of the rights described in the fifth (5th) Explanatory Recital of this Contract; and

[7th] WHEREAS, as a result of litigation entitled "Natural Resources Defense Council, et al. v Kirk Rogers, et al." No. CIV-S-88-1658LLK/GGH, certain contractors from the Friant Division entered into a Stipulation of Settlement dated September 13, 2006, (the "Settlement"), which settlement prescribes a Restoration Goal and a Water Management Goal and which Settlement was subsequently confirmed and implemented through the SJRRSA; and

[8th] WHEREAS, the SJRRSA authorizes and directs the Secretary to convert the Existing Contract to a repayment contract under clause (1) in the proviso to the first sentence of subsection (c) (hereinafter referred to as subsection (c)(1)) of Section 9 of the Act of August 4, 1939, no later than December 31, 2010, and further directs that such contract shall require the repayment of the Contractor's allocated share of construction costs in lump sum payment by January 31, 2014, which funds will in turn be made available for implementation of the Settlement and SJRRSA, and which costs otherwise would have been payable through annual water rates, with full repayment by 2030; and

[9th] WHEREAS, such repayment of costs will assist the United States with implementation of actions required under the Settlement and the SJRRSA and provide the Contractor the benefits provided in Section 10010 of the SJRRSA; and

[10th] WHEREAS, Section 2 of the Act of June 21, 1963 (1963 Act) provides that if the other party to any long-term contract for municipal, domestic, or industrial water supply so requests, The Secretary shall provide in any contract entered into under subsection (c)(1) of Section 9 of the Act of August 4, 1939 (repayment contract) that such party to the contract "shall, during the term of the contract and any renewal thereof and subject to fulfillment of all obligations thereunder, have a first right for the purposes stated in the contract (to which the holders of any other type of contract for municipal, domestic, or industrial water supply shall be subordinate) to a stated share or quantity of the project's water supply available for municipal, domestic, or industrial use"; and

[11th] Omitted; and

[12th] WHEREAS, the Contractor has demonstrated to the satisfaction of the Contracting Officer that the Contractor has utilized the Project Water supplies available to it for reasonable and beneficial use and/or has demonstrated projected future demand for water use such that the Contractor has the capability and expects to utilize fully for reasonable and beneficial use the quantity of Project Water to be made available to it pursuant to this Contract; and

[13th] WHEREAS, water obtained from the Central Valley Project has been relied upon by urban and agricultural areas within California for more than fifty (50) years and is considered by the Contractor as an essential portion of its water supply; and

[14th] WHEREAS, the economies of regions within the Central Valley Project, including the Contractor's, depend upon the continued availability of water, including water service from the Central Valley Project; and

[15th] WHEREAS, the Secretary intends through coordination, cooperation, and partnerships to pursue measures to improve water supply, water quality, and reliability of the Project for all Project purposes; and

[16th] WHEREAS, the mutual goals of the United States and the Contractor include: to provide for reliable Project Water supplies; to control costs of those supplies; to achieve repayment of the Central Valley Project as required by law; to guard reasonably against Project Water shortages; to achieve a reasonable balance among competing demands for use of Project Water; and to comply with all applicable environmental statutes, all consistent with the legal obligations of the United States relative to the Central Valley Project; and

[17th] WHEREAS, any time during the Year the Contracting Officer determines that a need exists to evacuate water from Millerton Lake in order to prevent or minimize spill or to meet flood control criteria (currently referred to as "uncontrolled season"), taking into consideration, among other things, anticipated upstream reservoir operations and the most probable forecast of snowmelt and runoff projections for the upper San Joaquin River, Friant Division Project Contractors utilize a portion of their undependable Class 2 Water in their service areas to, among other things, assist in the management and alleviation of groundwater overdraft in the Friant Division service area, provide opportunities for restoration of the San Joaquin River below Friant Dam, minimize flooding along the San Joaquin River, encourage optimal water management, and maximize the reasonable and beneficial use of the water; and

[18th] WHEREAS, the parties desire and intend that this Contract not provide a disincentive to the Friant Division Project Contractors continuing to carry out the beneficial activities set out in the Explanatory Recital immediately above; and

[19th] WHEREAS, the United States has determined that the Contractor has fulfilled all of its obligations under the Existing Contract; and

[20th] WHEREAS, this Contract allows the Contractor to retain a sustainable water supply, and provides greater certainty regarding the cost and long-term integrity of its Central Valley Project water supplies.

NOW, THEREFORE, in consideration of the mutual and dependent covenants herein contained, it is hereby mutually agreed by the parties hereto as follows:

DEFINITIONS

1. When used herein, unless otherwise distinctly expressed or manifestly incompatible with the intent of the parties as expressed in this Contract, the term:

(a) "Additional Capital Obligation" shall mean any additional construction costs or other capitalized costs incurred after the effective date of this Contract or not reflected in the Existing Capital Obligation as provided in Section 10010(a)(3)(B) of the SJRRSA and any amounts payable by Contractor as determined through the final adjustment described and required by Section 10010(b) of the SJRRSA;

(b) "Calendar Year" shall mean the period January 1 through December 31, both dates inclusive;

(c) "Charges" shall mean the payments required by Federal Reclamation law in addition to the Rates and Tiered Pricing Components specified in this Contract as determined annually by the Contracting Officer pursuant to this Contract and consistent with the SJRRSA;

(d) "Class 1 Water" shall mean that supply of water stored in or flowing through Millerton Lake which, subject to the contingencies hereinafter described in Articles 3, 12, and 13 of this Contract, will be available for delivery from Millerton Lake and the Friant-Kern and Madera Canals as a dependable water supply during each Year;

(e) "Class 2 Water" shall mean that supply of water which can be made available subject to the contingencies hereinafter described in Articles 3, 12, and 13 of this Contract for delivery from Millerton Lake and the Friant-Kern and Madera Canals in addition to the supply of Class 1 Water. Because of its uncertainty as to availability and time of occurrence, such water will be undependable in character and will be furnished only if, as, and when it can be made available as determined by the Contracting Officer;

(f) "Condition of Shortage" shall mean a condition respecting the Project during any Year such that the Contracting Officer is unable to deliver sufficient water to meet the Contract Total;

(g) "Contracting Officer" shall mean the Secretary of the Interior's duly authorized representative acting pursuant to this Contract or applicable Federal Reclamation law or regulation;

(h) "Contract Total" shall mean the maximum amount of Class 1 Water plus the maximum amount of Class 2 Water specified in subdivision (a) of Article 3 of this Contract and is the stated share or quantity of the Project's available water supply to which the Contractor

shall have a first right, in accordance with the 1963 Act and the terms of this Contract, upon the Contractor's complete payment of the Repayment Obligation, notwithstanding any Additional Capital Obligation that may later be established;

(i) "Contractor's Service Area" shall mean the area to which the Contractor is permitted to provide Project Water under this Contract as described in Exhibit "A" attached hereto, which may be modified from time to time in accordance with Article 36 of this Contract without amendment of this Contract;

(j) "CVPIA" shall mean the Central Valley Project Improvement Act, Title XXXIV of the Act of October 30, 1992 (106 Stat. 4706);

(k) Omitted;

(l) Omitted;

(m) "Existing Capital Obligation" shall mean the remaining amount of construction costs of the Contractor identified in the Central Valley Project Irrigation Water Rates and/or Municipal and Industrial Water Rates, respectively, dated January 25, 2007, as adjusted to reflect payments not reflected in such schedule, pursuant to Section 10010(a)(3)(A) of the SJRRSA. The Contracting Officer has computed the Existing Capital Obligation in a manner consistent with the SJRRSA and such amount is set forth in Exhibits "C-1", incorporated herein by reference;

(n) "Financing Costs", for purposes of computing the reduction of certain charges as specified in subdivision (c) of Article 7 of this Contract, shall mean the difference between the net present value of the Existing Capital Obligation discounted using the full

Treasury rate and the Existing Capital Obligation discounted using one-half the Treasury rate, as set forth in Section 10010(d)(3) of the SJRRA;

(o) "Full Cost Rate" shall mean an annual rate as determined by the Contracting Officer that shall amortize the expenditures for construction properly allocable to the Project irrigation or M&I functions, as appropriate, of facilities in service including all O&M deficits funded, less payments, over such periods as may be required under Federal Reclamation law or applicable contract provisions. Interest will accrue on both the construction expenditures and funded O&M deficits from October 12, 1982, on costs outstanding at that date, or from the date incurred in the case of costs arising subsequent to October 12, 1982, and shall be calculated in accordance with subsections 202(3)(B) and (3)(C) of the RRA. The Full Cost Rate includes actual operation, maintenance, and replacement costs consistent with Section 426.2 of the Rules and Regulations for the RRA;

(p) Omitted;

(q) Omitted;

(r) "Irrigation Water" shall mean water made available from the Project that is used primarily in the production of agricultural crops or livestock, including domestic use incidental thereto, and watering of livestock;

(s) Omitted;

(t) "Long Term Historic Average" shall mean the average of the final forecast of Water Made Available to the Contractor pursuant to this Contract and the contracts referenced 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;

(hh) "Tiered Pricing Component" shall be the incremental amount to be paid for each acre-foot of Water Delivered as described in subdivision (l)(1) of Article 7 of this Contract;

(ii) "Water Delivered" or "Delivered Water" shall mean Project Water diverted for use by the Contractor at the point(s) of delivery approved by the Contracting Officer;

(jj) "Water Made Available" shall mean the estimated amount of Project Water that can be delivered to the Contractor for the upcoming Year as declared by the Contracting Officer, pursuant to subdivision (a) of Article 4 of this Contract;

(kk) "Water Management Goal" shall mean the goal of the Settlement to reduce or avoid adverse water supply impacts to all the Friant Division Project Contractors that may result from the interim flows and restoration flows provided for in the Settlement;

(ll) "Water Scheduled" shall mean Project Water made available to the Contractor for which times and quantities for delivery have been established by the Contractor and Contracting Officer, pursuant to subdivision (b) of Article 4 of this Contract; and

(mm) "Year" shall mean the period from and including March 1 of each Calendar Year through the last day of February of the following Calendar Year.

EFFECTIVE DATE OF CONTRACT

2. (a) This Contract shall become effective on the date first hereinabove written and shall continue so long as the Contractor is making the payment required herein and paying any other amounts owing under this Contract and applicable law, unless it is terminated by the Contracting Officer by reason of a material uncured breach by the Contractor; Provided, That the

Contracting Officer shall not seek to terminate this Contract by reason of an asserted material uncured breach by the Contractor unless it has first provided at least sixty (60) days written notice of the asserted breach to the Contractor and the Contractor has failed to cure such breach (or to diligently commence curative actions satisfactory to the Contracting Officer for a breach that cannot be fully cured within sixty (60) days) within the sixty (60)-day notice period; Provided further, That this Contract may be terminated at any time by mutual consent of the parties hereto.

(b) Upon complete payment of the Repayment Obligation by the Contractor, and notwithstanding any Additional Capital Obligation that may later be established, the Tiered Pricing Component as that term is utilized in this Contract and Full Cost pricing provisions of Federal Reclamation law, and subdivisions (k), (l), (o) through (q), (s), and (v) of Article 1, subdivision (f) of Article 6, subdivisions (a)(2)(A), (l)(1), (l)(2), and (l)(3) of Article 7, Article 14, subdivision (a) of Article 18, and Article 25, all of this Contract, shall no longer be applicable to the Contractor. Upon complete payment of the Repayment Obligation by the Contractor, and notwithstanding any Additional Capital Obligation that may later be established, the terms of this Contract shall be as provided in the restated contract attached hereto as Exhibit "E", which has been prepared solely as a matter of administrative convenience. Exhibit "E" makes no substantive revisions other than those required by this subdivision of this Article of this Contract. Accordingly, upon complete payment of the Repayment Obligation by the Contractor, and notwithstanding any Additional Capital Obligation that may later be established, the parties shall refer to Exhibit "E" as their entire agreement under this Contract.

(c) This Contract supersedes in its entirety and is intended to replace in full the Existing Contract; Provided, That if this Contract is terminated or determined to be invalid or unenforceable for any reason other than a material uncured breach of this Contract by the Contractor, the Existing Contract shall not be superseded and shall be in full force and effect.

WATER TO BE MADE AVAILABLE AND DELIVERED TO THE CONTRACTOR

3. (a) During each Year, consistent with all applicable State water rights, permits, and licenses, Federal law, the Settlement including the SJRRSA, and subject to the provisions set forth in Articles 12 and 13 of this Contract, the Contracting Officer shall make available for delivery to the Contractor from the Project 60,000 acre-feet of Class 1 Water for M&I purposes. The quantity of Water Delivered to the Contractor in accordance with this subdivision shall be scheduled and paid for pursuant to the provisions of Articles 4 and 7 of this Contract.

(b) Upon complete payment of the Repayment Obligation by the Contractor, and notwithstanding any Additional Capital Obligation that may later be established, the Contractor shall have a first right to a stated share or quantity of the Project's water supply available for M&I uses in accordance with the 1963 Act and the terms of this Contract which right shall not be disturbed so long as the Contractor fulfills all of its obligations hereunder. The quantity of water made available for delivery in any given Year shall remain subject to the terms and conditions of subdivision (a) of this Article of this Contract.

(c) The Contractor shall utilize the Project Water in accordance with all 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

Contractor's legal authority to implement. The Existing Contract, which evidences in excess of 44 years of diversions for M&I purposes of the quantities of water provided in subdivisions (a) of Article 3 of this Contract, will be considered in developing an appropriate baseline for the biological assessment(s) prepared pursuant to the ESA, and any other needed environmental review. The Contractor shall comply with the limitations or requirements imposed by environmental documentation applicable to the Contractor and within its legal authority to implement regarding specific activities. Nothing herein shall be construed to prevent the Contractor from challenging or seeking judicial relief in a court of competent jurisdiction with respect to any biological opinion or other environmental documentation referred to in this Article of this Contract.

(f) Subject to subdivisions (l) and (n) of this Article of this Contract, following the declaration of Water Made Available under Article 4 of this Contract, the Contracting Officer will make a determination whether Project Water, or other water available to the Project, can be made available to the Contractor in addition to the Contract Total in this Article of this Contract during the Year without adversely impacting the Project or other Project Contractors and consistent with the Secretary's legal obligations. At the request of the Contractor, the Contracting Officer will consult with the Contractor prior to making such a determination. Subject to subdivisions (l) and (n) of this Article of this Contract, if the Contracting Officer determines that Project Water, or other water available to the Project, can be made available to the Contractor, the Contracting Officer will announce the availability of such water and shall so notify the Contractor as soon as practical. The Contracting Officer will 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

provide the water available under this Contract. The Contracting Officer shall not object to participation by the Contractor, in the capacity and to the extent permitted by law, in administrative proceedings related to the water rights and other rights described in the fifth (5th) Explanatory Recital of this Contract; Provided however, That the Contracting Officer retains the right to object to the substance of the Contractor's position in such a proceeding. Provided further, that in such proceedings the Contracting Officer shall recognize the Contractor has a legal right under the terms of this Contract to use Project Water.

(k) Project Water furnished to the Contractor during any month designated in a schedule or revised schedule submitted by the Contractor and approved by the Contracting Officer shall be deemed to have been accepted by the Contractor as Class 1 Water to the extent that Class 1 Water is called for in such schedule for such month and shall be deemed to have been accepted as Class 2 Water to the extent Class 2 Water is called for in such schedule for such month. If in any month the Contractor diverts a quantity of water in addition to the total amount of Class 1 Water and Class 2 Water set forth in the Contractor's approved schedule or revised schedule for such month, such additional diversions shall be charged first against the Contractor's remaining Class 2 Water supply available in the current Year. To the extent the Contractor's remaining Class 2 Water supply available in the current Year is not sufficient to account for such additional diversions, such additional diversions shall be charged against the Contractor's remaining Class 1 Water supply available in the current Year. To the extent the Contractor's remaining Class 1 Water and Class 2 Water supplies available in the current Year are not sufficient to account for such additional diversions, such additional diversions shall be charged first against the Contractor's available Class 2 Water supply and then against the

Contractor's available Class 1 Water supply, both for the following Year. Payment for all additional diversions of water shall be made in accordance with Article 7 of this Contract.

(l) If the Contracting Officer determines there is a Project Water supply available at Friant Dam as the result of an unusually large water supply not otherwise storable for Project purposes or infrequent and otherwise unmanaged flood flows of short duration, such water will be made available to the Contractor and others under Section 215 of the Act of October 12, 1982, pursuant to the priorities specified below if the Contractor enters into a temporary contract with the United States not to exceed one (1) year for the delivery of such water or as otherwise provided for in Federal Reclamation law and associated regulations. Such water may be identified by the Contractor either (i) as additional water to supplement the supply of Class 1 Water and/or Class 2 Water made available to it pursuant to this Contract or, (ii) upon written notification to the Contracting Officer, as water to be credited against the Contractor's Class 2 Water supply available pursuant to this Contract. The Contracting Officer shall make water determined to be available pursuant to this subsection according to the following priorities: first, to contractors for Class 1 Water and/or Class 2 Water within the Friant Division; second, to contractors in the Cross Valley Division of the Project. The Contracting Officer will consider requests from other parties for Section 215 Water for use within the area identified as the Friant Division service area in the environmental assessment developed in connection with the execution of the Existing Contract.

(m) Nothing in this Contract, nor any action or inaction of the Contractor or Contracting Officer in connection with the implementation of this Contract, is intended to

override, modify, supersede or otherwise interfere with any term or condition of the water rights and other rights referred in the fifth (5th) Explanatory Recital of this Contract.

(n) The rights of the Contractor under this Contract are subject to the terms of the contract for exchange waters, dated July 27, 1939, between the United States and the San Joaquin and Kings River Canal and Irrigation Company, Incorporated, et al., (hereinafter referred to as the Exchange Contractors), Contract No. I1r-1144, as amended. The United States agrees that it will not deliver to the Exchange Contractors thereunder waters of the San Joaquin River unless and until required by the terms of said contract, and the United States further agrees that it will not voluntarily and knowingly determine itself unable to deliver to the Exchange Contractors entitled thereto from water that is available or that may become available to it from the Sacramento River and its tributaries or the Sacramento-San Joaquin Delta those quantities required to satisfy the obligations of the United States under said Exchange Contract and under Schedule 2 of the Contract for Purchase of Miller and Lux Water Rights (Contract I1r-1145, dated July 27, 1939).

(o) Pursuant to and consistent with section 10004 of SJRRSA and Paragraph 16 of the Settlement, the Contracting Officer is required to develop and implement a plan for recirculation, recapture, reuse, exchange or transfer of water released for restoration flows or interim flows, as those terms are defined in the Settlement, to reduce or avoid impacts to water deliveries caused by said restoration flows or interim flows and water developed through such activities may be made available (i) to the Contractor without the need of an additional contract, and/or (ii) to others on behalf of the Contractor under terms mutually acceptable to the Contractor and the Contracting Officer that are consistent with the Water Management Goal.

TIME FOR DELIVERY OF WATER

4. (a) On or about February 20 of each Calendar Year, the Contracting Officer shall announce the Contracting Officer's initial declaration of the Water Made Available. The declaration will be updated monthly and more frequently if necessary, based on then-current operational and hydrologic conditions and a new declaration with changes, if any, to the Water Made Available will be made. The Contracting Officer shall provide forecasts of Project operations and the basis of the estimate, with relevant supporting information, upon the written request of the Contractor. Concurrently with the declaration of the Water Made Available, the Contracting Officer shall provide the Contractor with the updated Long Term Historic Average. The declaration of Project operations will be expressed in terms of both Water Made Available and the Long Term Historic Average.

(b) On or before each March 1 and at such other times as necessary, the Contractor shall submit to the Contracting Officer a written schedule, satisfactory to the Contracting Officer, showing the monthly quantities of Project Water to be delivered by the United States to the Contractor pursuant to this Contract for the Year commencing on such March 1. The Contracting Officer shall use all reasonable means to deliver Project Water according to the approved schedule for the Year commencing on such March 1.

(c) The Contractor shall not schedule Project Water in excess of the quantity of Project Water the Contractor intends to put to reasonable and beneficial use within the Contractor's Service Area, or to sell, transfer or exchange pursuant to Article 10 of this Contract or bank pursuant to subdivision (d) of Article 3 of this Contract during any Year.

(d) Subject to the conditions set forth in subdivision (a) of Article 3 of this Contract, the United States shall deliver Project Water to the Contractor in accordance with the initial schedule submitted by the Contractor pursuant to subdivision (b) of this Article, or any written revision(s), satisfactory to the Contracting Officer, thereto submitted within a reasonable time prior to the date(s) on which the requested change(s) is/are to be implemented; Provided, That the total amount of water requested in that schedule or revision does not exceed the quantities announced by the Contracting Officer pursuant to the provisions of subdivision (a) of Article 3 of this Contract, and the Contracting Officer determines that there will be sufficient capacity available in the appropriate Friant Division Facilities to deliver the water in accordance with that schedule; Provided further, That the Contractor shall not schedule the delivery of any water during any period as to which the Contractor is notified by the Contracting Officer or Operating Non-Federal Entity that Project facilities required to make deliveries to the Contractor will not be in operation because of scheduled O&M.

(e) The Contractor may, during the period from and including November 1 of each Year through and including the last day of February of that Year, request delivery of any amount of the Class 1 Water estimated by the Contracting Officer to be made available to it during the following Year. The Contractor may, during the period from and including January 1 of each Year (or such earlier date as may be determined by the Contracting Officer) through and including the last day of February of that Year, request delivery of any amount of Class 2 Water estimated by the Contracting Officer to be made available to it during the following Year. Such water shall hereinafter be referred to as pre-use water. Such request must be submitted in writing by the Contractor for a specified quantity of pre-use and shall be subject to the approval of the

Contracting Officer. Payment for pre-use water so requested shall be at the appropriate Rate(s) for the following Year in accordance with Article 7 of this Contract and shall be made in advance of delivery of any pre-use water. The Contracting Officer shall deliver such pre-use water in accordance with a schedule or any revision thereof submitted by the Contractor and approved by the Contracting Officer, to the extent such water is available and to the extent such deliveries will not interfere with the delivery of Project Water entitlements to other Friant Division contractors or the physical maintenance of the Project facilities. The quantities of pre-use Water Delivered pursuant to this subdivision shall be deducted from the quantities of water that the Contracting Officer would otherwise be obligated to make available to the Contractor during the following Year; Provided, That the quantity of pre-use water to be deducted from the quantities of either Class 1 Water or Class 2 Water to be made available to the Contractor in the following Year shall be specified by the Contractor at the time the pre-use water is requested or as revised in its first schedule for the following Year submitted in accordance with subdivision (b) of this Article of this Contract, based on the availability of the following Year water supplies as determined by the Contracting Officer.

POINT OF DIVERSION AND RESPONSIBILITY FOR DISTRIBUTION OF WATER

5. (a) Project Water scheduled pursuant to subdivision (b) of Article 4 of this Contract shall be delivered to the Contractor at a point or points of delivery either on Project facilities or another location or locations mutually agreed to in writing by the Contracting Officer and the Contractor.

(b) The Contracting Officer, the Operating Non-Federal Entity, or other appropriate entity shall make all reasonable efforts to maintain sufficient flows and levels of

water in the Friant-Kern Canal to deliver Project Water to the Contractor at specific turnouts established pursuant to subdivision (a) of this Article of this Contract.

(c) The Contractor shall not deliver Project Water to land outside the Contractor's Service Area unless approved in advance by the Contracting Officer. Until complete payment of the Repayment Obligation by the Contractor, and notwithstanding any Additional Capital Obligation that may later be established, the Contractor shall deliver Project Water in accordance with applicable Full Cost pricing provisions of Federal Reclamation law.

(d) All Water Delivered to the Contractor pursuant to this Contract shall be measured and recorded with equipment furnished, installed, operated, and maintained by the United States, the Operating Non-Federal Entity or other appropriate entity as designated by the Contracting Officer (hereafter "other appropriate entity") at the point or points of delivery established pursuant to subdivision (a) of this Article of this Contract. Upon the request of either party to this Contract, the Contracting Officer shall investigate, or cause to be investigated by the responsible Operating Non-Federal Entity, the accuracy of such measurements and shall take any necessary steps to adjust any errors appearing therein. For any period of time when accurate measurements have not been made, the Contracting Officer shall consult with the Contractor and the responsible Operating Non-Federal Entity prior to making a final determination of the quantity delivered for that period of time.

(e) Neither the Contracting Officer nor any Operating Non-Federal Entity shall be responsible for the control, carriage, handling, use, disposal, or distribution of Project Water Delivered to the Contractor pursuant to this Contract beyond the delivery points specified in subdivision (a) of this Article of this Contract. The Contractor shall indemnify the United

States, its officers, employees, agents, and assigns on account of damage or claim of damage of any nature whatsoever for which there is legal responsibility, including property damage, personal injury, or death arising out of or connected with the control, carriage, handling, use, disposal, or distribution of such Project Water beyond such delivery points, except for any damage or claim arising out of: (i) acts or omissions of the Contracting Officer or any of its officers, employees, agents, or assigns, including any responsible Operating Non-Federal Entity, with the intent of creating the situation resulting in any damage or claim; (ii) willful misconduct of the Contracting Officer or any of its officers, employees, agents, or assigns, including any responsible Operating Non-Federal Entity; (iii) negligence of the Contracting Officer or any of its officers, employees, agents, or assigns including any responsible Operating Non-Federal Entity; or (iv) damage or claims resulting from a malfunction of facilities owned and/or operated by the United States or responsible Operating Non-Federal Entity; Provided, That the Contractor is not the Operating Non-Federal Entity that owned or operated the malfunctioning facility(ies) from which the damage claim arose.

MEASUREMENT OF WATER WITHIN THE SERVICE AREA

6. (a) The Contractor has established a measurement program satisfactory to the Contracting Officer and all surface water delivered for M&I purposes within the Contractor's Service Area is measured at each M&I service connection. The water measuring devices or water measuring methods of comparable effectiveness must be acceptable to the Contracting Officer. The Contractor shall be responsible for installing, operating, and maintaining and repairing all such measuring devices and implementing all such water measuring methods at no cost to the United States. The Contracting Officer acknowledges that the Contractor has a

metering plan (Exhibit "F") setting forth the milestones and schedule that the Contractor will implement to comply with the requirements of this Article. The Contractor shall provide an annual written report to the Contracting Officer describing the Contractor's metering plan implementation progress. The Contractor shall use the information obtained from such water measuring devices or water measuring methods to ensure its proper management of the water, to bill water users for water delivered by the Contractor; and, if applicable, to record water delivered for M&I purposes by customer class as defined in the Contractor's water conservation plan provided for in Article 27 of this Contract. Nothing herein contained, however, shall preclude the Contractor from establishing and collecting any charges, assessments, or other revenues authorized by California law.

(b) To the extent the information has not otherwise been provided, upon execution of this Contract, the Contractor shall provide to the Contracting Officer a written report describing the measurement devices or water measuring methods being used or to be used to implement subdivision (a) of this Article of this Contract and identifying the M&I service connections or alternative measurement programs approved by the Contracting Officer, at which such measurement devices or water measuring methods are being used, and, if applicable, identifying the locations at which such devices and/or methods are not yet being used including a time schedule for implementation at such locations. The Contracting Officer shall advise the Contractor in writing within sixty (60) days as to the adequacy of, and necessary modifications, if any, of the measuring devices or water measuring methods identified in the Contractor's report and if the Contracting Officer does not respond in such time, they shall be deemed adequate. If the Contracting Officer notifies the Contractor that the measuring devices or methods are

inadequate, the parties shall within sixty (60) days following the Contracting Officer's response, negotiate in good faith the earliest practicable date by which the Contractor shall modify said measuring devices and/or measuring methods as required by the Contracting Officer to ensure compliance with subdivision (a) of this Article of this Contract.

(c) All new surface water delivery systems installed within the Contractor's Service Area after the effective date of this Contract shall also comply with the measurement provisions described in subdivision (a) of this Article of this Contract.

(d) The Contractor shall inform the Contracting Officer and the State of California in writing by April 30 of each Year of the monthly volume of surface water delivered within the Contractor's Service Area during the previous Year.

(e) The Contractor shall inform the Contracting Officer and the Operating Non-Federal Entity on or before the twentieth (20th) calendar day of each month of the quantity of M&I Water taken during the preceding month.

(f) In the event the provisions of subdivision (a) of this Article that relate to metering are challenged in a judicial proceeding, the parties agree to meet and confer promptly and as often as necessary to employ their reasonable best efforts to coordinate a response to the challenge and, as appropriate, develop revisions to this Contract.

RATES, METHOD OF PAYMENT FOR WATER, AND ACCELERATED REPAYMENT OF FACILITIES

7. (a) The Contractor's cost obligations for all Delivered Water shall be determined in accordance with: (i) the Secretary's ratesetting policy for Irrigation Water adopted 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

Contractor shall make an advance payment to the United States equal to the total amount payable pursuant to the applicable Rate(s) set under subdivision (a) of this Article of this Contract, for the Project Water scheduled to be delivered pursuant to this Contract during the first two (2) calendar months of the Year. Before the end of the first month and before the end of each calendar month thereafter, the Contractor shall make an advance payment to the United States, at the Rate(s) set under subdivision (a) of this Article of this Contract, for the Water Scheduled to be delivered pursuant to this Contract during the second month immediately following. Adjustments between advance payments for Water Scheduled and payments at Rates due for Water Delivered shall be made before the end of the following month; Provided, That any revised schedule submitted by the Contractor pursuant to Article 4 of this Contract which increases the amount of Water Delivered pursuant to this Contract during any month shall be accompanied with appropriate advance payment, at the Rates then in effect, to assure that Project Water is not delivered to the Contractor in advance of such payment. In any month in which the quantity of Water Delivered to the Contractor pursuant to this Contract equals the quantity of Water Scheduled and paid for by the Contractor, no additional Project Water shall be delivered to the Contractor unless and until an advance payment at the Rates then in effect for such additional Project Water is made. Final adjustment between the advance payments for the Water Scheduled and payments for the quantities of Water Delivered during each Year pursuant to this Contract shall be made as soon as practicable but no later than April 30th of the following Year, or sixty (60) days after the delivery of Project Water carried over under subdivision (g) of Article 3 of this Contract if such water is not delivered by the last day of February.

(f) The Contractor shall also make a payment in addition to the Rate(s) in subdivision (e) of this Article of this Contract to the United States for Water Delivered, at the Charges and the appropriate Tiered Pricing Component then in effect, before the end of the month following the month of delivery; Provided, That the Contractor may be granted an exception from the Tiered Pricing Component pursuant to subdivision (l)(2) of this Article of this Contract. The payments shall be consistent with the quantities of Irrigation Water and M&I Water Delivered as shown in the water delivery report for the subject month prepared by the Contracting Officer. Such water delivery report shall be the basis for payment of Charges and Tiered Pricing Components by the Contractor, and shall be provided to the Contractor by the Contracting Officer (as applicable) within five (5) days after the end of the month of delivery. The water delivery report shall be deemed a bill basis for payment of Charges and the applicable Tiered Pricing Component for Water Delivered. Adjustment for overpayment or underpayment of Charges shall be made through the adjustment of payments due to the United States for Charges for the next month. Any amount to be paid for past due payment of Charges shall be computed pursuant to Article 21 of this Contract.

(g) The Contractor shall pay for any Water Delivered under subdivision (d), (f), or (g) of Article 3 of this Contract as determined by the Contracting Officer pursuant to applicable statutes, associated regulations, any applicable provisions of guidelines or ratesetting policies; Provided, That the Rate for Water Delivered under subdivision (d) of Article 3 of this Contract shall be no more than the otherwise applicable Rate for Irrigation Water or M&I Water under subdivision (a) of this Article of this Contract.

(h) Payments to be made by the Contractor to the United States under this Contract may be paid from any revenues available to the Contractor.

(i) All revenues received by the United States from the Contractor relating to the delivery of Project Water or the delivery of non-project water through Project facilities shall be allocated and applied in accordance with Federal Reclamation law and the associated rules or regulations, the then-existing Project Ratesetting policies for M&I Water and consistent with the SJRRSA.

(j) The Contracting Officer shall keep its accounts, pertaining to the administration of the financial terms and conditions of its long-term contracts, in accordance with applicable Federal standards so as to reflect the application of Project costs and revenues. The Contracting Officer shall, each Year upon request of the Contractor, provide to the Contractor a detailed accounting of all Project and Contractor expense allocations, the disposition of all Project and Contractor revenues, and a summary of all water delivery information. The Contracting Officer and the Contractor shall enter into good faith negotiations to resolve any discrepancies or disputes relating to accountings, reports, or information.

(k) The parties acknowledge and agree that the efficient administration of this Contract is their mutual goal. Recognizing that experience has demonstrated that mechanisms, policies, and procedures used for establishing Rates, Charges, Tiered Pricing Components, and/or for making and allocating payments, other than those set forth in this Article of this Contract, may be in the mutual best interest of the parties, it is expressly agreed that the parties may enter into agreements to modify the mechanisms, policies, and procedures for any of those purposes while this Contract is in effect without amending this Contract.

(l) (1) Beginning at such time as the total of the deliveries of Class 1 Water and Class 2 Water in a Year exceed eighty (80) percent of the Contract Total, then before the end of the month following the month of delivery the Contractor shall make an additional payment to the United States equal to the applicable Tiered Pricing Component. The Tiered Pricing Component for the total of the deliveries of Class 1 Water and Class 2 Water in excess of eighty (80) percent of the Contract Total, but less than or equal to ninety (90) percent of the Contract Total, shall equal the one-half of the difference between the Rate established under subdivision (a) of this Article of this Contract and the Irrigation Full Cost Water Rate, or M&I Full Cost Water Rate, whichever is applicable. The Tiered Pricing Component for the total of the deliveries of Class 1 Water and Class 2 Water which exceeds ninety (90) percent of the Contract Total shall equal the difference between (i) the Rate established under subdivision (a) of this Article of this Contract and (ii) the Irrigation Full Cost Water Rate or M&I Full Cost Water Rate, whichever is applicable.

(2) Omitted.

(3) For purposes of determining the applicability of the Tiered Pricing Components pursuant to this Article of this Contract, Water Delivered shall include Project Water that the Contractor transfers to others but shall not include Project Water transferred and delivered to the Contractor.

(m) Rates under the respective ratesetting policies will be established to recover only reimbursable O&M (including any deficits) costs of the Project, as those terms are used in the then-existing Project ratesetting policies, and consistent with the SJRRSA, and interest, where appropriate, except in instances where a minimum Rate is applicable in

accordance with the relevant Project ratesetting policy. Changes of significance in practices which implement the Contracting Officer's ratesetting policies will not be implemented until the Contracting Officer has provided the Contractor an opportunity to discuss the nature, need, and impact of the proposed change.

(n) Except as provided in subsections 3405(a)(1)(B) and 3405(f) of the CVPIA, the Rates for Project Water transferred by the Contractor shall be the Contractor's Rates adjusted upward or downward to reflect the changed costs of delivery (if any) incurred by the Contracting Officer in the delivery of the transferred Project Water to the transferee's point of delivery in accordance with the then-existing Central Valley Project Ratesetting Policy.

NON-INTEREST BEARING OPERATION AND MAINTENANCE DEFICITS

8. Omitted.

RECOVERED WATER ACCOUNT

9. (a) Notwithstanding any other provisions of this Contract, water delivered to the Contractor under its Recovered Water Account as provided at Paragraph 16(b) of the Settlement and affirmed by Section 10004(a)(5) of the SJRRSA shall be at the total cost of $10.00 per acre foot. Recovered Water Account water provided to the Contractor shall be administered at a priority for delivery lower than Class 2 Water and higher than Section 215 Water.

(b) The manner in which the Recovered Water Account will be administered will be developed in accordance with subdivision (k) of Article 7 of this Contract, the SJRRSA, and Paragraph 16 of the Settlement.

SALES, TRANSFERS, AND EXCHANGES OF WATER

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.

(c) Project Water sales, transfers, and exchanges analyzed in the environmental documentation referenced in subdivision (b) of this Article of this Contract, shall be conducted with advance notice to the Contracting Officer and the Contracting Officer's written acknowledgement of the transaction, but shall not require prior written approval by the Contracting Officer.

(d) For Project Water sales, transfers, or exchanges to qualify under subdivision (b) of this Article of this Contract such Project Water sale, transfer, or exchange must: (i) be for irrigation purposes for lands irrigated within the previous three (3) years, for M&I use, groundwater recharge, groundwater banking, similar groundwater activities, surface water storage, or fish and wildlife resources; not lead to land conversion; and be delivered to established cropland, wildlife refuges, groundwater basins or M&I use; (ii) occur within a single Year; (iii) occur between a willing seller and a willing buyer or willing exchangers; (iv) convey water through existing facilities with no new construction or modifications to facilities and be between existing Project Contractors and/or the Contractor and the United States, Department of the Interior; and (v) comply with all applicable Federal, State, and local or tribal laws and requirements imposed for protection of the environment and Indian Trust Assets, as defined under Federal law.

(e) The environmental documentation and the Contracting Officer's compliance determination for transactions described in subdivision (b) of this Article of this Contract shall be reviewed every five (5) years and updated, as necessary, prior to the expiration of the then-existing five (5) year period. All subsequent environmental documentation shall

include an alternative to evaluate not less than the quantity of Project Water historically sold, transferred, or exchanged within the same geographical area.

(f) Consistent with Section 10010(e)(l) of the SJRRSA, any agreement providing for sale, transfer, or exchange of Project Water that is not used for interim flows or restoration flows pursuant to Paragraphs 13 and 15 of the Settlement, shall be deemed to satisfy the requirements of CVPIA section 3405(a)(1)(A) and (I); Provided, That such sales, transfers, or exchanges comply with sub-division (f)(1) and (f)(2) below.

(1) Project Water sales, transfers, and exchanges conducted under the provisions of subdivision (f) of this Article of this Contract shall not require the Contracting Officer's concurrence as to compliance with CVPIA 3405(a)(1)(A) and (I); Provided, That the Contractor shall, for Project Water sales, transfers, or exchanges, with a term greater than one (1) year, provide ninety (90) days written advance notification to the Contracting Officer and similarly thirty (30) days written advance notification of any Project Water sale, transfer, or exchange with a term of less than one (1) year. The Contracting Officer shall promptly make such notice publicly available.

(2) The Contractor's thirty (30) days or ninety (90) days advance written notification pursuant to subdivision (f)(1) of this Article of this Contract shall explain how the proposed Project Water sales, transfers, or exchanges are intended to reduce, avoid, or mitigate impacts to Project Water deliveries caused by interim or restoration flows or is otherwise intended to facilitate the Water Management Goal as described in the SJRRSA. The Contracting Officer shall promptly make such notice publicly available.

(3) In addition, the Contracting Officer shall, at least annually, make available publicly a compilation of the number of Project Water sales, transfers, and exchange agreements implemented in accordance with sub-divisions (f)(1) and (f)(2) of this Article of this Contract.

(4) Project Water sold, transferred, or exchanged under an agreement that meets the terms of subdivisions (f)(1) and (f)(2) of this Article of this Contract shall not be counted as a replacement or an offset for purposes of determining reductions to Project Water deliveries to any Friant Division Project Contractor except as provided in Paragraph 16(b) of the Settlement.

(g) Upon complete payment of the Repayment Obligation by the Contractor, and notwithstanding any Additional Capital Obligation that may later be established, in the case of a sale or transfer of Irrigation Water to another contractor which is otherwise subject to the acreage limitations, reporting, and Full Cost pricing provisions of the RRA, such sold or transferred Irrigation Water shall not be subject to such RRA provisions, however, in the case of a sale or transfer of Irrigation Water to the Contractor from another contractor which is subject to RRA provisions, such RRA provisions shall apply to delivery of such water.

APPLICATION OF PAYMENTS AND ADJUSTMENTS

11. (a) The amount of any overpayment by the Contractor of the Contractor's O&M, Capital, and deficit (if any) obligations for the Year shall be applied first to any current liabilities of the Contractor arising out of this Contract then due and payable. Overpayments of more than One Thousand Dollars ($1,000) shall be refunded at the Contractor's request. In lieu 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

Contracting Officer determines that the cumulative total quantity of Class 1 Water specified in subdivision (c) of this Article of this Contract will be available for delivery in said Year. If the Contracting Officer determines there is or will be a shortage in any Year in the quantity of Class 1 Water available for delivery, the Contracting Officer shall apportion the available Class 1 Water among all Contractors entitled to receive such water that will be made available at Friant Dam in accordance with the following:

(1) A determination shall be made of the total quantity of Class 1 Water at Friant Dam which is available for meeting Class 1 Water contractual commitments, the amount so determined being herein referred to as the available supply.

(2) The total available Class 1 supply shall be divided by the Class 1 Water contractual commitments, the quotient thus obtained being herein referred to as the Class 1 apportionment coefficient.

(3) The total quantity of Class 1 Water under Article 3 of this Contract shall be multiplied by the Class 1 apportionment coefficient and the result shall be the quantity of Class 1 Water required to be delivered by the Contracting Officer to the Contractor for the respective Year, but in no event shall such amount exceed the total quantity of Class 1 Water specified in subdivision (a) of Article 3 of this Contract.

(e) If the Contracting Officer determines there is less than the quantity of Class 2 Water which the Contractor otherwise would be entitled to receive pursuant to Article 3 of this Contract, the quantity of Class 2 Water which shall be furnished to the Contractor by the 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.

PROTECTION OF WATER AND AIR QUALITY

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.

(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.

(c) This article shall not affect or alter any legal obligations of the Secretary to provide drainage or other discharge services.

WATER ACQUIRED BY THE CONTRACTOR OTHER THAN FROM THE UNITED STATES

18. (a) Omitted.

(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 24. (a) The Contractor shall comply with Title VI of the Civil Rights Act of 1964
1192 (42 U.S.C. 2000d), Section 504 of the Rehabilitation Act of 1975 (P.L. 93-112, as amended), the
1193 Age Discrimination Act of 1975 (42 U.S.C. 6101, et seq.) and any other applicable civil rights
1194 laws, as well as with their respective implementing regulations and guidelines imposed by the
1195 U.S. Department of the Interior and/or Bureau of Reclamation.

1196 (b) These statutes require that no person in the United States shall, on the
1197 grounds of race, color, national origin, handicap, or age, be excluded from participation in, be
1198 denied the benefits of, or be otherwise subjected to discrimination under any program or activity
1199 receiving financial assistance from the Bureau of Reclamation. By executing this Contract, the
1200 Contractor agrees to immediately take any measures necessary to implement this obligation,
1201 including permitting officials of the United States to inspect premises, programs, and documents.

1202 (c) The Contractor makes this agreement in consideration of and for the
1203 purpose of obtaining any and all Federal grants, loans, contracts, property discounts, or other
1204 Federal financial assistance extended after the date hereof to the Contractor by the Bureau of
1205 Reclamation, including installment payments after such date on account of arrangements for
1206 Federal financial assistance which were approved before such date. The Contractor recognizes
1207 and agrees that such Federal assistance will be extended in reliance on the representations and
1208 agreements made in this Article, and that the United States reserves the right to seek judicial
1209 enforcement thereof.

1210 PRIVACY ACT COMPLIANCE

1211 25. Omitted.

1212 CONTRACTOR TO PAY CERTAIN MISCELLANEOUS COSTS

1213 26. In addition to all other payments to be made by the Contractor pursuant to this
1214 Contract, the Contractor shall pay to the United States, within sixty (60) days after receipt of a
1215 bill and detailed statement submitted by the Contracting Officer to the Contractor for such
1216 specific items of direct cost incurred by the United States for work requested by the Contractor
1217 associated with this Contract plus indirect costs in accordance with applicable Bureau of
1218 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

any water user within the Contractor's Service Area acquires or has available under any other contract pursuant to Federal Reclamation law.

OPERATION AND MAINTENANCE BY OPERATING NON-FEDERAL ENTITY

29. (a) The O&M of a portion of the Project facilities which serve the Contractor, and responsibility for funding a portion of the costs of such O&M, have been transferred to the Operating Non-Federal Entity by separate agreement between the United States and the Operating Non-Federal Entity. That separate agreement shall not interfere with or affect the rights or obligations of the Contractor or the United States hereunder.

(b) The Contracting Officer has previously notified the Contractor in writing that the O&M of a portion of the Project facilities which serve the Contractor has been transferred to the Operating Non-Federal Entity, and therefore, the Contractor shall pay directly to the Operating Non-Federal Entity, or to any successor approved by the Contracting Officer under the terms and conditions of the separate agreement between the United States and the Operating Non-Federal Entity described in subdivision (a) of this Article of this Contract, all rates, charges or assessments of any kind, including any assessment for reserve funds, which the Operating Non-Federal Entity or such successor determines, sets or establishes for (i) the O&M of the portion of the Project facilities operated and maintained by the Operating Non-Federal Entity or such successor, or (ii) the Friant Division's share of the operation, maintenance and replacement costs for physical works and appurtenances associated with the Tracy Pumping Plant, the Delta-Mendota Canal, the O'Neill Pumping/Generating Plant, the federal share of the O'Neill Forebay, the Mendota Pool, and the federal share of San Luis Unit joint use conveyance 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

resolve the dispute. Prior to the Contractor commencing any legal action, or the Contracting Officer referring any matter to Department of Justice, the party shall provide to the other party thirty (30) days written notice of the intent to take such action; Provided, That such notice shall not be required where a delay in commencing an action would prejudice the interests of the party that intends to file suit. During the thirty (30) day notice period, the Contractor and the Contracting Officer shall meet and confer in an attempt to resolve the dispute. Except as specifically provided, nothing herein is intended to waive or abridge any right or remedy that the Contractor or the United States may have.

OFFICIALS NOT TO BENEFIT

35. No Member of or Delegate to Congress, Resident Commissioner, or official of the Contractor shall benefit from this Contract other than as a water user or landowner in the same manner as other water users or landowners.

CHANGES IN CONTRACTOR'S SERVICE AREA

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.

(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.

FEDERAL LAWS

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.

EMERGENCY RESERVE FUND

38. The Contractor and Contracting Officer acknowledge that the requirements to establish and maintain a minimum reserve fund account to finance extraordinary O&M costs of Friant Division Facilities is and will continue to be administered under Contract No. 8-07-20-X0356 titled Agreement To Transfer The Operation, Maintenance And Replacement And Certain Financial And Administrative Activities Related To The Friant-Kern Canal And Associated Works, dated March 1, 1998 as amended, supplemented, assigned, or renewed.

MEDIUM FOR TRANSMITTING PAYMENT

39. (a) All payments from the Contractor to the United States under this contract shall be by the medium requested by the United States on or before the date payment is due. The required method of payment may include checks, wire transfers, or other types of payment specified by the United States.

(b) Upon execution of the contract, the Contractor shall furnish the Contracting Officer with the Contractor's taxpayer's identification number (TIN). The purpose for requiring the Contractor's TIN is for collecting and reporting any delinquent amounts arising out of the Contractor's relationship with the United States.

NOTICES

40. Any notice, demand, or request authorized or required by this Contract shall be deemed to have been given, on behalf of the Contractor, when mailed, postage prepaid, or delivered to the Area Manager, South-Central California Area Office, 1243 "N" Street, Fresno, California 93721, and on behalf of the United States, when mailed, postage prepaid, or delivered to the City of Fresno, Public Utilities Director, 2600 Fresno Street, Room 3065, Fresno, California 93721-3624. The designation of the addressee or the address may be changed by notice given in the same manner as provided in this Article of this Contract for other notices.

CONFIRMATION OF CONTRACT

41. The Contractor, after the execution of this Contract, shall promptly provide to the Contracting Officer a decree of a court of competent jurisdiction of the State of California, confirming the execution of this Contract. The Contractor shall furnish the United States a certified copy of the final decree, the validation proceedings, and all pertinent supporting records of the court approving and confirming this Contract, and decreeing and adjudging it to be lawful, valid, and binding on the Contractor.

CONTRACT DRAFTING CONSIDERATIONS

42. Articles 1 through 7, Articles 9 through 13, subdivision (c) of Article 16, Articles 18 through 20, subdivision (c) of Article 23, Articles 26 through 29, subdivisions (b) and (c) of Article 31, subdivisions (b) and (c) of Article 32, Articles 33 through 34, subdivision (b) of Article 36, and Articles 37 through 38 of this Contract have been drafted, negotiated, and reviewed by the parties hereto, each of whom is sophisticated in the matters to which this Contract pertains, and no one party shall be considered to have drafted the stated Articles.

IN WITNESS WHEREOF, the parties hereto have executed this Contract as of the day 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: _____
Regional Director, Mid-Pacific Region
Bureau of Reclamation

CITY OF FRESNO

By: Mark Scott
City Manager 12/13/10

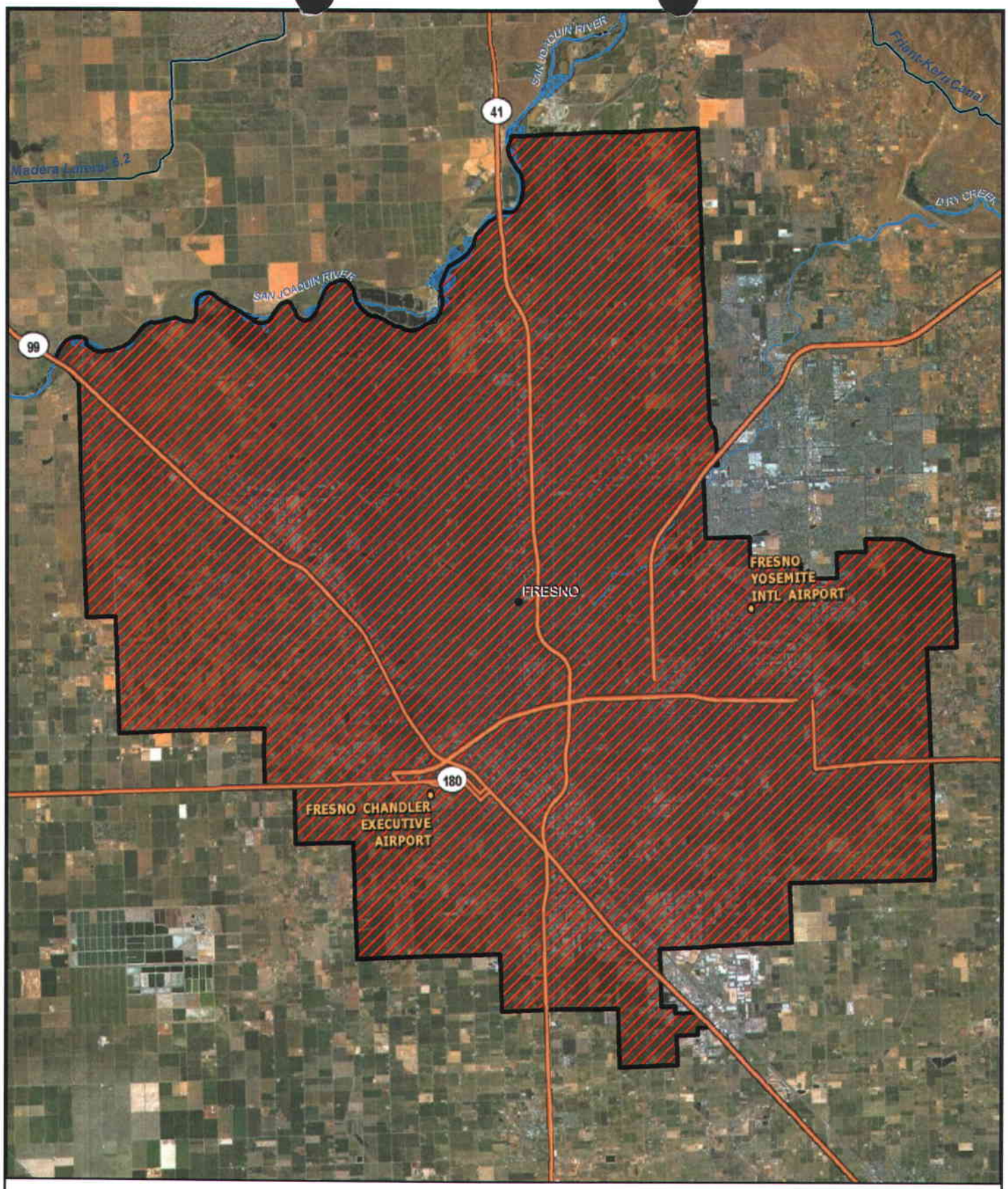
By: _____
Public Utilities Director

Attest:

By: Rebecca E Klisl
City Clerk 12-14-10

Approved as to form:

By: _____
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

N

5 2.5 0 Miles

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

Friant Contractor: City of Fresno

San Joaquin River Restoration Act

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	Irrigation Portion of Allocated Capital Cost: 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

	Irrigation portion of Allocated Capital Cost		CVPIA Friant Surcharges	Reduction in Friant Surcharge			
Year	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	2020 Other Obligation Credit Calculation (Art. 7(c)(2))
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	$0.00	$ 7.00	$0	$ -
2021	$ -	$ -	$7.00	$0.00	$ 7.00	0	
2022	$ -	$ -	$7.00	$0.00	$ 7.00	0	
2023	$ -	$ -	$7.00	$0.00	$ 7.00	0	
2024	$ -	$ -	$7.00	$0.00	$ 7.00	0	
2025	$ -	$ -	$7.00	$0.00	$ 7.00	0	
2026	$ -	$ -	$7.00	$0.00	$ 7.00	0	
2027	$ -	$ -	$7.00	$0.00	$ 7.00	0	
2028	$ -	$ -	$7.00	$0.00	$ 7.00	0	
2029	$ -	$ -	$7.00	$0.00	$ 7.00	0	
2030	$ -	$ -	$7.00	$0.00	$ 7.00	0	
2031			$7.00	$0.00	$ 7.00	0	
2032			$7.00	$0.00	$ 7.00	0	
2033			$7.00	$0.00	$ 7.00	0	
2034			$7.00	$0.00	$ 7.00	0	
2035			$7.00	$0.00	$ 7.00	0	
2036			$7.00	$0.00	$ 7.00	0	
2037			$7.00	$0.00	$ 7.00	0	
2038			$7.00	$0.00	$ 7.00	0	
2039			$7.00	$0.00	$ 7.00	0	
		$ -				$0	

Exhibit D

Friant Surcharge Reduction Calculation

Footnotes

* Average annual delivery forcast 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 surchage is applicable to, but not beyond 2039. If cummulative 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 contractors 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 comuted and presented on per a/f basis. Friant surchage 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 Contract[1]

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

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[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.

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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 FACILITIES REPAYMENT

THIS CONTRACT, made this 22nd day of December, 2010, is entered into pursuant to the Act of June 17, 1902, (32 Stat. 388), and acts amendatory or supplementary thereto, including but not limited to: the Acts of August 26, 1937 (50 Stat. 844), as amended and supplemented, August 4, 1939 (53 Stat. 1187), as amended and supplemented, June 21, 1963 (77 Stat. 68), October 12, 1982 (96 Stat. 1262), October 27, 1986 (100 Stat. 3050), as amended, Title XXXIV of the Act of October 30, 1992 (106 Stat. 4706), and Title X, Subtitle A, of the Act of March 30, 2009 (123 Stat. 1349), also referred to as the San Joaquin River Restoration Settlement Act hereinafter referred to as SJRRSA, all collectively hereinafter referred to as Federal Reclamation law, between THE UNITED STATES OF AMERICA, hereinafter referred to as the United States and the CITY OF FRESNO, hereinafter referred to as the Contractor, a public agency of the State of California, duly organized, existing, and acting pursuant to the laws thereof, with its principal place of business in California;

WITNESSETH, That

EXPLANATORY RECITALS

[1st] WHEREAS, the United States has constructed and is operating the Central Valley Project, California, for diversion, storage, carriage, distribution and beneficial use, for flood 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

Project Water stored or flowing through Millerton Lake in accordance with State and Federal law for the benefit of Project Contractors in the Friant Division and for other specified Project purposes; and

[6th] WHEREAS, the water supplied to the Contractor pursuant to this Contract is Project Water developed through the exercise of the rights described in the fifth (5th) Explanatory Recital of this Contract; and

[7th] WHEREAS, as a result of litigation entitled "Natural Resources Defense Council, et al. v Kirk Rogers, et al." No. CIV-S-88-1658LLK/GGH, certain contractors from the Friant Division entered into a Stipulation of Settlement dated September 13, 2006, (the "Settlement"), which settlement prescribes a Restoration Goal and a Water Management Goal and which Settlement was subsequently confirmed and implemented through the SJRRSA; and

[8th] WHEREAS, the SJRRSA authorizes and directs the Secretary to convert the Existing Contract to a repayment contract under clause (1) in the proviso to the first sentence of subsection (c) (hereinafter referred to as subsection (c)(1)) of Section 9 of the Act of August 4, 1939, no later than December 31, 2010, and further directs that such contract shall require the repayment of the Contractor's allocated share of construction costs in lump sum payment by January 31, 2014, which funds will in turn be made available for implementation of the Settlement and SJRRSA, and which costs otherwise would have been payable through annual water rates, with full repayment by 2030; and

[9th] WHEREAS, such repayment of costs will assist the United States with implementation of actions required under the Settlement and the SJRRSA and provide the Contractor the benefits provided in Section 10010 of the SJRRSA; and

[10th] WHEREAS, Section 2 of the Act of June 21, 1963 (1963 Act) provides that if the other party to any long-term contract for municipal, domestic, or industrial water supply so requests, The Secretary shall provide in any contract entered into under subsection (c)(1) of Section 9 of the Act of August 4, 1939 (repayment contract) that such party to the contract "shall, during the term of the contract and any renewal thereof and subject to fulfillment of all obligations thereunder, have a first right for the purposes stated in the contract (to which the holders of any other type of contract for municipal, domestic, or industrial water supply shall be subordinate) to a stated share or quantity of the project's water supply available for municipal, domestic, or industrial use"; and

[11th] Omitted; and

[12th] WHEREAS, the Contractor has demonstrated to the satisfaction of the Contracting Officer that the Contractor has utilized the Project Water supplies available to it for reasonable and beneficial use and/or has demonstrated projected future demand for water use such that the Contractor has the capability and expects to utilize fully for reasonable and beneficial use the quantity of Project Water to be made available to it pursuant to this Contract; and

[13th] WHEREAS, water obtained from the Central Valley Project has been relied upon by urban and agricultural areas within California for more than fifty (50) years and is considered by the Contractor as an essential portion of its water supply; and

[14th] WHEREAS, the economies of regions within the Central Valley Project, including the Contractor's, depend upon the continued availability of water, including water service from the Central Valley Project; and

[15th] WHEREAS, the Secretary intends through coordination, cooperation, and partnerships to pursue measures to improve water supply, water quality, and reliability of the Project for all Project purposes; and

[16th] WHEREAS, the mutual goals of the United States and the Contractor include: to provide for reliable Project Water supplies; to control costs of those supplies; to achieve repayment of the Central Valley Project as required by law; to guard reasonably against Project Water shortages; to achieve a reasonable balance among competing demands for use of Project Water; and to comply with all applicable environmental statutes, all consistent with the legal obligations of the United States relative to the Central Valley Project; and

[17th] WHEREAS, any time during the Year the Contracting Officer determines that a need exists to evacuate water from Millerton Lake in order to prevent or minimize spill or to meet flood control criteria (currently referred to as "uncontrolled season"), taking into consideration, among other things, anticipated upstream reservoir operations and the most probable forecast of snowmelt and runoff projections for the upper San Joaquin River, Friant Division Project Contractors utilize a portion of their undependable Class 2 Water in their service areas to, among other things, assist in the management and alleviation of groundwater overdraft in the Friant Division service area, provide opportunities for restoration of the San Joaquin River below Friant Dam, minimize flooding along the San Joaquin River, encourage optimal water management, and maximize the reasonable and beneficial use of the water; and

[18th] WHEREAS, the parties desire and intend that this Contract not provide a disincentive to the Friant Division Project Contractors continuing to carry out the beneficial activities set out in the Explanatory Recital immediately above; and

[19th] WHEREAS, the United States has determined that the Contractor has fulfilled all of its obligations under the Existing Contract; and

[20th] WHEREAS, this Contract allows the Contractor to retain a sustainable water supply, and provides greater certainty regarding the cost and long-term integrity of its Central Valley Project water supplies.

NOW, THEREFORE, in consideration of the mutual and dependent covenants herein contained, it is hereby mutually agreed by the parties hereto as follows:

DEFINITIONS

1. When used herein, unless otherwise distinctly expressed or manifestly incompatible with the intent of the parties as expressed in this Contract, the term:

(a) "Additional Capital Obligation" shall mean any additional construction costs or other capitalized costs incurred after the effective date of this Contract or not reflected in the Existing Capital Obligation as provided in Section 10010(a)(3)(B) of the SJRRSA and any amounts payable by Contractor as determined through the final adjustment described and required by Section 10010(b) of the SJRRSA;

(b) "Calendar Year" shall mean the period January 1 through December 31, both dates inclusive;

(c) "Charges" shall mean the payments required by Federal Reclamation law in addition to the Rates specified in this Contract as determined annually by the Contracting Officer pursuant to this Contract and consistent with the SJRRSA;

(d) "Class 1 Water" shall mean that supply of water stored in or flowing through Millerton Lake which, subject to the contingencies hereinafter described in Articles 3,

12, and 13 of this Contract, will be available for delivery from Millerton Lake and the Friant-Kern and Madera Canals as a dependable water supply during each Year;

(e) "Class 2 Water" shall mean that supply of water which can be made available subject to the contingencies hereinafter described in Articles 3, 12, and 13 of this Contract for delivery from Millerton Lake and the Friant-Kern and Madera Canals in addition to the supply of Class 1 Water. Because of its uncertainty as to availability and time of occurrence, such water will be undependable in character and will be furnished only if, as, and when it can be made available as determined by the Contracting Officer;

(f) "Condition of Shortage" shall mean a condition respecting the Project during any Year such that the Contracting Officer is unable to deliver sufficient water to meet the Contract Total;

(g) "Contracting Officer" shall mean the Secretary of the Interior's duly authorized representative acting pursuant to this Contract or applicable Federal Reclamation law or regulation;

(h) "Contract Total" shall mean the maximum amount of Class 1 Water plus the maximum amount of Class 2 Water specified in subdivision (a) of Article 3 of this Contract and is the stated share or quantity of the Project's available water supply to which the Contractor shall have a first right, in accordance with the 1963 Act and the terms of this Contract, upon the Contractor's complete payment of the Repayment Obligation, notwithstanding any Additional Capital Obligation that may later be established;

(i) "Contractor's Service Area" shall mean the area to which the Contractor is permitted to provide Project Water under this Contract as described in Exhibit "A" attached

hereto, which may be modified from time to time in accordance with Article 36 of this Contract without amendment of this Contract;

(j) "CVPIA" shall mean the Central Valley Project Improvement Act, Title XXXIV of the Act of October 30, 1992 (106 Stat. 4706);

(k) Omitted;

(l) Omitted;

(m) "Existing Capital Obligation" shall mean the remaining amount of construction costs of the Contractor identified in the Central Valley Project Irrigation Water Rates and/or Municipal and Industrial Water Rates, respectively, dated January 25, 2007, as adjusted to reflect payments not reflected in such schedule, pursuant to Section 10010(a)(3)(A) of the SJRRSA. The Contracting Officer has computed the Existing Capital Obligation in a manner consistent with the SJRRSA and such amount is set forth in Exhibits "C-1", incorporated herein by reference;

(n) "Financing Costs", for purposes of computing the reduction of certain charges as specified in subdivision (c) of Article 7 of this Contract, shall mean the difference between the net present value of the Existing Capital Obligation discounted using the full Treasury rate and the Existing Capital Obligation discounted using one-half the Treasury rate, as set forth in Section 10010(d)(3) of the SJRRA;

(o) Omitted;

(p) Omitted;

(q) Omitted;

(r) "Irrigation Water" shall mean water made available from the Project that is used primarily in the production of agricultural crops or livestock, including domestic use incidental thereto, and watering of livestock;

(s) Omitted;

(t) "Long Term Historic Average" shall mean the average of the final forecast of Water Made Available to the Contractor pursuant to this Contract and the contracts referenced in the third (3rd) and fourth (4th) Explanatory Recitals of this Contract;

(u) "Municipal and Industrial (M&I) Water" shall mean Water Made Available from the Project other than Irrigation Water made available to the Contractor. M&I Water shall include water used for human use and purposes such as the watering of landscaping or pasture for animals (e.g., horses) which are kept for personal enjoyment or water delivered to land holdings operated in units of less than five (5) acres unless the Contractor establishes to the satisfaction of the Contracting Officer that the use of water delivered to any such landholding is a use described in subdivision (r) of this Article of this Contract;

(v) Omitted;

(w) "Operation and Maintenance" or "O&M" shall mean normal and reasonable care, control, operation, repair, replacement (other than Capital replacement), and maintenance of Project facilities;

(x) "Operating Non-Federal Entity" shall mean the Friant Water Authority, or its successor, a Non-Federal entity, which has the obligation to operate and maintain all or a portion of the Friant Division Facilities pursuant to an agreement with the United States and which may have funding obligations with respect thereto;

(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

subdivision shall be scheduled and paid for pursuant to the provisions of Articles 4 and 7 of this Contract.

(b) The Contractor has paid the Repayment Obligation, and notwithstanding any Additional Capital Obligation that may later be established, the Contractor has a first right to a stated share or quantity of the Project's water supply available for M&I uses in accordance with the 1963 Act and the terms of this Contract. This right shall not be disturbed so long as the Contractor fulfills all of its obligations hereunder. The quantity of water made available for delivery in any given Year shall remain subject to the terms and conditions of subdivision (a) of this Article of this Contract.

(c) The Contractor shall utilize the Project Water in accordance with all applicable legal requirements.

(d) The Contractor shall make reasonable and beneficial use of all Project Water or other water furnished pursuant to this Contract. Groundwater recharge programs, groundwater banking programs, surface water storage programs, and other similar programs utilizing Project Water or other water furnished pursuant to this Contract conducted within the Contractor's Service Area which are consistent with applicable State law and result in use consistent with applicable Federal Reclamation law will be allowed; Provided, That any direct recharge program(s) is (are) described in the Contractor's Water Conservation Plan submitted pursuant to Article 27 of this Contract; Provided further, That such Water Conservation Plan demonstrates sufficient lawful uses exist in the Contractor's Service Area so that using a long-term average, the quantity of Delivered Water is demonstrated to be reasonable for such uses and in compliance with Federal Reclamation law. Groundwater recharge programs, 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

Contractor's remaining Class 2 Water supply available in the current Year. To the extent the Contractor's remaining Class 2 Water supply available in the current Year is not sufficient to account for such additional diversions, such additional diversions shall be charged against the Contractor's remaining Class 1 Water supply available in the current Year. To the extent the Contractor's remaining Class 1 Water and Class 2 Water supplies available in the current Year are not sufficient to account for such additional diversions, such additional diversions shall be charged first against the Contractor's available Class 2 Water supply and then against the Contractor's available Class 1 Water supply, both for the following Year. Payment for all additional diversions of water shall be made in accordance with Article 7 of this Contract.

(l) If the Contracting Officer determines there is a Project Water supply available at Friant Dam as the result of an unusually large water supply not otherwise storable for Project purposes or infrequent and otherwise unmanaged flood flows of short duration, such water will be made available to the Contractor and others under Section 215 of the Act of October 12, 1982, pursuant to the priorities specified below if the Contractor enters into a temporary contract with the United States not to exceed one (1) year for the delivery of such water or as otherwise provided for in Federal Reclamation law and associated regulations. Such water may be identified by the Contractor either (i) as additional water to supplement the supply of Class 1 Water and/or Class 2 Water made available to it pursuant to this Contract or, (ii) upon written notification to the Contracting Officer, as water to be credited against the Contractor's Class 2 Water supply available pursuant to this Contract. The Contracting Officer shall make water determined to be available pursuant to this subsection according to the following priorities: first, to contractors for Class 1 Water and/or Class 2 Water within the Friant Division; second, to contractors in the Cross Valley Division of the Project. The Contracting Officer will consider

requests from other parties for Section 215 Water for use within the area identified as the Friant Division service area in the environmental assessment developed in connection with the execution of the Existing Contract.

(m) Nothing in this Contract, nor any action or inaction of the Contractor or Contracting Officer in connection with the implementation of this Contract, is intended to override, modify, supersede or otherwise interfere with any term or condition of the water rights and other rights referred in the fifth (5th) Explanatory Recital of this Contract.

(n) The rights of the Contractor under this Contract are subject to the terms of the contract for exchange waters, dated July 27, 1939, between the United States and the San Joaquin and Kings River Canal and Irrigation Company, Incorporated, et al., (hereinafter referred to as the Exchange Contractors), Contract No. I1r-1144, as amended. The United States agrees that it will not deliver to the Exchange Contractors thereunder waters of the San Joaquin River unless and until required by the terms of said contract, and the United States further agrees that it will not voluntarily and knowingly determine itself unable to deliver to the Exchange Contractors entitled thereto from water that is available or that may become available to it from the Sacramento River and its tributaries or the Sacramento-San Joaquin Delta those quantities required to satisfy the obligations of the United States under said Exchange Contract and under Schedule 2 of the Contract for Purchase of Miller and Lux Water Rights (Contract I1r-1145, dated July 27, 1939).

(o) Pursuant to and consistent with section 10004 of SJRRSA and Paragraph 16 of the Settlement, the Contracting Officer is required to develop and implement a plan for recirculation, recapture, reuse, exchange or transfer of water released for restoration flows or 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

by the Contractor for a specified quantity of pre-use and shall be subject to the approval of the Contracting Officer. Payment for pre-use water so requested shall be at the appropriate Rate(s) for the following Year in accordance with Article 7 of this Contract and shall be made in advance of delivery of any pre-use water. The Contracting Officer shall deliver such pre-use water in accordance with a schedule or any revision thereof submitted by the Contractor and approved by the Contracting Officer, to the extent such water is available and to the extent such deliveries will not interfere with the delivery of Project Water entitlements to other Friant Division contractors or the physical maintenance of the Project facilities. The quantities of pre-use Water Delivered pursuant to this subdivision shall be deducted from the quantities of water that the Contracting Officer would otherwise be obligated to make available to the Contractor during the following Year; Provided, That the quantity of pre-use water to be deducted from the quantities of either Class 1 Water or Class 2 Water to be made available to the Contractor in the following Year shall be specified by the Contractor at the time the pre-use water is requested or as revised in its first schedule for the following Year submitted in accordance with subdivision (b) of this Article of this Contract, based on the availability of the following Year water supplies as determined by the Contracting Officer.

POINT OF DIVERSION AND RESPONSIBILITY FOR DISTRIBUTION OF WATER

5. (a) Project Water scheduled pursuant to subdivision (b) of Article 4 of this Contract shall be delivered to the Contractor at a point or points of delivery either on Project facilities or another location or locations mutually agreed to in writing by the Contracting Officer and the Contractor.

(b) The Contracting Officer, the Operating Non-Federal Entity, or other appropriate entity shall make all reasonable efforts to maintain sufficient flows and levels of

water in the Friant-Kern Canal to deliver Project Water to the Contractor at specific turnouts established pursuant to subdivision (a) of this Article of this Contract.

(c) The Contractor shall not deliver Project Water to land outside the Contractor's Service Area unless approved in advance by the Contracting Officer. The Contractor shall deliver Project Water in accordance with applicable Federal Reclamation law.

(d) All Water Delivered to the Contractor pursuant to this Contract shall be measured and recorded with equipment furnished, installed, operated, and maintained by the United States, the Operating Non-Federal Entity or other appropriate entity as designated by the Contracting Officer (hereafter "other appropriate entity") at the point or points of delivery established pursuant to subdivision (a) of this Article of this Contract. Upon the request of either party to this Contract, the Contracting Officer shall investigate, or cause to be investigated by the responsible Operating Non-Federal Entity, the accuracy of such measurements and shall take any necessary steps to adjust any errors appearing therein. For any period of time when accurate measurements have not been made, the Contracting Officer shall consult with the Contractor and the responsible Operating Non-Federal Entity prior to making a final determination of the quantity delivered for that period of time.

(e) Neither the Contracting Officer nor any Operating Non-Federal Entity shall be responsible for the control, carriage, handling, use, disposal, or distribution of Project Water Delivered to the Contractor pursuant to this Contract beyond the delivery points specified in subdivision (a) of this Article of this Contract. The Contractor shall indemnify the United States, its officers, employees, agents, and assigns on account of damage or claim of damage of any nature whatsoever for which there is legal responsibility, including property damage, 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

measuring devices or water measuring methods to ensure its proper management of the water, to bill water users for water delivered by the Contractor; and, if applicable, to record water delivered for M&I purposes by customer class as defined in the Contractor's water conservation plan provided for in Article 27 of this Contract. Nothing herein contained, however, shall preclude the Contractor from establishing and collecting any charges, assessments, or other revenues authorized by California law.

(b) To the extent the information has not otherwise been provided, upon execution of this Contract, the Contractor shall provide to the Contracting Officer a written report describing the measurement devices or water measuring methods being used or to be used to implement subdivision (a) of this Article of this Contract and identifying the M&I service connections or alternative measurement programs approved by the Contracting Officer, at which such measurement devices or water measuring methods are being used, and, if applicable, identifying the locations at which such devices and/or methods are not yet being used including a time schedule for implementation at such locations. The Contracting Officer shall advise the Contractor in writing within sixty (60) days as to the adequacy of, and necessary modifications, if any, of the measuring devices or water measuring methods identified in the Contractor's report and if the Contracting Officer does not respond in such time, they shall be deemed adequate. If the Contracting Officer notifies the Contractor that the measuring devices or methods are inadequate, the parties shall within sixty (60) days following the Contracting Officer's response, negotiate in good faith the earliest practicable date by which the Contractor shall modify said measuring devices and/or measuring methods as required by the Contracting Officer to ensure 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

the Secretary and the Contractor for the period from January 1, 2020 through December 31, 2039. The Friant Surcharge reduction shall remain fixed and shall only be applied to Water Delivered pursuant to this Contract to which the Friant Surcharge applies (including but not limited to water transferred, banked, or exchanged), commencing on January 1, 2020 until such volume of Water Delivered equals 1,020,000 acre-feet or December 31, 2039, whichever occurs first.

(2) Further, to fully offset the Financing Costs, Contractor shall be entitled to a reduction in other outstanding or future obligations of the Contractor in accordance with Section 10010(d)(2) of the SJRRSA. The amount of such further reduction in outstanding or future obligations of the Contractor after October 1, 2019 has been computed by the Contracting Officer, and as computed, such amount is set forth in Exhibit "D".

(d) Prior to October 1 of each Calendar Year, the Contracting Officer shall make available to the Contractor an estimate of the Rates for Project Water for the following Year and the computations and cost allocations upon which those Rates are based. The Contractor shall be allowed not less than two (2) months to review and comment on such computations and cost allocations. By December 31 of each Calendar Year, the Contracting Officer shall provide the Contractor with the final Rates to be in effect for the upcoming Year, and such notification shall revise Exhibit "B". The O&M component of the Rate may be reduced as provided in the SJRRSA.

(e) At the time the Contractor submits the initial schedule for the delivery of Project Water for each Year pursuant to subdivision (b) of Article 4 of this Contract, the Contractor shall make an advance payment to the United States equal to the total amount payable pursuant to the applicable Rate(s) set under subdivision (a) of this Article of this Contract, for the

Project Water scheduled to be delivered pursuant to this Contract during the first two (2) calendar months of the Year. Before the end of the first month and before the end of each calendar month thereafter, the Contractor shall make an advance payment to the United States, at the Rate(s) set under subdivision (a) of this Article of this Contract, for the Water Scheduled to be delivered pursuant to this Contract during the second month immediately following. Adjustments between advance payments for Water Scheduled and payments at Rates due for Water Delivered shall be made before the end of the following month; Provided, That any revised schedule submitted by the Contractor pursuant to Article 4 of this Contract which increases the amount of Water Delivered pursuant to this Contract during any month shall be accompanied with appropriate advance payment, at the Rates then in effect, to assure that Project Water is not delivered to the Contractor in advance of such payment. In any month in which the quantity of Water Delivered to the Contractor pursuant to this Contract equals the quantity of Water Scheduled and paid for by the Contractor, no additional Project Water shall be delivered to the Contractor unless and until an advance payment at the Rates then in effect for such additional Project Water is made. Final adjustment between the advance payments for the Water Scheduled and payments for the quantities of Water Delivered during each Year pursuant to this Contract shall be made as soon as practicable but no later than April 30th of the following Year, or sixty (60) days after the delivery of Project Water carried over under subdivision (g) of Article 3 of this Contract if such water is not delivered by the last day of February.

(f) The Contractor shall also make a payment in addition to the Rate(s) in subdivision (e) of this Article of this Contract to the United States for Water Delivered, at the Charges then in effect, before the end of the month following the month of delivery. The payments shall be consistent with the quantities of Irrigation Water and M&I Water Delivered as

shown in the water delivery report for the subject month prepared by the Contracting Officer. Such water delivery report shall be the basis for payment of Charges by the Contractor, and shall be provided to the Contractor by the Contracting Officer (as applicable) within five (5) days after the end of the month of delivery. The water delivery report shall be deemed a bill basis for payment of Charges for Water Delivered. Adjustment for overpayment or underpayment of Charges shall be made through the adjustment of payments due to the United States for Charges for the next month. Any amount to be paid for past due payment of Charges shall be computed pursuant to Article 21 of this Contract.

(g) The Contractor shall pay for any Water Delivered under subdivision (d), (f), or (g) of Article 3 of this Contract as determined by the Contracting Officer pursuant to applicable statutes, associated regulations, any applicable provisions of guidelines or ratesetting policies; Provided, That the Rate for Water Delivered under subdivision (d) of Article 3 of this Contract shall be no more than the otherwise applicable Rate for Irrigation Water or M&I Water under subdivision (a) of this Article of this Contract.

(h) Payments to be made by the Contractor to the United States under this Contract may be paid from any revenues available to the Contractor.

(i) All revenues received by the United States from the Contractor relating to the delivery of Project Water or the delivery of non-project water through Project facilities shall be allocated and applied in accordance with Federal Reclamation law and the associated rules or regulations, the then-existing Project Ratesetting policies for M&I Water and consistent with the SJRRSA.

(j) The Contracting Officer shall keep its accounts, pertaining to the 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.

(d) For Project Water sales, transfers, or exchanges to qualify under subdivision (b) of this Article of this Contract such Project Water sale, transfer, or exchange must: (i) be for irrigation purposes for lands irrigated within the previous three (3) years, for M&I use, groundwater recharge, groundwater banking, similar groundwater activities, surface water storage, or fish and wildlife resources; not lead to land conversion; and be delivered to established cropland, wildlife refuges, groundwater basins or M&I use; (ii) occur within a single Year; (iii) occur between a willing seller and a willing buyer or willing exchangers; (iv) convey water through existing facilities with no new construction or modifications to facilities and be between existing Project Contractors and/or the Contractor and the United States, Department of the Interior; and (v) comply with all applicable Federal, State, and local or tribal laws and requirements imposed for protection of the environment and Indian Trust Assets, as defined under Federal law.

(e) The environmental documentation and the Contracting Officer's compliance determination for transactions described in subdivision (b) of this Article of this Contract shall be reviewed every five (5) years and updated, as necessary, prior to the expiration of the then-existing five (5) year period. All subsequent environmental documentation shall include an alternative to evaluate not less than the quantity of Project Water historically sold, transferred, or exchanged within the same geographical area.

(f) Consistent with Section 10010(e)(l) of the SJRRSA, any agreement providing for sale, transfer, or exchange of Project Water that is not used for interim flows or restoration flows pursuant to Paragraphs 13 and 15 of the Settlement, shall be deemed to satisfy the requirements of CVPIA section 3405(a)(1)(A) and (I); Provided, That such sales, transfers, or exchanges comply with sub-division (f)(1) and (f)(2) below.

(1) Project Water sales, transfers, and exchanges conducted under the provisions of subdivision (f) of this Article of this Contract shall not require the Contracting Officer's concurrence as to compliance with CVPIA 3405(a)(1)(A) and (I); Provided, That the Contractor shall, for Project Water sales, transfers, or exchanges, with a term greater than one (1) year, provide ninety (90) days written advance notification to the Contracting Officer and similarly thirty (30) days written advance notification of any Project Water sale, transfer, or exchange with a term of less than one (1) year. The Contracting Officer shall promptly make such notice publicly available.

(2) The Contractor's thirty (30) days or ninety (90) days advance written notification pursuant to subdivision (f)(1) of this Article of this Contract shall explain how the proposed Project Water sales, transfers, or exchanges are intended to reduce, avoid, or mitigate impacts to Project Water deliveries caused by interim or restoration flows or is otherwise intended to facilitate the Water Management Goal as described in the SJRRSA. The Contracting Officer shall promptly make such notice publicly available.

(3) In addition, the Contracting Officer shall, at least annually, make available publicly a compilation of the number of Project Water sales, transfers, and exchange agreements implemented in accordance with sub-divisions (f)(1) and (f)(2) of this Article of this Contract.

(4) Project Water sold, transferred, or exchanged under an agreement that meets the terms of subdivisions (f)(1) and (f)(2) of this Article of this Contract shall not be counted as a replacement or an offset for purposes of determining reductions to Project Water deliveries to any Friant Division Project Contractor except as provided in Paragraph 16(b) of the Settlement.

(g) Notwithstanding any Additional Capital Obligation that may later be established, in the case of a sale or transfer of Irrigation Water to another contractor which is otherwise subject to the acreage limitations, reporting, and Full Cost pricing provisions of the RRA, such sold or transferred Irrigation Water shall not be subject to such RRA provisions, however, in the case of a sale or transfer of Irrigation Water to the Contractor from another contractor which is subject to RRA provisions, such RRA provisions shall apply to delivery of such water.

APPLICATION OF PAYMENTS AND ADJUSTMENTS

11. (a) The amount of any overpayment by the Contractor of the Contractor's O&M, Capital, and deficit (if any) obligations for the Year shall be applied first to any current liabilities of the Contractor arising out of this Contract then due and payable. Overpayments of more than One Thousand Dollars ($1,000) shall be refunded at the Contractor's request. In lieu of a refund, any amount of such overpayment, at the option of the Contractor, may be credited against amounts to become due to the United States by the Contractor. With respect to overpayment, such refund or adjustment shall constitute the sole remedy of the Contractor or anyone having or claiming to have the right to the use of any of the Project Water supply provided for herein. All credits and refunds of overpayments shall be made within thirty (30) days of the Contracting Officer obtaining direction as to how to credit or refund such overpayment in response to the notice to the Contractor that it has finalized the accounts for the Year in which the overpayment was made.

(b) All advances for miscellaneous costs incurred for work requested by the Contractor pursuant to Article 26 of this Contract shall be adjusted to reflect the actual costs when the work has been completed. If the advances exceed the actual costs incurred, the

difference will be refunded to the Contractor. If the actual costs exceed the Contractor's advances, the Contractor will be billed for the additional costs pursuant to Article 26 of this Contract.

TEMPORARY REDUCTIONS—RETURN FLOWS

12. (a) The Contracting Officer shall make all reasonable efforts to optimize delivery of the Contract Total subject to: (i) the authorized purposes and priorities of the Project; (ii) the requirements of Federal law and the Settlement; and (iii) the obligations of the United States under existing contracts, or renewals thereof, providing for water deliveries from the Project.

(b) The Contracting Officer or Operating Non-Federal Entity may temporarily discontinue or reduce the quantity of Water Delivered to the Contractor as herein provided for the purposes of investigation, inspection, maintenance, repair, or replacement of any of the Project facilities or any part thereof necessary for the delivery of Project Water to the Contractor, but so far as feasible the Contracting Officer or Operating Non-Federal Entity will give the Contractor due notice in advance of such temporary discontinuance or reduction, except in case of emergency, in which case no notice need be given; Provided, That the United States shall use its best efforts to avoid any discontinuance or reduction in such service. Upon resumption of service after such reduction or discontinuance, and if requested by the Contractor, the United States will, if possible, deliver the quantity of Project Water which would have been delivered hereunder in the absence of such discontinuance or reduction.

(c) The United States reserves the right to all seepage and return flow water derived from Water Delivered to the Contractor hereunder which escapes or is discharged 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

or less in duration for delivery of Project Water to other entities if such water is not necessary to meet the schedules as may be submitted by all Friant Division Project Contractors entitled to receive Class 1 Water and/or Class 2 Water under their contracts. Nothing in this subdivision shall limit the Contracting Officer's ability to take actions that result in the availability of new water supplies to be used for Project purposes and allocating such new supplies; Provided, That the Contracting Officer shall not take such actions until after consultation with the Friant Division Project Contractors.

(d) The Contracting Officer shall not deliver any Class 2 Water pursuant to this or any other contract heretofore or hereafter entered into any Year unless and until the Contracting Officer determines that the cumulative total quantity of Class 1 Water specified in subdivision (c) of this Article of this Contract will be available for delivery in said Year. If the Contracting Officer determines there is or will be a shortage in any Year in the quantity of Class 1 Water available for delivery, the Contracting Officer shall apportion the available Class 1 Water among all Contractors entitled to receive such water that will be made available at Friant Dam in accordance with the following:

(1) A determination shall be made of the total quantity of Class 1 Water at Friant Dam which is available for meeting Class 1 Water contractual commitments, the amount so determined being herein referred to as the available supply.

(2) The total available Class 1 supply shall be divided by the Class 1 Water contractual commitments, the quotient thus obtained being herein referred to as the Class 1 apportionment coefficient.

(3) The total quantity of Class 1 Water under Article 3 of this Contract shall be multiplied by the Class 1 apportionment coefficient and the result shall be the quantity of

Class 1 Water required to be delivered by the Contracting Officer to the Contractor for the respective Year, but in no event shall such amount exceed the total quantity of Class 1 Water specified in subdivision (a) of Article 3 of this Contract.

(e) If the Contracting Officer determines there is less than the quantity of Class 2 Water which the Contractor otherwise would be entitled to receive pursuant to Article 3 of this Contract, the quantity of Class 2 Water which shall be furnished to the Contractor by the Contracting Officer will be determined in the manner set forth in paragraphs (1), (2), and (3), of subdivision (d) of this Article of this Contract substituting the term "Class 2" for the term "Class 1."

(f) In the event that in any Year there is made available to the Contractor, by reason of any shortage or apportionment as provided in subdivisions (a), (d), or (e) of this Article of this Contract, or any discontinuance or reduction of service as set forth in subdivision (b) of Article 12 of this Contract, less than the quantity of water which the Contractor otherwise would be entitled to receive hereunder, there shall be made an adjustment on account of the amounts already paid to the Contracting Officer by the Contractor for Class 1 Water and Class 2 Water for said Year in accordance with Article 11 of this Contract.

UNAVOIDABLE GROUNDWATER PERCOLATION

14. Omitted.

ACREAGE LIMITATION

15. Omitted.

RULES, REGULATIONS, AND DETERMINATIONS

16. (a) The parties agree that the delivery of water or the use of Federal facilities pursuant to this Contract is subject to Federal Reclamation law, as amended and supplemented, and the rules and regulations promulgated by the Secretary of the Interior under Federal Reclamation law.

(b) The Contracting Officer shall have the right to make determinations necessary to administer this contract that are consistent with its provisions, the laws of the United States and the State of California, and the rules and regulations promulgated by the Secretary of the Interior. Such determinations shall be made in consultation with the Contractor.

(c) The terms of this Contract are subject to the Settlement and the SJRRSA. Nothing in this Contract shall be interpreted to limit or interfere with the full implementation of the Settlement and the SJRRSA.

PROTECTION OF WATER AND AIR QUALITY

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.

(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.

(c) This article shall not affect or alter any legal obligations of the Secretary to provide drainage or other discharge services.

WATER ACQUIRED BY THE CONTRACTOR
OTHER THAN FROM THE UNITED STATES

18. (a) Omitted.

(b) 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.

(c) Water or water rights now owned or hereafter acquired by the Contractor, other than from the United States or adverse to the Project or its contractors (i.e., non-project water), may be stored, conveyed and/or diverted through Project facilities, other than Friant Division Facilities, subject to the completion of appropriate environmental documentation, with the approval of the Contracting Officer and the execution of any contract determined by the Contracting Officer to be necessary, consistent with the following provisions:

(1) The Contractor may introduce non-project water into Project facilities and deliver said water to lands within the Contractor's Service Area subject to payment to the United States and/or to any applicable Operating Non-Federal Entity of an appropriate rate as determined by the Contracting Officer. In addition, if electrical power is required to pump non-project water, the Contractor shall be responsible for obtaining the necessary power and paying the necessary charges therefor.

(2) Delivery of such non-project water in and through Project facilities shall only be allowed to the extent such deliveries do not: (i) interfere with other Project purposes as determined by the Contracting Officer; (ii) reduce the quantity or quality of water available to other Project Contractors; (iii) interfere with the delivery of contractual water entitlements to any other Project Contractors; (iv) interfere with the physical maintenance of the Project facilities; or (v) result in the United States incurring any liability or unreimbursed costs or expenses thereby.

(3) Neither the United States nor the Operating Non-Federal Entity 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.

(2) The Secretary will, as appropriate, pursue program and project implementation and authorization in coordination with Project Contractors to improve the water supply, water quality, and reliability of the Project for all Project purposes.

(3) The Secretary will coordinate with Project Contractors and the State of California to seek improved water resource management.

(4) The Secretary will coordinate actions of agencies within the Department of the Interior that may impact the availability of water for Project purposes.

(5) The Contracting Officer shall periodically, but not less than annually, hold division level meetings to discuss Project operations, division level water management activities, and other issues as appropriate.

(c) Without limiting the contractual obligations of the Contracting Officer hereunder, nothing in this Contract shall be construed to limit or constrain the Contracting Officer's ability to communicate, coordinate, and cooperate with the Contractor or other interested stakeholders or to make decisions in a timely fashion as needed to protect health, safety, physical integrity of structures or facilities, or the Contracting Officer's ability to comply with applicable laws.

CHARGES FOR DELINQUENT PAYMENTS

21. (a) The Contractor shall be subject to interest, administrative and penalty charges on delinquent installments or payments. When a payment is not received by the due date, the Contractor shall pay an interest charge for each day the payment is delinquent beyond the due date. When a payment becomes sixty (60) days delinquent, the Contractor shall pay an administrative charge to cover additional costs of billing and processing the delinquent payment. When a payment is delinquent ninety (90) days or more, the Contractor shall pay an additional penalty charge of six (6) percent per year for each day the payment is delinquent beyond the due date. Further, the Contractor shall pay any fees incurred for debt collection services associated with a delinquent payment.

(b) The interest charge rate shall be the greater of the rate prescribed quarterly 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

must be revised and (ii) within three (3) months thereafter promptly agree on the appropriate revision(s). The time periods specified above may be extended by mutual agreement of the parties. Pending the completion of the actions designated above, to the extent it can do so without violating any applicable provisions of law, the United States shall continue to make the quantities of Project Water specified in this Contract available to the Contractor pursuant to the provisions of this Contract which were not found to be legally invalid or unenforceable in the final court decision.

RESOLUTION OF DISPUTES

34. Should any dispute arise concerning any provisions of this Contract, or the parties' rights and obligations thereunder, the parties shall meet and confer in an attempt to resolve the dispute. Prior to the Contractor commencing any legal action, or the Contracting Officer referring any matter to Department of Justice, the party shall provide to the other party thirty (30) days written notice of the intent to take such action; Provided, That such notice shall not be required where a delay in commencing an action would prejudice the interests of the party that intends to file suit. During the thirty (30) day notice period, the Contractor and the Contracting Officer shall meet and confer in an attempt to resolve the dispute. Except as specifically provided, nothing herein is intended to waive or abridge any right or remedy that the Contractor or the United States may have.

OFFICIALS NOT TO BENEFIT

35. No Member of or Delegate to Congress, Resident Commissioner, or official of the Contractor shall benefit from this Contract other than as a water user or landowner in the same manner as other water users or landowners.

1311 CHANGES IN CONTRACTOR'S SERVICE AREA

1312 36. (a) While this Contract is in effect, no change may be made in the
1313 Contractor's Service Area or boundaries, by inclusion or exclusion of lands, dissolution,
1314 consolidation, merger, or otherwise, except upon the Contracting Officer's written consent.

1315 (b) Within thirty (30) days of receipt of a request for such a change, the
1316 Contracting Officer will notify the Contractor of any additional information required by the
1317 Contracting Officer for processing said request, and both parties will meet to establish a mutually
1318 agreeable schedule for timely completion of the process. Such process will analyze whether the
1319 proposed change is likely to: (i) result in the use of Project Water contrary to the terms of this
1320 Contract; (ii) impair the ability of the Contractor to pay for Project Water furnished under this
1321 Contract or to pay for any Federally-constructed facilities for which the Contractor is
1322 responsible; and (iii) have an impact on any Project Water rights applications, permits, or
1323 licenses. In addition, the Contracting Officer shall comply with the National Environmental
1324 Policy Act and the Endangered Species Act. The Contractor will be responsible for all costs
1325 incurred by the Contracting Officer in this process, and such costs will be paid in accordance
1326 with Article 26 of this Contract.

1327 FEDERAL LAWS

1328 37. By entering into this Contract, the Contractor does not waive its rights to contest
1329 the validity or application in connection with the performance of the terms and conditions of this
1330 Contract of any Federal law or regulation; Provided, That the Contractor agrees to comply with
1331 the terms and conditions of this Contract unless and until relief from application of such Federal
1332 law or regulation to the implementing provision of the Contract is granted by a court of
1333 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.

CONTRACT DRAFTING CONSIDERATIONS

42. Articles 1 through 7, Articles 9 through 13, subdivision (c) of Article 16, Articles 18 through 20, subdivision (c) of Article 23, Articles 26 through 29, subdivisions (b) and (c) of Article 31, subdivisions (b) and (c) of Article 32, Articles 33 through 34, subdivision (b) of Article 36, and Articles 37 through 38 of this Contract have been drafted, negotiated, and reviewed by the parties hereto, each of whom is sophisticated in the matters to which this Contract pertains, and no one party shall be considered to have drafted the stated Articles.

IN WITNESS WHEREOF, the parties hereto have executed this Contract as of the day 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 addt'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 XIIID 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.

APPENDIX D

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 $

THIS AGREEMENT, entered into as of this 25th day of May, 1976, by and between the FRESNO IRRIGATION DISTRICT, a public corporation, (herein called the "DISTRICT"), and the CITY OF FRESNO, a municipal corporation, (herein called "CITY");

W I T N E S S E T H:

WHEREAS, Fresno Irrigation District is an irrigation district organized and existing under the laws of the State of California and is the owner of certain water rights and a water distribution system for the distribution of water within the District, and the City of Fresno is a municipal corporation wholly within the exterior boundaries of said District and is the owner of a water distribution system delivering water to lands both in and outside the exterior boundaries of said City; and

WHEREAS, District and City have heretofore entered into a cooperative program of water utilization between said parties evidenced by a written agreement for such water utilization and conveyance dated August 12, 1970, which by its terms and by the terms of amendments thereto will terminate on May 30, 1976; and

WHEREAS, District and City wish to continue with said cooperative program and to make and enter into a new contract for water utilization and conveyance; and

WHEREAS, this agreement is specifically authorized by, and entered into pursuant to Chapter 9 (commencing with Section 26670), Part 10, Division 11 of the California Water Code, and

WHEREAS, by agreement dated January 12, 1961, between City and the United States of America (herein called the "City Bureau Contract"), City is required and/or is entitled to purchase certain water herein called City's Bureau Water from the United States, commencing in 1966; and

To [illegible] official fee on behalf of Fresno Irrigation District

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FID

WHEREAS, the District has entered into certain contracts with the United States (herein called the "District Bureau Contracts") for a supplemental supply of water from the Friant-Kern Canal and for storage in Pine Flat Reservoir on the Kings River, which said District Bureau Contracts are more particularly described as follows:

> Contract Between the United States of America and Fresno Irrigation District Providing for the Payment of the District's Share of the Cost of Pine Flat Dam and Reservoir Allocated to Irrigation, dated December 23, 1963,
>
> Contract for Operation and Maintenance of Irrigation Storage Space of Pine Flat Reservoir, dated December 23, 1963,
>
> Kings River Allocation Contract, dated December 23, 1963,
>
> Contract between the United States and Fresno Irrigation District Providing for Water Service, dated July 20, 1964,
>
> Conveyance and Covenants in Compromise and Settlement of Fresno Slough Claims, dated April 23, 1965,

and has entered into other contracts with the members of the Kings River Water Association (herein called the "District Intra-Association Agreements"), relating to Kings River and storage in Pine Flat Reservoir, which said contracts are more particularly described as follows:

> Water Right Indenture, dated May 3, 1927,
>
> Administrative Agreement and Monthly Diversion Schedule dated May 3, 1927,
>
> Agreement Supplementing and Amending Water 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,

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Agreement Supplementing and Amending Water Right Indenture Dated May 3, 1927, and Administrative Agreement Dated May 3, 1927, Each as Amended and Supplemented June 1, 1949, Relating to Kings River Water Assocation, dated September 10, 1963, and

WHEREAS, it is recognized by District and City that the District is primarily charged with the distribution and delivery of water within the District for agricultural use and that its canals and distribution system must primarily be used for that purpose, and

WHEREAS, it is recognized by both the District and the City that many inhabitants of the District also require water for domestic, industrial or fire protection purposes which may be supplied to them by the City, and

WHEREAS, it is recognized by District and City that both are charged with the protection and preservation of the underground water supply;

NOW, THEREFORE, it is mutually agreed as follows:

1. Term. The term of this agreement shall be for a period commencing on the date it is executed and ending at 12:00 o'clock p.m on the last day of February in the year 1981 and thereafter, until terminated by either party as of the last day of February of any subsequent year by written notice to the other party mailed prior to September 1st of the previous year. Forthwith upon the execution of this agreement the previous agreement between the parties above referred to dated August 12, 1970, and all amendments thereto shall be terminated and shall be of no further force or effect, except that City agrees to pay District any monies owing or to become owing to District under and according to the terms of said previous agreement.

2. Approval by United States. Immediately upon the execution of this contract by the parties hereto, it shall be

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presented to the United States for its approval and in the event of its disapproval by the United States it shall become ineffective and unenforceable for any purpose until such approval has been obtained.

This contract shall be at all times subject to all of the terms and conditions of the City Bureau Contract, the District Bureau Contracts and the District Intra-Association Agreements and to the extent that any agreement contained herein is contrary to or inconsistent with any term or condition of those contracts or agreements, this contract shall be unenforceable. In the event any such agreement contained herein shall become unenforceable, the entire contract may be terminated by the party adversely affected as of the last day of February of the next succeeding year, by written notice served upon the other party on or before the first day of September of the year preceding such termination.

3. Definition. For the purpose of this agreement, the following words shall be defined as follows:

a. "City Water Service Area" means all lands within the city limits of the City of Fresno, and also all lands outside the city limits of the City of Fresno which are within the exterior boundaries of District to which the City now delivers water or hereafter consents to deliver water by means of its City Water System and which are not hereafter designated or assessed by the District as lands receiving or to receive District Water Service from the District.

b. "Included Area" means that portion of the City Water Service Area which is a part of the District.

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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.

i. "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

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as of the first day of March, 1976, entitled "City Water Service Area, Included Area and Excluded Area as Defined in Cooperative Agreement Between Fresno Irrigation District and City of Fresno," shall be prepared in duplicate by the Water Division of the City of Fresno and approved in duplicate and in writing upon said map by the Director of Public Works of the City and by the Manager of the District. When so approved, said map shall be incorporated herein by reference as Exhibit A and shall become a part hereof. One duplicate so approved shall be kept in the office of the City and one in the office of the District. Said map shall be amended and reapproved by both parties as of the first day of March, 1977, and as of the first day of March of each succeeding year thereafter; provided, however, that the City shall keep the District currently advised on a monthly basis of any new lands outside of the Fresno City Limits to which it commences or consents to deliver water and the District shall keep the City so advised as to any new lands designated or assessed by it as lands receiving or to receive District Water Service. When so amended and reapproved as of the first day of March of each year, said map shall conclusively establish the boundaries of and the acreage in each area for all purposes of this agreement.

In computing the acreage in each of the areas above referred to, the entire acreage shall be measured including properties that may be exempt from assessment for taxation and including adjacent streets, alleys, roads, highways and other public ways to the center lines thereof.

Said map shall also show the area within which the District's water shall be made available to the City under Paragraph No. 6 hereof. Said area shall be designated on said map as "District's Water Delivery Area".

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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.

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In the event of the disapproval of this agreement by the United States or of any other termination of this agreement during any calendar year, the total amount to be paid on or before December 20th of that year and/or June 20th of the next year shall still be paid.

Time shall be of the essence for the making of the above payments. If any such payment is not made on the date provided, the City shall pay to the District in addition to said payment costs and penalties equal to those provided by law to be paid by landowners within the District for the late payment of assessments. These penalties are in addition to any other remedy which the District may have against the City because of the City's failure to pay said payment as above provided.

6. Water Made Available to City. Subject to all other provisions of this agreement, the District shall make available to the City during each calendar year (pursuant to Water Code Section 26671, subsection 2) for distribution and use within the Included Area of the City, at such times as shall be determined by the Manager of the District, that proportion of the total water diverted by the District from the Surface Water Supply available to it for such year, as the acreage of the Included Area, appearing on the map designated as Exhibit A, as of the first day of March preceding that water year, bears to the acreage of the total area in the District (including the Included Area) receiving a Surface Water Supply from the District. Said water shall be made available to the City in the District's canals at such point or points along such canals within the area designated on Exhibit A as "District's Water Delivery Area" as may be designated by the City and approved by the District and shall be taken from the District's canals by and at the expense of the City in a manner approved by District. The City must act

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reasonably in designating such points or points of delivery and the District must act reasonably in approving or disapproving such point or points of delivery. The District shall not be required to make such water available to the City at any point or points which will interfere with the operation or maintenance of the District's distribution system or water delivery schedule. Such water may be used by the City only within the Included Area for Municipal, Industrial and Domestic Uses and for Agricultural Uses incidental thereto, and within the District's Water Delivery Area for recharge of the underground water supply by percolation.

No water which has been received by the District either as Class 1 or Class 2 water under its contract with the United States for water service from the Friant-Kern Canal, dated July 20, 1964, or which has been stored by the District in Pine Flat Reservoir under the District's contracts with the United States providing for such storage, dated December 23rd, 1963, shall be made available to the City.

The City shall not sell, transfer or exchange any of said water to or with any other person or entity. However, this provision shall not prevent the City from entering into separate agreements with any other entity which may have a similar agreement with the District for the distribution and use of water received from the District under such agreements, provided such separate agreements are entered into with the written consent of the District first had and obtained and are subject to all the terms and conditions of this agreement and the District's agreements with such other entities.

7. Water Entitlements of Lands in Included Area. The owners of lands within the Included Area covered by this agreement shall each year be entitled to receive and use from the water so made available by the District to the City, or from

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other water available to the City, an amount of water sufficient to supply his reasonable and beneficial needs, limited however to his proportionate share of the water made available by the District to the City under this agreement based upon the ratio which the number of acres owned by him bears to the total number of acres of land within the Included Area. The City may charge such rates as it may determine for the service of water to such lands; provided, however, no distinction shall be made between the rate charged for water received by the City from the District under this agreement and water obtained by the City from other sources.

8. Conveyance of City's Bureau Water. Under the City's contract with the United States providing for Water Service, dated January 12, 1961, the City may, under the circumstances therein provided, decrease the quantity of City's Bureau Water required to be furnished each year to the City by the United States pursuant to said contract. City agrees that so long as this contract with District remains in effect, it will not decrease the quantity of City's Bureau Water to be accepted and paid for by it under Schedule A in Paragraph 3(A) of said contract with the United States, without the consent of District.

At the request of the City, the District shall convey for the City, in the District's canals, all or such portion of the City's Bureau Water which the City shall receive from the United States under the City Bureau Contract and which is not conveyed by other means. City's Bureau Water shall be taken into the District's canals at the diversion point or points on the Friant-Kern Canal where water is delivered to the District or the City under their agreements with the United States, and shall be conveyed in such canals and delivered to the City at such points along such canals as may be designated by the

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City and approved by the District. The City must act reasonably in designating such point or points of delivery and the District must act reasonably in approving or disapproving such point or points of delivery. The District shall not be required to make such water available to the City at any point or points which will interfere with the operation or maintenance of the District's distribution system or water delivery schedule. Such water shall be received by the City in the District's canals and taken from the District's canals by and at the expense of the City in a manner approved by the District.

It is agreed that if and when the City shall establish a diversion point and/or facility of its own on the Friant-Kern Canal for the purpose of receiving its Bureau Water, the District shall have the right to use said diversion facility for its own purposes as well as for the purpose of receiving the City's Bureau Water for conveyance into the District, providing that City's Bureau Water shall take precedence of use of the diversion facility.

Whenever the City's Bureau Water is requested by the City, the District shall have the right to exchange and to convey for the City in place thereof other water in similar quality and equal quantity at the point of delivery (except sewer effluent or industrial wastes) available to the District, and to take and use such water available under the City's Bureau Contract for its own uses at such times and in such manner as may be determined by the District.

It is understood that the conveyance by the District of its own water to landowners served by it within the District (including lands within the City in the Included Area) shall have priority over the conveyance of the City's Bureau Water and that nothing herein contained shall require the District to convey City's Bureau Water at any time when, because of lack of canal capacity or otherwise, the conveyance of such water would

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make it impossible or impractical for the District to convey its own water upon the schedules established by the District. However, it is understood that in determining whether at any time the District's canals have the capacity to convey the City's Bureau Water, the conveyance of that water shall have priority over the conveyance of any water brought into the District by the City of Clovis, or the Fresno County Waterworks District No. 19, or any other entity with which the District may have a similar contract; provided, however, that in the event additional canal capacity is provided by the City or any other such entity at its expense to accommodate its own water, that entity's water shall have priority in that additional space.

If it becomes necessary, the City and the District will consider the enlargement of the District's canals for the purpose of conveying City's Bureau Water, the City to pay that portion of the cost of such enlargement as is for its benefit. In the event of such enlargement, all lands or easements acquired in connection therewith, and all additions or improvements in or to the District's canals shall become the property of the District but the City shall have priority in the use of such additional capacity during the term of this contract. The District shall not be bound to so enlarge any of its said canals, and neither party shall be required to participate in or pay for any such enlargement, without its consent.

9. Schedules of Delivery and Conveyance of Water. The District will make available to and convey for the City the water herein agreed to be made available to the City pursuant to paragraph 6, at such times during the water year as shall be determined by the District. Insofar as practicable and feasible, the District will attempt to make such water available to City from the District's water supply on the same water schedule that

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other landowners in the District receive water and in such a manner as to provide the same in a continuous flow at all times when water is running in the canal or canals by which such water is conveyed for the City's use, but in making such determination the District will take into consideration the capacity and condition of said canals, the availability of water which may be taken or used by the City under the terms of this agreement and under the terms of the District's contracts with the United States and the rules, regulations and directives of the Bureau of Reclamation in connection therewith, the needs and requirements of other landowners in the District, including the needs and requirements of excess landowners, the entitlements of the District to natural flow or unstored water from the Kings River, the requirements of the contracts between the District and the City of Clovis and Fresno County Waterworks District No. 19 and all other factors pertaining to the distribution, apportionment and use of water available to the District. Such delivery and conveyance schedules may be adjusted from time to time by the District in a manner reasonably calculated to best serve the needs of the District and the City.

Subject to the same limitations of feasibility, the District will convey City's Bureau Water at such times as the City may request; provided, however, that the District shall not be required to convey water for the City in any canal at any time when work is being done upon said canal for construction, improvement or maintenance and if the City requests the District to convey water in any canal during any time when water is not being run in said canal for other landowners, the District may condition the conveyance of its said water upon payment by the City of any additional cost incurred by the District because thereof.

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10. Conveyance Losses. The City shall assume and bear all conveyance losses for all water furnished by the District to the City or conveyed by the District for the City under this agreement. Conveyance losses chargeable to the City shall be computed by multiplying the losses in that portion of any canal used for such conveyance, during the period such water is being so conveyed, by the total amount of water being conveyed for the City in that canal during such time, divided by the total amount of water flowing in that portion of that canal during the same period.

11. Use by District of Water Not Used by City. In the event the City is unable to use or does not use any part of the water made available to it by the District within the area designated on Exhibit A as "District's Water Delivery Area" under this agreement for the purposes, at the times and in the manner herein provided, the City shall lose the right to receive such water, and the District shall have the right to take and use such water for purposes of irrigation and percolation in such manner as it may determine. In such event, insofar as the canals and facilities of the District will permit, and insofar as otherwise may be practicable and equitable as to other landowners, the District will use such water for irrigation or percolation in areas in the City or east or northeast of the City, and will discuss its use with the City before it is used elsewhere. However, the ultimate decision concerning such use of such water shall be within the discretion of the District.

In the event the City is unable to use or does not use any part of City's Bureau Water it is required to take under its City Bureau Contract when and as required under that contract or under the terms of this agreement, the City shall nevertheless take and pay for said water and the District shall have the right to use such water for purposes of irrigation and percolation but

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the City may require the District to so use such water at such locations as it may direct; provided, however, in the event the City does not direct the location at which said water shall be used in time that it may be so used or in the event the canals and facilities of the District will not permit the conveyance of such water to such location when so directed, or if for any other reason the conveyance of such water to such location at that time is not feasible or practicable, District shall have the right to use such water upon the same conditions as are provided in the previous paragraph for water made available to the City by the District.

Such use of any such water by the District as provided in this paragraph shall not relieve the City from any payments required to be made by it under the City Bureau Contract or under the terms of this agreement and its use by the District shall not require any payment from the District to the City.

12. Water Rights Not Transferred. Nothing in this agreement authorizes or shall be construed or deemed to constitute the sale or transfer of a water right from either party to the other.

13. City's Sewage Effluent. The City will retain its sewage effluent within the boundaries of the District for the term of this contract, except with the written consent of the District first had and obtained.

14. No Warranty of Quality. The character or quality of the water furnished or conveyed hereunder may vary from time to time for reasons including, but not restricted to, the application by the United States or the District of toxic chemicals to control aquatic and ditch bank weeds, and the open canals of the District are always subject to possible pollution from outside sources. The District does not guarantee in any respect or assume any responsibility for the chemical, bacterial or other

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quality of the water made available to the City or conveyed for the City through the District's facilities.

15. Indemnity. The City and the District each agree to indemnify the other and save the other free and harmless of and from any and all liability, damage, loss, cost or expense, incurred or suffered by the other, by reason of damage to the property of the other or injury to any other person or property arising out of its own conduct, acts, omissions or faults, in connection with any matter related to this contract.

CITY OF FRESNO, A Municipal Corporation

By: [signature]

Title: Director of Public Works

Attest:

[signature]
City Clerk

(City)

FRESNO IRRIGATION DISTRICT

APPROVED AS TO FORM
SPENCER THOMAS, JR., City Attorney

By Wayne N. Witch
Assistant

Date MAY 20 1976

By: F A Preuss
President

Attest: Ardys T. Gorder
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 persons who executed the within instrument on behalf of the corporation therein named, and acknowledged to me that such corporation 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.

OFFICIAL SEAL
PAUL H. WILLISON
NOTARY PUBLIC CALIFORNIA
PRINCIPAL OFFICE IN
FRESNO COUNTY
My Commission Expires November 19, 1977

[signature]
Notary Public in and for said County and State

CORPORATION ACKNOWLEDGMENT

Reorder from Shelburne's 1133 Fulton Mall 93721 268-8444

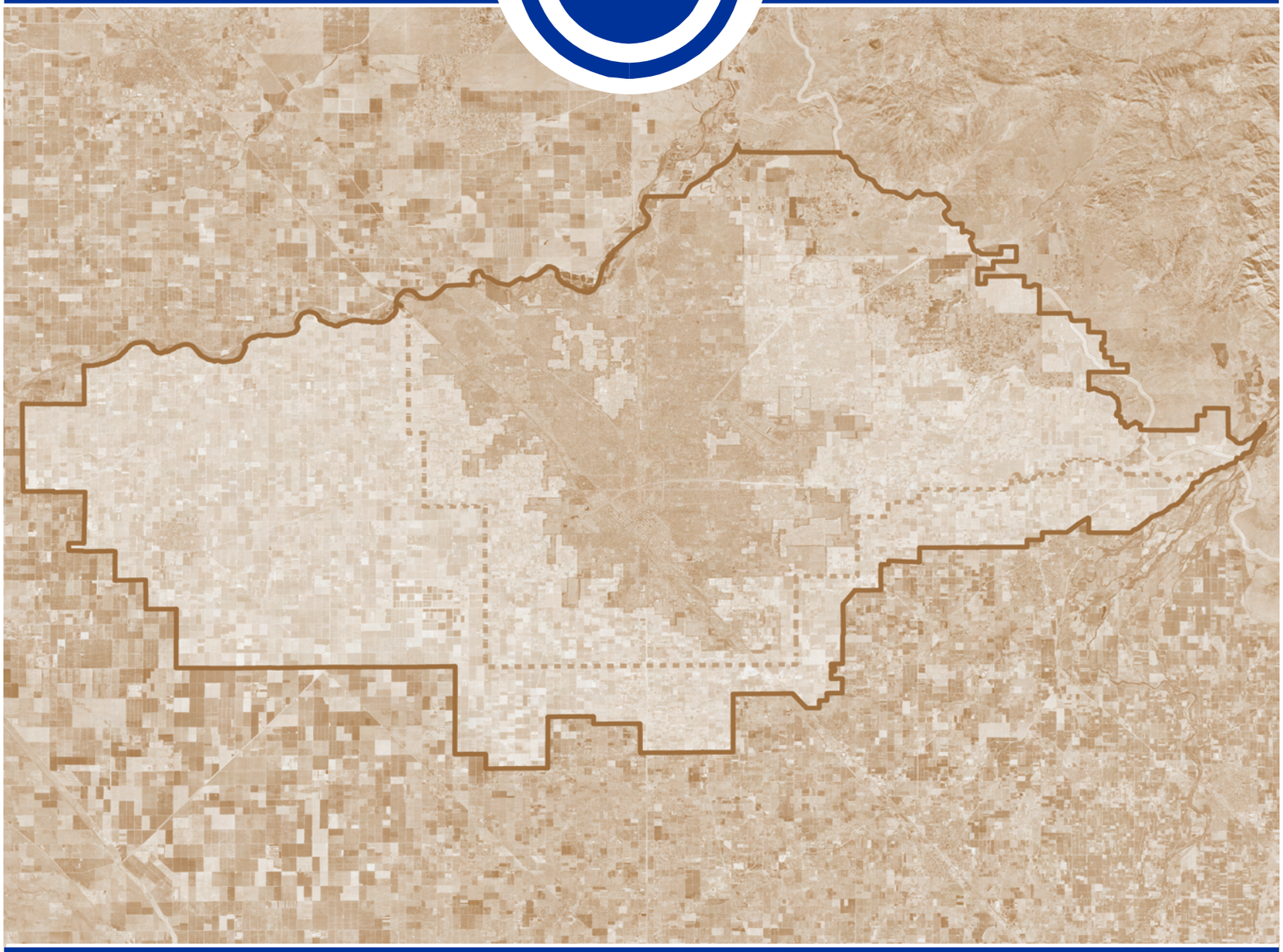
APPENDIX E

Fresno Area Regional Groundwater Management Plan

Fresno Area Regional

Groundwater Management Plan

December 2006



● *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:	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

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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

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:

- 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.

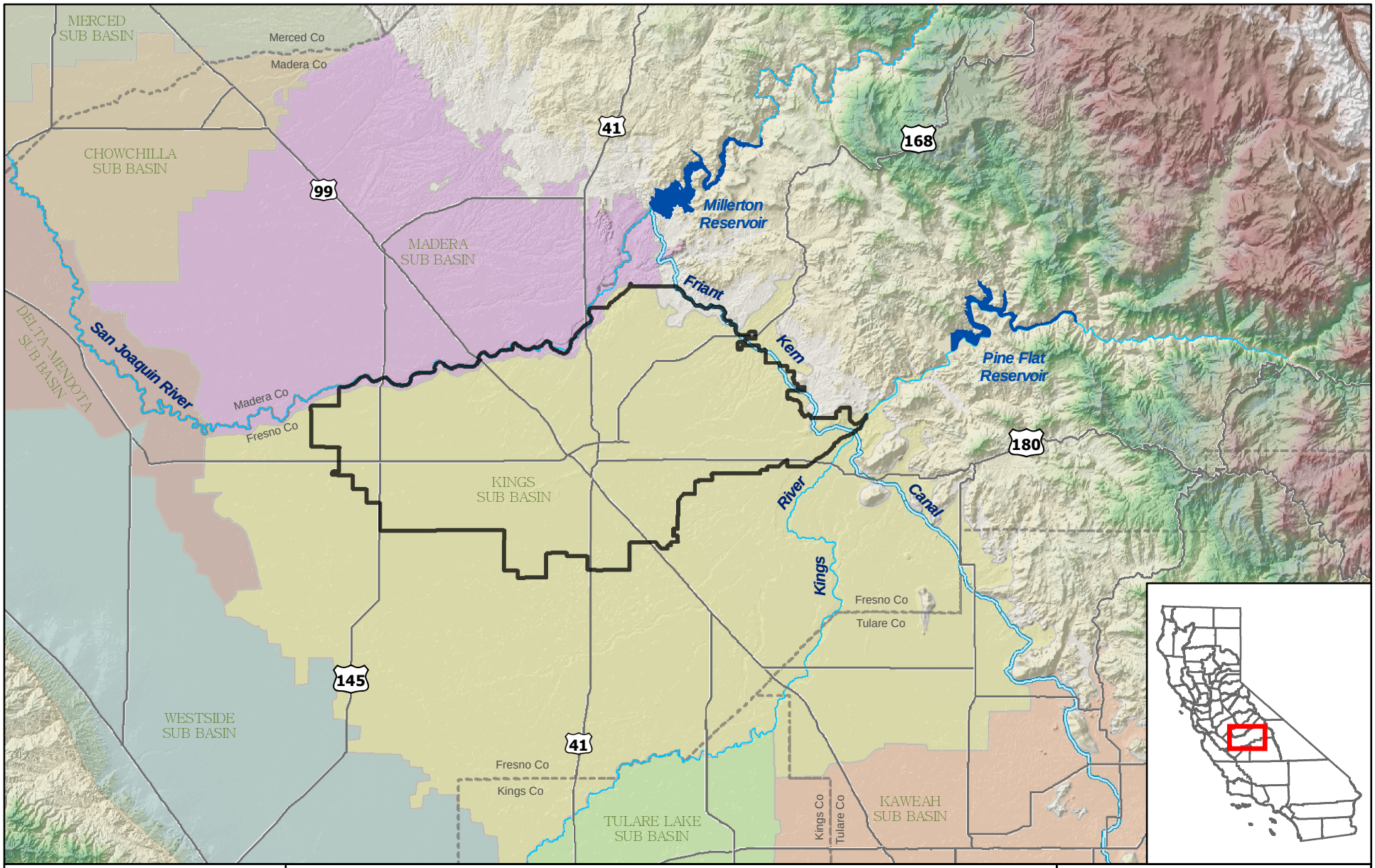
1.2 - Plan Area

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.



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Groundwater Sub Basins

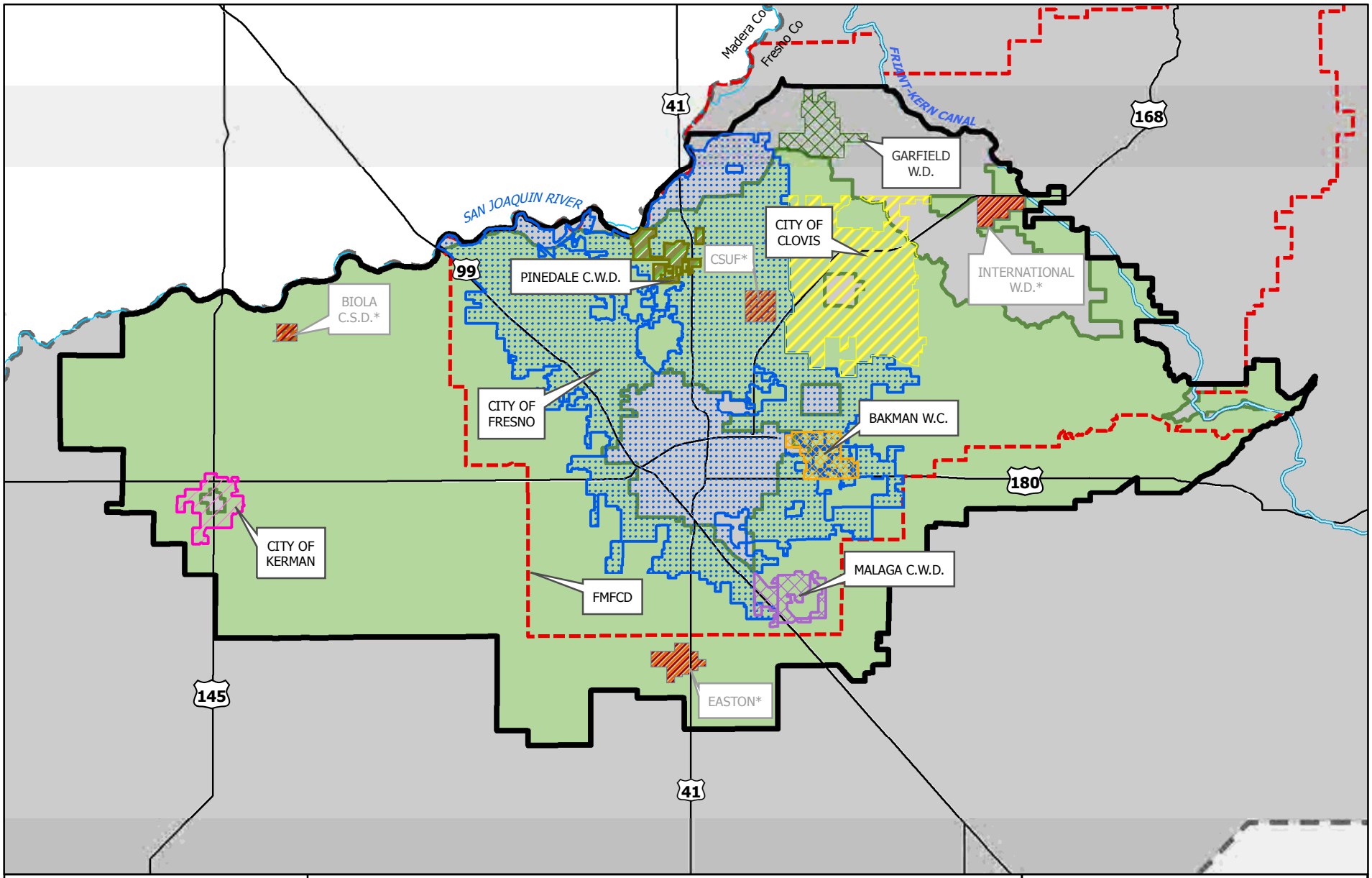
- Kaweah
- Kings
- Madera
- Delta-Mendota
- Westside
- Chowchilla
- Merced
- Tulare Lake

GMP BOUNDARY

Figure 1-1

Groundwater Basin Map

Fresno-Area Regional
Groundwater Management Plan



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LEGEND

- COUNTY OF FRESNO
- CITY OF FRESNO
- CITY OF KERMAN
- PINEDALE W.D.
- CITY OF CLOVIS
- BAKMAN W.D.
- GARFIELD W.D.
- MALAGA C.W.D.
- FRESNO I.D.
- FMFCD Boundary
- *Agencies within plan boundary, not participating
- GMP BOUNDARY
- FRIANT-KERN CANAL

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.

Figure 1-2

Participating Agencies

Fresno-Area Regional Groundwater Management Plan

December, 2005 \\huntington\gis\Clients\FresnoID_1038\10380505\FresnoRegionGMP_figure1-2.mxd

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

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.

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

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 included 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

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).

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

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.

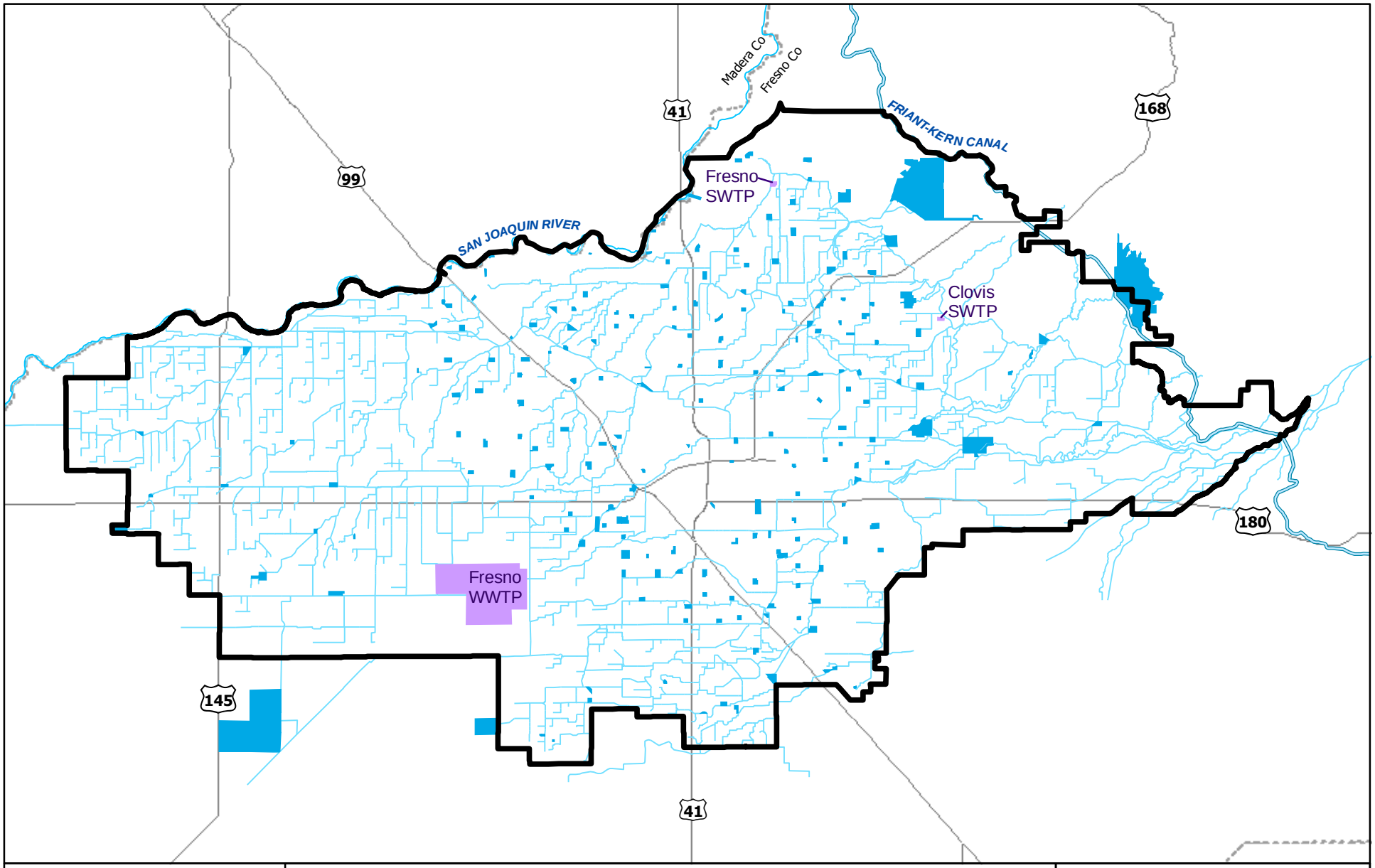
2.2 - Fresno County

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.



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Wastewater Treatment Plant
GWMP BOUNDARY
FMFCD Basins and FID Ponds
Water Facilities (Canals, Pipelins and Streams)

Figure 2-1

Surface Water Facilities

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.

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).

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 meets 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.

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.

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.

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.

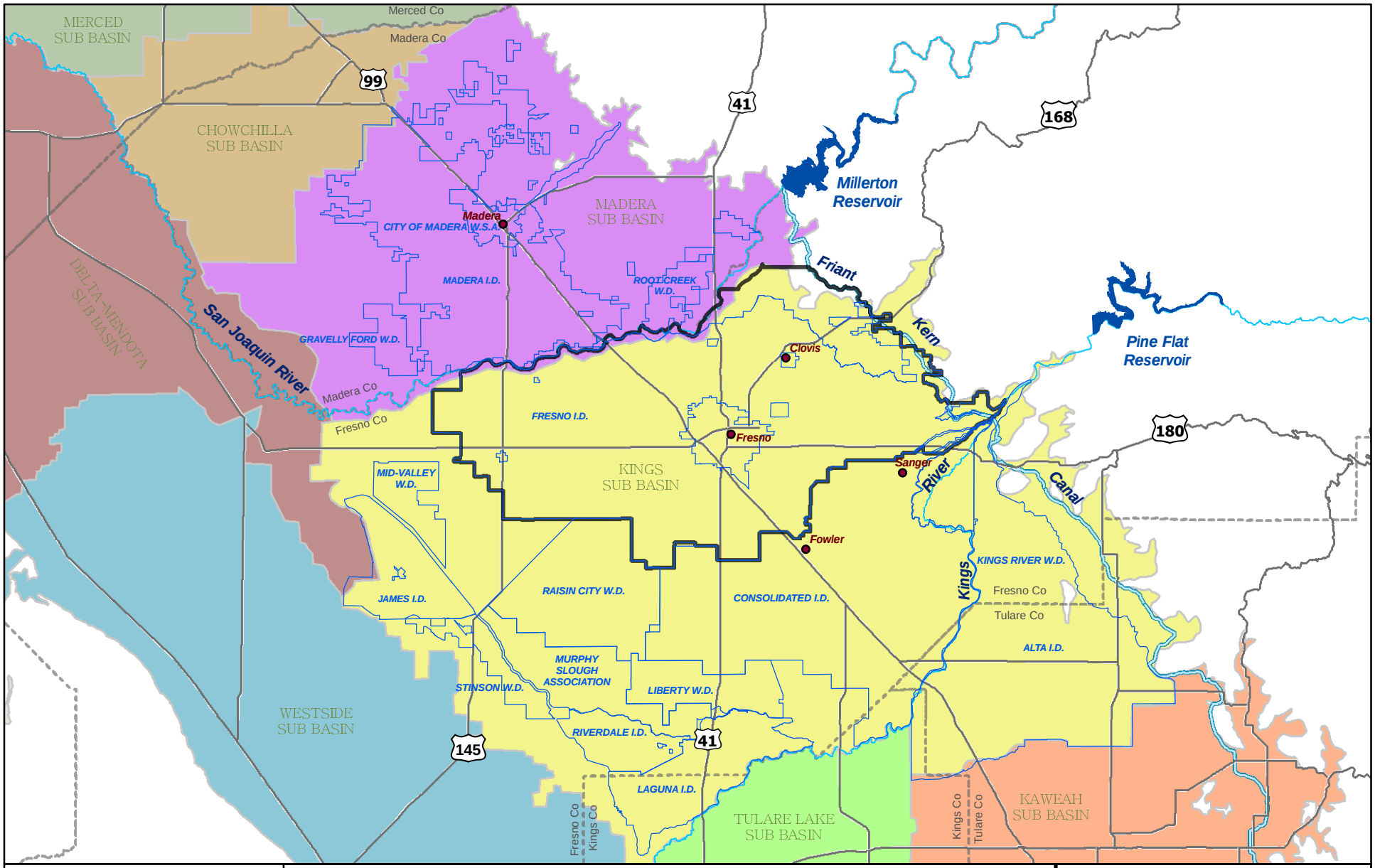
2.10 - Garfield Water District

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.



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Groundwater Sub Basins

- Kaweah
- Kings
- Madera
- Delta-Mendota
- Westside
- Chowchilla
- Merced
- Tulare Lake

GMP BOUNDARY

Water Agencies

Figure 2-2

Neighboring Agency Map

Fresno-Area Regional Groundwater Management Plan

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	Agriculture, Urban	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.

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, course-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.

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

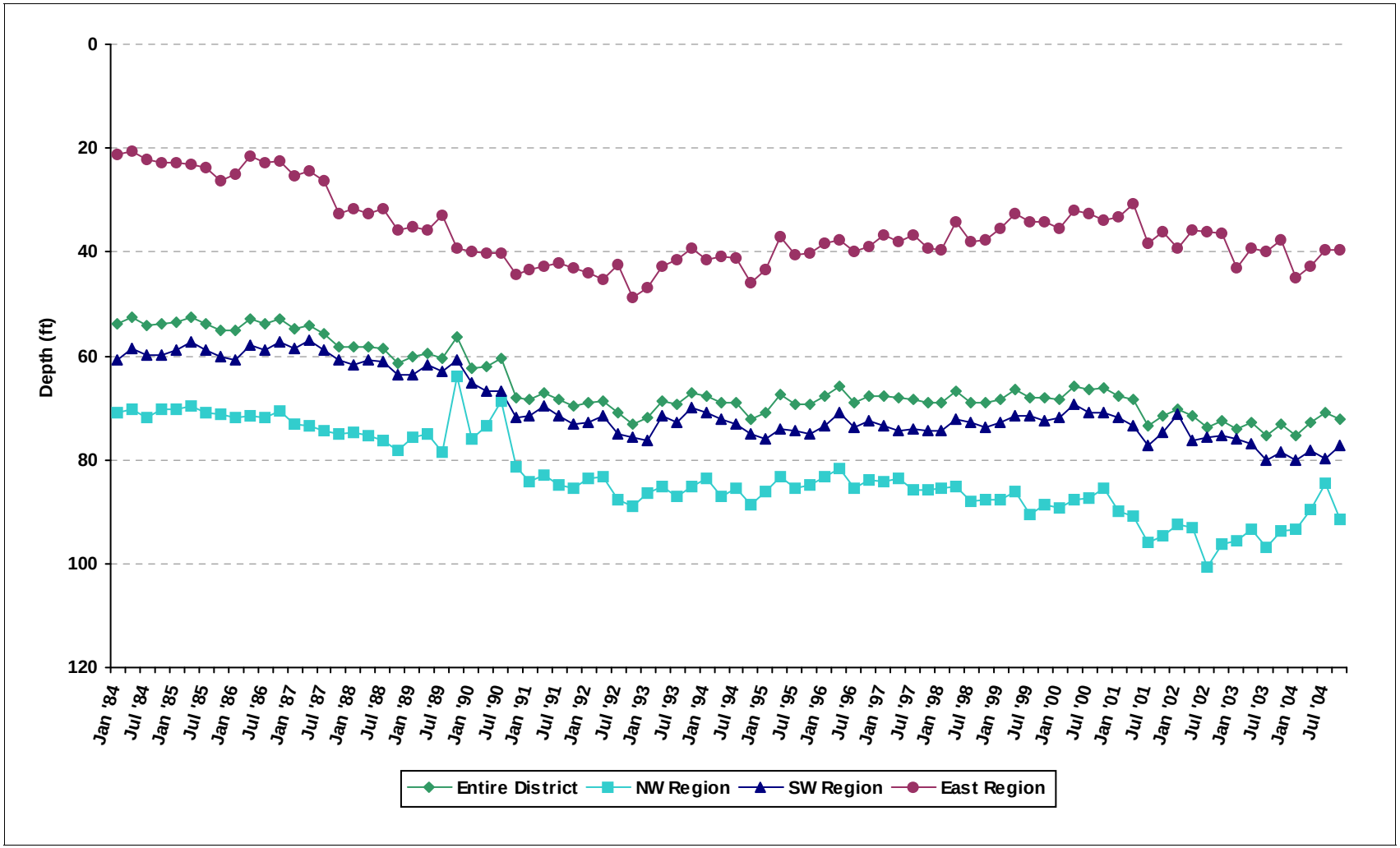
The ability of an aquifer to store groundwater is measured by its specific yield. Specific yield is defined as the quantity of groundwater that could be extracted from a unit volume of aquifer per unit decline in water level. The specific yield of an aquifer is important for evaluating the response of 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

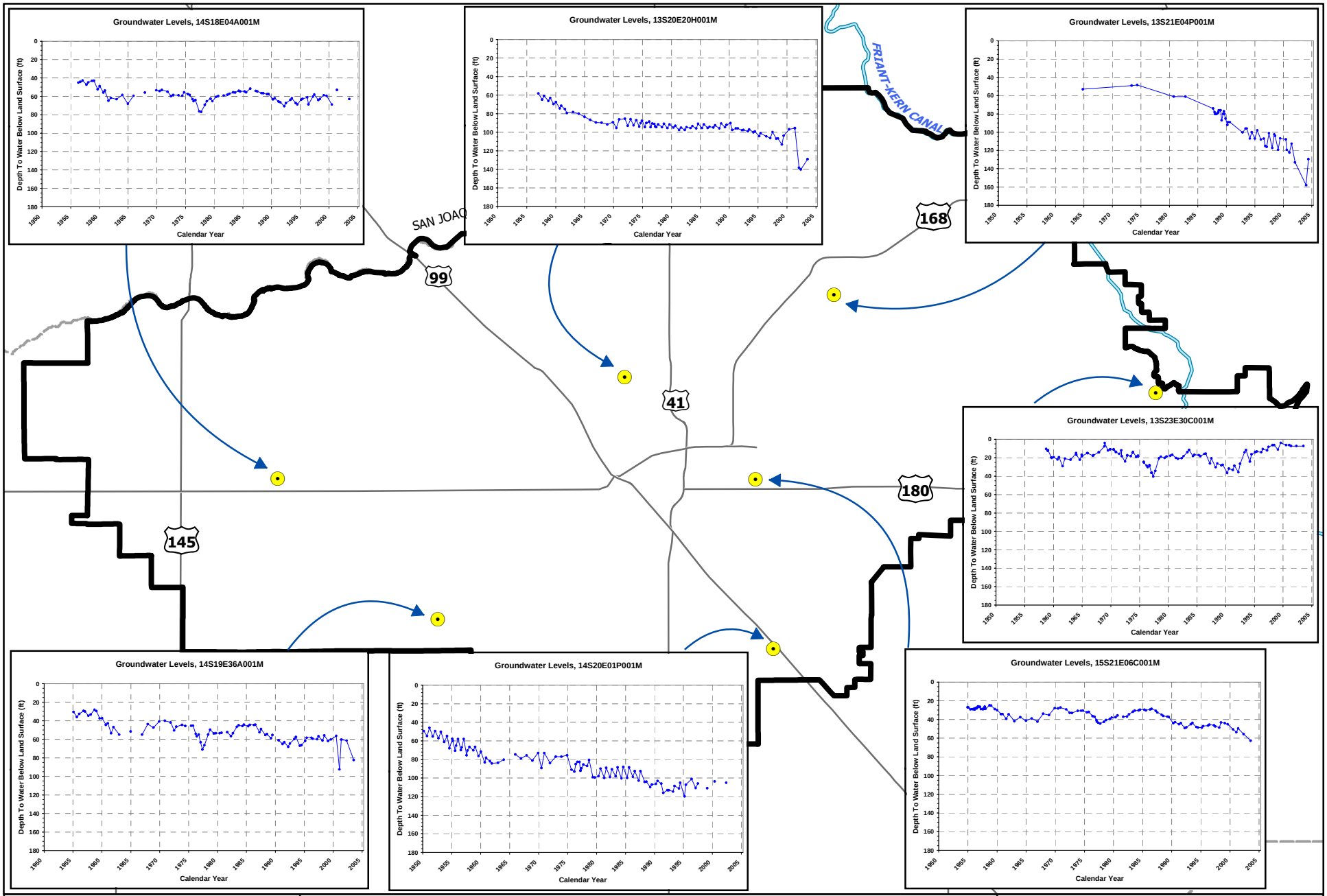
1/1/1984 To 10/1/2004



Printed On: 11/11/2005

*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



0 1 2 3 4 Miles

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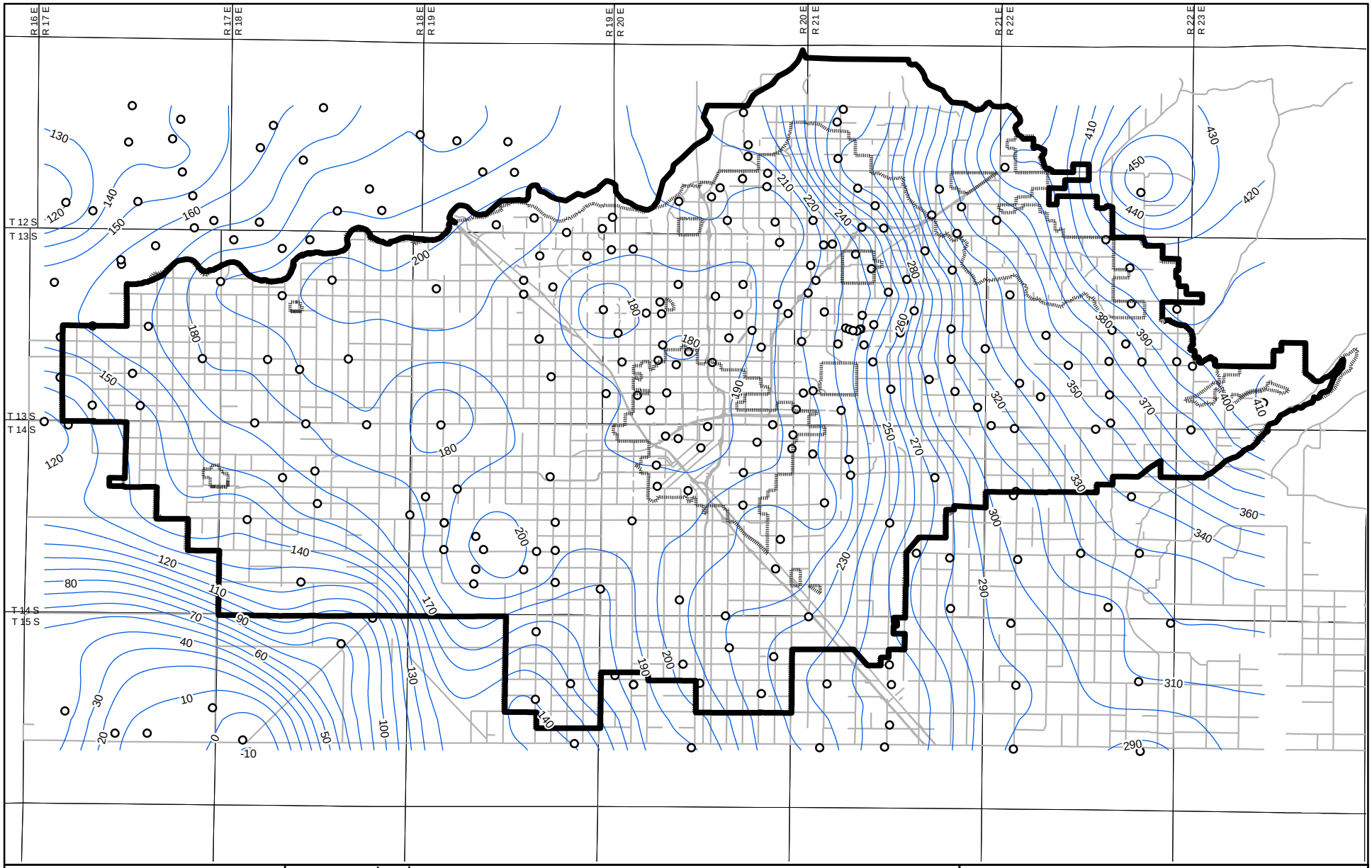
(559) 449-2700

GMP BOUNDARY
FRIANT-KERN CANAL

Figure 3-2

Well Hydrographs

Fresno-Area Regional
Groundwater Management Plan



0 1 2 3 4 Miles

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(559) 449-2700

Legend

- WSE (contours 10ft)
- Fresno ID Boundary
- Major Streets
- T / R
- Wells (Jan2005)
- GMP BOUNDARY

January 2005 Water Surface Elevation
10 Foot Lines of Equal Elevation

Figure 3-3

FID Annual Groundwater Report
Water Surface Elevation Contours

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

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.

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.

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;

- 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."

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.

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			●	●				●	●

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

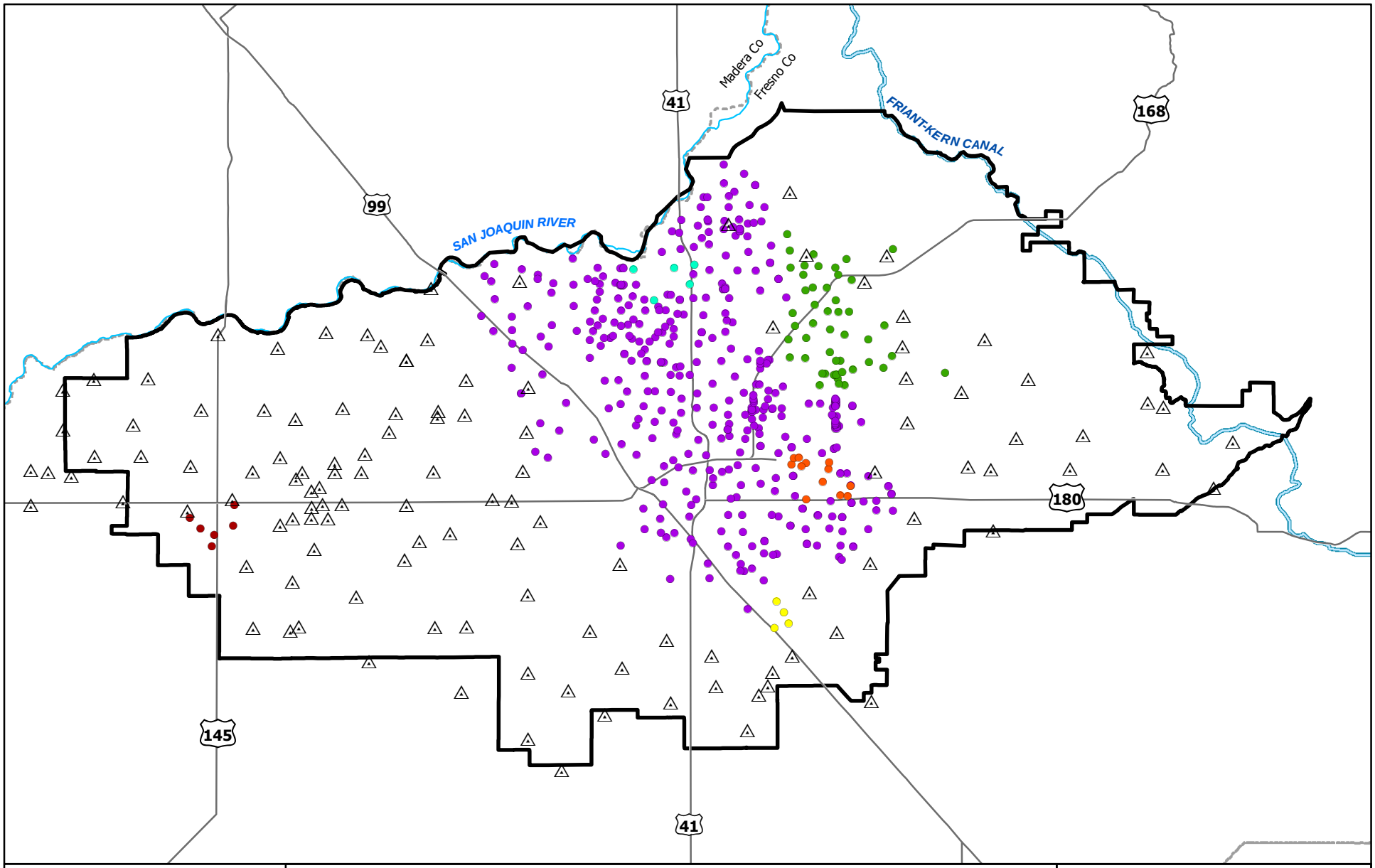
The County of Fresno no longer collects groundwater level data outside of its CSAs or WWDs. Some of the water purveyors, such as Kerman and the City of Fresno, have a water level measurement device in many wells connected to their SCADA systems. Other water purveyors such as Pinedale County Water District 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.



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GMP BOUNDARY

Wells Monitored By Other Agencies

Wells Monitored By FID

Domestic Production Wells

- Bakman W.C.
- City of Kerman
- City of Fresno
- Malaga C.W.D.
- City of Clovis
- Pinedale C.W.D.

Figure 6-1

Domestic Production and Other Monitored Wells

Fresno-Area Regional Groundwater Management Plan

December, 2005 \\huntington\gis\Clients\FresnoID_1038\10380505\GMP_DomProdWells.mxd

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.

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.

- 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.

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

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.

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.

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 unimpaired 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.

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.

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

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:

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.

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

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.

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

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

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.

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.

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.

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.

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.

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.

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.

- 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

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

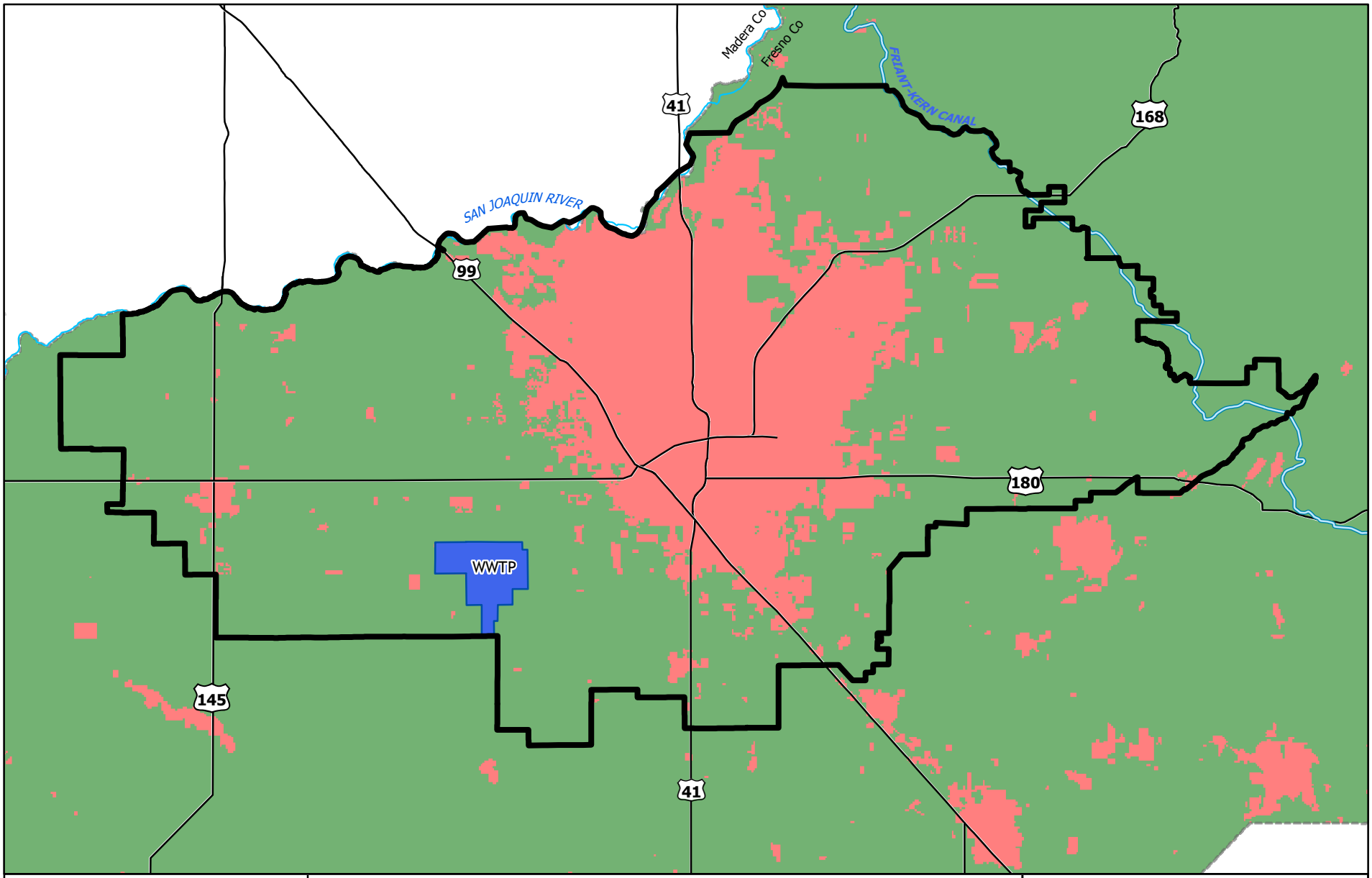
Groundwater projects are also financed through a variety of water user fees, property taxes, sales taxes, fine payments, and development impact fees.

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.

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.



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GMP BOUNDARY
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Urban Land Use
Ag / Irrigated Land Use

Figure 9-1

Landuse Map

Fresno-Area Regional
Groundwater Management Plan

December, 2005 \\huntington\gis\Clients\FresnoID_1038\10380505\GMP_Landuse.mxd

10 - REFERENCES

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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

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:

	Aye	Nay	Absent	Abstain
President Andresen	✓			
Vice-President Boswell	✓			
Director Niederfrank	✓			
Director Balls	✓			
Director Neely	✓			

Gary R. Serrato

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 9/20/05
Approved
Effective

2005-386

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 E. Klisch
Deputy

APPROVED AS TO FORM:
CITY ATTORNEY'S OFFICE

BY: _____
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.

John Garcia

(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

5469 E. OLIVE • FRESNO, CA 93727 • (559) 456-3292 • FAX (559) 456-3194

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

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;

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

RESOLUTION NO. 05-54

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF KERMAN APPROVING ENTERING INTO MEMORANDUM OF UNDERSTANDING (MOU) WITH FRESNO IRRIGATION DISTRICT (FID) AND OTHER AGENCIES AND WATER COMPANIES ON GROUNDWATER MANAGEMENT PLAN (GWMP) FOR KERMAN

WHEREAS. the City Council of the City of Kerman ("Kerman") as the legislative body of the City, has authorized the negotiation of a Memorandum of Understanding (MOU) with 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") to provide a means to promote an orderly process to share information, develop courses of action, and to resolve any issues with respect to the cooperative development and administration of the groundwater management plan; and

WHEREAS, the attached Memorandum of Understanding (MOU), Exhibit "A" memorializes the interests, intent and responsibilities of the parties with respect to the adoption of the groundwater management plan consistent with the provisions of the California Water Code; and

WHEREAS, conditions of the MOU are as outlined therein under Conditions and Covenants 1 through 12.

NOW, THEREFORE, BE IT RESOLVED THAT THE CITY COUNCIL OF THE CITY OF KERMAN RESOLVES THAT the City Manager is authorized to sign the Memorandum of Understanding regarding The Fresno Area Regional Groundwater Management Plan and the City Clerk is to attest.

The foregoing resolution was introduced at a regular meeting of the City Council of the City of Kerman held on the 6th day of July, 2005, and passed at said meeting by the following vote:

AYES:	Cromartie, Rodriguez, Sidhu, Stockwell
NOES:	None
ABSENT:	Moore
ABSTAIN:	None

////

The foregoing resolution is hereby approved.

ATTEST:

MAYOR, CITY OF KERMAN

CITY CLERK, CITY OF KERMAN

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

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

hearing or may be obtained in advance at the District 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.

/s/ **Katherine Alves**
November 21, 2005 Secretary
(PUB: November 26, 2005)

November 26, 2005

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

Dated NOVEMBER 26, 2005

Cathy Hamlen

FPROOFAD

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

#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

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 Yamani

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 Aguilera

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 Aguilera

FPROOFAD

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 Hamlen

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.

(PUB: November 24, December 1, 2006)

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

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

	Aye	Nay	Absent	Abstain
President Andresen	✓			
Vice-President Boswell	✓			
Director Niederfrank	✓			
Director Balls	✓			
Director Neely	✓			

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.

CITY OF CLOVIS ★ 1912 ★ INCORPORATED FEBRUARY 27

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.

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.

THE FOREGOING was passed and adopted by the following vote of the Board of Supervisors of the County of Fresno this 18th day of July, 2006, to-wit:

AYES: Supervisors Anderson, Case, Perea, Waterston, Larson

NOES: None

ABSENT: None

CHAIRMAN, Board of Supervisors

ATTEST:

BERNICE E. SEIDEL, Clerk
Board of Supervisors

By _____ Deputy

Agenda #5

Resolution #06-464

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: Rebecca E. Klisch
~~Deputy~~

APPROVED AS TO FORM:
CITY ATTORNEY'S OFFICE

BY: _____
Deputy City Attorney

JCH:ns [37384ns/jch] – 4/10/06

REC'D OCT 16 2006

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

PAM EINSEL, Secretary of the
Pinedale County Water District

EUGENE L. ADAMS
ATTORNEY AT LAW
3553 W Magill Ave
Fresno, CA 93711-0815
(559) 485-4611

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

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

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

RECD JAN 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.

L. Renee Holdcroft

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.

Don Moore

MAYOR, CITY OF KERMAN

ATTEST:

L. Renee Holdcroft

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
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 B. Alves

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 B. Alves

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

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: _____

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: _____

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

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: _____

CITY OF FRESNO

By: _____

APPROVED AS TO FORM:

HILDA CANTU MONTOY
City of Fresno Attorney

By: _____ Deputy Chief Ast

ATTEST

REBECCA E. KLISCH
City of Fresno Clerk

By: Elvira Sommerville
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: _____

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: _____

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: Bob Van Wyk

CITY OF KERMAN

By: _____

MALAGA COUNTY WATER
DISTRICT

By: _____

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: _____

FRESNO METROPOLITAN
FLOOD CONTROL DISTRICT

By: _____

CITY OF KERMAN

By: _____
Attest: _____
City Clerk

MALAGA COUNTY WATER
DISTRICT

By: _____

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: _____

FRESNO METROPOLITAN
FLOOD CONTROL DISTRICT

By: _____

CITY OF KERMAN

By: _____

MALAGA COUNTY WATER
DISTRICT

By: _____

REVIEWED AND RECOMMENDED FOR APPROVAL

By: _____
Alan Weaver, Director
Department of Public Works and Planning

APPROVED AS TO ACCOUNTING FORM

By: _____
Vicki Crow, Auditor-Controller/Treasurer-Tax Collector

APPROVED AS TO LEGAL FORM
Dennis Marshall, County Counsel

By: _____
Deputy

Fund: 0001
Subclass: 10000
Org Number: 436000300
Account: 7010
Project No.:

COUNTY OF FRESNO

_____
Judith G. Case
CHAIRMAN, Board of Supervisors

OCT 11 2005

ATTEST:

_____
Bernice E. Seidel, Clerk
Board of Supervisors

EXHIBIT "1"

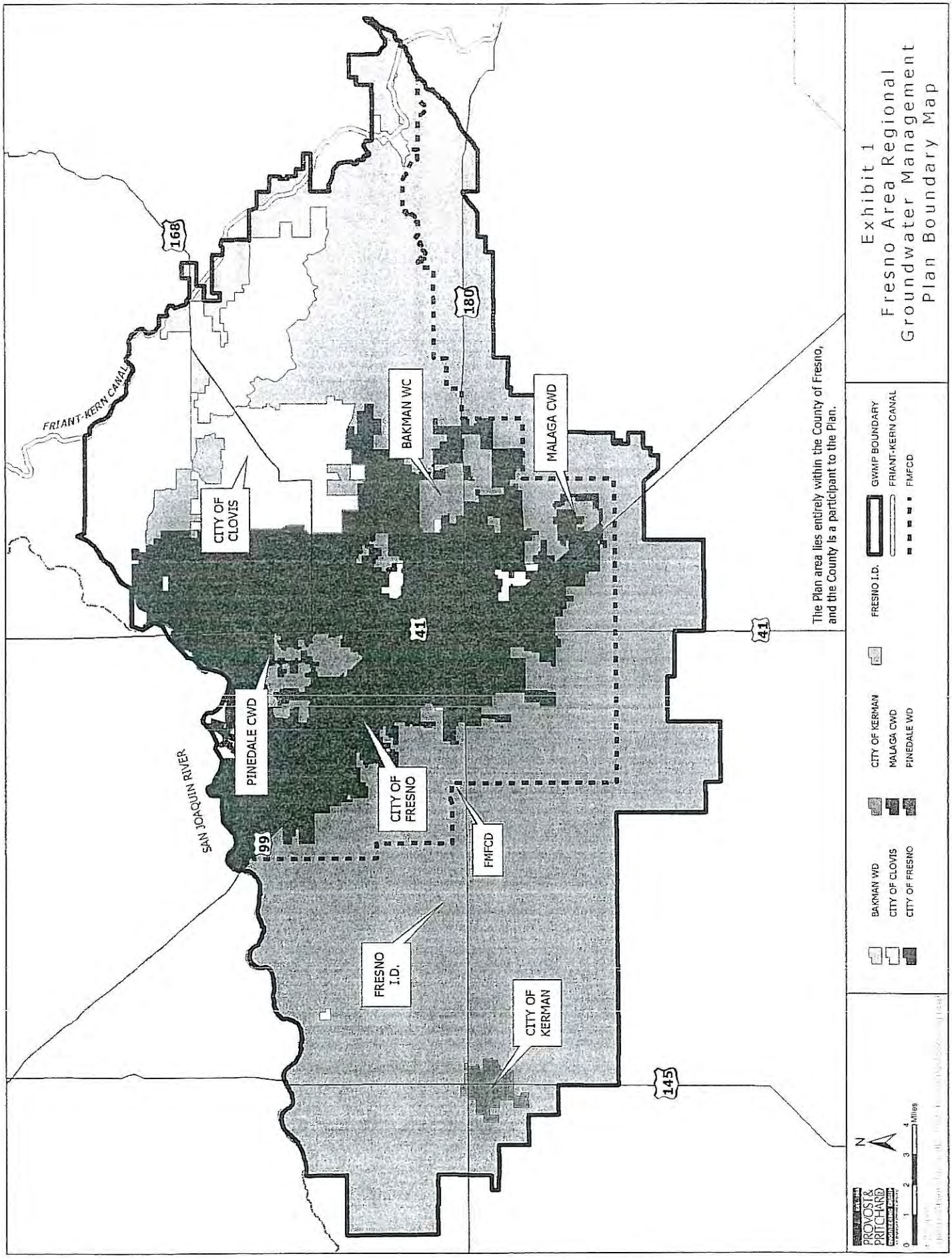
Exhibit 1
Fresno Area Regional
Groundwater Management
Plan Boundary Map
The Plan area lies entirely within the County of Fresno, and the County is a participant to the Plan.
GWMP BOUNDARY
FRIANT-KERN CANAL
FMFCD
FRESNO I.D.
CITY OF KERMAN
MALAGA CWD
PINEDALE WD
BAKMAN WD
CITY OF CLOVIS
CITY OF FRESNO
CITY OF CLOVIS
BAKMAN WC
MALAGA CWD
PINEDALE CWD
CITY OF FRESNO
FMFCD
FRESNO I.D.
CITY OF KERMAN
FRIANT-KERN CANAL
SAN JOAQUIN RIVER
168
180
41
41
99
145
N
0 1 2 3 4 Miles
PROVOST & PRITCHARD

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 arees 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

COPY

President

Attachments

FRESNO AREA REGIONAL GROUNDWATER MANAGEMENT PLAN

APPENDIX D

GLOSSARY

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

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.

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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.

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Leaching Requirement: The incremental water necessary to prevent harmful salt accumulations in the soil. LR = ETAW X LF DU100 (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).

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,

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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

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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 F

City Municipal Code Water Regulations and Provisions

MUNICIPAL CODE OF THE CITY OF FRESNO
CHAPTER 6. MUNICIPAL SERVICES AND UTILITIES
ARTICLE 5. WATER REGULATIONS

The following sections of the Municipal Code of the City of Fresno address water conservation issues:

- Section 6-519. Water Conservation Device Required
- Section 6-520: Wastage of Water
- Section 6-522: Water Efficient Landscape Standards
- Section 6-523: Definitions for Water Efficient Landscape Standards

The full text of each of these sections follows.

SEC. 6-519. - WATER CONSERVATION DEVICE REQUIRED.

(a) No person shall install or replace any system, including portable systems, on any premises unless such system is equipped with a water conservation device, and such device is properly maintained at all times, except as follows:

(1) In a multi-story building, unconserved water-cooled refrigeration units used only for the commercial preservation of food may be installed, replaced or maintained provided that such unit has a capacity of less than one ton and that all such units on any one premises do not exceed a cumulative total capacity of two tons and do not consume more than 1.5 gallons of water per minute per ton of capacity per unit.

(2) Evaporative coolers may be installed, replaced, or maintained provided that no evaporative cooler or coolers on any premises shall have a cumulative total capacity of more than eighteen hundred cubic feet of air per minute.

(3) A system may be installed, replaced or maintained provided it is not connected to city water, and a source of water supply is developed on the same premises for the exclusive use of such system, and a drainage well, drilled pursuant to and in conformance with Article 4 (commencing with Section 6-401), Chapter 6, of this Code, is used as the sole means of disposing of water discharged from such system.

(b) When a system is installed or maintained on any premises contrary to the provisions of this article, no city water service shall be granted to serve said premises, whether located in or out of the city limits.

(c) No person shall sell or deliver any evaporative cooler which he knows or has reason to know is intended to use city water unless such cooler is, when sold and delivered, equipped with a water conservation device. (Added Ord. 73-120, § 5, eff. 8-16-73).

SEC. 6-520. - WASTAGE OF WATER.

(a) In the use of water supplied by the city, no customer shall do or permit any of the following:

(1) Water any lawn except by use of a hose held in the person's hand or a sprinkling device, or

(2) 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) Willfully or negligently waste water, or

(4) Flood any part of the premises of another, or

(5) 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) Sprinkle or irrigate any yard, ground, premise, or vegetation between the hours of twelve o'clock and five o'clock p.m. during the months of April through October, inclusive, or

(7) 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) 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, or

(9) 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.

(b) Lawn sprinkling systems shall be properly designed, installed, maintained, and operated to prevent wastage of water.

(c) The Council may implement any or all of the measures listed below, either city-wide or by specific zone, when any of the following conditions exist: (i) the California Department of Water Resources has declared a critically dry or drought year; or (ii) water levels decline below the pump intake; or (iii) 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 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:

(1) Odd/even address alternate day outdoor watering restrictions 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)). The following properties shall water by using each irrigation valve no more frequently than every other day:

a. Properties with multiple addresses, and

b. Properties 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 watering schedule that may provide for more frequent watering than every other day. If it is determined that the property can be watered within the city's regular watering rules without significantly impacting water pressures in the service area, the proposed watering schedule will be denied. The Council may grant an exemption for new lawns not yet established.

(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) Implementation of regulations on the filling of fountains in city facilities, as the Council determines appropriate.

(4) Prohibition of installation of outdoor evaporative "mist coolers."

(5) Prohibition of draining of swimming pools more than once every three years, except for structural repairs or to comply with public health standards determined by the County Health Officer. 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) Prohibition of the filling or refilling of swimming pools during peak hours of 5:00 a.m. to 8:00 a.m. 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 hours.

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.

(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 wastage. If a customer has an incident of water wastage, the customer shall be charged the fee as described herein. The fee that customers shall be charged for each incident of water wastage described in this section shall not exceed the reasonable cost of service related to water wastage 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 wastage, 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 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.

(ii) The fee for the second incident of water wastage 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.

(iii) The fee for the third incident of water wastage 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 wastage. 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.

(iv) The fee for the fourth incident of water wastage 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 wastage 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 be completed at the customer 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. (Orig. Ord. 4481; Am. Ord. 6486, 1964; Am. Ord. 73-120, § 6, eff. 8-16-73; Am. Ord. 77-99, § 1, eff. 9-23-77; Am. Ord. 78-74, §§ 1, 2, eff. 5-26-78; Am. Ord. 80-115, § 149, eff. 8-8-80; Am. Ord. 89-48, §§ 1, 2, eff. 4-18-89; Am. Ord. 89-77, § 1, eff. 6-7-89; Am. Ord. 89-102, § 1, eff. 9-22-89; Am. Ord. 90-72, § 1, eff. 8-24-90; Am. Ord. 90-97, § 1, eff. 10-12-90; Am. Ord. 91-104, § 1, eff. 10-18-91; Am. Ord. 91-112, § 1, eff. 11-22-91; Am. Ord. 93-14, § 1, eff. 2-23-93; Am. Ord. 93-20, § 2, eff. 4-30-93).

SEC. 6-522. - WATER EFFICIENT LANDSCAPE STANDARDS.

(a) Water used for irrigation shall be minimized to the amount needed to maintain adequate plant health and growth with a minimum of waste or over spray on adjoining areas.

(b) Operation of Efficient Irrigation Systems. All persons who have installed completely new replacement irrigation systems on existing residential units are required to file irrigation plans pursuant to the Code Section 12-306-N.23 and 24, and shall use the City of Fresno Monthly Lawn

Watering Chart to determine lawn water times. Longer watering times are permitted provided it can be shown necessary by calculations based on the evapotranspiration rate and sprinkler precipitation rates. For persons who use the City of Fresno Monthly Lawn Watering Chart, each area of the lawn shall receive no more than the maximum number of minutes per week for any one area of lawn.

(c) Irrigation system operation shall comply with Code Section 6-520.

(d) The "water customer" shall modify watering duration and frequency schedules so that the sprinkler's application does not exceed the irrigated area's absorption rate and generate surface runoff.

(e) Maintenance. It is the owner's responsibility to maintain the irrigation system by checking, adjusting sprinklers, repairing or replacing defective equipment and modifying the watering times to ensure efficient use of water. The customer is responsible for any wastage of water which originates on the customer's property.

(f) Existing Irrigation Systems (Manual/Automatic). On resale of existing property, the new owner shall certify in writing prior to obtaining water service from the City of Fresno that:

(1) The irrigation system has been checked and that all broken or defective irrigation equipment has been repaired or replaced.

(2) That all the system's components are functioning properly.

(3) No leaks exist.

(g) Enforcement. If a person violates any of the provisions of this section the city may implement any or all of the following measures:

(1) Require a 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 customer expense by Landscape Irrigation Auditors certified by the Irrigation Association.

(2) Require a customer to repair any defects in the watering system of such person within fourteen days of notice by the city to repair.

(3) Installation by the city of flow restrictors or termination of water service for exterior use.

(4) 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.

(5) Require that restoration of water service after termination be contingent on an agreement by the customer to adhere to the provisions of this section.

A. If a water customer objects to the previously mentioned enforcement measures the following appeal process may be used.

Step 1. The customer may call the Water Conservation Program in order to discuss the incident with the staff person who initiated the enforcement measures.

The staff person has no authority to rescind the enforcement measures. However, upon being contacted by the customer, the staff person shall gather the facts about the incident and explain them to the Water Conservation Program Supervisor, who may decide whether or not to rescind the enforcement measure.

Step 2. If the customer is not satisfied with the decision of the Water Conservation Program Supervisor, he/she may appeal to the Water Systems Manager who shall review such appeal and render a written decision within thirty days after such appeal.

Step 3. If the customer is not satisfied with the decision of the Water Systems Manager he/she may appeal to the Director of Public Utilities who shall review such appeal and render a written decision within thirty days after receiving such appeal.

Step 4. The customer may make a final appeal directly to the City Council if still not satisfied.

The appeal listed in step 2 above shall be filed in writing within thirty days of the date of the notice outlining the enforcement measure. Each subsequent appeal shall be filed in writing within 30 days from the date of the written decision being appealed. (Added Ord. 94-86, § 3, eff. 10-21-94).

SEC. 6-523. - DEFINITIONS FOR WATER EFFICIENT LANDSCAPE STANDARDS.

(a) Unless the particular provision or the context otherwise requires, the definitions and provisions contained in this section shall govern the construction, meaning, and application of words and phrases used in this article, and, except to the extent that a particular word or phrase is otherwise specifically defined in this section, the definitions and provisions contained in Article 3 of Chapter 1 of this Code shall also govern the construction, meaning, and application of words and phrases used in this article. The definition of each word or phrase shall constitute, to the extent applicable, the definition of each word or phrase which is derivative from it, or from which it is a derivative, as the case may be.

(b) "Absorption rate" or "infiltration rate" means the rate of water entry into the soil expressed as a depth of water per unit of time (inches per hour).

(c) "Air Inlet Valve" means a port open to the atmosphere which permits air to enter a backflow assembly under a no water flow condition. These air inlets are utilized in atmospheric and pressure type vacuum breakers.

(d) "Application rate" means the depth of water applied to a given area, usually measured in inches per hour.

(e) "Atmospheric vacuum breaker" means an assembly containing a float-check seat and an air inlet port. The flow of water into the body causes the float to close the air inlet port. When the flow of water stops the float falls and forms a check valve against backsiphonage and at the same time opens the air inlet port to allow air to enter and satisfy the vacuum.

(f) "Automatic controller" means a mechanical or solid state timer, capable of operating valve stations to set the days, hours and length of time of water application.

(g) "Backflow prevention device" means a safety device used to prevent pollution or contamination of the water supply due to the reverse flow of water from the irrigation system.

(h) "Check valve" means a valve located under a sprinkler head to hold water in the system so it minimizes drainage from the lower elevation sprinkler heads.

(i) "Chemical injection" means the act of automatically or manually adding chemicals (usually fertilizer) to the irrigation system where it mixes with water and is subsequently applied to the landscape.

(j) "City of Fresno Monthly Lawn Watering Chart" means the chart of approximate lawn watering time (in minutes per week) published by the City of Fresno.

(k) "Cool season turf" means Annual bluegrass, Perennial rye grass, Red fescue, Tall fescue and other turf that is not dormant in winter.

(l) "Cross connection control" means any unprotected actual or potential physical connection or arrangement of piping or fixtures between two otherwise separate piping systems one of which contains potable water and the other non-potable water. This would include any temporary connections, such as swing connections, removable sections, four way plug valves, spools, dummy section of pipe, swivel or change-over devices or sliding multiport tube.

(m) "Downstream" means in the direction of the flow of a stream.

(n) "Emitter" means drip irrigation fittings that deliver water slowly from the system to the soil.

(o) "Evapotranspiration rate" means the inches of water per day.

(p) "Evaporation rate" means the inches of water per day.

(q) "Flex riser" means flexible material that allows a sprinkler head to bend if struck and come back into alignment.

(r) "Infiltration rate" means the rate at which water is absorbed into the rail expressed as a depth of water in inches.

(s) "Irrigation system" means the water delivery pipelines that supply water from the water source to the valve or outlet and to the emitters or sprinklers from the valve. An automatic controller is part of all new irrigation systems. See Section 6-501(z).

(t) "Irrigation valve circuit" means a system composed of piping, valves, pumps, controllers and outlets to distribute water to lawns, trees, shrubs, plants and other landscape facilities.

(u) "Landscaped area" means the parcel area, including the right-of-way area and any easements, less building pad(s), driveway(s) and parking areas. This includes planted areas, water bodies, and natural areas.

(v) "Landscape modification" means any change to a landscape on site or on the landscape plan.

(w) "Landscape plan" means a plan to scale of not less than one inch equals 40 feet which shall show the location, size and variety of all plantings, water supply, contours and similar designations as the Director may require for sufficient clarity to indicate the nature and extent of the work proposed.

(x) "Micro irrigation" means sprinkler heads that put out less than 16 gallons of water per hour used.

(y) "Mulch" means any material such as leaves, bark, straw or other materials left loose and applied to the solid surface to reduce evaporation.

(z) "New development" means any development for which a Development Plan is filed upon or after the effective date of this ordinance.

(aa) "Overspray" means water which is delivered beyond the landscaped area, wetting pavements, walks, structures, or other non-landscaped areas.

(bb) "Pedestrian parkway" mean those median islands or pathways which are greater than eight feet wide and used as pedestrian pathways.

(cc) "Plumbing permits" means a form obtained at the public counter of the Development Department which allows for a fee, certain plumbing related modifications or installations to occur on a structure or to landscaping.

(dd) "Pop-up spray heads" means a water pressure activated head which pops up and sprays water through a nozzle.

(ee) "Precipitation rate" means the rate at which water is applied to the plants.

(ff) "Pressure vacuum breaker" means an assembly containing an independently operating loaded check valve and an independently operating loaded air inlet valve located on the discharge side of the check valve. The assembly is to be equipped with properly located resilient seating test cocks and tightly closing resilient seating shut-off valves located at each end of the assembly. The entire assembly shall meet the design and performance specifications as determined by a laboratory and field evaluation program resulting in an approval by a recognized testing agency for backflow prevention assemblies. To be approved, these assemblies must be readily accessible for in-line testing and maintenance. The assembly must be installed a minimum of 12 inches above the highest water outlet, i.e. sprinkler head or tank fill.

(gg) "Rain gauge" means a system which automatically shuts off the irrigation system when it rains.

(hh) "Reduced pressure backflow preventer" means an assembly of two independently acting approved check valves together with a hydraulically operating mechanically independent pressure relief valve located between the check valves and at the same time below the first check valve. The unit shall include properly located resilient seating test cocks and tightly closing resilient seating shut-off valves at each end of the assembly. The entire assembly shall meet the design and performance specifications as determined by a laboratory and a field evaluation program resulting in an approval by a recognized testing agency for backflow prevention assemblies. The assembly shall operate to prevention assemblies. The assembly shall operate to maintain the pressure in the zone between the two check valves at an acceptable level less than the pressure on the public water supply side of the assembly. At cessation of a normal flow the pressure between the two check valves shall be less than the pressure on the public water supply side of the device. In case of leakage either of the check valves, the differential relief valve shall operate to maintain the reduced pressure in the zone between the check valves by discharging to the atmosphere. To be approved, these assemblies must be readily accessible for in-line testing and maintenance and be installed in a location where no part of the assembly will be submerged.

(ii) "Separately metered automatic irrigation system" means a system composed of pipes, valves, pumps, controllers and outlets to distribute water for landscape purposes. This system is not connected to the domestic water supply, but has a separate, metered, connection to the public water supply system.

(jj) "Shut off device" means a mechanical or electrically operated device used to terminate the flow of liquids in a piping system. These devices could be gate valves, ball valves, electrical solenoid valves, butterfly valves or globe valves.

(kk) "Slope irrigation" means applying water to vegetation on a slope.

(ll) "Soil moisture sensors" means a device which activate and deactivate irrigation valves watering shrubs and lawns.

(mm) "Sprinkler head" means a device which sprays water through a nozzle.

(nn) "Sprinkler precipitation rate" means the depth of water applied to a given area by an irrigation sprinkler, usually measured in inches per hour.

(oo) "Subsurface emitters" means a buried drip irrigation fittings that deliver water slowly from the system to the soil.

(pp) "Swing joint" means a series of elbows and nipples that allow the sprinkler to move and turn in any direction while maintaining grade.

(qq) "Turf" means a surface layer of earth containing grass with its roots.

(rr) "Turf allowance" means the amount or percentage of turn area permitted in relation to the entire landscaped area.

(ss) "Turf area" means the amount of turf included within a set of lines, specifically, the number of unit squares of turf equal in measure to the surface.

(tt) "Valve" means a device used to control the flow of water in the irrigation system.

(uu) "Warm season turf" means Bermuda grass, Hybrid Bermuda, Kikuyu grass, Seashore paspalum, St. Augustine grass, Zoysia grass and Buffalo grass and other turf that is dormant in winter.

(vv) "Water area" means that part of a landscape composed of water features such as pools, fountains and ponds.

(ww) "Water efficient practice" means the application of a method of landscaping which conserves the water.

(xx) "Watering zones" means a portion of the landscaped area having plants with similar water needs that are served by a valve or set of valves with the same schedule. A watering zone may be irrigated or non-irrigated. For example, a naturalized area planted with native vegetation that will not need supplemental irrigation once established is a non-irrigated watering zone. (Added Ord. 94-108, § 3, eff. 12-30-94).

APPENDIX G

Water Conservation Best Management Practices Reporting

- CUWCC BMP RETAIL COVERAGE REPORT 2009-2010
- 2009 and 2010 BMPs
- Fresno 2010 Water Audit Final, April 9, 2012

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

Agency: City of Fresno **District Name:** City of Fresno **CUWCC Unit #:** 58
Retail

Primary Contact Nora Laikam **Telephone** 559-621-5305 **Email:** nora.laikam@fresno.gov

Compliance Option Chosen By Reporting Agency:
(Traditional, Flex Track or GPCD)
GPCD if used:

GPCD in 2010	**260**
GPCD Target for 2018	256

Year	Report	Target		Highest Acceptable Bound	
		% Base	GPCD	% Base	GPCD
2010	1	96.4%	301	100%	312
2012	2	92.8%	290	96%	301
2014	3	89.2%	278	93%	290
2016	4	85.6%	267	89%	278
2018	5	82.0%	256	82%	256

Not on Track if 2010 GPCD is > than target

GPCD in 2010	260
Highest Acceptable GPCD for 2010	312

On Track

Agency: City of Fresno **District Name:** City of Fresno **CUWCC Unit #:** 58
Retail

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

Foundational BMPs

BMP 1.1 Operational Practices

Conservation Coordinator provided with necessary resources to implement BMPs?

		2009	2010
1.Conservation Coordinator provided with necessary resources to implement BMPs?	Name	Nora Laikam	Nora Laikam
	Title	Water Conservation Supervisor	Water Conservation Supervisor
	Email	nora.laikam@fresno.gov	nora.laikam@fres
		On Track	On Track

2. Water waste prevention documentation

	2009	2010	
Descriptive File	COFresno_COFresno_58_Munic		
Descriptive File 2010		COFresno_COFresno_58_Municipal Code.pdf	On Track if any one of the 6 ordinance actions done, plus documentation or links provided
URL	http://library.municode.com/index.aspx?clientId=14478&stateId=5		
URL 2010		http://library.municode.com/index.aspx?clientId=14478&stateId=5&stateNa	
Describe Ordinance Terms	City of Fresno Municipal Code Section 6-520: Wastage of		
Describe Ordinance Terms 2010		City of Fresno Municipal Code Section 6-520: Wastage of Water	
	On Track	On Track	

Agency: City of Fresno
Retail

District Name: City of Fresno

CUWCC Unit #: 58

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

BMP 1.2 Water Loss Control

	2009		
Complete a prescreening Audit	No	Not on Track	On Track if Yes
Metered Sales			
Verifiable Other Uses			
Total Supply			
(Metered Sales + System uses)/ Total Supply >0.89			On Track if =>.89, Not on Track if No
If ratio is less than 0.9, complete a full scale Audit in 2009?			On Track if Yes
Verify Data with Records on File?	No	Not on Track	On Track if Yes
Operate a system Leak Detection Program?	No	Not on Track	On Track if Yes

Comments ***Most of the City's single family residential customers are currently unmetered. The City is implementing a residential water meter program which is anticipated to be completed by March 2013. The City will conduct a system water audit upon completion of the residential water meter program once all customers are metered and billed volumetrically.***

	2010		
Compile Standard Water Audit using AWWA Software?	No	Not on Track	On Track if Yes, Not on Track if No
AWWA file provided to CUWCC?			On Track if Yes, Not on Track if No
AWWA Water Audit Validity Score?			Info only until 2012
Completed Training in AWWA Audit Method?	No		
Completed Training in Component Analysis Process?	No		Info only until 2012
Complete Component Analysis?	No		Info only until 2012
Repaired all leaks and breaks to the extent cost effective?	Yes	On Track	On Track if Yes, Not on Track if No
Locate and repair unreported leaks to the extent cost effective.	Yes	On Track	On Track if Yes, Not on Track if No
Maintain a record-keeping system for the repair of reported leaks, including time of report, leak location, type of leaking pipe segment or fitting, and leak running time from report to repair.	Yes		Info only until 2012

Provided 7 types of Water Loss Control Info — Info only until 2012

Leaks Repaired	Value Real Losses	Value Apparent Losses	Miles Surveyed	Press Reduction	Cost of Interventions	Water Saved
209	$	1,788,029	60		$ 6,247,000	7,127

Agency: City of Fresno **District Name:** City of Fresno **CUWCC Unit #:** 58
Retail

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

1.3 METERING WITH COMMODITY RATES FOR ALL NEW CONNECTIONS AND RETROFIT OF EXISTING CONNECTIONS

	2009		2010		
Exemption or 'At least as Effective As' accepted by CUWCC					If signed MOU prior to 31 Dec 1997, On Track if all connections metered; If signed after 31 Dec 1997, complete meter installations by 1 July 2012 or within 6 yrs of signing and 20% biannual reduction of unmetered connections.
Numbered Unmetered Accounts	Yes	**Not On Track**	Yes	**Not On Track**	On Track if no unmetered accounts
Metered Accounts billed by volume of use	No	**Not On Track**	No	**Not On Track**	Volumetric billing required for all connections on same schedule as metering
Number of CII accounts with Mixed Use meters					Info only
Conducted a feasibility study to assess merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters?	No		No		Info only until 2012
Feasibility Study provided to CUWCC?	No		No		Info only until 2012
Completed a written plan, policy or program to test, repair and replace meters	No		No		Info only until 2012

Comments ***The City does not maintain data regarding the number of CII accounts with mixed-us***

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

Agency: City of Fresno **District Name:** City of Fresno **CUWCC Unit #:** 58

Retail

Coverage Report Date:

Primary Contact Nora Laikam **Email:** nora.laikam@fresno.gov

1.4 Retail Conservation Pricing

Date 2009 data received

Date 2010 data received

On Track if: Increasing Block, Uniform, Allocation, Standby Service; Not on Track if otherwise

Metered Water Rate Structure

Customer Class	2009 Rate Type	Conserving Rate?	Customer Class	2010 Rate Type	Conserving Rate?
Single-Family	Uniform	Yes	Single-Family	Uniform	Yes
Multi-Family	Uniform	Yes	Multi-Family	Uniform	Yes
Commercial	Uniform	Yes	Commercial	Uniform	Yes
Industrial	Uniform	Yes	Industrial	Uniform	Yes
Dedicated Irrigation	Uniform	Yes	Dedicated Irrigation	Uniform	Yes
Single-Family	Non-Volumetric Flat Rate	No	Single-Family	Non-Volumetric Flat Rate	No
	On Track			**On Track**	

Year Volumetric Rates began for Agencies with some Unmetered Accounts

Info only

Agencies with Partially Metered Service Areas: If signed MOU prior to 31 Dec. 1997, implementation starts no later than 1July 2010. If signed MOU after 31 Dec. 1997, implementation starts no later than 1July 2013, or within seven years of signing the MOU,

Agency: City of Fresno **District Name:** City of Fresno **CUWCC Unit #:** 58
Retail Coverage Report Date:

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

Adequacy of Volumetric Rates) for Agencies with No Unmetered Accounts

Customer Class	2009 Rate Type	2009 Volumetric Revenues $1000s	2010 Rate Type	2010 Volumetric Revenues $1000s
Single-Family	Uniform	456.00	Uniform	57,864.00
Multi-Family	Uniform	7,133,822.00	Uniform	6,841,298.00
Commercial	Uniform	6,885,999.00	Uniform	6,656,415.00
Industrial	Uniform	2,105,268.00	Uniform	2,159,819.00
Dedicated Irrigation	Uniform	3,099,798.00	Uniform	2,955,158.00
Single-Family	Non-Volumetric Flat Rate	0.00	Non-Volumetric Flat Rate	0.00
Total Revenue Commodity Charges (V):		$ 19,225,343		$ 18,670,554
Total Revenue Fixed Charges (M):		$43,221,791		$ 42,342,778
Calculate: V / (V + M):		31%		31%
		Info Only untill 2011		Info Only untill 2011

Agency Choices for rates:

A) Agencies signing MOU prior to 13 June2007, implementation starts 1 July2007: On Track if (V / (V + M) ≥ 70% x .8 = **56% for 2009** and 70%x0.90 = **63% for 2010**; Not on track if (V / (V + M)) < 70%;

B) Use Canadian model. Agencies signing MOU after 13June2007, implementation starts July 1 of year following signing.

Canadian Water & Wastewater Rate Design Model Used and Provided to CUWCC	**No**	**No**
	Info Only untill 2011	Info Only untill 2011
If Canadian Model is used, was 1 year or 3 year period applied?		

Wastewater Rates

	2009		2010
Does Agency Provide Sewer Service?	**Yes**	If 'No', then wastewater rate info not required.	**Yes**

Customer Class	2009 Rate Type	Conserving Rate?	Customer Class	2010 Rate Type	Conserving Rate?
Single-Family	Non-Volumetric Flat R	No	Single-Family	Non-Volumetric Flat Rate	No
Multi-Family	Non-Volumetric Flat R	No	Multi-Family	Non-Volumetric Flat Rate	No
Commercial	Allocation Based	Yes	Commercial	Allocation Based	Yes
Industrial	Allocation Based	Yes	Industrial	Allocation Based	Yes
Institutional	Allocation Based	Yes	Institutional	Allocation Based	Yes
	On Track			**On Track**	

On Track if: 'Increasing Block', 'Uniform', 'based on long term marginal cost' or 'next unit of capacity'

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

BMP 2. EDUCATION PROGRAMS

BMP 2.1 Public Outreach Actions Implemented and Reported to CUWCC

	2009	2010	
Does a wholesale agency implement Public Outrach Programs for this unility's benefit?	No	No	Yes/No
Names of Wholesale Agencies			
1) Contacts with the public (minimum = 4 times per year)	165	169	
2) Water supplier contacts with media (minimum = 4 times per year, i.e., at least quarterly).	111	82	
3) An actively maintained website that is updated regularly (minimum = 4 times per year, i.e., at least quarterly).	Yes www.fresno.gov/water	Yes www.fresno.gov/water	All 6 action types implemented and reported to CUWCC to be 'On Track')
4) Description of materials used to meet minimum requirement.	Flyers and/or brochures (total copies), bill stuffe General water conservation information Website Newsletter articles on conservation News releases Landscape water conservation media campaig Articles or stories resulting from outreach	Flyers and/or brochures (total copies), bill General water conservation information Website Landscape water conservation media News releases Articles or stories resulting from outreach Written editorials	
5) Annual budget for public outreach program.	$ 245,000	$ 245,000	
6) Description of all other outreach programs	Water-wise Plant Exchange Kid's Water Camp	Water-wise Plant Exchange Kids Camp Conservation message wrapped Prius vehicle	
	On Track	**On Track**	

CUWCC BMP RETAIL COVERAGE REPORT 2009-2010

Foundation Best Management Practices for Urban Water Efficiency

2.2 School Education Programs Implemented and Reported to CUWCC

	2009	2010	
Does a wholesale agency implement School Education Programs for this unility's benefit?	No	No	
Name of Wholesale Supplier?			
1) Curriculum materials developed and/or provided by agency	How much water? Parts per Million/Billion/Trillion; Serial Dilution activity.	How much water? Parts per Million/Billion/Trillion; Serial Dilution activity.	Yes/ No
2) Materials meet state education framework requirements and are grade-level appropriate?	Yes	Yes	All 5 actions types implemented and reported to CUWCC to be
3) Materials Distributed to K-6?	Yes	Yes	
Describe K-6 Materials	All About Water K-3 Activities, Water Fun for You coloring book; Splash comic, Story of Water comic; rulers; conservation stickers	All About Water K-3 Activities, Water Fun for You coloring book; Splash comic, Story of Water comic; rulers; conservation stickers	Describe materials to meet minimum requirements
Materials distributed to 7-12 students?	Yes	Yes	Info Only
4) Annual budget for school education program.	$ 44,788	$ 46,600	
5) Description of all other water supplier education programs	Groundwater Flow Model, Tap vs Bottled water; How we use our Water; Watershed, Pump Stations, Surface Water Treatment Facility, and Groundwater Recharge tours.	Tours of Surface Water Treatment Facility (SWTF), Watershed tours, Kids' Camp, Science Fair judging, FHA-HEROES judging	
	On Track	**On Track**	

The fields in red are required.

Agency name: City of Fresno

Reporting unit name (District name): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Base Year Data

Link to FAQs

Reporting Unit Base Year

What is your reporting period? Calendar

Base Year 2008

BMP 1.3 Metering

Number of unmetered accounts in Base Year 111,473

BMP 3.1 & BMP 3.2 & BMP 3.3 Residential Programs

Number of Single Family Customers in Base Year 108,717

Number of Multi Family Units in Base Year 76,000

BMP 3.4 WaterSense Specification (WSS) Toilets

Number of Single Family Housing Units constructed prior to 1992 73,000

Number of Multi Family Units prior to 1992 77,000

Average number of toilets per single family household 2

Average number of toilets per multi family household 1

Five year average resale rate of single family households 3.4%

Five-year average resale rate of multi family households 4.7%

Average number of persons per single family household 3.33

Average number of persons per multi family household 2.67

BMP 4.0 & BMP 5.0 CII & Landscape

Total water use (in Acre Feet) by CII accounts 24,163

Number of accounts with dedicated irrigation meters 2,845

Number of CII accounts without meters or with Mixed Use Meters

Number of CII accounts 10,516

Comments:

Recent data on five-year average resale rates for single family and multi family households was not available. Data shown was taken from CUWCC's website for 1996 single family and 1998 multi family average resale rates.

The number of CII accounts with mixed use meters is not known.

version 1.0

The fields in red are required.

Agency name: City of Fresno

Division name (Reporting unit): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

WATER SOURCES

2009

Service Area Population: 499530

Potable Water

Own Supply Source Name	AF/YEAR	Water Supply Type	Water Supply Description
Groundwater	138,254.00	Groundwater	270 active groundwater wells
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	

Imported Supply Source Name	AF/YEAR	Water Supply Type	Water Supply Description
USBR San Joaquin River (Class1)	19,563.00	Surface	Treated at City's SWTF
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	

Exported Water Name	AF/YEAR	Where Exported?

The fields in red are required.

Agency name: City of Fresno

Division name (Reporting unit): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

Water Uses 2009

Potable Water Billed

Make sure to enter numbers in AF/Year.

Customer Type	Meter Accounts	Metered Water Delivered	Un-metered Accounts	Un-metered Water Delivered	Description
Single-Family	5.00	1.00	109,764.00	82,161.00	
Multi-Family	7,573.00	21,985.00	362.00		
Commercial	8,090.00	21,462.00	2,387.00		Includes Institutional
Industrial	93.00	6,494.00	56.00		
Dedicated Irrigation	2,934.00	9,746.00	0.00		
System Flushing		165.00			
Other					
Other					
Other					
Other					
Other					
Other					
Other					

Potable Water Un-Billed

Customer Type	Meter Accounts	Metered Water Delivered	Un-metered Accounts	Un-metered Water Delivered	Description
Other	0.00	0.00	0.00	15,782.00	UAFW=10% of total production
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					

The fields in red are required.

Agency name: City of Fresno

Reporting unit name (District name): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

2009

BMP 1.1 Operations Practices

Comments:

See the complete MOU: View MOU

See the coverage requirements for this BMP:

Conservation Coordinator

Conservation Coordinator ◯ Yes ◯ No

Contact Information

First Name	Nora
Last Name	Laikam
Title	Water Conservation Supervisor
Phone	559-621-5305
Email	nora.laikam@fresno.gov

Note that the contact information may be the same as the primary contact information at the top of the page. If this is your case, excuse the inconvenience but please enter the information again.

Water Waste Prevention

Water Agency shall do one or more of the following:

a. Enact and enforce an ordinance or establish terms of service that prohibit water waste
b. Enact and enforce an ordinance or establish terms of service for water efficient design in new development
c. Support legislation or regulations that prohibit water waste
d. Enact an ordinance or establish terms of service to facilitate implementation of water shortage response measures
e. Support local ordinances that prohibit water waste
f. Support local ordinances that establish permits requirements for water efficient design in new

To document this BMP, provide the following:

a. A description of, or electronic link to, any ordinances or terms of service
b. A description of, or electronic link to, any ordinances or requirements adopted by local jurisdictions or regulatory agencies with the water agency's service area.
c. A description of any water agency efforts to cooperate with other entities in the adoption or enforcement of local requirement
d. description of agency support positions with respect to adoption of legislation or regulations

You can show your documentation by providing files, links (web addresses), and/or entering a description.

File name(s): Email files to natalie@cuwcc.org COFresno_COFresno_58_Municipal Code.pdf

Web address(s) URL: comma-separated list http://library.municode.com/index.aspx?clientId=14478&stateId=5&stateName=California

Enter a description: City of Fresno Municipal Code Section 6-520: Wastage of Water

The fields in red are required.

Agency name: City of Fresno

Reporting unit name (District name): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

View MOU

2009 BMP 1.2 Water Loss Control

Did your agency complete a pre-screening system audit in 2009? Yes ○ No ◉

If yes, answer the following:

Determine metered sales in AF:

Definition: other accountable uses not included in metered sales, such as unbilled water use, fire suppression, etc.

Determine system verifiable uses AF:

Determine total supply into the system in AF:

Does your agency keep necessary data on file to verify the answers above? Yes ○ No ◉

Did your agency complete a full-scale system water audit during 2009? Yes ○ No ◉

Does your agency maintain in-house records of audit results or the completed AWWA worksheet for the completed audit which could be forwarded to CUWCC? Yes ○ No ◉

Did your agency operate a system leak detection program? Yes ○ No ◉

Comments:

version 1.0 2009

The fields in red are required.

Agency name: City of Fresno

Reporting unit name (District name): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

BMP 1.3 Metering with Commodity

Link to FAQs

See the complete MOU: View MOU

See the coverage requirements for this BMP:

Implementation

Does your agency have any unmetered service connections? Yes No

If YES, has your agency completed a meter retrofit plan? Yes No

Enter the number of previously unmetered accounts fitted with meters during reporting year:

Are all new service connections being metered? Yes No

Are all new service connections being billed volumetrically? Yes No

Has your agency completed and submitted electronically to the Council a written plan, policy or program to test, repair and replace meters? Yes No

Please Fill Out The Following Matrix

Account Type	# Metered Accounts	# Metered Accounts Read	# Metered Accounts Billed by Volume	Billing Frequency Per Year	# of estimated bills/yr
Single-Family	5	5	5	Bi-monthly	6
Multi-Family	7,573	7,573	7,573	Bi-monthly	6
Commericial	8,090	8,090	8,090	Bi-monthly	6
Industrial	93	93	93	Bi-monthly	6
Institutional				Other	
Dedicated Irrigatic	2,934	2,934	2,934	Bi-monthly	6
Other				Other	
Other				Other	
Other				Other	
Other				Other	

Number of CII Accounts with Mixed-use Meters

Number of CII Accounts with Mixed-use Meters Retrofitted with Dedicated Irrigation Meters during Reporting Period

Feasibility Study

Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? Yes No

If YES, please fill in the following information:

A. When was the Feasiblity Study conducted

B. Email or provide a link to the feasibility study (or description of):

File name(s): Email files to natalie@cuwcc.org

Web address(s) URL: comma-separated list

General Comments about BMP 1.3:

The fields in red are required.

Agency name: City of Fresno

Reporting unit name (District name): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

View MOU

BMP 1.4 Retail Conservation Pricing

2009

If you are reporting more rate structures than this form allows, add the structures to a spreadsheet and send the file to natalie@cuwcc.org.

Implementation (Water Rate Structure)

Enter the Water Rate Structures that are assigned to the majority of your customers, by customer class

Rate Structure	Customer Class	Total Revenue Commodity Charges	Total Revenue Customer Meter/Service (Fixed Charges)
Uniform		456.00	255.00
Uniform		7,133,822.00	1,937,269.00
Uniform		6,885,999.00	3,603,703.00
Uniform		2,105,268.00	96,785.00
Uniform		3,099,798.00	814,347.00
Non-Volumetric Fla		0.00	36,769,432.00
Select a Rate Struc			

Implementation Option (Conservation Pricing Option)

- Use Annual Revenue As Reported
- Use Canadian Water & Wastewater Association Rate Design Model

If CWWA is select, enter the file name and email the spreadsheet to natalie@cuwcc.org

Retail Waste Water (Sewer) Rate Structure by Customer Class

Agency Provide Sewer Service: Yes No

Select the Retail Waste Water(Sewer) Rate Structure assigned to the majority of your customers within a specific customer class.

Rate Structure	Customer Class	Total Revenue Commodity Charges	Total Revenue Customer Meter/Service (Fixed Charges)
Non-Volumetric Fla		28,196,914.20	75,382.23
Non-Volumetric Fla		12,600,863.02	48,161.18
Allocation Based		9,070,549.89	177,971.68
Allocation Based		9,559,215.01	17,531.48
Allocation Based		1,317,952.45	3,178.28
Select a Rate Struc			
Select a Rate Struc			

Comments:

The fields in red are required.

Agency name: City of Fresno

Reporting unit name (District name): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

Link to FAQs

2009

BMP 2.1 Public Outreach - Retail Reporting

View MOU

Is a Wholesale Agency Performing Public Outreach?

Are there one or more wholesale agencies performing public outreach which can be counted to help your agency comply with the BMP? ○ Yes ○ No

Enter the name(s) of the wholesale agency (comma delimited)

Is your agency performing public outreach?

Report a minimum of 4 water conservation related contacts your agency had with the public during the year.

Public Information Programs List

Did at least one contact take place during each quarter of the reporting year? ✔

Number of Public Contacts	Public Information Programs
65	Flyers and/or brochures (total copies), bill stuffers, messages printed on bill, information packets
14	Website
14	Newsletter articles on conservation
65	General water conservation information
7	Landscape water conservation media campaigns

Contact with the Media

Are there one or more wholesale agencies performing media outreach which can be counted to help your agency comply with the BMP? ○ Yes ○ No

Enter the name(s) of the wholesale agency (comma delimited)

OR Retail Agency (Contacts with the Media)

Did at least one contact take place during each quarter of the reporting year? ✔

Media Contacts List

Number of Media Contacts	Did at least one contact take place during each quarter of the reporting year?	Media Contact Types
53		Articles or stories resulting from outreach
4		News releases
11		Newspaper contacts
16		Radio contacts
27		Television contacts
0		Select a type of media contact

Is a Wholesale Agency Performing Website Updates?

Did one or more CUWCC wholesale agencies agree to assume your agency's responsibility for meeting the requirements of and for CUWCC reporting of this BMP? ○ Yes ○ No

Enter the name(s) of the wholesale agency (comma delimited)

Is Your Agency Performing Website Updates?

Enter your agency's URL (website address): www.fresno.gov/water

Describe a minimum of four water conservation related updates to your agency's website that took place during the year: Meter FAQ; Web Newsletters (6); Winter Water Schedule; Summer Water Schedule; Outreach Events; Drought - Reduce 20%; Facebook link.

Did at least one Website Update take place during each quarter of the reporting year? ○ Yes ○ No

Public Outreach Annual Budget

Enter budget for public outreach programs. You may enter total budget in a single line or brake the budget into discrete categories by entering many rows. Please indicate if personnel costs are included in the entry.

Category	Amount		Personnel Costs Included? If yes, check the box.	Comments	
Marketing Campa	$200,000				
Marketing Purcha	$45,000				

Comments:

The fields in red are required.

Agency name: City of Fresno

Reporting unit name (District name): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

Link to FAQs

2009

BMP 2.1 Public Outreach Cont'd

View MOU

Public Outreach Expenses

Enter expenses for public outreach programs. Please include the same kind of expenses you included in the question related to your budget (Section 2.1.7, above). For example, if you included personnel costs in the budget entered above, be sure to include them here as well.

Expense Category	Expense Amount	Personnel Costs Included?
Marketing Campaigns	$200,000	☐
Marketing Purchases	$45,000	☐
		☐
		☐

If yes, check the check box.

Additional Public Information Program

Please report additional public information contacts. List these additional contacts in order of how your agency views their importance / effectiveness with respect to conserving water, with the most important/ effective listed first (where 1 = most important).

Were there additional Public Outreach efforts? ○ Yes ○ No

Public Outreach Additional Information

Public Information Programs	Importance
	1
	$2

Social Marketing Programs

Branding

Does your agency have a water conservation "brand," "theme" or mascot? ○ Yes ○ No

Describe the brand, theme or mascot.

"Providing Life's Essential Services"
"If We Each Save a Little, We Can All Save A Lot"
Mascots: Bubbles Beaver; Wally Meter, Happy Water Drop

Market Research

Have you sponsored or participated in market research to refine your message? ○ Yes ○ No

Market Research Topic	0
Brand Message	0
Brand Mission Statement	0

Community Committees

Do you have a community conservation committee? ○ Yes ○ No

Enter the names of the community committees: Central Valley Water Awareness Committee

Training

Training Type	# of Trainings	# of Attendees	Description of Other
Water Conservation ba	1	100	5 hour workshops for children/parents
Pruning	1	20	Proper pruning of landscape to help save water
Water Conservation La	$1	$65	Water Schedule, landscape practices for apartment owners a
0			

Social Marketing Expenditures

Public Outreach Social Marketing Expenses

Expense Category	Expense Amount	Description
0		
0		
0		

Partnering Programs - Partners

Name	Type of Program
☐ CLCA?	Membership
☐ Green Building Programs?	0
☐ Master Gardeners?	Water-wise Plant Exchange
☐ Cooperative Extension?	Water-wise Plant Exchange
☐ Local Colleges?	Water-wise Plant Exchange
☐ Other	Water-wise Plant Exchange; Kids Water Camp

☐ Retail and wholesale outlet; name(s) and type(s) of programs:

0	0

Partnering Programs - Newsletters

Number of newsletters per year: 0

Number of customers per year	0

Partnering with Other Utilities

Describe other utilities your agency partners with, including electrical utilities	City of Clovis; Bakman Water Company

Conservation Gardens

Describe water conservation gardens at your agency or other high traffic areas or new	Commercial Demonstation Garden and Parking Strip Demonstration: Water Division offices; Clovis Botanical Gardens

Landscape contests or awards

Describe water wise landscape contest or awards program conducted by your agency	0

Comments:

The fields in red are required.

Agency name: City of Fresno

Reporting unit name (District name): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

Link to FAQs

2009

BMP 2.2 School Education Programs, Retail Agencies

View MOU

School Programs

Is a wholesale agency implementing school programs which can be counted to help your agency comply with this BMP? ○ Yes ○ No

Enter Wholesaler Names, separated by commas: 0

☐ Materials meet state education framework requirements?

Description of Materials: How much water? Parts per Million/Billion/Trillion; Serial Dilution activity.

☐ Materials distributed to K-6 Students?

Description of materials distributed to K-6 Students: All About Water K-3 Activities, Water Fun for You coloring book; Splash comic, Story of Water comic; rulers; conservation stickers

Number of students reached: 757

☐ Materials distributed to 7-12 Students?

Description of materials distributed to 7-12 Students: All About Water comic; rulers; Chemical listing of materials used to clean surface water

Number of Distribution: 191

Annual budget for school education program: $44,788

Description of all other water supplier education programs: Groundwater Flow Model, Tap vs Bottled water; How we use our Water; Watershed, Pump Stations, Surface Water Treatment Facility, and Groundwater Recharge tours.

School Program Activities

Classroom presentations:

Number of presentations: 43 Number of attendees:

Large group assemblies:

Number of presentations: 0 Number of attendees: 0

Children's water festivals or other events:

Number of presentations: 1 Number of attendees: 100

Cooperative efforts with existing science/water education programs (various workshops, science fair awards or judging) and follow-up:

Number of presentations: 1 Number of attendees: 0

Other methods of disseminating information (i.e. themed age-appropriate classroom loaner kits):

Description: Summer Kids' Camp held at Woodward Park

Number distributed: 100

Staffing children's booths at events & festivals:

Number of booths: 6 | Number of attendees: 100

Water conservation contests such as poster and photo:

Description: Poster contest, school site presentation to award winner

Number distributed: 100

Offer monetary awards/funding or scholarships to students:

Number Offered: 0 | Total Funding: 0

Teacher training workshops:

Number of presentations: 0 | Number of attendees: 0

Fund and/or staff student field trips to treatment facilities, recycling facilities, water conservation gardens, etc.:

Number of tours or field trips: 6 | Number of participants: 259

College internships in water conservation offered:

Number of internships: 0 | Total funding: 0

Career fairs/workshops:

Number of presentations: 0 | Number of attendees: 0

Additional program(s) supported by agency but not mentioned above:

Description: 0

Number of events (if applicable): 0 | Number of participants: 0

Total reporting period budget expenditures for school education programs (include all agency costs): $46600

Comments

The fields in red are required.

Agency name: City of Fresno

Reporting unit name (District name): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

2010

BMP 1.1 Operations Practices

Comments:

See the complete MOU: View MOU

See the coverage requirements for this BMP:

Conservation Coordinator

Conservation Coordinator ◯ Yes ◯ No

Contact Information

First Name	Nora
Last Name	Laikam
Title	Water Conservation Supervisor
Phone	559-621-5305
Email	nora.laikam@fresno.gov

Note that the contact information may be the same as the primary contact information at the top of the page. If this is your case, excuse the inconvenience but please enter the information again.

Water Waste Prevention

Water Agency shall do one or more of the following:

a. Enact and enforce an ordinance or establish terms of service that prohibit water waste
b. Enact and enforce an ordinance or establish terms of service for water efficient design in new development
c. Support legislation or regulations that prohibit water waste
d. Enact an ordinance or establish terms of service to facilitate implementation of water shortage response measures
e. Support local ordinances that prohibit water waste
f. Support local ordinances that establish permits requirements for water efficient design in new

To document this BMP, provide the following:

a. A description of, or electronic link to, any ordinances or terms of service
b. A description of, or electronic link to, any ordinances or requirements adopted by local jurisdictions or regulatory agencies with the water agency's service area.
c. A description of any water agency efforts to cooperate with other entities in the adoption or enforcement of local requirement
d. description of agency support positions with respect to adoption of legislation or regulations

You can show your documentation by providing files, links (web addresses), and/or entering a description.

File name(s): Email files to natalie@cuwcc.org COFresno_COFresno_58_Municipal Code.pdf

Web address(s) URL: comma-separated list http://library.municode.com/index.aspx?clientId=14478&stateId=5&stateName=California

Enter a description: City of Fresno Municipal Code Section 6-520: Wastage of Water

The fields in red are required.

Agency name: City of Fresno

Reporting unit name (District name): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

2010 BMP 1.2 Water Loss Control

View MOU

AWWA Water Audit

Agency to complete a Water Audit & Balance Using The AWWA Software ○ Yes ○ No

Email to natalie@cuwcc.org - Worksheets (AWWA Water Audit). Enter the name of the file below:

Water Audit Validity Score from AWWA spreadsheet

Agency Completed Training In The AWWA Water Audit Method ○ Yes ○ No

Agency Completed Training In The Component Analysis Process ○ Yes ○ No

Completed/Updated the Component Analysis (at least every 4 years)? ○ Yes ○ No

Component Analysis Completed/Updated Date

Water Loss Performance

Agency Repaired All Reported Leaks & Breaks To The Extent Cost Effective ○ Yes ○ No

Recording Keeping Requirements:

Date/Time Leak Reported	Leak Location
Type of Leaking Pipe Segment or Fitting	Leak Running Time From Report to Repair
Leak Volume Estimate	Cost of Repair

Agency Located and Repaired Unreported Leaks to the Extent Cost Effective ○ Yes ○ No

Type of Program Activities Used to Detect Unreported Leaks

Conducted survey of 60 miles of pipeline - see City's 2010 Water Audit Report "A Report on Non-Revenue Water" dated December 2011.

Annual Summary Information

Complete the following table with annual summary information (required for reporting years 2-5 only)

Total Leaks Repaired	Economic Value Of Real Loss	Economic Value Of Apparent Loss	Miles Of System Surveyed For Leaks	Pressure Reduction Undertaken for loss reduction	Cost Of Interventions	Water Saved (AF/Year)
209	[redacted]	$1,788,029.00	60		$6,247,000.00	7,127.00

Comments: Values shown are based on annual estimates as documented in the City's 2010 Water Audit Report "A Report on Non-Revenue Water" dated December 2011.

version 1.0

2009

The fields in red are required.

Agency name: City of Fresno

Reporting unit name (District name): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

Link to FAQs

2010 BMP 1.2 Water Loss Control

View MOU

AWWA Water Audit

Agency to complete a Water Audit & Balance Using The AWWA Software ○ Yes ○ No

Email to natalie@cuwcc.org - Worksheets (AWWA Water Audit). Enter the name of the file below:

Water Audit Validity Score from AWWA spreadsheet

Agency Completed Training In The AWWA Water Audit Method ○ Yes ○ No

Agency Completed Training In The Component Analysis Process ○ Yes ○ No

Completed/Updated the Component Analysis (at least every 4 years)? ○ Yes ○ No

Component Analysis Completed/Updated Date

Water Loss Performance

Agency Repaired All Reported Leaks & Breaks To The Extent Cost Effective ○ Yes ○ No

Recording Keeping Requirements:

Date/Time Leak Reported	Leak Location
Type of Leaking Pipe Segment or Fitting	Leak Running Time From Report to Repair
Leak Volume Estimate	Cost of Repair

Agency Located and Repaired Unreported Leaks to the Extent Cost Effective ○ Yes ○ No

Type of Program Activities Used to Detect Unreported Leaks

Conducted survey of 60 miles of pipeline - see City's 2010 Water Audit Report "A Report on Non-Revenue Water" dated December 2011.

Annual Summary Information

Complete the following table with annual summary information (required for reporting years 2-5 only)

Total Leaks Repaired	Economic Value Of Real Loss	Economic Value Of Apparent Loss	Miles Of System Surveyed For Leaks	Pressure Reduction Undertaken for loss reduction	Cost Of Interventions	Water Saved (AF/Year)
209	[redacted]	$1,788,029.00	60		$6,247,000.00	7,127.00

Comments: Values shown are based on annual estimates as documented in the City's 2010 Water Audit Report "A Report on Non-Revenue Water" dated December 2011.

version 1.0

2009

The fields in red are required.

Agency name: City of Fresno

Reporting unit name (District name): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

BMP 1.3 Metering with Commodity

2010

Link to FAQs

See the complete MOU: View MOU

See the coverage requirements for this BMP:

Implementation

Does your agency have any unmetered service connections? Yes No

If YES, has your agency completed a meter retrofit plan? Yes No

Enter the number of previously unmetered accounts fitted with meters during reporting year:

Are all new service connections being metered? Yes No

Are all new service connections being billed volumetrically? Yes No

Has your agency completed and submitted electronically to the Council a written plan, policy or program to test, repair and replace meters? Yes No

Please Fill Out The Following Matrix

Account Type	# Metered Accounts	# Metered Accounts Read	# Metered Accounts Billed by Volume	Billing Frequency Per Year	# of estimated bills/yr
Single-Family	5	5	5	Bi-monthly	6
Multi-Family	7,573	7,573	7,573	Bi-monthly	6
Commericial	8,090	8,090	8,090	Bi-monthly	6
Industrial	93	93	93	Bi-monthly	6
Instiitional				Other	
Dedicated Irrigatic	2,934	2,934	2,934	Bi-monthly	6
Other				Other	
Other				Other	
Other				Other	
Other				Other	

Number of CII Accounts with Mixed-use Meters

Number of CII Accounts with Mixed-use Meters Retrofitted with Dedicated Irrigation Meters during Reporting Period

Feasibility Study

Has your agency conducted a feasibility study to assess the merits of a program to provide incentives to switch mixed-use accounts to dedicated landscape meters? Yes No

If YES, please fill in the following information:

A. When was the Feasiblity Study conducted

B. Describe, upload or provide an electronic link to the Feasibility Study Upload File

File name(s): Email files to natalie@cuwcc.org

Web address(s) URL: comma-separated list

Comments:

The fields in red are required.

Agency name: City of Fresno

Reporting unit name (District name): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

You must enter the reporting unit number that we have on record for your agency. Click here to open a table to obtain this number.

CUWCC

2010

Link to FAQs

View MOU

BMP 1.4 Retail Conservation Pricing

If you are reporting more rate structures than this form allows, add the structures to a spreadsheet and send the file to natalie@cuwcc.org.

Implementation (Water Rate Structure)

Enter the Water Rate Structures that are assigned to the majority of your customers, by customer class

Rate Structure	Customer Class	Total Revenue Commodity Charges	Total Revenue Customer Meter/Service (Fixed Charges)
Uniform		456.00	255.00
Uniform		7,133,822.00	1,937,269.00
Uniform		6,885,999.00	3,603,703.00
Uniform		2,105,268.00	96,785.00
Uniform		3,099,798.00	814,347.00
Non-Volumetric Fla		0.00	36,769,432.00
Select a Rate Struc			

Implementation Option (Conservation Pricing Option)

- ○ Use Annual Revenue As Reported
- ○ Use Canadian Water & Wastewater Association Rate Design Model

If CWWA is select, enter the file name and email the spreadsheet to natalie@cuwcc.org

Retail Waste Water (Sewer) Rate Structure by Customer Class

Agency Provide Sewer Service ○ Yes ○ No

Select the Retail Waste Water(Sewer) Rate Structure assigned to the majority of your customers within a specific customer class.

Rate Structure	Customer Class	Total Revenue Commodity Charges	Total Revenue Customer Meter/Service (Fixed Charges)
Non-Volumetric Fla		28,196,914.20	75,382.23
Non-Volumetric Fla		12,600,863.02	48,161.18
Allocation Based		9,070,549.89	177,971.68
Allocation Based		9,559,215.01	17,531.48
Allocation Based		1,317,952.45	3,178.28
Select a Rate Struc			
Select a Rate Struc			

Comments:

The fields in red are required.

Agency name: City of Fresno

Reporting unit name (District name): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

Link to FAQs

2010

BMP 2.1 Public Outreach - Retail Reporting

View MOU

Is a Wholesale Agency Performing Public Outreach?

Are there one or more wholesale agencies performing public outreach which can be counted to help your agency comply with the BMP? ○ Yes ○ No

Enter the name(s) of the wholesale agency (comma delimited)

Is your agency performing public outreach?

Report a minimum of 4 water conservation related contacts your agency had with the public during the year.

Public Information Programs List

Did at least one contact take place during each quarter of the reporting year? ✔

Number of Public Contacts		Public Information Programs	
65	Newsletter articles on conservation		
14	Website		
14	Newsletter articles on conservation		
65	General water conservation information		
7	Newsletter articles on conservation		

Contact with the Media

Are there one or more wholesale agencies performing media outreach which can be counted to help your agency comply with the BMP? ○ Yes ○ No

Enter the name(s) of the wholesale agency (comma delimited)

OR Retail Agency (Contacts with the Media)

Did at least one contact take place during each quarter of the reporting year? ✔

Media Contacts List

Number of Media Contacts	Did at least one contact take place during each quarter of the reporting year?	Media Contact Types	
53	Articles or stories resulting from outreach		
4	News releases		
11	Newspaper contacts		
16	Radio contacts		
27	Television contacts		
0	Select a type of media contact		

Is a Wholesale Agency Performing Website Updates?

Did one or more CUWCC wholesale agencies agree to assume your agency's responsibility for meeting the requirements of and for CUWCC reporting of this BMP? ○ Yes ○ No

Enter the name(s) of the wholesale agency (comma delimited)

Is Your Agency Performing Website Updates?

Enter your agency's URL (website address): www.fresno.gov/water

Describe a minimum of four water conservation related updates to your agency's website that took place during the year: Meter FAQ; Web Newsletters (6); Winter Water Schedule; Summer Water Schedule; Outreach Events; Drought - Reduce 20%; Facebook link.

Did at least one Website Update take place during each quarter of the reporting year? ○ Yes ○ No

Public Outreach Annual Budget

Enter budget for public outreach programs. You may enter total budget in a single line or brake the budget into discrete categories by entering many rows. Please indicate if personnel costs are included in the entry.

Category	Amount		Personnel Costs Included? If yes, check the box.	Comments	
Marketing Campa	$200,000				
Marketing Purcha	$45,000				

Comments:

The fields in red are required.

Agency name: City of Fresno

Reporting unit name (District name): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

Link to FAQs

2010

BMP 2.1 Public Outreach Cont'd

View MOU

Public Outreach Expenses

Enter expenses for public outreach programs. Please include the same kind of expenses you included in the question related to your budget (Section 2.1.7, above). For example, if you included personnel costs in the budget entered above, be sure to include them here as well.

Expense Category	Expense Amount	Personnel Costs Included?
Marketing Campaigns	$200,000	☐
Marketing Purchases	$45,000	☐
		☐
		☐

If yes, check the check box.

Additional Public Information Program

Please report additional public information contacts. List these additional contacts in order of how your agency views their importance / effectiveness with respect to conserving water, with the most important/ effective listed first (where 1 = most important).

Were there additional Public Outreach efforts? ○ Yes ○ No

Public Outreach Additional Information

Public Information Programs	Importance
	$1
	$2

Social Marketing Programs

Branding

Does your agency have a water conservation "brand," "theme" or mascot? ○ Yes ○ No

Describe the brand, theme or mascot.

"Providing Life's Essential Services"
"If We Each Save a Little, We Can All Save A Lot"
Mascots: Bubbles Beaver; Wally Meter, Happy Water Drop

Market Research

Have you sponsored or participated in market research to refine your message? ○ Yes ○ No

Market Research Topic	0
Brand Message	0
Brand Mission Statement	0

Community Committees

Do you have a community conservation committee? ○ Yes ○ No

Enter the names of the community committees: Central Valley Water Awareness Committee

Training

Training Type	# of Trainings	# of Attendees	Description of Other
Water Conservation ba	$1	$100	5 hour workshops for children/parents
Pruning	$1	$20	Proper pruning of landscape to help save water
Water Conservation La	$1	$65	Water Schedule, landscape practices for apartment owners a
0			

Social Marketing Expenditures

Public Outreach Social Marketing Expenses

Expense Category	Expense Amount	Description
0		
0		
0		

Partnering Programs - Partners

Name	Type of Program
☐ CLCA?	Membership
☐ Green Building Programs?	0
☐ Master Gardeners?	Water-wise Plant Exchange
☐ Cooperative Extension?	Water-wise Plant Exchange
☐ Local Colleges?	Water-wise Plant Exchange
☐ Other	Water-wise Plant Exchange; Kids Water Camp

☐ Retail and wholesale outlet; name(s) and type(s) of programs:

0	0

Partnering Programs - Newsletters

Number of newsletters per year: 0

Number of customers per year	0

Partnering with Other Utilities

Describe other utilities your agency partners with, including electrical utilities	City of Clovis; Bakman Water Company

Conservation Gardens

Describe water conservation gardens at your agency or other high traffic areas or new	Commercial Demonstation Garden and Parking Strip Demonstration: Water Division offices; Clovis Botanical Gardens

Landscape contests or awards

Describe water wise landscape contest or awards program conducted by your agency	0

Comments:

The fields in red are required.

Agency name: City of Fresno

Reporting unit name (District name): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

Click here to open a table that displays your agency name reporting unit name and reporting unit number. Please ensure that you enter the correct information.

Link to FAQs

2010

BMP 2.2 School Education Programs, Retail Agencies

View MOU

School Programs

Is a wholesale agency implementing school programs which can be counted to help your agency comply with this BMP? ○ Yes ○ No

Enter Wholesaler Names, separated by commas: 0

☐ Materials meet state education framework requirements?

Description of Materials: How much water? Parts per Million/Billion/Trillion; Serial Dilution activity.

☐ Materials distributed to K-6 Students?

Description of materials distributed to K-6 Students: All About Water K-3 Activities, Water Fun for You coloring book; Splash comic, Story of Water comic; rulers; conservation stickers

Number of students reached: 757

☐ Materials distributed to 7-12 Students?

Description of materials distributed to 7-12 Students: All About Water comic; rulers; Chemical listing of materials used to clean surface water

Number of Distribution: 191

Annual budget for school education program: $44.79

Description of all other water supplier education programs: Groundwater Flow Model, Tap vs Bottled water; How we use our Water; Watershed, Pump Stations, Surface Water Treatment Facility, and Groundwater Recharge tours.

School Program Activities

Classroom presentations:

Number of presentations: 43 Number of attendees:

Large group assemblies:

Number of presentations: 0 Number of attendees: 0

Children's water festivals or other events:

Number of presentations: 1 Number of attendees: 100

Cooperative efforts with existing science/water education programs (various workshops, science fair awards or judging) and follow-up:

Number of presentations: 1 Number of attendees: 0

Other methods of disseminating information (i.e. themed age-appropriate classroom loaner kits):

Description: Summer Kids' Camp held at Woodward Park

Number distributed: 100

Staffing children's booths at events & festivals:

Number of booths: 6 | Number of attendees: 100

Water conservation contests such as poster and photo:

Description: Poster contest, school site presentation to award winner

Number distributed: 100

Offer monetary awards/funding or scholarships to students:

Number Offered: 0 | Total Funding: 0

Teacher training workshops:

Number of presentations: 0 | Number of attendees: 0

Fund and/or staff student field trips to treatment facilities, recycling facilities, water conservation gardens, etc.:

Number of tours or field trips: 6 | Number of participants: 259

College internships in water conservation offered:

Number of internships: 0 | Total funding: 0

Career fairs/workshops:

Number of presentations: 0 | Number of attendees: 0

Additional program(s) supported by agency but not mentioned above:

Description: 0

Number of events (if applicable): 0 | Number of participants: 0

Total reporting period budget expenditures for school education programs (include all agency costs): $46600

Comments

The fields in red are required.

Agency name: City of Fresno

Division name (Reporting unit): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

WATER SOURCES

2010

Service Area Population: 499530

Potable Water

Own Supply Source Name	AF/YEAR	Water Supply Type	Water Supply Description
Groundwater	138,254.00	Groundwater	270 active groundwater wells
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	

Imported Supply Source Name	AF/YEAR	Water Supply Type	Water Supply Description
USBR San Joaquin River (Class1)	19,563.00	Surface	Treated at City's SWTF
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	
		Other	

Exported Water Name	AF/YEAR	Where Exported?

The fields in red are required.

Agency name: City of Fresno

Division name (Reporting unit): City of Fresno

Reporting unit number: 58

Primary contact:

First name: Nora

Last name: Laikam

Email: nora.laikam@fresno.gov

Water Uses 2010

Potable Water Billed

Make sure to enter numbers in AF/Year.

Customer Type	Meter Accounts	Metered Water Delivered	Un-metered Accounts	Un-metered Water Delivered	Description
	5.00	1.00	109,764.00	82,161.00	
	7,573.00	21,985.00	362.00		
Commercial	8,090.00	21,462.00	2,387.00		Includes Institutional
Industrial	93.00	6,494.00	56.00		
Dedicated Irrigation	2,934.00	9,746.00	0.00		
System Flushing		165.00			
Other					
Other					
Other					
Other					
Other					
Other					
Other					

Potable Water Un-Billed

Customer Type	Meter Accounts	Metered Water Delivered	Un-metered Accounts	Un-metered Water Delivered	Description
Other	0.00	0.00	0.00	15,782.00	UAFW=10% of total production
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					
Other					

AWWA WLCC Free Water Audit Software: Reporting Worksheet

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WAS v4.2

Back to Instructions

? Click to access definition

Water Audit Report for: City of Fresno
Reporting Year: 2010 | 1/2010 - 12/2010

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 (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

WATER SUPPLIED

<< Enter grading in column 'E'

Volume from own sources:	?	5	41,894.339	Million gallons (US)/yr (MG/Yr)
Master meter error adjustment (enter positive value):	?	5	2,094.720	under-registered MG/Yr
Water imported:	?	10	6,019.500	MG/Yr
Water exported:	?	7	29.392	MG/Yr
WATER SUPPLIED:			49,979.167	MG/Yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

					Pcnt:	Value:
Billed metered:	?	8	18,877.614	MG/Yr		
Billed unmetered:	?	1	25,854.209	MG/Yr		
Unbilled metered:	?	10	0.000	MG/Yr		
Unbilled unmetered:	?	5	229.491	MG/Yr		229.491
AUTHORIZED CONSUMPTION:	?		44,961.314	MG/Yr		

Use buttons to select percentage of water supplied **OR** value

WATER LOSSES (Water Supplied - Authorized Consumption)

5,017.853 MG/Yr

Apparent Losses

					Pcnt:	Value:
Unauthorized consumption:	?	5	1,061.000	MG/Yr		1,061.000
Customer metering inaccuracies:	?	5	530.500	MG/Yr		530.500
Systematic data handling errors:	?	5	530.500	MG/Yr		
Apparent Losses:	?		2,122.000			

Choose this option to enter a percentage of billed metered consumption. This is NOT a default value

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses:	?		2,895.853	MG/Yr
WATER LOSSES:			5,017.853	MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER:	?		5,247.344	MG/Yr

= Total Water Loss + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	?	8	1,777.0	miles	
Number of active AND inactive service connections:	?	6	130,317		
Connection density:			73	conn./mile main	
Average length of customer service line:	?	5	25.0	ft	(pipe length between curbstop and customer meter or property boundary)
Average operating pressure:	?	7	50.0	psi	

COST DATA

Total annual cost of operating water system:	?	5	$53,954,150	$/Year
Customer retail unit cost (applied to Apparent Losses):	?	5	$1.25	$/1000 gallons (US)
Variable production cost (applied to Real Losses):	?	5	$634.85	$/Million gallons

PERFORMANCE INDICATORS

Financial Indicators

Non-revenue water as percent by volume of Water Supplied:	10.5%
Non-revenue water as percent by cost of operating system:	8.6%
Annual cost of Apparent Losses:	$2,652,500
Annual cost of Real Losses:	$1,838,432

Operational Efficiency Indicators

Apparent Losses per service connection per day:	44.61	gallons/connection/day
Real Losses per service connection per day*:	60.88	gallons/connection/day
Real Losses per length of main per day*:	N/A	
Real Losses per service connection per day per psi pressure:	1.22	gallons/connection/day/psi
? Unavoidable Annual Real Losses (UARL):	616.65	million gallons/year
From Above, Real Losses = Current Annual Real Losses (CARL):	2,895.85	million gallons/year
? Infrastructure Leakage Index (ILI) [CARL/UARL]:	4.70	

* only the most applicable of these two indicators will be calculated

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 57 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: Billed unmetered
3: Master meter error adjustment

For more information, click here to see the Grading Matrix worksheet

APPENDIX H

Draft Resolution for the Implementation of the Water Shortage Contingency Plan

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 _____][or 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

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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.

Water Conservation Stage	Water Use Reduction Goal
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.

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:

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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.

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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.

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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.

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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

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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

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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

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APPENDIX I

Compliance with the Water Conservation Act of 2009 (Senate Bill x7-7)

- Resolution No. 2012-60
- SBx7-7 staff report March 29, 2012
- SBx7-7 Technical Memorandum, February 8, 2012

RESOLUTION NO.: 2012-60

A RESOLUTION OF THE COUNCIL OF THE CITY OF FRESNO, CALIFORNIA, APPROVING A METHODOLOGY FOR CONSUMPTION CALCULATION FOR DETERMINING URBAN WATER USE TARGETS AND THE ASSOCIATED PER-CAPITA WATER USE TARGETS FOR 2015 AND 2020 AS REQUIRED BY THE STATE WATER CODE

WHEREAS, Urban Water Management Plans (UWMP) are required to be updated and submitted to the State Department of Water Resources (DWR) every five years under the Water Management Planning Act (UWMPA); and

WHEREAS, the City of Fresno (City) hired a consultant, West Yost Associates, to develop the 2010 Urban Water Management Plan (2010 UWMP); and

WHEREAS, one of the requirements of the UWMP is that the City must implement specific Demand Management Measures (DMMs) that will help achieve per-capita water use targets that reflect a 20 percent reduction in water use by the year 2020 as mandated by the State's Water Conservation Act of 2009 (Senate Bill x7-7); and

WHEREAS, in October 2010, the DWR released the final Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use document describing the methods for calculating these targets and the methods allowed for determining the 20 percent reduction water use target for the year 2020, as well as the Interim 2015 target; and

WHEREAS, the consultant developed a Technical Memorandum which established the base per-capita water usage for the City water system, compared per-capita water use targets for the four methodologies and recommends the City adopt Target Method Number 1; and

WHEREAS, the City base per-capita water use has been calculated to be 313 gallons per-capita per day (gpcd) and Target Method Number 1 provides for the required amount of reduction in per-capita water use and establishes a Final 2020 target of 250 gpcd and an Interim 2015 target of 282 gpcd; and

WHEREAS, on March 29, 2012, the City Council held a Public Hearing to consider approval of the Methodology Consumption Calculation for determining urban water use target and associated per-capita water uses, as required by the State Water Code and adopts Target Method Number 1.

Adopted _____
Approved 3-29-12
Effective _____

NOW, THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE CITY OF FRESNO AS FOLLOWS:

1. Does hereby approve a Methodology of Consumption Calculation for determining urban water use targets (Target Method Number 1) and the associated per-capita water use targets for 2015 (282 gpcd) and 2020 (250 gpcd), as required by the State Water Code.

* * * * * * * * * * * * * *

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

I, YVONNE SPENCE, CMC, 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 29 day of March, 2012.

AYES: Baines, Borgeas, Brand, Quintero, Westerlund, Xiong, Olivier
NOES: None
ABSENT: None
ABSTAIN: None

Mayor Approval: N/A, 2012
Mayor Approval /No Return: N/A, 2012
Mayor Veto: N/A, 2012
Council Override Vote: N/A, 2012

YVONNE SPENCE, CMC
City Clerk
BY: Yvonne Spence
Deputy

APPROVED AS TO FORM:
CITY ATTORNEY'S OFFICE

BY: _____
Shannon L. Chaffin
Senior Deputy City Attorney

Dated: March 13, 2012

SLC:cg;58368cg/RESO

City of FRESNO **REPORT TO THE CITY COUNCIL**

AGENDA ITEM NO.	10:15 AM
COUNCIL MEETING	03/29/12
APPROVED BY	
DEPARTMENT DIRECTOR	
CITY MANAGER	

March 29, 2012

FROM: PATRICK N. WIEMILLER, Director
Department of Public Utilities

BY: MARTIN A. QUERIN, PE, Assistant Director
Department of Public Utilities – Water Division

SUBJECT: PUBLIC HEARING TO ADOPT PER-CAPITA WATER USE TARGETS AS REQUIRED BY THE STATE WATER CODE AS PART OF THE 2010 URBAN WATER MANAGEMENT PLAN

RECOMMENDATIONS

Staff recommends that City Council:

1. Conduct a public hearing to consider approving a Methodology Consumption Calculation for determining per-capita water use targets and the associated per-capita water use targets for 2015 and 2010, as required by the State Water Code for incorporation into the City's 2010 Urban Water Management Plan (2010 UWMP).

2. Adopt Target Method Number 1 which provides for the required amount of reduction in per-capita water use and establishes a Final 2020 target of 250 gallons per-capita per day (gpcd) and an Interim 2015 target of 282 gpcd as required by the Water Conservation Act of 2009 (SBx7-7).

EXECUTIVE SUMMARY

The City of Fresno (City) currently has over 130,000 active service connections and provided 147,052 acre-feet of potable water to customers in 2010. Therefore, the City is required to comply with the requirements of the Water Conservation Act of 2009 (SBx7-7) and establish per-capita water use targets for 2015 and 2020. Target Method Number 1 represents the best plan to meet the SBX7-7 requirements.

Adoption of an Urban Water Management Plan is required every five years by the Urban Water Management Planning Act. The adopted per-capita water use targets will be incorporated into the City's 2010 UWMP.

BACKGROUND

Urban Water Management Plans (UWMP) are required to be updated and submitted to the State Department of Water Resources (DWR) every five years under the Urban Water Management Planning Act (UWMPA). In November 2009, Senate Bill x7-7 (SBx7-7), The Water Conservation Act of 2009, was signed into law as part of a comprehensive water legislation package. The Water Conservation Act addresses both urban and agricultural water conservation. The legislation sets a goal of achieving a 20 percent statewide reduction in urban per capita water use by the year 2020 (i.e., "20 by 2020"), and directs urban retail water suppliers to establish an "interim" per capita water use target to be met by 2015 and a "final" per capita water use target to be met by 2020. The methodologies, water use targets, and reporting required by the Water Conservation Act

of 2009 apply to urban retail water suppliers that "directly provide potable municipal water to more than 3,000 end users or that supply more than 3,000 acre-feet of potable water annually at retail for municipal purposes."

In October 2010, the DWR released the Final Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use document describing the methods for determining these targets.

In November 2011, the City entered into an agreement with West Yost Associates to develop the City's 2010 Urban Water Management Plan (2010 UWMP). Completion of the UWMP enables the City to be eligible for State Water Management grants or loans.

In January 2012, West Yost Associates developed a Technical Memorandum which established the base per-capita water usage for the City water system and compared per-capita water use targets based on the four methodologies developed by the DWR. Based on the analysis, it is recommended that the City adopt Target Method Number 1 which relies on historical gross water use and service area population to determine a base daily per-capita use. Target Method Number 1 is based on a 20 percent reduction from the City's 10-year Base Daily Per Capita Water Use (313 gpcd). The 2015 Interim target (282 gpcd) is based on 90 percent of the Base Daily Per Capita Water Use and the 2020 Final target (250 gpcd) is based on 80 percent of the Base Daily Per Capita Water Use.

Target Method Number	Target Method Description	Base Daily Per Capita Water Use	Interim (2015) Target	Final (2020) Target
1	- Uses historical gross water use and service area population to determine a base per capita water use. The Urban Water Use Target is 80% of this value. - Based on 10-yr running average per capita water use ending between 12/31/2004 and 12/31/2010. - Gross water use is that total water supplied to the system less recycled, wholesale or agricultural deliveries.	313 gpcd	282 gpcd	250 gpcd
2	- Uses performance standards for indoor water use, landscape irrigation use and commercial, institutional and industrial CII) uses. - Residential water use= 55 gpcd - Uses Model Water Efficient Landscape Ordinance for definitions and calculations. -Uses estimated landscaped area and applies a Maximum Applied Water Allowance, calculated from the ordinance (b). - CII use based on historical CII per capita use less 10%	313 gpcd (a)	**********	The City does not have sufficient data for this analysis.
3	- Uses 95% of the applicable state hydrologic region target as defined in the state's draft 20x2020 Water Conservation Plan issued by DWR in April 2009 - City of Fresno is located in state hydrologic region number 7 (Tulare Lake)	313 gpcd (a)	246 gpcd	179 gpcd
4	- Results shown based on Provisional Method 4 released by DWR in February 2011 - Provisional Method 4 is subject to change	313 gpcd (a)	264 gpcd	216 gpcd
Minimum Requirement	-Based on 95% of the 5-year running average per capita water use ending between 12/31/2007 and 12/31/2010.	307 gpcd	303 gpcd	216 gpcd

(a)The baseline for this method is the same as Method 1 and is used to establish the interim target.
(b)Rigorous application of this method requires a data-intensive analysis using GIS, coupled with site visits to estimate appropriate irrigation areas.This type of data is currently not available for the City's service area.

ENVIRONMENTAL FINDING

Per Section 10652 of the California Water Code, the California Environmental Quality Act (CEQA) does not apply to the preparation and adoption of UWMPs or the implementation of potential actions included in the Water Shortage Contingency Plan (per Section 10632 of the California Water Code).

FISCAL IMPACT

Long-term fiscal impacts from the reduction of water consumption will be factored into future rate structuring. The impact of the adoption of the SBx7-7 per-capita water use targets is expected to be a decrease in the per-capita water consumption. Consultant agreement is funded.

Attachment: Resolution

WEST YOST ASSOCIATES
Consulting Engineers

REGISTERED PROFESSIONAL ENGINEER
ELIZABETH T. DRAYER
C 046872
EXP. 6/30/13
CIVIL
STATE OF CALIFORNIA

TECHNICAL MEMORANDUM

DATE: February 8, 2012 Project No.: 439-02-11-10

TO: Brock Buche, City of Fresno
Martin Wendels, City of Fresno

FROM: Elizabeth Drayer, R.C.E. #46872

REVIEWED BY: Gerry Nakano, R.C.E. #29524

SUBJECT: City of Fresno Compliance with the Water Conservation Act of 2009 (Senate Bill x7-7)

BACKGROUND

In November 2009, Senate Bill x7-7 (SBx7-7), The Water Conservation Act of 2009, was signed into law by Governor Arnold Schwarzenegger as part of a comprehensive water legislation package. The Water Conservation Act addresses both urban and agricultural water conservation. The legislation sets a goal of achieving a 20 percent statewide reduction in urban per capita water use by the year 2020 (*i.e.*, "20 by 2020"), and directs urban retail water suppliers to establish an "interim" per capita water use target to be met by 2015 and a "final" per capita water use target to be met by 2020.

The legislation also extended the deadline for the submittal of 2010 Urban Water Management Plans (UWMPs) by urban retail water suppliers from December 31, 2010 to July 1, 2011 to allow additional time to comply with the SBx7-7 requirements and to incorporate reporting requirements into the 2010 UWMPs. Similar legislation (SB 1478 passed on September 24, 2010) was also passed to extend the 2010 UWMP submittal deadline for urban wholesale water suppliers to permit coordination between urban wholesale water suppliers and urban retail water suppliers.

The Water Conservation Act of 2009 was incorporated into Division 6 of the California Water Code, commencing with Section 10608 of Part 2.55. The methodologies, water use targets, and reporting required by the Water Conservation Act of 2009 apply to urban retail water suppliers that "*directly provide potable municipal water to more than 3,000 end users or that supply more than 3,000 acre-feet of potable water annually at retail for municipal purposes.*"

The City of Fresno (City) currently has over 130,000 active service connections and provided 147,052 acre-feet of potable water to customers in 2010. Therefore, the City is required to comply with the requirements of SBx7-7.

INTRODUCTION

This memorandum presents the City of Fresno's (City's) proposed compliance with SBx7-7. This memorandum includes the following information:

- City's water service area;
- Assumptions for gross water use and service area population;
- Calculation of base daily per capita water use;
- Calculation of interim and final targets using the four target methods established by SBx7-7 and the California Department of Water Resources (DWR);
- Recommended interim and final per capita water use targets for the City;
- Allowable adjustments to compliance daily per capita water use;
- Provisions for future revision of base daily per capita water use and/or target method used;
- Public hearing requirements;
- Reporting requirements in the City's 2010 UWMP and subsequent UWMPs;
- Consequences of non-compliance with SBx7-7; and
- References.

Calculations of Base Daily Per Capita Water Use, and Interim and Final Per Capita Water Use Targets have been made based on the requirements specified in the SBx7-7 legislation and DWR's "Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use" dated February 2011 (referred to as the "DWR Methodologies" in this memorandum).

WATER SERVICE AREA

The City currently encompasses over 110 square miles. With the exception of the Bakman Water Company (Bakman), Pinedale County Water District (Pinedale), Park Van Ness Mutual Water Company (Park Van Ness), California State University at Fresno (CSUF), and private groundwater users located within county islands, the City serves the entire area encompassed by its City Limits and Sphere of Influence (SOI). The SOI is coincident with the City's General Plan boundary and therefore, includes all lands planned to be annexed by the City by 2025.

The City's jurisdictional service area boundaries are depicted in Figure 1.

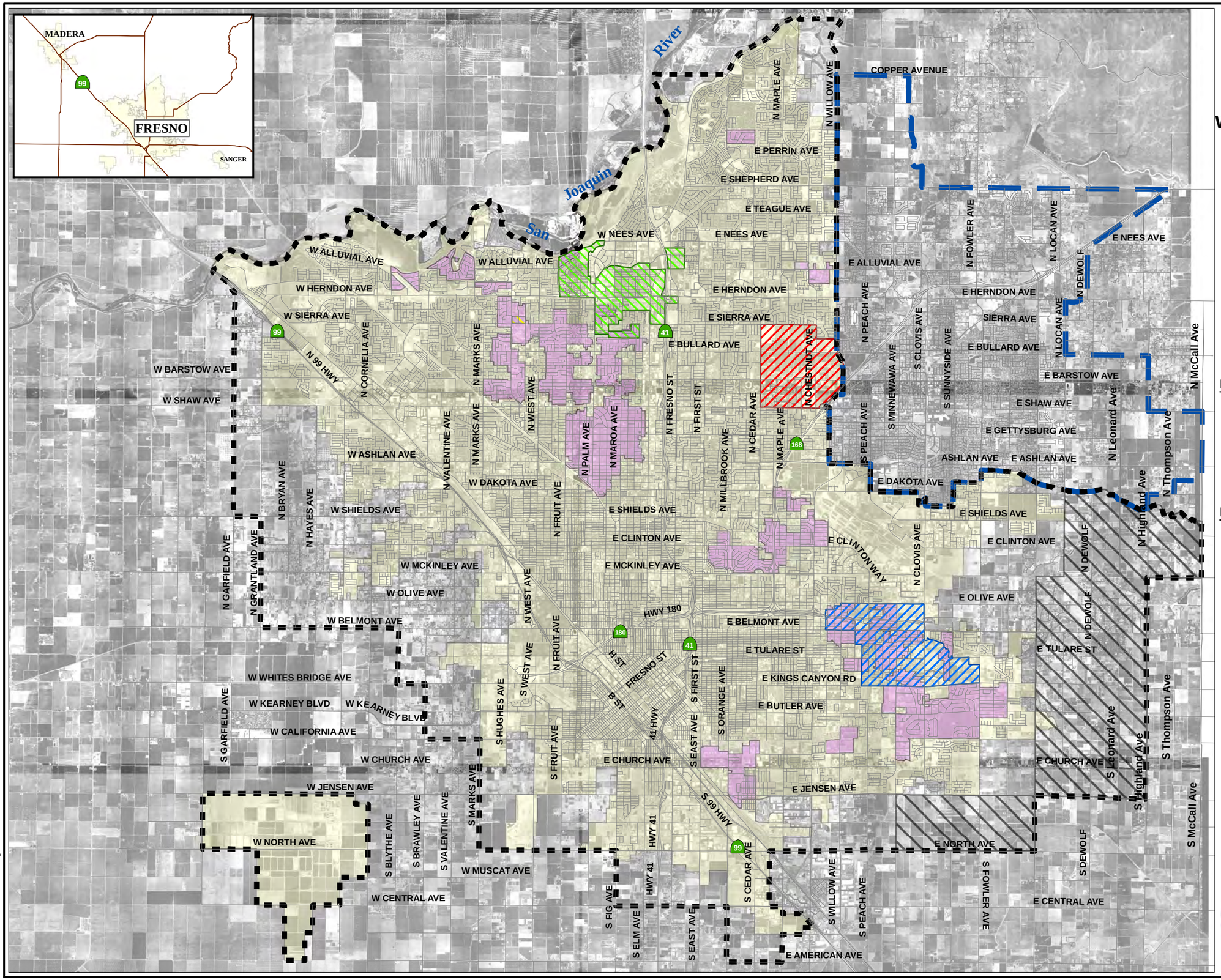

FIGURE 1

City of Fresno Compliance with the Water Conservation Act of 2009

JURISDICTIONAL SERVICE AREA

N

0 1 2 4

Scale in Miles

NOTES:

LEGEND:

- Fresno Sphere of Influence
- Clovis Sphere of Influence
- Pinedale County Water District
- Bakman Water Company
- California State University, Fresno
- Park Van Ness Mutual Water Company
- Southeast Growth Area
- County Island
- City Limit

City of FRESNO

WEST YOST ASSOCIATES Consulting Engineers

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GROSS WATER USE

Gross water use is the annual water supplied to the distribution system adjusted for recycled, wholesale, and agricultural deliveries and is defined in the Water Code as follows:

> *10608.12 (g) "Gross water use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:*
>
> *(1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.*
>
> *(2) The net volume of water that the urban retail water supplier places into long-term storage.*
>
> *(3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.*
>
> *(4) The volume of water delivered for agricultural use, except as otherwise provided in subdivision (f) of Section 10608.24.*

The City's gross water use includes purchased surface water from the Fresno Irrigation District (FID) and the United States Bureau of Reclamation (Bureau), and groundwater pumped by the City's 270 groundwater wells from the Kings Subbasin, which is part of the greater San Joaquin Valley Groundwater Basin (SJV Basin). Gross water use from each of these sources is measured as follows:

- Surface water flow is metered at the City's Surface Water Treatment Facility (SWTF);
- Groundwater flow is measured at each individual well before entering the distribution system[1].

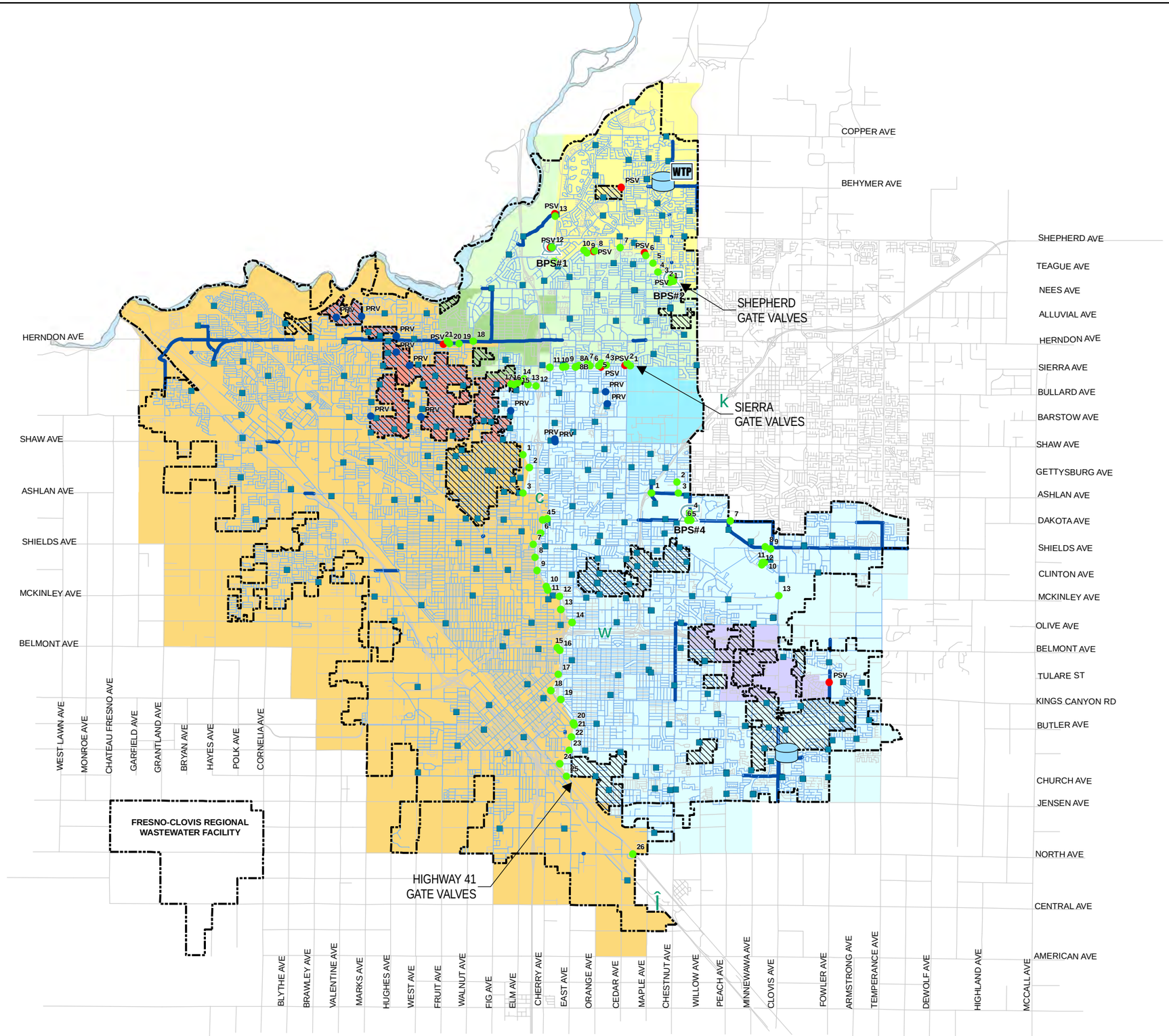
The metering locations (SWTF and the City's wells) are shown on Figure 2.

DWR Methodology 1 (Gross Water Use) suggests that water volumes should be adjusted for meter errors and that gross water use calculations should be adjusted for changes in distribution system storage, indirect recycled water use and process water use. However, the City's gross water use has not been adjusted for meter errors as the City's meters are considered to be appropriately calibrated and any meter errors are considered to be negligible. The City has also not adjusted its gross water use for changes in distribution system storage as the volumes of water stored in the City's water storage reservoirs and tanks, although they vary from hour to hour based on diurnal demand patterns, are kept at consistent levels throughout the year. Also, no deductions have been taken for indirect recycled water use, water delivered for agricultural use or process water use as these deductions do not apply to the City. The City's gross water use, presented in the format recommended by the DWR Methodologies, is presented in Table 1.

[1] Most of the City's groundwater wells have meters which measure the actual flow from the well. However, some of the City's wells do not have meters installed; flow from these wells is estimated based on the time of use and estimated flow rate. The City is in the process of installing meters on all of its wells.

FIGURE 2

City of Fresno Compliance with the Water Conservation Act of 2009 EXISTING WATER DISTRIBUTION SYSTEM



Notes
1. Boundaries are approximated based on gate valve locations shown by GIS information provided by City Staff.

N

0 1 2
Scale in Miles

LEGEND

- WTP Surface Water Treatment Facility
- Booster Pump Station
- Existing City Wells
- Existing Storage Tank
- Closed or Partially Closed Gate Valve Location
- PSV Location
- Fluoride District PRV Location
- County Islands
- Existing City Limit
- Existing 14-inch and Smaller Pipelines
- Existing 16-inch and Larger Pipelines

Quasi Pressure Zones

- Shepherd
- Sierra A
- Sierra B (Pinedale County Water District)
- Highway 41
- Highway 41 B (CA State University Fresno)
- Highway 41C (Backman Water Company)
- Westside
- Fluoride District

City of FRESNO

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Table 1. Urban Retail Water Supplier Gross Water Use Calculation
(DWR Methodologies Table 1)

Utility Name: City of Fresno
12-month period: January 1 to December 31
Volume Units: Million Gallons

Item	Calculation	Year 1 1996	Year 2 1997	Year 3 1998	Year 4 1999	Year 5 2000	Year 6 2001	Year 7 2002	Year 8 2003	Year 9 2004	Year 10 2005
1	Volume from Own Sources (raw data) (groundwater)	45,091	48,441	44,165	49,463	50,988	53,452	53,938	53,819	52,148	46,095
	Meter error adjustment (+/-)	-	-	-	-	-	-	-	-	-	-
	Subtotal: Corrected Volume from Own Sources	45,091	48,441	44,165	49,463	50,988	53,452	53,938	53,819	52,148	46,095
2	Volume from Imported Sources (raw data) (surface water)	-	-	-	-	-	-	-	-	1,323	5,150
	Meter error adjustment (+/-)	0	0	0	0	0	0	0	0	0	0
	Subtotal: Corrected Volume from Imported Sources	-	-	-	-	-	-	-	-	1,323	5,150
3	**Total Volume Into Distribution System = Item 1 + Item 2**	**45,091**	**48,441**	**44,165**	**49,463**	**50,988**	**53,452**	**53,938**	**53,819**	**53,471**	**51,246**
4	Volume Exported to Other Utilities (raw data)	0	0	0	0	0	0	0	0	0	0
	Meter error adjustment (+/-)	0	0	0	0	0	0	0	0	0	0
	Subtotal: Corrected Volume Exported to Other Utilities	0	0	0	0	0	0	0	0	0	0
5	Change in Distribution System Storage (+/-)	0	0	0	0	0	0	0	0	0	0
6	**Gross Water Use Before Indirect Recycled Water Use Deductions = Item 3 - Item 4 - Item 5**	**45,091**	**48,441**	**44,165**	**49,463**	**50,988**	**53,452**	**53,938**	**53,819**	**53,471**	**51,246**
7	Indirect Recycled Water Use Deduction	0	0	0	0	0	0	0	0	0	0
8	**Gross Water Use After Indirect Recycled Water Use Deductions = Item 6 - Item 7**	**45,091**	**48,441**	**44,165**	**49,463**	**50,988**	**53,452**	**53,938**	**53,819**	**53,471**	**51,246**
9	Water Delivered for Agricultural Use (optional deduction)	0	0	0	0	0	0	0	0	0	0
10	Process Water Use (optional deduction)	-	-	-	-	-	-	-	-	-	-
11	**Gross Water Use After Optional Deductions = Item 8 - Item 9 - Item 10**	**45,091**	**48,441**	**44,165**	**49,463**	**50,988**	**53,452**	**53,938**	**53,819**	**53,471**	**51,246**

The City's historical gross water use from 1990 to 2010 in acre-feet per year (AFY) is summarized in Table 2.

Table 2. City of Fresno Historical Gross Water Use

Year	Groundwater Use (as measured at the City's wells), AFY	Surface Water Use (as metered at the City's SWTF), AFY	Total Gross Water Use, AFY
1990	118,808		118,808
1991	117,562		117,562
1992	118,303		118,303
1993	119,521		119,521
1994	128,992		128,992
1995	130,389		130,389
1996	138,389		138,389
1997	148,670		148,670
1998	135,546		135,546
1999	151,806		151,806
2000	156,487		156,487
2001	164,049		164,049
2002	165,542		165,542
2003	165,177		165,177
2004[a]	160,047	4,060	164,108
2005	141,471	15,807	157,278
2006	136,050	19,701	155,750
2007	145,148	20,650	165,798
2008	148,006	20,116	168,122
2009[b]	138,254	19,563	157,817
2010[b]	128,578	18,474	147,052
2011[b]	119,813	20,216	140,089

[a] The City's SWTF began operation in 2004.
[b] 2009 and 2010 gross water use in the City was significantly lower than normal due to a number of factors, including water conservation due to drought conditions and economic conditions.

SERVICE AREA POPULATION

Service area population is used to determine per capita water use and is defined in the Water Code as follows:

> (1) *10608.20 (f) When calculating per capita values for the purpose of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.*

Consistent with DWR Methodology 2 (Service Area Population), the City's service area population has been estimated using data from the United States Census Bureau to the extent that it is available. 2000 Census tract population data for the Fresno area was used and then the Census tract population corresponding to the areas that the City does not serve were subtracted

out as shown in Table 3. As shown in Table 3, the resulting population for the City's service area is about 5,500 people greater than the City's population (based on California Department of Finance data).

Table 3. City of Fresno Service Area Population in 2000

Population Area	Associated Population
Total Population for Fresno Area Census Tracts (April 1, 2000)	501,048
Subtraction of Population for Census Tracts or Portions of Census Tracts Not Served by City:	
Bakman Water District	(13,767)
Pinedale County Water District	(9,996)
City of Clovis	(7,972)
Outside of SOI	(14,577)
Unserved County Areas	(8,425)
Unserved City Areas	(6,003)
Adjustment for Census Blocks with Partial Service Only	(7,915)
Total Adjustment	(68,655)
Total Population Served by City of Fresno (April 1, 2000)	432,393
Total Population Served by City of Fresno in 2000 (December 31, 2000)[a]	**438,381**
Total Population for City of Fresno in 2000 (January 1, 2001)[b]	433,574

[a] Increased from April 1, 2000 estimate by 1.38% based on California Department of Finance percentage increase for the City of Fresno from April 2000 to December 2000.

[b] Based on the California Department of Finance Report E-4 for City of Fresno.

Based on the City's service area population calculated for 2000, pre-2000 service area populations were estimated by reducing the 2000 service area population in accordance with the California Department of Finance annual population percentage change for the City of Fresno. Similarly, post-2000 service area populations were estimated by increasing the 2000 service area population in accordance with the California Department of Finance annual population percentage change for the City of Fresno.

The City's historical service area population from 1991 to 2010 is summarized in Table 4.

Table 4. City of Fresno Historical Service Area Population

Year	City of Fresno Population (per California Department of Finance Report E-4) [a]	Annual Percentage Change in City of Fresno Population (per California Department of Finance Report E-4)	Estimated Service Area Population[a,b]
1991	379,823	3.72%	384,034
1992	389,144	2.45%	393,458
1993	395,649	1.67%	400,035
1994	401,317	1.43%	405,766
1995	406,338	1.25%	410,843
1996	410,813	1.10%	415,367
1997	414,597	0.92%	419,193
1998	419,629	1.21%	424,281
1999	425,778	1.47%	430,498
2000	433,574	1.83%	438,381
2001	440,193	1.53%	445,073
2002	447,548	1.67%	452,510
2003	452,909	1.20%	457,930
2004	457,786	1.08%	462,861
2005	463,405	1.23%	468,542
2006	470,817	1.60%	476,037
2007	477,499	1.42%	482,793
2008	487,353	2.06%	492,756
2009	494,053	1.37%	499,530
2010	500,121	1.23%	505,666

[a] Population for each calendar year is based on the January 1 population for the following year (e.g., 2000 population is based on January 1, 2001 population).

[b] 2000 service area population is derived based on 2000 Census data for the City of Fresno Metropolitan area, minus population for areas not served by the City (population for Census tracts not served by City subtracted out) (see Table 3). Pre-2000 service area population determined by reducing the 2000 service area population in accordance with Department of Finance annual percentage population change for City of Fresno. Post-2000 service area population determined by increasing the 2000 service area population in accordance with Department of Finance annual percentage population change for City of Fresno.

BASE DAILY PER CAPITA WATER USE

The Base Daily Per Capita Water Use is the historical gross water use divided by the service area population and is defined in the Water Code as follows:

> *10608.12 (b) "Base daily per capita water use" means any of the following:*
>
> *(1) The urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.*
>
> *(2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.*
>
> *(3) For the purposes of Section 10608.22, the urban retail water supplier's estimate of its average gross water use, reported in gallons per capita per day and calculated over a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.*

Unless the urban retail water supplier's 5-year Base Daily Per Capita Water Use per Water Code Section 10608.12(b)(3) is 100 gallons per capita per day (gpcd) or less, Base Daily Per Capita Water Use must be calculated for both baseline periods. Calculation methods are described in DWR Methodology 3 (Base Daily Per Capita Water Use).

5-Year Base Daily Per Capita Water Use Per Water Code Section 10608.22

For purposes of Water Code Section 10608.22, the Base Daily Per Capita Water Use must be calculated using a continuous 5-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.

Table 5 shows the calculation of the City's Base Daily Per Capita Water Use for the 5-year period ending December 31, 2007. As shown, the City's 5-Year Base Daily Per Capita Water Use is 307 gpcd.

10- or 15-Year Base Daily Per Capita Water Use Per Water Code Section 10608.20

Per Water Code Section 10608.20, the City's Base Daily Per Capita Water Use is calculated using one of the following base periods:

- If recycled water made up less than 10 percent of 2008 retail water delivery, use a continuous 10-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.
- If recycled water made up 10 percent or more of 2008 retail water delivery, use a continuous 10- to 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

The City does not currently use recycled water within its service area. As such, the City must use a continuous 10-year period to determine their Base Daily Per Capita Water Use. Table 6 shows the calculation of the City's Base Daily Per Capita Water Use for the 10-year period ending December 31, 2005. As shown, the City's 10-Year Base Daily Per Capita Water Use is 313 gpcd.

Table 5. Base Daily Per Capita Water Use Calculation for Section 10608.22 (DWR Methodologies Table 3)			
Utility Name:	City of Fresno		
12-month Period:	January 1 to December 31		
(1)	(2)	(3)	(4)
Base Years	Service Area Population	Gross Water Use, gpd	Daily Per Capita Water Use (3) ÷ (2), gpcd
2003	457,930	147,450,476	322
2004	462,861	146,496,199	317
2005	468,542	140,399,184	300
2006	476,037	139,035,166	292
2007	482,793	148,004,831	307
		Total of Column (4):	1,537
		Divide Total by 5:	307

Table 6. Base Daily Per Capita Water Use Calculation for Section 10608.20 (DWR Methodologies Table 4)			
Utility Name:	City of Fresno		
12-month Period:	January 1 to December 31		
(1)	(2)	(3)	(4)
Base Years	Service Area Population	Gross Water Use, gpd	Daily Per Capita Water Use (3) ÷ (2), gpcd
1996	415,367	123,537,320	297
1997	419,193	132,714,980	317
1998	424,281	120,999,426	285
1999	430,498	135,514,430	315
2000	438,381	139,693,072	319
2001	445,073	146,443,531	329
2002	452,510	147,776,305	327
2003	457,930	147,450,476	322
2004	462,861	146,496,199	317
2005	468,542	140,399,184	300
		Total of Column (4):	3,126
		Divide Total by 10:	313

DETERMINATION OF INTERIM (2015) AND FINAL (2020) TARGETS

Overview of DWR Methods

The City must set an interim (2015) water use target and a final (2020) water use target using one of four methods defined by SBx7-7 and DWR. Three of these methods are defined in Water Code Section 10608.20(a)(1), with the fourth developed by DWR in early 2011. The City's 2020 water use target will be calculated using one of the following four methods:

- Method 1: 80 percent of the City's base daily per capita water use
- Method 2: Per capita daily water use estimated using the sum of performance standards applied to indoor residential use; landscaped area water use; and commercial, industrial, and institutional uses
- Method 3: 95 percent of the applicable State hydrologic region target as stated in the State's April 30, 2009, draft 20x2020 Water Conservation Plan
- Method 4: A provisional approach that considers the water conservation potential from:
    1. indoor residential savings,
    2. metering savings,
    3. commercial, industrial and institutional savings, and
    4. landscape and water loss savings

As described below, the target may need to be adjusted further to achieve a minimum reduction in water use regardless of the target method.

Target Method 1

SBx7-7 legislation, Water Code Section 10608.20 (b) (1), defines Method 1 as:

> *Eighty percent of the urban retail water supplier's baseline per capita daily water use.*

Urban water use targets calculated using Method 1 rely on the historical gross water use and service area population to determine a base daily per capita water use. The definitions and methodologies used for Method 1, as defined in the legislation and in the DWR Methodologies, are detailed below.

Target Method 1 is based on a 20 percent reduction from the City's 10-year Base Daily Per Capita Water Use. The Interim (2015) target is based on 90 percent of the Base Daily Per Capita Water Use and the Final (2020) target is based on 80 percent of the Base Daily Per Capita Water Use.

The City's targets using Target Method 1 are summarized as follows:

Interim (2015) Target = 90 percent of 10-Year Base Daily Per Capita Water Use
= 90% of 313 gpcd (see Table 6)
= 282 gpcd

Final (2020) Target = 80 percent of 10-Year Base Daily Per Capita Water Use
= 80% of 313 gpcd (see Table 6)
= 250 gpcd

Target Method 2

SBx7-7 legislation, Water Code Section 10608.20 (b) (2), defines Method 2 as:

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

Residential Indoor Water Use

Per DWR Methodology 5 (Indoor Residential Use), the residential indoor urban water use target is set at 55 gpcd. The legislation requires that DWR assess whether this is a reasonable assumption in a report due in 2016. Depending on the findings, the residential indoor urban water use target may be adjusted after 2016.

Landscape Irrigation Water Use

The landscaped area urban water use target relies on the state-adopted Model Water Efficient Landscape Ordinance for definitions and calculations. The 2020 landscaped area for the service area must be estimated and then the Maximum Applied Water Allowance (MAWA) calculated from the Model Water Efficient Landscape Ordinance. Two different MAWA equations are specified in the DWR Methodologies. For landscapes installed prior to January 1, 2010, the MAWA equation as defined in the 1992 version of the Model Water Efficient Landscape Ordinance is to be used. For landscapes installed after January 1, 2010, the MAWA equation as defined in the 2009 version of the Model Water Efficient Landscape Ordinance is to be used.

Per the DWR Methodology 6 (Landscaped Area Water Use), a rigorous application of this method requires a data-intensive analysis using GIS, coupled with site visits, to estimate the 2020 landscape areas. Such an analysis is not possible for the City as the City's GIS does not have such site-specific data for the entire City service area.

Commercial, Industrial and Institutional Water Use

Per DWR Methodology 7 (Baseline Commercial, Industrial and Institutional Water Use), the commercial, industrial and institutional (CII) urban water use target is based on a 10 percent reduction in water use from the baseline CII water use by 2020. The calculation of the baseline CII water use is performed in the same way that the 10-year Base Daily Per Capita Water Use is calculated.

Because the City does not currently have specific data with regards to all landscaped areas within its service area, a target using Method 2 cannot be determined at this time. However, additional data may become available to evaluate targets using Method 2 in the future. The use of Method 2 may be considered for the City's 2015 UWMP if adequate and reliable data is available.

The City's targets using Target Method 2 are summarized as follows:

Interim (2015) Target = Not calculated due to insufficient data

Final (2020) Target = Not calculated due to insufficient data

Target Method 3

SBx7-7 legislation, Water Code Section 10608.20 (b) (3), defines Method 3 as:

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

Method 3 is based solely on the hydrologic region targets that have been established in the final 20x2020 Water Conservation Plan dated February 2010.

DWR has defined ten hydrologic regions for water resources planning purposes (see Figure 3). The City is located in the Tulare Lake Hydrologic Region (Region No. 7).

The baseline, interim and final targets established in the 20x2020 Water Conservation Plan are summarized in Table 7.

Table 7 also shows 95 percent of the final (2020) hydrologic region targets, which are the required 2020 targets for SBx7-7 Target Method 3. For the City, the 2020 target is 179 gpcd (95 percent of the Region No. 7 target of 188 gpcd).

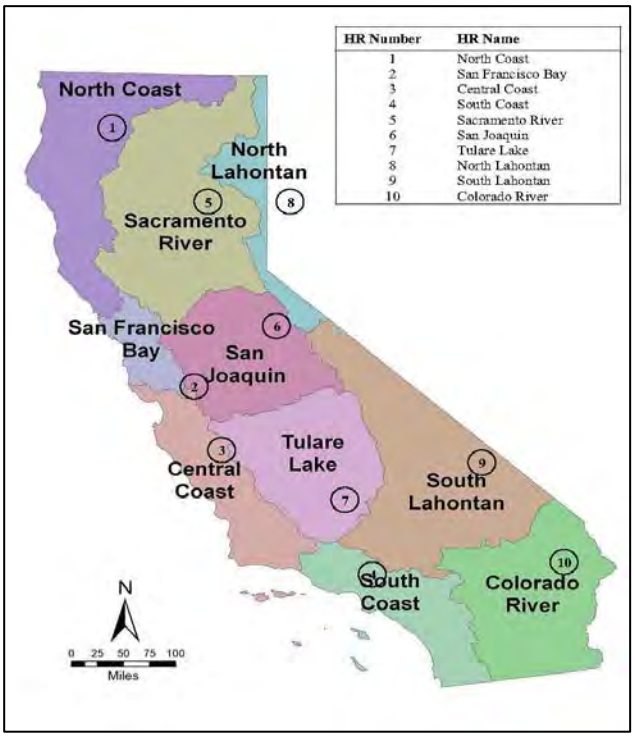


Figure 3. California DWR Hydrologic Regions

Table 7. California Hydrologic Region Per Capita Water Use Targets (DWR Method 3)

DWR Hydrologic Region Number and Name	Region 1 North Coast	Region 2 SF Bay	Region 3 Central Coast	Region 4 South Coast	Region 5 Sacto River	Region 6 San Joaquin	Region 7 Tulare Lake	Region 8 North Lahontan	Region 9 South Lahontan	Region 10 Colorado River
State of California 20 x 2020 Water Conservation Plan Targets (February 2010)										
Baseline (1995-2005), gpcd	165	157	154	180	253	248	285	243	237	346
Interim (2015) Targets, gpcd	151	144	139	165	215	211	237	208	204	278
Final (2020) Targets, gpcd	137	131	123	149	176	174	188	173	170	211
SBx7-7 Final (2020) Targets = 95% of Final 20 x 2020 Draft Water Conservation Plan Targets										
SBx7-7 Final (2020) Targets, gpcd	130	124	117	142	167	165	179	164	162	200

Note: The City of Fresno is located in Region 7 (Tulare Lake).
The Interim (2015) SBx7-7 target for Method 3 is the midpoint of the City's 10-year Base Daily Per Capita Water Use and the SBx7-7 2020 Target shown above.

The Method 3 interim target is calculated based on the midpoint between the City's 10-year Base Daily Per Capita Water Use (313 gpcd) and the Method 3 2020 Target (179 gpcd) and equals 246 gpcd.

The City's targets using Target Method 3 are summarized as follows:

Interim (2015) Target = 246 gpcd

Final (2020) Target = 179 gpcd

Target Method 4

On February 16, 2011, DWR released the Provisional Method 4. It should be noted that Method 4 is "provisional", and it is expected that DWR will continue to make improvements to or modify the method, prior to finalizing the methodology before the end of 2014 as stated in Water Code Section 10608.20 (d):

> *The department shall update the method described in paragraph (4) of subdivision (b) and report to the Legislature by December 31, 2014. An urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may adopt a new urban daily per capita water use target pursuant to this updated method.*

Possible improvements to Method 4 may include changes to the landscape and water loss savings calculations and adjustments to baselines based on data provided in 2010 UWMPs.

Method 4 develops water use targets which consider the water conservation potential from the following four sources:

1. Indoor Residential Savings
2. Metering Savings
3. CII Savings
4. Landscape and Water Loss Savings

The sum of the calculated water use savings from the four sources listed above will be subtracted from the 10-year Base Daily Per Capita Water Use to determine the Method 4 final (2020) water use target. The Method 4 interim target is calculated based on the midpoint between the 10-year Base Daily Per Capita Water Use and the Method 4 2020 Target. A summary of the water savings assumptions and calculations for each of these four sources is provided below.

Indoor Residential Savings

Indoor residential water use is assumed to be 70 gpcd for all water suppliers. The indoor residential savings can be calculated in two ways, either by using a default savings of 15 gpcd, or by using the Best Management Practice (BMP) Calculator. The BMP Calculator sums the potential savings from the following four elements:

- Single-family housing toilets,
- Multi-family housing toilets,

- Residential washers, and
- Showerheads.

Based on the four categories of fixtures listed above, the BMP Calculator estimates how much indoor residential water use would be saved if the saturation for efficient fixtures was increased to reach saturation goals for 2020. Saturation goals for each of the elements listed above are defined as:

- Single-family housing toilets = 85 percent 1.28 gallons per flush toilets
- Multi-family housing toilets = 85 percent 1.28 gallons per flush toilets
- Residential washers = 85 percent Water Factor of 6 (Water Factor = gallons of water per cubic foot of laundry), 15 percent average 2000 Water Factor
- Showerheads = 95 percent low flow showerheads

Existing saturation estimates are based on the midpoint year of the supplier's baseline, which for the City would be 2001. Therefore, water suppliers with existing high percentages of efficient fixtures will have to install fewer efficient fixtures in the future, and subsequently, will have a smaller calculated indoor residential savings requirement (i.e., higher Method 4 per capita water use target).

Metering Savings

The metering savings calculation assumes (per BMP 1.3 of the California Urban Water Conservation Council Memorandum of Understanding) that water deliveries to unmetered accounts can be lowered by 20 percent once meters are installed. The basis for the 20 percent reduction is the water deliveries to unmetered connections in the midpoint baseline year (for the City the midpoint baseline year is 2001).

CII Savings

The CII savings are equal to 10 percent of the baseline CII water use, which is identical to the calculation of the CII water use target in Target Method 2 as discussed above.

Landscape and Water Loss Savings

Estimated landscape water use and water loss is equal to the 10-year Base Daily Per Capita Water Use minus the following per capita water uses: residential indoor, unmetered, and CII. Landscape and water loss savings are defined to be 21.6 percent of the calculated estimated landscape water use and water loss. DWR calculated the value of 21.6 percent based on the percent reduction required for a random sample of 52 California water suppliers to reduce their collective total per capita water demand by 20 percent. DWR anticipates adjusting the required percent reduction in landscape and water loss savings to be included in the 2015 UWMP.

Target Method 4 Calculation

West Yost has calculated the City's targets using Method 4 based on the default savings for the indoor residential savings as follows:

Calculation for Estimated Landscape Water Use and Water Loss:							
10-Year Baseline, gpcd	Minus	Standard Indoor Residential, gpcd	Minus	10-Year Baseline CII, gpcd	Equals	Estimated Landscape Water Use and Water Loss, gpcd	
313	-	70	-	57 [(a)]	=	186	
[(a)] Based on 10-year average CII use from 1997 to 2006.							
Calculation of Total Savings:									
Indoor Residential Savings (Default), gpcd	Plus	Metered Savings BMP 1.3, gpcd	Plus	CII Savings BMP 4 (10% of CII Baseline), gpcd	Plus	Landscape plus Water Loss Savings (21.6% of Estimated Landscape Water Use and Water Loss), gpcd	Equals	Total Savings, gpcd
-15	+	-37 [(b)]	+	-6	+	-40	=	-98
[(b)] Based on 20 percent reduction of water deliveries to unmetered connections in 2001.								
Calculation of Provisional Method 4 2020 Urban Water Use Target:								
10-Year Baseline, gpcd	Plus	Total Savings, gpcd	Equals	2020 Urban Water Use Target, gpcd				
313	+	-98	=	216				

The Method 4 interim target is calculated based on the midpoint between the City's 10-year Base Daily Per Capita Water Use (313 gpcd) and the Method 4 2020 Target (216 gpcd) and equals 264 gpcd.

The City's targets using Target Method 4 are summarized as follows:

Interim (2015) Target = 264 gpcd

Final (2020) Target = 216 gpcd

Minimum Water Use Reduction Requirement

Water Code Section 10608.22 specifies the minimum water use reduction requirement as follows:

> *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 calculation of the minimum water use reduction requirement includes the following three steps:

1. Calculate Base Daily Per Capita Water Use using a continuous five-year period ending no earlier than December 31, 2007, and no later than December 31, 2010.
2. Multiply the result from Step 1 by 0.95. The 2020 per capita water use target cannot exceed this value (unless the water supplier's five year baseline per capita water use is 100 gpcd or less). If the 2020 target is greater than this value, reduce the target to this value.
3. Set the 2015 target to the mid-point between the 10- or 15-year baseline per capita water use and the 2020 target determined in Step 2.

As described above, the City's Base Daily Per Capita Water Use for the five-year period ending December 31, 2007 was 307 gpcd (see Table 5). Therefore, per Water Code Section 10608.22, the 2020 per capita water use target cannot exceed 95 percent of 307 gpcd, or 292 gpcd. The Interim (2015) target is then set at the midpoint between the City's 10-year Base Daily Per Capita Water Use (313 gpcd) (see Table 6) and 292 gpcd, which equals 303 gpcd.

The City's targets using the required minimum reduction are summarized as follows:

Interim (2015) Target = 303 gpcd

Final (2020) Target = 292 gpcd

Recommended Target Method and Resulting Targets for the City of Fresno

Table 8 summarizes the methods for calculating base daily water use and the interim and final target daily water use in gallons per capita per day (gpcd).

Based on the results for the four target methods, Target Method 1 results in the highest allowable SBx7-7 gpcd, and therefore is the most favorable. These Method 1 targets satisfy the City's minimum reduction requirements and are therefore the recommended interim and final gpcd target goals for the City. These targets are summarized and graphically shown on Figure 4.

Therefore, the City should adopt the following SBx7-7 per capita water use targets based on the minimum reduction targets:

Interim (2015) Target = 282 gpcd

Final (2020) Target = 250 gpcd

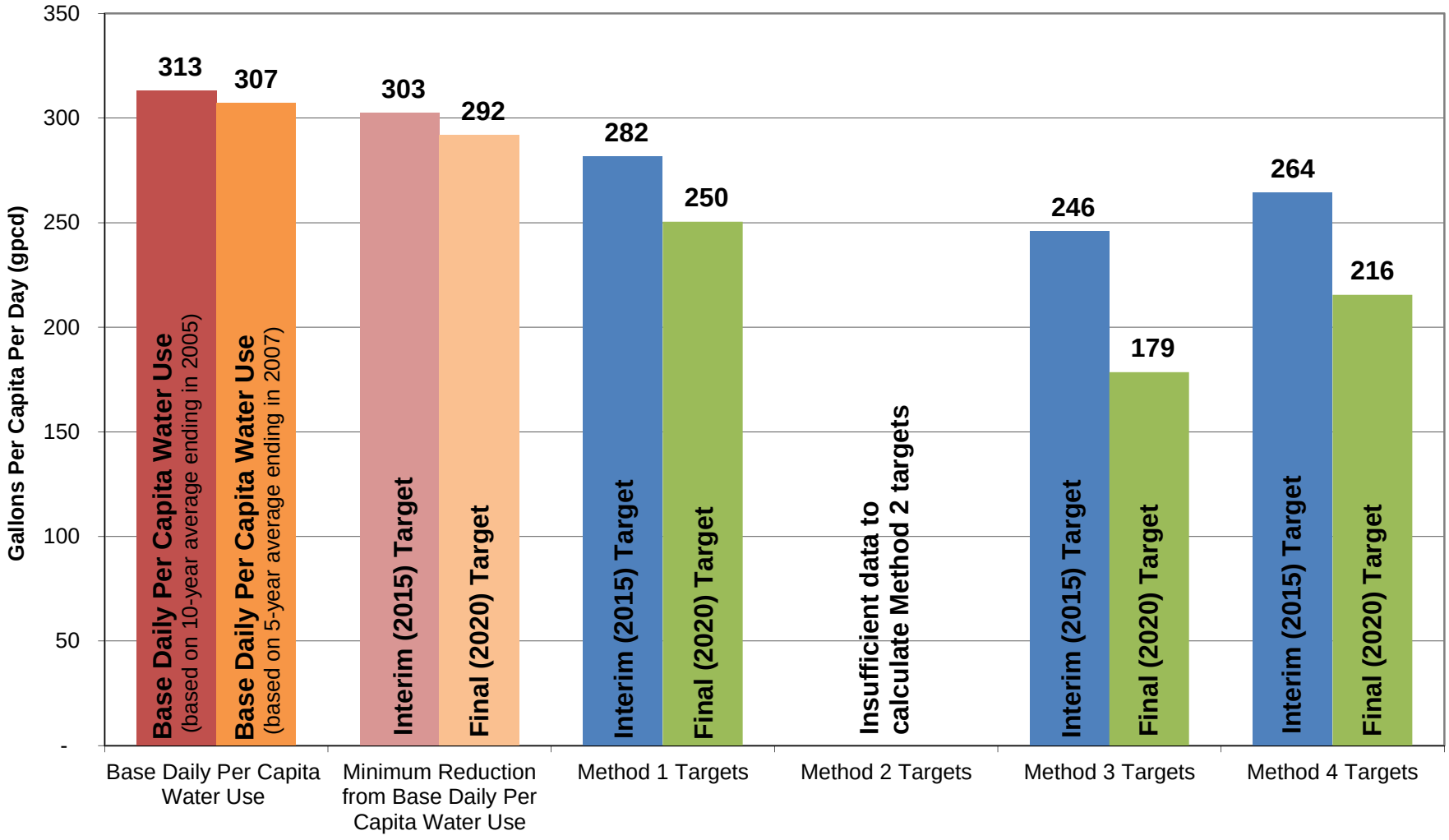
The City's compliance with these targets in 2015 and 2020 shall be determined in accordance with DWR Methodology 4 (Compliance Daily Per Capita Water Use) based on gross water use and service area population in the compliance years (2015 and 2020).

Table 8. Summary of SBx7-7 Methodologies for Determining Urban Water Use Targets

Target Method Number	Target Method Description	Base Daily Per Capita Water Use	Interim (2015) Target	Final (2020) Target
1	• Uses historical gross water use and service area population to determine a base daily per capita water use. The Urban Water Use Target is 80 percent of this value. • Based on 10-year running average per capita water use ending between December 31, 2004 and December 31, 2010. • Gross water use is that total water supplied to the system less recycled, wholesale or agricultural deliveries	313 gpcd	282 gpcd	250 gpcd
2	• Uses performance standards for indoor water use, landscape irrigation use and commercial, institutional and industrial (CII) uses. • Residential water use = 55 gpcd • Uses Model Water Efficient Landscape Ordinance for definitions and calculations. Uses estimated landscaped area and applies a Maximum Applied Water Allowance, calculated from the ordinance[(b)]. • CII use based on historical CII per capita use less 10 percent	313 gpcd[(a)]	The City does not have sufficient data for this analysis.	
3	• Uses 95 percent of the applicable state hydrologic region target as defined in the state's draft 20x2020 Water Conservation Plan issued by DWR in April 2009 • City of Fresno is located in state hydrologic region number 7 (Tulare Lake)	313 gpcd[(a)]	246 gpcd	179 gpcd
4	• Results shown based on Provisional Method 4 released by DWR in February 2011 • Provisional Method 4 is subject to change	313 gpcd[(a)]	264 gpcd	216 gpcd
Minimum Requirement	• Based on 95 percent of the 5-year running average per capita water use ending between December 31, 2007 and December 31, 2010.	307 gpcd	303 gpcd	292 gpcd

(a) The baseline for this method is the same as Method 1 and is used to establish the interim target.
(b) Rigorous application of this method requires a data-intensive analysis using GIS, coupled with site visits to estimate appropriate irrigation areas. This type of data is currently not available for the City's service area (see additional discussion under Target Method 2).

Figure 4. Summary of 20 x 2020 Targets for City of Fresno



ADJUSTMENTS TO COMPLIANCE DAILY PER CAPITA WATER USE

Water Code Section 10608.24(d) provides for adjustments when determining the compliance daily per capita water use. It states that an urban retail water supplier may consider the following factors:

- Differences in evapotranspiration and rainfall in the baseline period compared to the compliance reporting period.
- Substantial changes to commercial or industrial water use resulting from increased business output and economic development that have occurred during the reporting period.
- Substantial changes to institutional water use resulting from fire suppression services or other extraordinary events, or from new or expanded operations, that have occurred during the reporting period.

As described in DWR Methodology 8 (Criteria for Adjustments to Compliance Daily Per Capita Water Use), 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 above, it shall provide the basis for, and data supporting, the adjustment.

FUTURE REVISION OF METHODS AND/OR TARGETS

The City may revise its calculated Base Daily Per Capita Water Use after submitting its 2010 UWMP if better information becomes available. The revisions may be included in the City's 2015 and subsequent UWMPs or may be submitted in an amended 2010 UWMP, provided it follows the process required for amendments to UMWPs. It should be noted that if the revisions to the Base Daily Per Capita Water Use change the water use target, the water use target must be revised as well.

In addition, the City may choose to change the method it uses to set its water use target, and report the method change and target revision in an amended 2010 UWMP or in its 2015 UWMP. However, target method changes are not permitted in an amended 2015 UWMP or in 2020 UWMPs.

PUBLIC HEARING REQUIREMENTS

To comply with Water Code Section 10608.26, the City shall conduct at least one public hearing to discuss and adopt the water use target method and resulting water use targets for 2015 and 2020. The following issues must be addressed during the public hearing:

- Allow community input regarding the urban retail water supplier's implementation plan for complying with SBx7-7;
- Consider the economic impacts of the urban retail water supplier's implementation plan for complying with SBx7-7; and
- Adopt a method, pursuant to subdivision (b) of Section 10608.20, for determining its urban water use target.

The Water Code has no other specific requirements for this public hearing. The City may choose to hold a specific public hearing for this purpose only, or may choose to combine this public hearing with the public hearing required for the preparation of the City's 2010 UWMP (per Water Code Section 10642).

REPORTING REQUIREMENTS

The City must report on their SBx7-7 compliance in their upcoming UWMPs. Table 9 provides an outline of the specific reporting requirements for the City's 2010, 2015, and 2020 UWMPs.

Table 9. SBx7-7 Reporting Requirements

Reporting Element	2010 UWMP	2015 UWMP	2020 UWMP
Baseline Gross Water Use and Service Area Population	✓	✓	✓
2020 Urban Water Use Target	✓	✓	✓
Interim 2015 Urban Water Use Target	✓	✓	
Compliance Year Gross Water Use		✓	✓
Adjustments to Gross Water Use in the Compliance Year		✓	✓
Water Suppliers who choose Target Method 2 must provide Landscaped Area Water Use and Baseline CII Water Use data	✓	✓	✓
Water suppliers who choose Target Method 4 must provide the components of calculation as required by Target Method 4	✓	✓	✓

The City will incorporate these reporting requirements into their 2010, 2015 and 2020 UWMPs.

CONSEQUENCES OF NON-COMPLIANCE WITH SBX7-7

The City must comply with the SBx7-7 requirements by establishing 2015 interim and 2020 final water use targets, demonstrating that its water use is in compliance with its targets, and reporting water use baselines, targets, compliance year water use, and supporting data in its 2010, 2015 and 2020 UWMPs.

Water Code Section 10608.56(a) states that a water supplier not in compliance will not be eligible for water grants or loans that may be administered by DWR or other state agencies:

> *On and after July 1, 2016, an urban retail water supplier is not eligible for a water grant or loan awarded or administered by the state unless the supplier complies with this part.*

Two exceptions to this are allowed.

- Water Code Section 10608.56 (c) states that a water supplier shall be eligible for a water loan or grant if it "has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for achieving the per capita reductions."
- Water Code Section 10608.56 (e) states that a water supplier can also be eligible for a water loan or grant if it "has submitted to the department for approval documentation demonstrating that its entire service area qualifies as a disadvantaged community."

REFERENCES

Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use, prepared by California Department of Water Resources, Division of Statewide Integrated Water Management, Water Use and Efficiency Branch, February 2011.

Senate Bill 1478, approved by Governor Arnold Schwarzenegger on September 24, 2010.

Water Conservation Act of 2009 (Senate Bill x7-7), approved by Governor Arnold Schwarzenegger on November 10, 2009.

APPENDIX J

DWR UWMP Checklist

DWR Table I-2 Urban Water Management Plan checklist, organized by subject

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
PLAN PREPARATION				
4	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.	10620(d)(2)		Chapter 2 Section 2.1.2
6	Notify, at least 60 days prior to the public hearing on the plan required by Section 10642, 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. Any city or county receiving the notice may be consulted and provide comments.	10621(b)	Notices sent July 26, 2012	Chapter 2 Section 2.1.2 (Copies of notices provided in Appendix B)
7	Provide supporting documentation that the UWMP or any amendments to, or changes in, have been adopted as described in Section 10640 et seq.	10621(c)	City of Fresno 2010 UWMP was adopted on November 29, 2012	Chapter 2 Section 2.2 (Copy of adoption resolution in Appendix C)
54	Provide supporting documentation that the urban water management 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 this urban water management plan.	10635(b)		Chapter 2 Section 2.1.2
55	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.	10642		Chapter 2 Section 2.1.1
56	Provide supporting documentation that the urban water supplier made the plan available for public inspection and held a public hearing about the plan. For public agencies, the hearing notice is to be provided pursuant to Section 6066 of the Government Code. The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water. Privately-owned water suppliers shall provide an equivalent notice within its service area.	10642		Chapter 2 Section 2.1.1 (Copies of notices provided in Appendix B)
57	Provide supporting documentation that the plan has been adopted as prepared or modified.	10642	City of Fresno 2010 UWMP was adopted on November 29, 2012	Chapter 2 Section 2.2 (Copy of adoption resolution in Appendix C)
58	Provide supporting documentation as to how the water supplier plans to implement its plan.	10643		Chapter 2 Section 2.4

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
59	Provide supporting documentation that, in addition to submittal to DWR, the urban water supplier has submitted this UWMP to 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. This also includes amendments or changes.	10644(a)		Chapter 2 Section 2.2
60	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the urban water supplier has or will make the plan available for public review during normal business hours	10645		Chapter 2 Section 2.2
SYSTEM DESCRIPTION				
8	Describe the water supplier service area.	10631(a)		Chapter 3 Section 3.1
9	Describe the climate and other demographic factors of the service area of the supplier	10631(a)		Chapter 3 Sections 3.3.2 and 3.3.3
10	Indicate the current population of the service area	10631(a)	Provide the most recent population data possible. Use the method described in "Baseline Daily Per Capita Water Use." See Section M.	Chapter 3 Section 3.2.1 (Table 3-2)
11	Provide population projections for 2015, 2020, 2025, and 2030, based on data from State, regional, or local service area population projections.	10631(a)	2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	Chapter 3 Section 3.2.2 (Table 3-3)
12	Describe other demographic factors affecting the supplier's water management planning.	10631(a)		Chapter 3 Section 3.3.3
SYSTEM DEMANDS				
1	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.	10608.20(e)		Chapter 6 Section 6.2.2
2	*Wholesalers:* Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. *Retailers:* Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	Retailers and wholesalers have slightly different requirements The City held a public hearing on March 29, 2012	Chapter 6 Section 6.2.2
3	Report progress in meeting urban water use targets using the standardized form.	10608.40	Applies only to 2015 and 2020 UWMPs	Chapter 6 Section 6.2.2.3

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
25	Quantify past, current, and projected water use, identifying the uses among water use sectors, for the following: (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, conjunctive use, and (I) agriculture.	10631(e)(1)	Consider 'past' to be 2005, present to be 2010, and projected to be 2015, 2020, 2025, and 2030. Provide numbers for each category for each of these years.	Chapter 6 Sections 6.3.1 and 6.3.2 (Tables 6-5 thru 6-9)
33	Provide documentation that either the retail agency provided the wholesale agency with water use projections for at least 20 years, if the UWMP agency is a retail agency, OR, if a wholesale agency, it provided its urban retail customers with future planned and existing water source available to it from the wholesale agency during the required water-year types	10631(k)	Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030.	Chapter 6 Section 6.4 (Table 6-15)
34	Include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)		Chapter 6 Section 6.3.3 (Table 6-11)
SYSTEM SUPPLIES				
13	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, and 2030.	10631(b)	The 'existing' water sources should be for the same year as the "current population" in line 10. 2035 and 2040 can also be provided.	Chapter 4 Sections 4.1 and 4.2 (Table 4-15)
14	Indicate whether groundwater is an existing or planned source of water available to the supplier. If yes, then complete 15 through 21 of the UWMP Checklist. If no, then indicate "not applicable" in lines 15 through 21 under the UWMP location column.	10631(b)	Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other.	Yes, groundwater is an existing and planned source of water supply (Chapter 4 Section 4.1.2)
15	Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	10631(b)(1)	A groundwater management plan has been prepared	Chapter 4 Section 4.1.2.2 (copy of GWMP in Appendix E)
16	Describe the groundwater basin.	10631(b)(2)		Chapter 4 Section 4.1.2.3
17	Indicate whether the groundwater basin is adjudicated? Include a copy of the court order or decree.	10631(b)(2)	Groundwater basin is not adjudicated	Chapter 4 Section 4.1.2.3
18	Describe the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. If the basin is not adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)	Groundwater basin is not adjudicated	Not applicable

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
19	For groundwater basins that are not adjudicated, provide information as to whether DWR has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition. If the basin is adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)	Basin was identified as being in overdraft in DWR Bulletin 118-80	Chapter 4 Section 4.1.2.3.6
20	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	10631(b)(3)		Chapter 4 Section 4.1.2.6.1 (Table 4-8)
21	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	10631(b)(4)	Provide projections for 2015, 2020, 2025, and 2030.	Chapter 4 Section 4.1.2.6.2 (Table 4-9)
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)		Chapter 4 Section 4.3
30	Include a detailed description of all 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, excluding demand management programs addressed in (f)(1). Include specific projects, describe water supply impacts, and provide a timeline for each project.	10631(h)		Chapter 4 Section 4.2
31	Describe desalinated water project opportunities for long-term supply, including, but not limited to, ocean water, brackish water, and groundwater.	10631(i)		Chapter 4 Section 4.4
44	Provide information on recycled water and its potential for use as a water source in the service area of the urban water supplier. Coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	10633		Chapter 4 Section 4.2.4
45	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.	10633(a)		Chapter 10 Section 10.2
46	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.	10633(b)		Chapter 10 Section 10.2 (Table 10-2)
47	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.	10633(c)		Chapter 10 Section 10.2.2

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
48	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.	10633(d)		Chapter 10 Section 10.3
49	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.	10633(e)		Chapter 10 Section 10.3 (Table 10-5) and Section 10.2.2 (Table 10-4)
50	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.	10633(f)		Chapter 10 Section 10.4
51	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.	10633(g)		Chapter 10 Section 10.5
WATER SHORTAGE RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING [b]				
5	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	10620(f)		Chapter 2 Section 2.6
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage and provide data for (A) an average water year, (B) a single dry water year, and (C) multiple dry water years.	10631(c)(1)		Chapter 5 Section 5.5
23	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.	10631(c)(2)		Chapter 3 Section 5.4 (Table 5-7)
35	Provide an urban water shortage contingency analysis that specifies stages of action, including up to a 50-percent water supply reduction, and an outline of specific water supply conditions at each stage	10632(a)		Chapter 9 Section 9.2
36	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's water supply.	10632(b)		Chapter 5 Section 5.5.2 (Table 5-10)

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
37	Identify 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.	10632(c)		Chapter 9 Section 9.3
98	Identify 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.	10632(d)		Chapter 9 Section 9.5
39	Specify 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.	10632(e)		Chapter 9 Section 9.6
40	Indicated penalties or charges for excessive use, where applicable.	10632(f)		Chapter 9 Section 9.7
41	Provide an analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.	10632(g)		Chapter 9 Section 9.8
42	Provide a draft water shortage contingency resolution or ordinance.	10632(h)		Chapter 9 Section 9.9
43	Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)		Chapter 9 Section 9.10
52	Provide information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments, and the manner in which water quality affects water management strategies and supply reliability	10634	For years 2010, 2015, 2020, 2025, and 2030	Chapter 5 Section 5.6
53	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, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. Base the assessment on the information compiled under Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)		Chapter 7

No.	UWMP requirement [a]	Calif. Water Code reference	Additional clarification	UWMP location
DEMAND MANAGEMENT MEASURES				
26	Describe how each water demand management measures is being implemented or scheduled for implementation. Use the list provided.	10631(f)(1)	Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules. City of Fresno has opted for CUWCC GPCD compliance option.	Chapter 8 and CUWCC Coverage Reports in Appendix G
27	Describe the methods the supplier uses to evaluate the effectiveness of DMMs implemented or described in the UWMP.	10631(f)(3)		Chapter 8 and CUWCC Coverage Reports in Appendix G
28	Provide an estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the ability to further reduce demand.	10631(f)(4)		Chapter 8 and CUWCC Coverage Reports in Appendix G
29	Evaluate each water demand management measure that is not currently being implemented or scheduled for implementation. The evaluation should include economic and non-economic factors, cost-benefit analysis, available funding, and the water suppliers' legal authority to implement the work.	10631(g)	See 10631(g) for additional wording.	CUWCC Coverage Reports in Appendix G
32	Include the annual reports submitted to meet the Section 6.2 requirements, if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29. City of Fresno is a member of CUWCC and a signer of the MOU	CUWCC Coverage Reports in Appendix G

a The UWMP Requirement descriptions are general summaries of what is provided in the legislation. Urban water suppliers should review the exact legislative wording prior to submitting its UWMP.

b The Subject classification is provided for clarification only. It is aligned with the organization presented in Part I of this guidebook. A water supplier is free to address the UWMP Requirement anywhere with its UWMP, but is urged to provide clarification to DWR to facilitate review.