City of FRESNO
Department of Public Utilities

2025 Urban Water Management Plan

Public Draft

JUNE 2026 | CITY OF FRESNO

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Prepared by Water Systems Consulting, Inc

WSC

ACKNOWLEDGEMENTS

Water Systems Consulting, Inc. would like to acknowledge the significant contributions of City of Fresno. The primary contributors are listed below.

City of FRESNO PUBLIC UTILITIES

Director of Public Utilities	Paul Amico, PE
Water Resources Manager	Dejan Pavic, PE

Utilities Planning & Engineering Division

Assistant Director	Ahmed Aly, PE
Project Manager	Debbie Khounsavath

Water Division

Assistant Director	Paul Amico, PE (Acting)
Water System Manager (Certified)	Cynthia Fischer
Water System Manager (Certified)	Chad Colby
Water System Manager	Russell Guilliams
Business Manager	Juan Rios
Water Conservation Supervisor	Anthony Quinn (Acting)

Wastewater Division

Assistant Director	Cory Asher
Wastewater Manager	Andrew Heckman
Reclamation Coordinator	Anthony Quinn

The 2025 Urban Water Management Plan was prepared by Water Systems Consulting, Inc. The primary authors are listed below.

WSC

Heather Freed, PE
Rob Morrow, PE

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ACRONYMS & ABBREVIATIONS

°F	degrees Fahrenheit
1,2,3-TCP	1,2,3-trichloropropane
AF	acre-feet
AFY	acre-feet per year
AMI	advanced metering infrastructure
AWE	Alliance for Water Efficiency
AWWA	American Water Works Association
BP04	Booster Pump 4
CII	Commercial, Institutional, and Industrial
CIMIS	California Irrigation Management Information System
City	City of Fresno
COG	Council of Governments
CSUF	California State University Fresno
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CVWAC	Central Valley Water Awareness Committee
CWC	California Water Code
CY	Calendar Year
DAC	Disadvantaged Community
DBCP	1,2-dibromo-3-chloropropane
DMM	Demand Management Measures
DDW	Department of Drinking Water
DPU	Department of Public Utilities
DRA	Drought Risk Assessment
DWR	Department of Water Resources
ETo	Evapotranspiration
FID	Fresno Irrigation District
FMFCD	Fresno Metropolitan Flood Control District
GPCD	gallons per capita per day
GPCSD	gallons per service connection per day
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan

HCF	hundred cubic feet
IGSM	Integrated Groundwater and Surface Water Model
kWh	Kilowatt-hours
LEF	Landscape Efficiency Factor
Metro Plan	Fresno Metropolitan Water Resource Management Plan
mgd	million gallons per day
NESWTF	Northeast Surface Water Treatment Facility
NFWRF	North Fresno Wastewater Reclamation Facility
NKGSP	North Kings Groundwater Sustainability Plan
PCE	perchloroethylene or tetrachloroethylene
PFAS	per- and polyfluoroalkyl substances
RHNA	Regional Housing Needs Allocation
RWRF	Regional Wastewater Reclamation Facility
SB	Senate Bill
SESWTF	Southeast Surface Water Treatment Facility
SGMA	Sustainable Groundwater Management Act
SOI	Sphere of Influence
sq mi	square miles
SWRCB	State Water Resources Control Board
SWTF	Surface Water Treatment Facility
T-3 SWTF	T-3 Water Storage and Modular Surface Water Treatment Facility
TCE	trichloroethylene
TDS	total dissolved solids
TTDF	Tertiary Treatment and Disinfection Facility
USBR	United States Bureau of Reclamation
UV	ultraviolet
UWMP	Urban Water Management Plan
UWMP Act	Urban Water Management Planning Act
UWUO	Urban Water Use Objective
WSCP	Water Shortage Contingency Plan
WSIP	Water Storage Investment Program
WY	Water Year

Executive Summary

This section summarizes the 2025 Urban Water Management Plan (UWMP) for the City of Fresno (City). It provides a lay description of the 2025 UWMP in a manner that is accessible to non-technical readers. This summary describes the fundamental purposes of the UWMP, including water service reliability, future challenges, and strategies for managing water reliability risks.

UWMPs are updated every five years and outline each suppliers' long-term water resource planning to ensure there is enough water to meet both existing and future demands. They set the roadmap for how the City will use water over the coming years.

The original Fresno water system began operations in 1876 as a non-profit organization established by a group of public-minded citizens. Today, the City covers approximately 117 square miles (sq mi) (75,100 acres) consisting largely of single-family residential, commercial, public, and industrial development. The City's General Plan projects buildout of the 106,000 acres planning area in 2056. This UWMP addresses the City's water service reliability, future challenges, and strategies for managing risks to water reliability through 2050.

Purpose and Organization of the Plan

This plan comprises the 2025 UWMP for the City, as required by the California Urban Water Management Planning Act, which requires all urban water suppliers with more than 3,000 connections or distributing more than 3,000 acre-feet per year (AFY) to complete an UWMP every five years. As of the close of the 2025 calendar year, the City has over 141,400 residential, commercial, industrial, and institutional water service connections and supplied nearly 115,000 acre-feet (AF) of water. As a result, the City is required to prepare and adopt an UWMP and submit it to the Department of Water Resources (DWR) by the July 1, 2026, due date.

Requirements for the UWMP include:

- Assessment of current and projected water supplies
- Evaluation of demand and customer types
- Evaluation of the reliability of water supplies
- Description of conservation measures implemented by the urban water supplier
- Response plan, in the event of a water shortage
- Comparison of demand and supply projections

The UWMP is a valuable planning document used for multiple purposes:

- Serves as a valuable resource to the community and other interested parties regarding water supply and demand, conservation, and water related information
- Meets a statutory requirement of the California Water Code (CWC)
- Provides a key source of information for water supply assessments and written verifications of water supply
- Supports regional long-range planning, including City and County General Plans
- Provides a standardized methodology for water utilities to assess their water resource needs and availability
- Provides a resource for regional involvement in the California Water Plan
- Provides for a plan during water drought situations

Outreach and Engagement

The City has coordinated the preparation of its 2025 UWMP with its water suppliers, Fresno County, the City of Clovis, nearby water agencies, and community members to develop a UWMP that adheres to the requirements of the CWC and plans for a resilient water future. In total, the City has coordinated preparation of the 2025 UWMP and solicited participation and comments with the following agencies:

- Bakman Water Company
- City of Clovis
- County of Fresno
- Fresno Irrigation District
- Fresno Metropolitan Flood Control District
- Friant Water Authority
- Garfield Water District
- Malaga County Water District
- Pinedale County Water District
- North Kings Groundwater Sustainability Agency
- US Bureau of Reclamation

Service Area Description

The City's General Plan planning area covers approximately 106,000 acres comprised of approximately 73,500 acres of incorporated land and 32,500 acres of unincorporated land. The City's water service area covers 70,400 acres consisting largely of single-family residential, commercial, public, and industrial development, shown in Figure ES-7 (located at the end of the Executive Summary). The service area excludes areas served

by the Bakman Water Company, Pinedale County Water District, Park Van Ness Mutual Water Company, California State University Fresno, and private groundwater users located within Fresno County islands. The City will eventually serve out to the Sphere of Influence (SOI) boundary adopted in the 2014 General Plan and includes all lands planned to be annexed by the City at the projected 2056 buildout of the General Plan, summarized in Table ES-1.

Table ES-1. Existing and Future Water Service Area

Land Use Category	2025 Water Service Area		2056 Water Service Area	
	ACRES	PERCENT	ACRES	PERCENT
Single-Family Residential	30,200	42.8%	40,000	47.4%
Multifamily Residential	3,400	4.8%	3,800	4.5%
Commercial	5,000	7.1%	8,600	10.2%
Public Facility	7,400	10.5%	7,200	8.5%
Industrial	6,700	9.5%	9,300	11.0%
Open Space/ Landscape Irrigation	10,900	15.5%	11,000	13.0%
Mixed Use	30	0.04%	3,900	4.6%
Downtown	0	0%	600	0.7%
Vacant / Partially Vacant	6,900	9.8%	0	0%
TOTAL	**70,530**	**100%**	**84,400**	**100%**

Note: Acreage from City GIS Shapefile of Land Uses and aligns with the General Plan for buildout in year 2056. Percentages are rounded to the nearest tenth, except where greater precision is shown for small values.

Population Projections

The City experienced rapid growth since it was founded by the Central Pacific Railroad in 1872 up through the mid-1990s, when the City's annual growth rate was typically greater than 2%. From 1995 to 2015, the annual growth rate has decreased to an average of 1.3%, and since 2015, the annual growth rate has averaged 0.7%. Achieving General Plan buildout population estimates requires an average annual growth rate of 1.6% from 2025 to 2056. The City's water service area population is anticipated to continue to grow along with the City, with some slightly higher growth years anticipated in the next 10 years due to multiple large developments planned for completion in the near term. As a result,

population growth, shown in Figure ES-1, occurs at an annual rate of ranging from 1.1–2.6% between 2025 and 2056.

Water Use

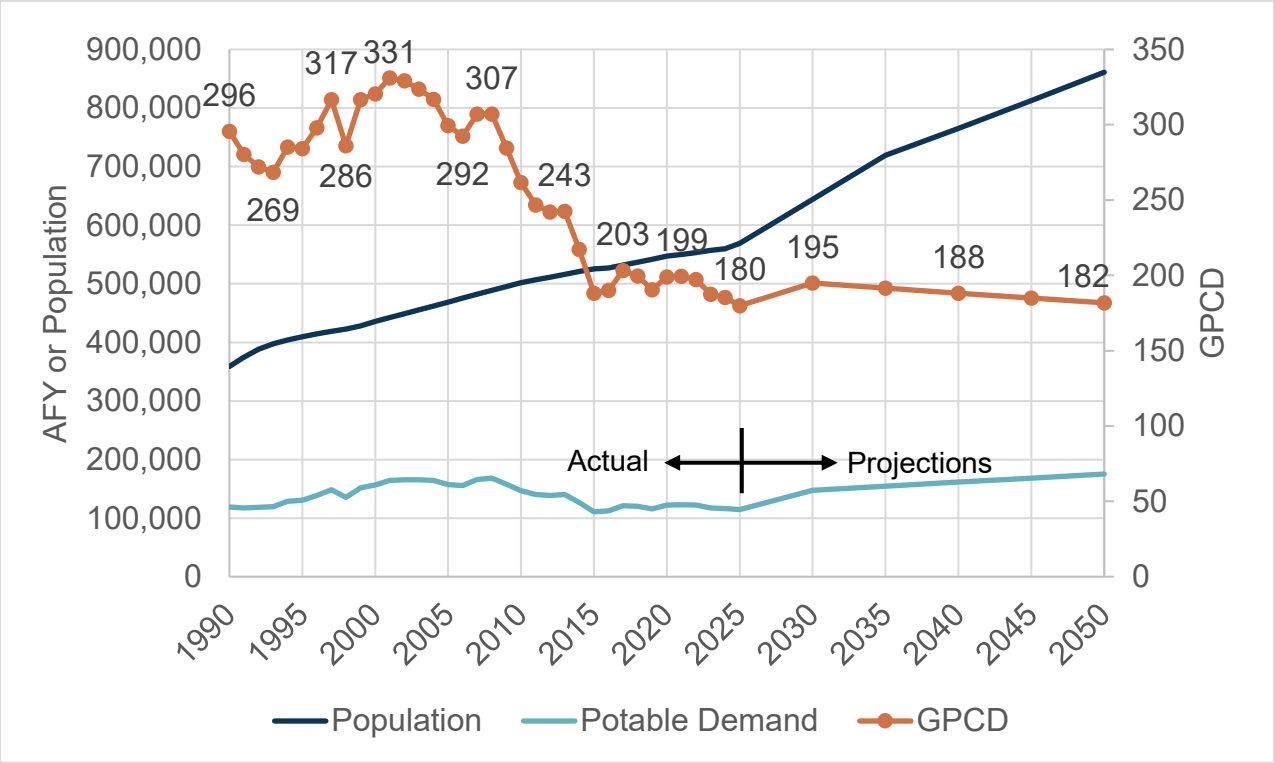
Water consumption in the City is characterized by the typical demand sectors of residential, commercial, institutional, industrial, and landscape irrigation. The difference between production and consumption is losses, which may be attributed to system leaks, meter inaccuracies, fire flows, theft, unmetered use, or other factors.

As shown in Figure ES-1, the City's water demand has decreased even as the City has grown over the past several decades, and demands are projected to grow slower than population growth. This trend is captured by the City's daily per capita water use, measured as gallons per capita per day (GPCD). For 2020, the City's water use averaged 198 GPCD, and was far below its 2020 daily per capita water use target of 247 GPCD due to the extensive conservation efforts implemented by the City in the past decade. For 2025, the City's estimated per capita water use is 180 GPCD, based on 114,649 AF of water production and a service area population of 568,964, indicating the City continues to remain below its 2020 water use target.

The City also diverts raw surface water obtained from the United States Bureau of Reclamation (USBR) and the Fresno Irrigation District (FID) to recharge basins throughout the service area. The City coordinates with FID for the delivery of the recharge water, utilizing FID's existing system of channels and pipelines to covey the raw water, and with Fresno Metropolitan Flood Control District (FMFCD) to deliver water to FMFCD's stormwater retention and recharge basins or the City's own recharge basins. The raw surface water recharges the groundwater basin to sustain the groundwater supply for the City. The groundwater recharge volume can vary based on surface water supply availability and is represented as an addition to annual groundwater supplies. In addition, the City serves a limited number of customers secondary treated or tertiary treated and disinfected recycled water for agricultural irrigation or landscape irrigation, respectively.

The City's per capita water usage is projected to continue to decline through 2045 due to more water efficiency in future construction and passive conservation; however, due to the increase in population the demand is expected to slowly increase in the next 25 years. The potable demand projections for normal water use are based on land use where future land use areas are expected to be more water efficient than existing land uses and buildings due to the California Plumbing Code (CPC) and use of higher efficiency appliances and landscapes. Demand for existing land use is also expected to slowly reduce over time due to passive conservation, which includes the replacement of older water fixtures and appliances with more efficient types now required as part of the CPC.

Figure ES-1. City of Fresno Demand Projections



Water Sources

The City relies on groundwater from the North Kings Subbasin; surface water from Central Valley Project (CVP), through a contract with the USBR; Kings River water, through a contract with FID; and recycled water. Water production in the City consisted of 100% groundwater prior to the commissioning of the City's first surface water treatment facility (SWTF) in 2004. Since 2004, the City has invested in expanding its surface water treatment capabilities and now has three SWTFs that provide approximately half of all potable water demands in the service area.

Groundwater

The City overlies the Kings Subbasin, which is part of the greater San Joaquin Valley Groundwater Basin. The City is one of many water purveyors that use groundwater from the Kings Subbasin. The City has a network of over 250 municipal wells and currently operates approximately 194 municipal supply wells within the Kings Subbasin.

The City was a founding member of the North Kings Groundwater Sustainability Agency (North Kings GSA), which was formed following passage of the Sustainable Groundwater Management Act (SGMA) of 2014. This legislation created a statutory framework for groundwater management in California that can be sustained during the planning and

implementation horizon without causing undesirable results. SGMA requires governments and water agencies of "critically overdrafted" basins to reach sustainability by 2040. The Kings Subbasin was designated a critically overdrafted basin by DWR and the North Kings GSA is working within the SGMA framework to reach groundwater sustainability.

Due to the City's investments in other supplies – surface water, recycled water, and conservation – groundwater levels beneath the City have already begun to recover from low levels experienced during the recent drought. The City plans to continue to use groundwater within a larger conjunctive use program that maximizes its existing water rights and surface water supply sources.

Surface Water

With the completion and operation of the Southeast Surface Water Treatment Facility (SESWTF), surface water is now a primary water supply used to meet potable demands within the City. The City contracts with FID for Kings River water and with USBR for CVP water from the Friant-Kern Canal. The surface water supply is used either for potable uses through treatment and distribution or delivery to recharge basins for groundwater recharge. The City has historically not used all its available FID allocation in any given year, although it pays a flat rate for its total allocation regardless of use. Water unused by the City is reallocated by FID to its other customers.

The City, through an agreement originally executed in 1961, secured a surface water supply from USBR CVP Friant Division for an annual water supply of 60,000 AF of Class 1 water. The agreement was last renewed in 2010 as a Section 9(d) contract that provides water from the San Joaquin River in perpetuity. Class 1 water has historically been very reliable until the 2006 San Joaquin River Restoration Settlement Agreement, which ended an 18-year legal dispute over the operation of Friant Dam brought by a coalition of conservation and fishing groups. The projected surface water available for the City from USBR is based on USBR simulations for the 2006 Settlement Agreement. Average simulated delivery is 53,680 AFY and the median simulated delivery is 60,000 AFY. However, very dry years have previously resulted in substantial reductions as demonstrated by the zero allocations that occurred in 2014 and 2015.

FID is one of 28 agencies that receives an entitlement of water from the Kings River through the Kings River Water Association. The City executed its most recent agreement with FID in 2016. The 2016 agreement identifies the City's contracted percentage of FID's Kings River water based on the City's water service area located within FID service area as a percentage of the FID land area. FID land area varies slightly every year because it is dependent on the acreage receiving water deliveries for that year rather than the total acreage within FID's service area, and is roughly 200,000 acres. As the City incorporates

new users and the water service area expands, the percentage of FID supply increases. However, the 2016 FID Agreement sets the City's maximum percentage of FID's Kings River water as 29.0%, which is expected to be reached between by 2030.

The City's potential supply from FID was projected using actual Kings River deliveries for 1964–2025. The average FID Kings River delivery over that time was 452,541 AF, which equates to an average potential City supply of 131,600 AF, assuming the maximum 29.0% City supply percentage. The projected City percentage of FID supplies was estimated based on City's water service area growth projections through buildout in 2056.

Recycled Water

The Fresno-Clovis Regional Wastewater Reclamation Facility (RWRF) has developed from what was once a sewer farm to what is now a state-of-the-art wastewater treatment facility. The RWRF treats flows from not only the City, but also sewered County areas (some county areas remain unsewered), the City of Clovis, Pinedale County Water District, and Pinedale Public Utility District. Flows received at this facility peaked at 81,100 AF in 2006 and have been steadily decreasing since, with the average influent flow about 62,400 AF over the last five years.

The City has three primary means of effluent disposal from the RWRF:

1. Undisinfected secondary effluent to on-site and off-site farmland for restricted irrigation
2. Undisinfected secondary effluent to percolation ponds
3. Disinfected tertiary effluent to the recycled water distribution system

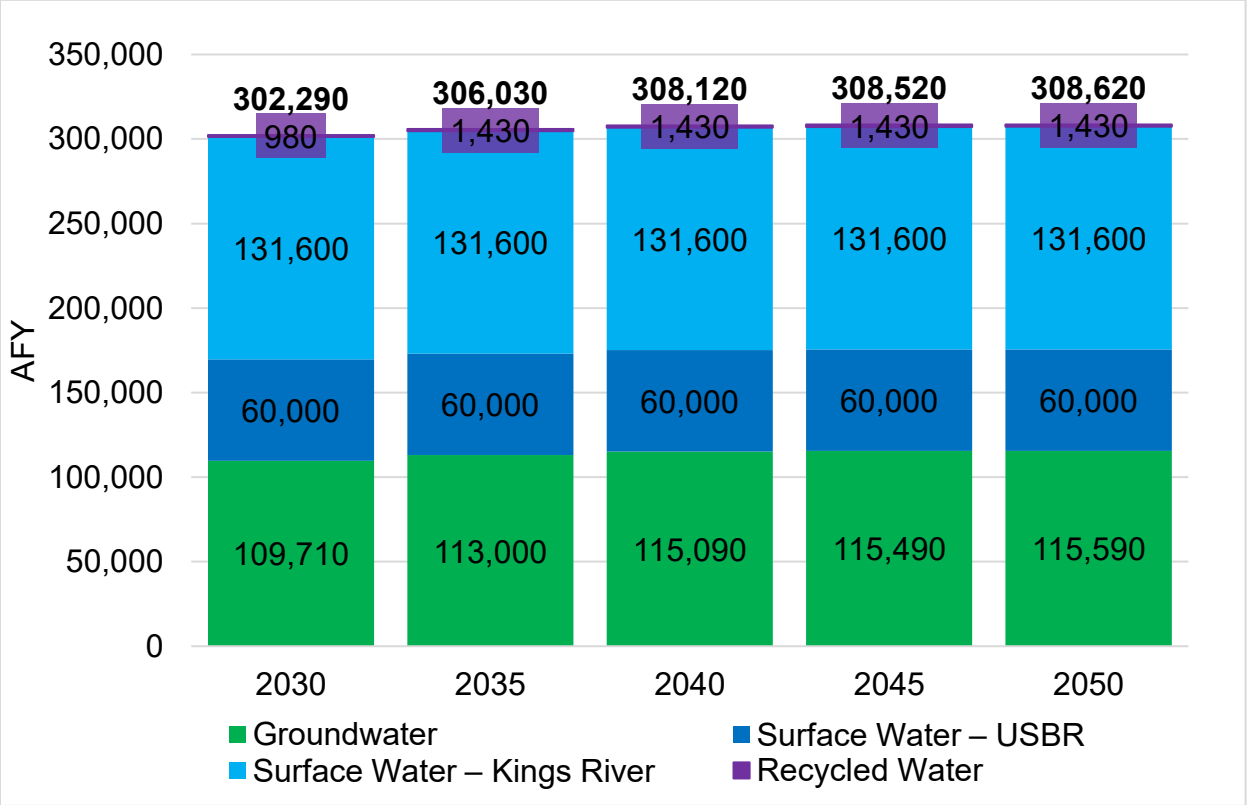
The percolated effluent has historically been considered equivalent to tertiary treated water by the State, and the City extracts this water for reuse in areas within and surrounding the RWRF, as well as to FID's canals, through an exchange agreement for delivery to FID agricultural customers. The City constructed the Tertiary Treatment and Disinfection Facility (TTDF) at the RWRF in 2017 and completed construction of most of the southwest recycled water system, which is projected to deliver up to 1,150 AFY of tertiary treated recycled water to City customers. In addition, the City uses recycled water from the North Fresno Wastewater Reclamation Facility (NFWRF) to irrigate the golf course at Copper River Ranch.

Summary of Supplies

The City currently balances its surface water supplies and groundwater based on minimum production for operation of the SWTFs and minimum groundwater pumping to manage and control contamination plumes and prevent their spread. The minimum operation conditions typically occur in the low-demand winter months, and the City can increase surface water production during peak demand months when surface water is

available. In normal and wet years, the City intends to rely on more surface water supply and recharge raw surface water to replenish the groundwater basin and build storage for dry years. In dry years, when surface water is less available, the City will ramp up well production to meet demands. The City is expected to continue this supply management strategy in the future. Figure ES-2 shows the City's annual average projected water supplies through 2050.

Figure ES-2. Projected Water Supplies



Water Supply Reliability

The City currently manages its surface water and groundwater supply by maximizing surface water for potable use and intentional recharge during wet and normal years, while relying on groundwater during dry years. The City is currently updating its Metro Plan, which will recommend projects and programs to optimize the use of its supply portfolio and further improve supply resilience. Supply management tools are an expected outcome of the Metro Plan update; however, the City's ongoing supply management is intended to maximize local supplies and improve the groundwater basin storage. Current actions include enhanced groundwater management and intentional recharge, increased

recycled water use, and continued conservation through the implementation of demand management measures.

Normal water year, single dry water year, and five-year consecutive drought period supply projections were made based on historic water allocations for surface water supplies, estimated groundwater yield, and projected utilization for recycled water. For surface water, the single dry year is based on 2015 allocations and the five-year drought is based on 2012 to 2016. Groundwater supplies, due to intentional recharge augmentation, remain reliable in all hydrologic conditions.

Despite severe reductions of surface water supplies during recent dry years, sufficient good-quality water was available to operate the SWTFs. The projected supplies and demands for a normal year, single dry year, and five-year consecutive drought are shown in Figure ES-3 through Figure ES-5 on the next page and in Table 7-1 through Table 7-3 in Section 7.2.4. The water supply reliability analysis demonstrates that the City is projected to have greater than 65,000 AF of available supply after meeting demands in normal years; the City's surface water supplies are reduced in a single dry year, but the City can meet all potable demands with stored groundwater and maintain a 20% buffer of its potable water demand; and the City is projected to meet all demands during a five-year drought with its existing supplies by reducing groundwater recharge and pumping stored groundwater as needed to accommodate low surface water allocations.

Managed recharge of surface water is an essential component of the City's groundwater supply. The projections assume the City will average 60,000 AFY to 70,000 AFY of surface water recharge in the future. This highlights the City's priority of recharging available surface water in the coming years.

Figure ES-3. Normal Year Supply vs. Demand

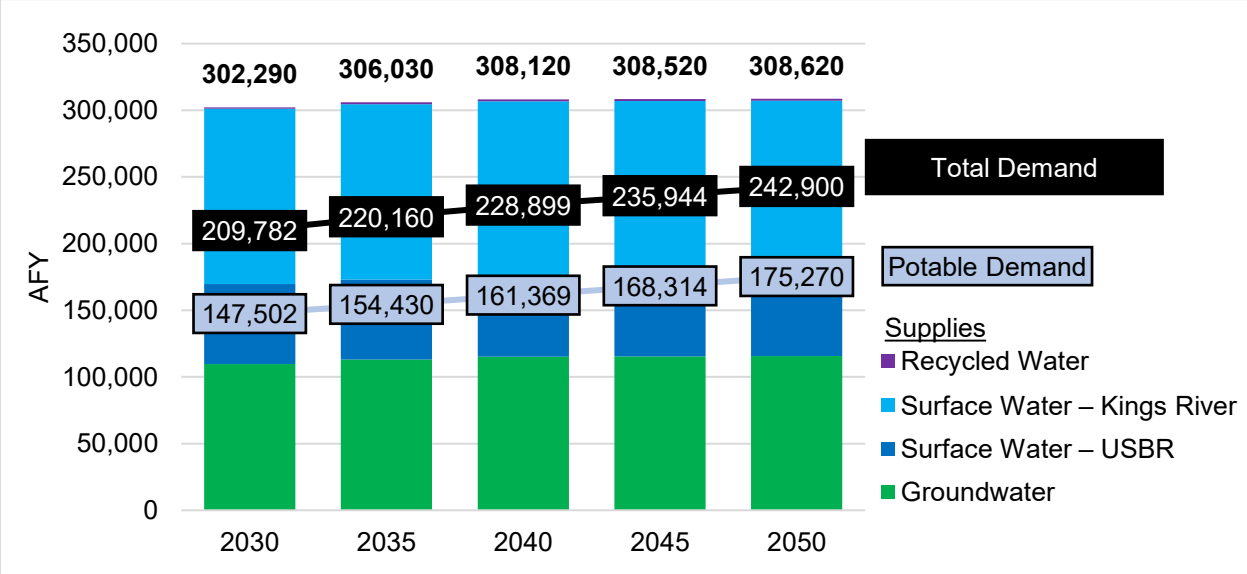


Figure ES-4. Single Dry Year Supply vs. Demand

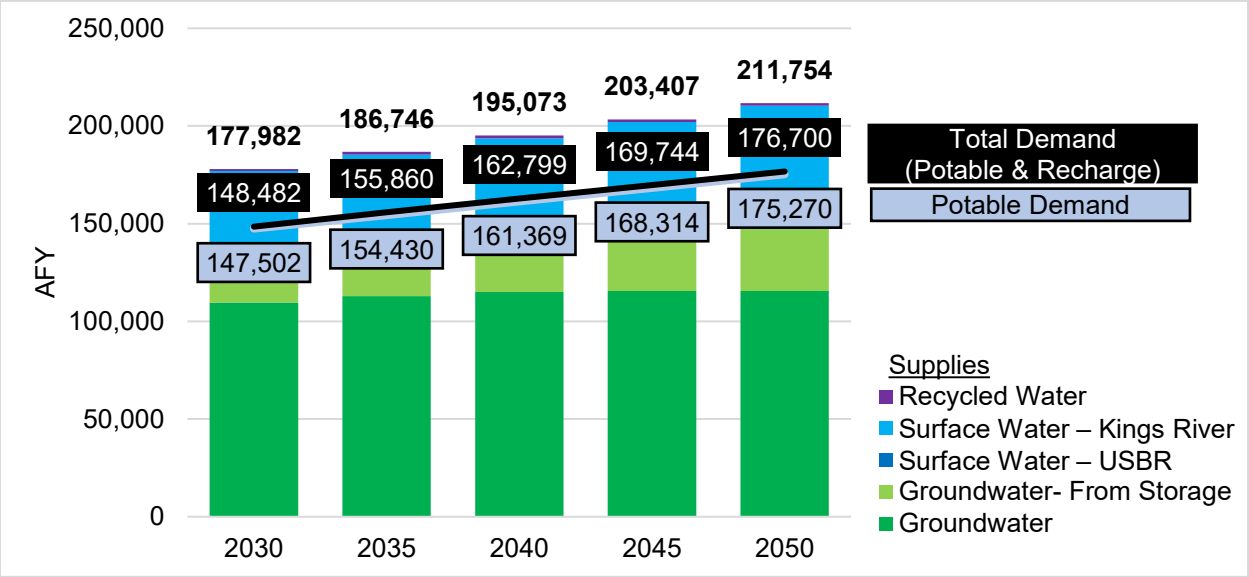
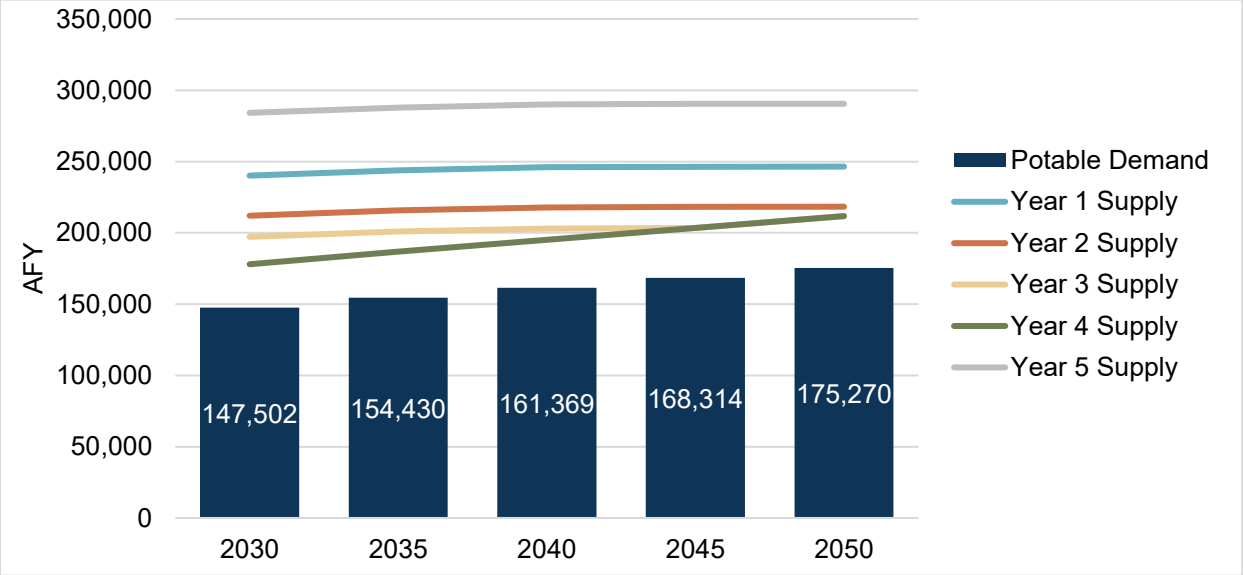


Figure ES-5. Multiple Dry Years Supply vs. Demand



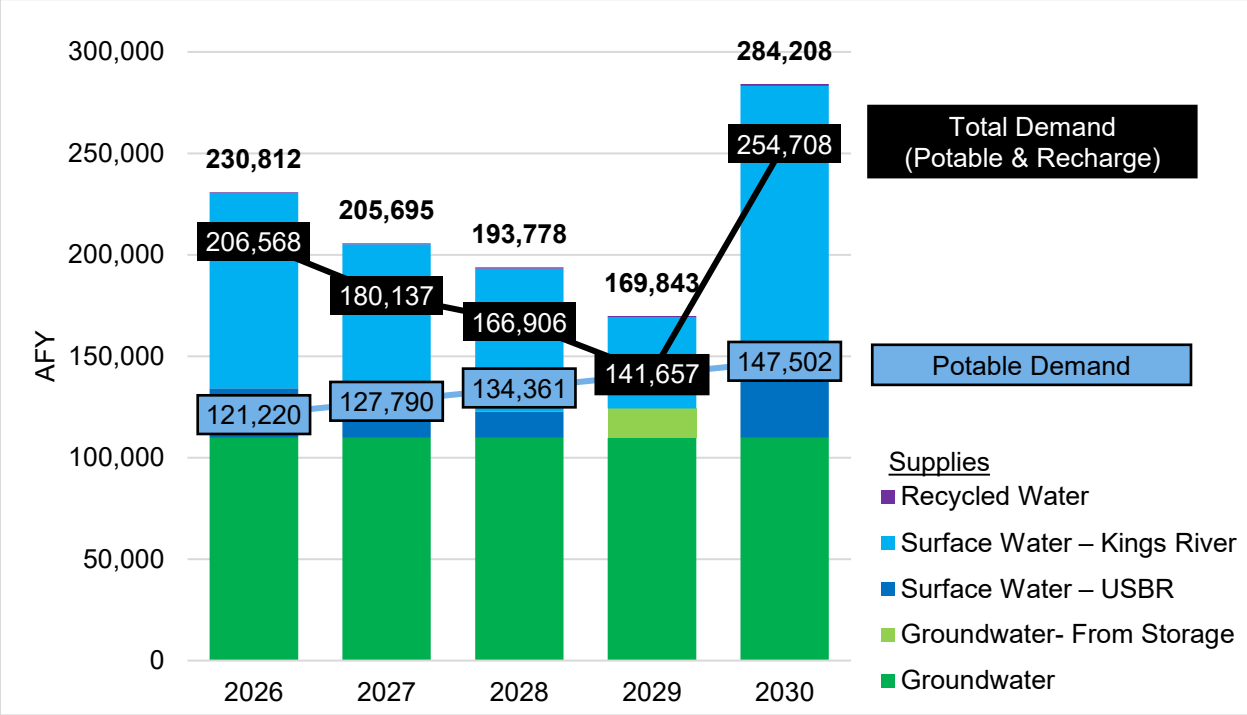
Drought Risk Assessment

The Water Code directs Suppliers to prepare a Drought Risk Assessment (DRA), assuming a drought period lasting five consecutive years, starting from the year following the year when the assessment is conducted. The DRA analysis allows the City to examine the management of its supplies during stressed hydrologic conditions and an opportunity to evaluate whether the City may need to enact its Water Shortage Contingency Plan (WSCP) during the next actual drought period lasting at least five years. Surface water supply availability is based on actual allocations during the 2012 to 2016 drought. The

projected gross water use for the five-year DRA is based on unrestricted potable and recycled water demand, while water used for intentional recharge varies based on the available surface water supply.

Figure ES-6 compares the total projected supply and demand for the five-year DRA for 2026 through 2030. As shown, the City is projected to meet its unrestricted potable demand projections, and maintain a 20% potable demand buffer, for a five-consecutive-year drought based on the reliability of the current supply portfolio and does not expect to enact its WSCP. Available surface water supplies during this period would be utilized for groundwater recharge to sustain the groundwater basin.

Figure ES-6. Five-Year Drought Risk Assessment



Water Shortage Contingency Plan

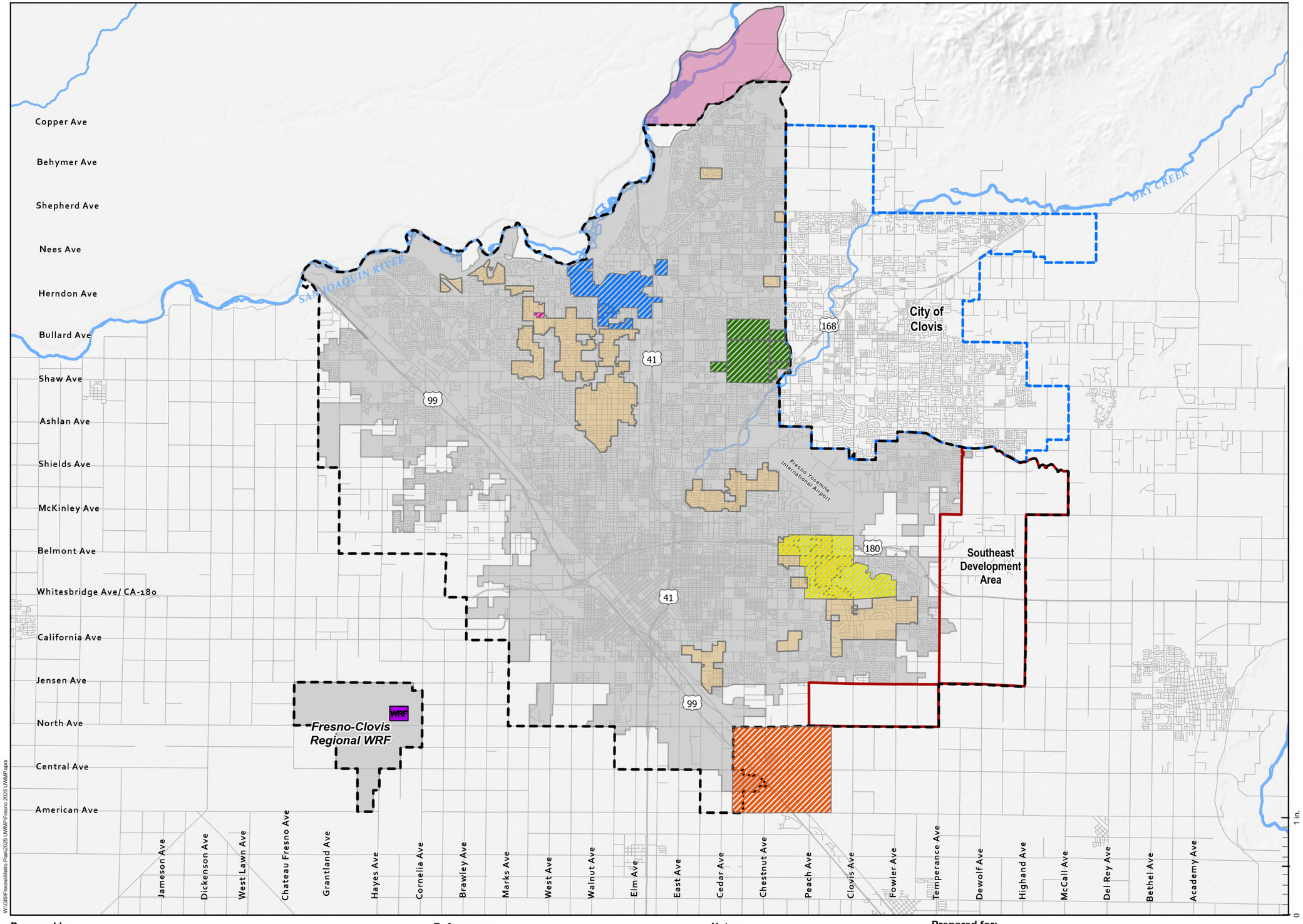
This WSCP is a detailed plan for how the City intends to respond to foreseeable and unforeseeable water shortages. A water shortage occurs when the water supply is reduced to a level that cannot support typical demand at any given time.

The WSCP is used to provide guidance to the City's governing body, staff, and the public by identifying response actions to allow for efficient management of any water shortage with predictability and accountability. Preparation provides the tools to maintain reliable supplies and reduce the impacts of supply interruptions due to extended drought and catastrophic supply interruptions.

The WSCP describes the following:

- Water Supply Reliability Analysis
- Annual Water Supply and Demand Assessment Procedures
- Six Standard Shortage Stages
- Shortage Response Actions
- Communication Protocols
- Compliance and Enforcement
- Legal Authority
- Financial Consequences of WSCP Implementation
- Monitoring and Reporting
- WSCP Refinement Procedures
- Special Water Features Distinctions
- Plan Adoption, Submittal, and Availability

The 2025 WSCP is a standalone document that can be modified as needed and is included as Appendix I in the 2025 UWMP.



Legend

- Fresno Sphere of Influence
- Clovis Sphere of Influence
- Fresno City Limits
- County Islands
- North Area
- Southeast Development Area
- WRF — Wastewater Reclamation Facility
- Streets

Areas Served Water by Others

- Bakman Water District
- Malaga Water District
- Park Van Ness Mutual Water District
- Pinedale County Water District
- CA State University, Fresno

Prepared by: WSC

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1:140,000

0 0.75 1.5 3 Mi

0 3,750 7,500 15,000 US Feet

References:

1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

Notes:

Prepared for: City of Fresno Department of Public Utilities

City of Fresno
2025 Urban Water Management Plan

Figure ES-7. City Service Area

1 Introduction

This section provides a brief overview of the City of Fresno and the purpose of this 2025 Urban Water Management Plan (UWMP). It also describes how the UWMP is organized and its relationship to local and regional planning efforts in which City of Fresno is involved.

IN THIS SECTION

- Introduction
- California Water Code
- UWMP Organization
- UWMPs in Relation to Other Efforts
- Funding Eligibility

1.1 Introduction

The City of Fresno (City) is responsible for delivering safe and reliable water service to almost 569,000 people within its service area. The City's primary water supplies include groundwater and surface water from two sources: the Central Valley Project through a contract with the United States Bureau of Reclamation and the Kings River through a contract with Fresno Irrigation District. This UWMP addresses the City's water service reliability, future challenges, and strategies for managing risks to water reliability through 2050. The City's Fresno Metropolitan Water Resource Management Plan (Metro Plan), which is currently being prepared, will address a 50-year horizon – through 2070.

1.2 California Water Code

In 1983, the State of California Legislature (Legislature) enacted the Urban Water Management Planning Act (UWMP Act). The law requires an urban water supplier providing water for municipal purposes to more than 3,000 customers or serving more than 3,000 acre-feet per year (AFY) to adopt an UWMP every five years. As of the close of the 2025 calendar year, the City had 141,447 residential, commercial, industrial, and institutional water service connections and produced nearly 115,000 acre-feet (AF) of water. As a result, the City is required to prepare and adopt an UWMP and submit it to the California Department of Water Resources (DWR) by the July 1, 2026 due date. This UWMP must demonstrate water supply reliability under normal, dry, and multiple dry years. The UWMP Act applies to wholesale and retail water suppliers.

Since the original UWMP Act was passed, it has undergone significant expansion. Prolonged droughts, groundwater overdraft, regulatory revisions, and changing climatic conditions affect the reliability of each water supplier as well as statewide water reliability overseen by DWR, the State Water Resources Control Board (SWRCB), and the Legislature. Accordingly, the UWMP Act has grown to address changing conditions. The current requirements are found in Sections 10610-10656 and 10608 of the California Water Code (CWC).

DWR provides guidance for urban water suppliers by preparing an Urban Water Management Plan Guidebook 2025 (Guidebook), conducting workshops, developing tools, and providing program staff to help water suppliers prepare comprehensive and useful water management plans, implement water conservation programs, and understand the requirements of the CWC. Suppliers prepare their own UWMPs and submit them to DWR. DWR then reviews the plans to make sure they have addressed the requirements. DWR also submits a report to the Legislature summarizing the status of the plans for each five-year cycle. The Guidebook, finalized in February 2026, was used to complete this 2025 UWMP.

The purpose of this UWMP is for the City to evaluate long-term resource planning and establish management measures to ensure adequate water supplies are available to meet existing and future demands. The UWMP provides a framework to help water suppliers maintain efficient use of urban water supplies, promote conservation programs and policies, ensure that sufficient water supplies are available for future beneficial use, and provide a response mechanism during drought conditions or other water supply shortages.

The UWMP is a valuable planning tool used for multiple purposes, including:

- Providing a standardized methodology for water utilities to assess their water resource needs and availability.
- Serving as a resource to the community and other interested parties regarding water supply and demand, conservation, and other water-related information.
- Providing a key source of information for cities and counties when considering approval of proposed new developments and preparing regional long-range planning documents, such as city and county General Plans.
- Informing other regional and Statewide water planning efforts, such as Integrated Regional Water Management Plans and the California Water Plan.

CWC section 10632 also includes requirements for suppliers to prepare a Water Shortage Contingency Plan (WSCP) as part of their UWMP. The WSCP documents a supplier's plans to manage and mitigate an actual water shortage condition, should one occur because of drought or other impacts on water supplies. The WSCP is a standalone document that can be updated independently of the UWMP but is referenced and attached to the 2025 UWMP. The WSCP is provided in Appendix I.

A checklist to document compliance of this 2025 UWMP with the UWMP Act and the CWC is provided in Appendix A. This 2025 UWMP includes all required DWR standardized tables compiled in Appendix B. A selection of these tables is also provided in the body of this Plan, as necessary to present supporting data.

1.3 UWMP Organization

The 2025 UWMP is organized as follows:

Section 1 – Introduction

This section provides background information on the UWMP process, new regulatory requirements, and an overview of the information covered throughout the remaining sections. Water suppliers that serve more than 3,000 customers or 3,000 AFY are required to prepare an UWMP. The UWMP is an important tool that details the City's

system and service area, estimates supply and demand over a 25-year period, and analyzes reliability in drought and other shortages.

Section 2 – Plan Preparation

This section provides information on the processes used to develop the UWMP, including coordination and outreach efforts taken to prepare the City's 2025 UWMP.

Section 3 – Service Area and System Description

This section describes the City's water system, service area, population demographics, local climate, and land uses. The City serves water to over 568,000 people within its service area. That figure is projected to increase to about 861,000 through 2050. The land uses within the service area are majority residential with some commercial, municipal, and industrial land uses.

Section 4 – System Water Use

This section describes and quantifies the current and projected water uses through 2050 within the water service area. The City provides potable water to all its customers, which are comprised of about 90% residential and 10% commercial, institutional, industrial, and landscape accounts. The City's 2025 potable water use was 114,649 AFY and is projected to increase to about 175,300 AFY by 2050 with projected growth. The City also delivers recycled water to customers in its service area and uses its untreated surface water for groundwater recharge and plans to continue to do so in the future.

Section 5 – SB X7-7 Baselines, Targets, and 2025 Compliances

This section describes the City's compliance with the requirements of Senate Bill (SB) X7-7. SBX7-7 required all water suppliers to increase water use efficiency and decrease per-capita water consumption by 20% by the year 2020. To meet this requirement, the City established a water use baseline and efficiency targets in its 2015 UWMP. This section confirms that the City met their 2020 water use target.

Section 6 – System Supplies

This section describes and quantifies the current and projected potable and non-potable water supplies. The City's water supplies include groundwater from the North Kings Subbasin, surface water from the Central Valley Project through a contract with the United States Bureau of Reclamation, surface water from the Kings River through a contract with Fresno Irrigation District, and recycled water produced at the City's Regional Wastewater Reclamation Facility and North Fresno Wastewater Reclamation Facility.

Section 7 – Water Supply Reliability and Drought Risk Assessment

This section describes the water service reliability through 2050 and includes the Drought Risk Assessment for the next five years. Future demand and supply were analyzed to evaluate supply reliability over the planning horizon (2025–2050). The UWMP analyzed conditions for normal, or average, single-dry, and five-year consecutive dry periods. In all scenarios the City expects to meet customer demand with the available supply.

Section 8 – Water Shortage Contingency Plan

This section includes an overview of the standalone WSCP. The WSCP provides guidance on declaring a water shortage and how to mitigate water shortages. The WSCP defines levels of water shortage and outlines the actions that will be required of customers during each stage. The complete WSCP is included as Appendix I.

Section 9 – Demand Management Measures

This section describes the City's efforts to promote conservation and reduce water demand, including discussions of specific demand management measures, water waste prohibitions, and conservation measures.

Section 10 – Plan Adoption, Submittal, and Implementation

This section details the steps taken by the City to adopt the 2025 UWMP in accordance with the CWC, make it available to the public, and implement it.

1.4 UWMPs in Relation to Other Efforts

In addition to the 2025 UWMP, the City is presently updating its Fresno Metropolitan Water Resource Management Plan (Metro Plan) and Water Reuse Master Plan. The last Metro Plan was completed in 2014, and the current Metro Plan update will prepare a fresh look at the City's water resources and consider new conditions and strategies for planning through 2070. The City completed a Recycled Water Master Plan in 2014, and the current Water Reuse Master Plan focuses on maximizing the benefit of the City's recycled water supplies and recycled water system considering the City's current water supply needs and constraints.

1.5 UWMPs and Grant or Loan Eligibility

For a water supplier to be eligible for a grant or loan administered by DWR, the supplier must have a current UWMP on file that meets the requirements set forth by the CWC. A current UWMP must also be maintained by the supplier throughout the term of any grants or loans received. The City has prepared the 2025 UWMP under guidance from DWR's 2025 UWMP Guidebook.

1.6 Demonstration of Consistency with the Delta Plan

An urban water supplier that anticipates participating in or receiving water from a proposed project utilizing Sacramento-San Joaquin Delta (Delta) Water or within the Jurisdiction of the Delta Stewardship Council (covered action) should provide information, beginning in 2015, in its UWMP to demonstrate consistency with Delta Plan Policy WR P1 — Reduce Reliance on the Delta through Improved Regional Water Self-Reliance. Covered actions include, but are not limited to, projects such as multiyear water transfers, conveyance facilities, or new diversions that involve transferring water through, exporting water from, or using water in the Delta, per California Code of Regulations, Title 23, Section 5003.

The City of Fresno contracts with the United States Bureau of Reclamation (USBR) Central Valley Project (CVP) Friant Division for an annual supply of 60,000 AF of Class 1 water. Although the Friant Division of the CVP does not directly divert or convey water from the Delta, the project was developed through an exchange with the Delta-Mendota supply. As restrictions on Delta exports have hindered USBR from making deliveries to the Delta-Mendota Canal, the Friant Division Class 1 allocations are reduced, and the water is transferred back to the users that would typically receive water from the Delta-Mendota Canal. As such, the City is required to demonstrate consistency with the Delta Plan's policy to reduce reliance on the Delta. Appendix C includes the reporting and calculations that demonstrate Fresno's reduced reliance on supply from their USBR CVP water supply.

2 Plan Preparation

This section provides information on the processes used to develop the UWMP, including efforts in coordination and outreach.

IN THIS SECTION

- Basis for Preparing a Plan
- Regional Planning
- Coordination and Outreach

2.1 Basis for Preparing a Plan

The City of Fresno provides water service to a variety of customer sector types within the City limits, inclusive of several historic County Waterworks Districts (county islands) which have been incorporated into the City's water system.

The City has approximately 141,447 service connections and supplied just under 115,000 AF of potable water and over 34,300 AF of non-potable water in 2025 (See DWR Table 2-1 R in Appendix B). The City meets the threshold identified in the CWC to be classified as an urban water supplier and in the California Health and Safety Code as a public water system. The City provides water directly to its customers and does not wholesale water to any other agencies for potable uses (defined as sales greater than 3,000 acre-feet per year). Therefore, the City is required to prepare and update a Retail UWMP every five years. This report was prepared on a calendar year basis and all reported numbers are in AF unless otherwise notes (See DWR Table 2-3 in Appendix B). As specified in DWR Table 2-2, the City has prepared an individual UWMP.

2.2 Coordination and Outreach

The City has water supply contracts with USBR and Fresno Irrigation District (FID). Each of these water suppliers has been notified of the plan update and provided water supply projections for the time period covered by this plan (See DWR Table 2-4 in Appendix B). Additionally, the preparation of this 2025 UWMP was coordinated with other appropriate agencies to ensure regional stakeholders had the opportunity to provide input to this plan. The City has coordinated preparation of the 2025 UWMP and solicited participation and comments with the agencies indicated in Table 2-1. The City has also published notices in local newspapers and encouraged the active involvement of the population within the water service area to provide feedback on the UWMP and the WSCP during the public review period, as discussed in Section 10.

Table 2-1. Agency Coordination and Outreach

Agency	Notified 60 Days Prior to Public Hearing	Notified of Public Draft 14 days Prior to Public Hearing
Bakman Water Company	✓	✓
City of Clovis	✓	✓
County of Fresno	✓	✓
Fresno Irrigation District	✓	✓
Fresno Metropolitan Flood Control District	✓	✓
Friant Water Authority	✓	✓
Garfield Water District	✓	✓
Malaga County Water District	✓	✓
Pinedale County Water District	✓	✓
North Kings Groundwater Sustainability Agency	✓	✓
US Bureau of Reclamation	✓	✓

3 System Description

This section describes the history of the City's water system, current service area, population, demographics, local climate, and land uses.

IN THIS SECTION

- Service Area
- Land Uses
- Water System
- Population and Demographics

3.1 General Description

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 were constructed at Fresno and "O" Street. These facilities were designed to be an integral part of a larger and continually expanding water system. This No. 1 station was in continuous use until 1959, when it was retired having served its useful purpose. Today, this building is known as the “Water Tower” and has been declared a historic structure.

Between the years of 1887 and 1890, 4-inch and 2½-inch cast iron pipe, as well as 4-inch wrought iron water mains were laid out. Most of these original “permanent pipes” have since been replaced in the present water supply system. The owner and operator of the system in 1888 was the Fresno Water Company. In 1904, the Fresno Water Company was purchased by Balch, Kerckhoff & Wishon, and was reorganized as the Fresno City Water Company. In 1926, the facilities were purchased by the California Water Service Company. This company then sold the water system to the City of Fresno in 1931, which operated the system 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 only of direct pumping from wells drilled into the underground aquifer. Today, groundwater remains one of the City’s primary water supply sources, including 194 active and 59 inactive groundwater wells. The production capacity from the active wells is approximately 315 million gallons per day (mgd) and the total production capacity is 420 mgd including inactive wells. The wells are located around the City to provide equitable distribution throughout the City’s water system, as described below. Most wells are connected directly into the transmission grid main system (14- to 20-inch diameter pipelines) to convey water throughout the system.

In the 1960s, the City secured a surface water contract with USBR for 60,000 AFY of Class 1 water 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 FID canals. In 1976, the City signed a contract with FID for delivery of surface water supplies from the Kings River based on the City’s pro rata share

of FID's water entitlements. In 2016, the City and FID executed a Revised, Amended, and Restated agreement. The Kings River water is used for groundwater recharge and treated for potable use.

In 2004, the City also began treating surface water supplies for direct potable use at its first surface water treatment facility located in northeast Fresno (NESWTF). For the period of 2005–2014, this 30 mgd-rated facility provided 10–15% of the City's potable water supplies. From 2016–2020, this facility produced 15% of the City's potable water supply, an increase largely attributed to transmission system improvements, which permitted conveying water further into the City's distribution system, and the City's lower overall system demands. Also, in 2015, the City commenced operations of its new T-3 Water Storage and modular Surface Water Treatment Facility (T-3 SWTF) in southeast Fresno. In January 2013, the City completed the installation of meters on all single-family residences.

In 2018, the City completed construction of its new 54 mgd surface water treatment facility in southeast Fresno (SESWTF) and large diameter water mains that serve nearly one-half of the City. Production from this facility may ultimately be 80 mgd with the City demonstrating to the Division of Drinking Water (DDW) that the facility is capable of safely running at higher filter loading rates. With the SESWTF operational, along with the NESWTF and T-3 SWTF, the City provided greater than 50% of its potable supply through using surface water for the first time in 2019. Since 2020, the City's potable demand has been met with an average of 45% groundwater and 55% surface water. The City expects to provide half or more of its potable demand using its surface water supply sources going forward.

3.2 Service Area

The City of Fresno presently covers approximately 117 square miles (sq mi) (75,100 acres) consisting largely of single-family residential, commercial, public, and industrial development. The City's water service area presently covers several areas outside of the City limits (e.g., County islands), as shown in Figure 3-1. With the exception of the Bakman Water Company (Bakman), Pinedale County Water District (Pinedale), Park Van Ness, California State University Fresno (CSUF), and private groundwater users located within the City limits or County islands, the City currently serves water to the entire area encompassed by its City limits and will eventually serve out to the Sphere of Influence (SOI) boundary. The SOI is coincident with the City of Fresno General Plan Land Use and Circulation Map, which was adopted in the 2014 General Plan and therefore, includes all lands planned to be annexed by the City at the projected 2056 buildout of the General Plan (City of Fresno Planning and Development Department, 2022).

3.2.1 Land Uses within the Service Area

According to the General Plan and the City's Planning and Development Department, the City's planning area covers approximately 106,000 acres (165.6 sq mi) comprised of approximately 73,500 acres (115 sq mi) of incorporated land and 32,500 acres (50.8 sq mi) of unincorporated land based on the City's current Geographic Information System Shapefiles. The total 106,000-acre planning area includes approximately 84,300 acres of developed or planned to be developed land, approximately 18,500 acres of roads, highways, and railroads with no corresponding water demand, and about 2,500 acres outside of the SOI north of the City's most northwesterly portion referred to as the North Area and shown on Figure 3-1.

Of the 106,000 acres within the City's planning area, the City's water service area currently covers 70,500 acres (110 sq mi) of land within the SOI, which includes most of the 73,500 acres of incorporated area and the unincorporated County Islands not within the City limits. As shown in Table 3-1, approximately 63,600 acres of the 70,500 acres within the water service area are developed and served water by the City. The remainder consists of vacant land that will be served by the City when it is developed. Residential units make up the largest portion of water demand served by the City, consisting of over 45% of the total served area and over 90% of the total service connections.

The remaining areas within the City's SOI are served by other systems or are unserved by a water system, consisting of open space and agricultural land, land used by roads, highways, and railroads, as well as the North Area.

Table 3-1. Current Service Area Characteristics

Land Use Type	Area (Acres)	% of Total Area[1]	Service Connections	% of Total Connections[1]
Single-Family Residential	30,200	42.8%	122,934	86.9%
Multifamily Residential	3,400	4.8%	6,156	4.4%
Commercial	5,000	7.1%	9,885	7.0%
Public	7,400	10.5%	2,358	1.7%
Industrial	6,700	9.5%	114	0.08%
Open Space/ Landscape Irrigation	10,900	15.5%	Note 2	
Mixed Use	30	0.04%	Note 3	
Total	**63,630**		**141,447**	**100%**
Vacant / Partially Vacant[4]	6,900	9.8%	N/A	
Total	**70,530**	**100%**		

Source: Acreage from City of Fresno Geographic Information System Shapefile of Land Uses provided 2/13/26. Number of connections provided by the City for 2025.

Notes:

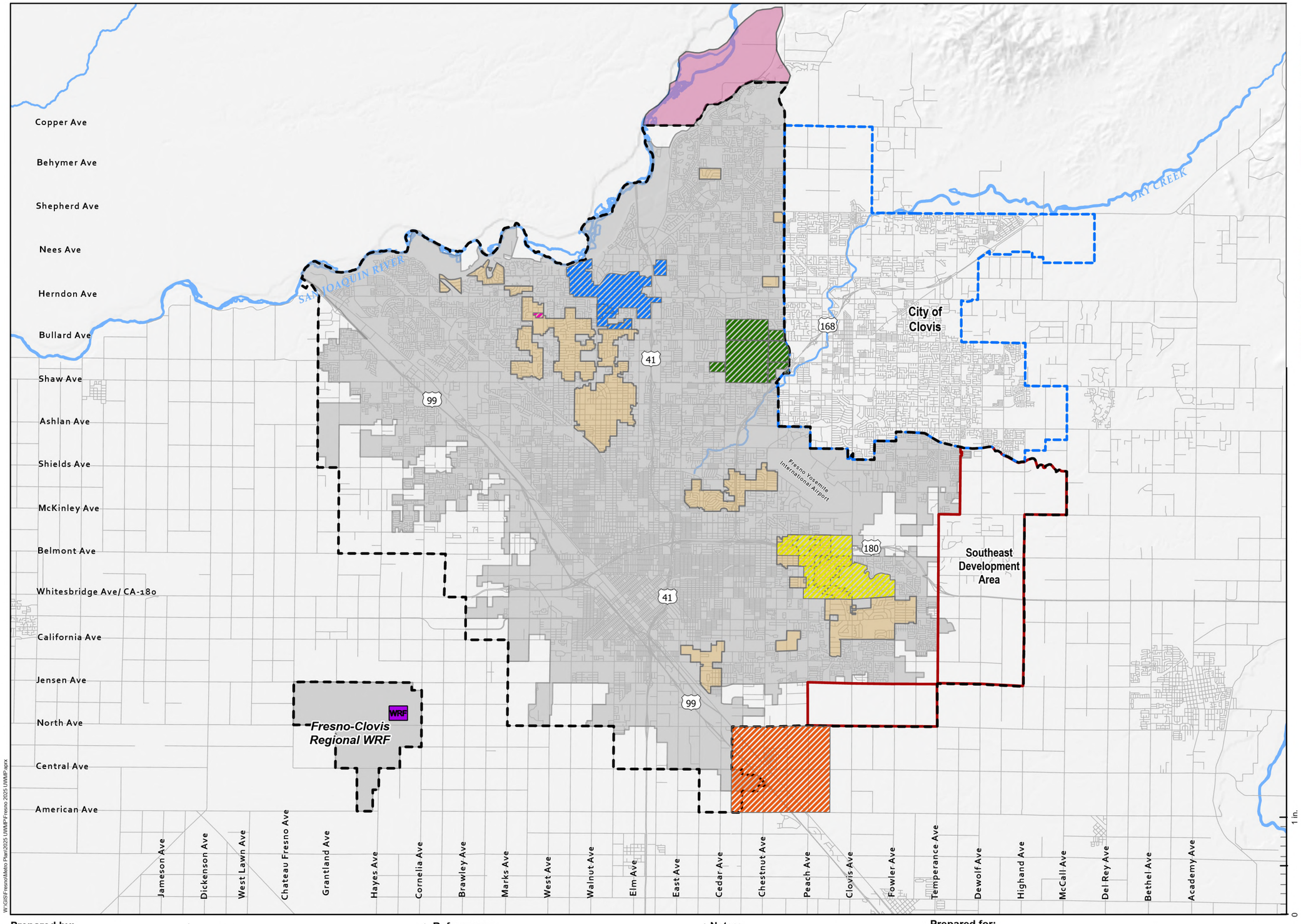
1. Percentages are rounded to the nearest tenth, except where greater precision is shown for small values.
2. Dedicated irrigation meters are included in commercial and public meter total.
3. Mixed Use meters are included in multi-family residential and commercial meter total.
4. For partially vacant land, half of the area is included in the zoned land use type and the other half is assumed vacant.

3.2.2 Water System

The City's water system consists of about 1,917 miles of distribution and transmission mains, 194 active municipal groundwater wells, three surface water treatment facilities (SWTFs) with current rated capacities ranging from 4 to 54 mgd, five water storage facilities with pump stations, including one at each of the SWTFs plus two in the distribution system, and three booster pump facilities.

The City's service area spans an approximate 120 feet of elevation difference, declining from northeast to southwest. To help regulate pressure throughout the water distribution system, the City utilizes five pressure zones, as shown on Figure 3-2: Highway 41, Shepherd, Sierra, Southwest, and Booster Pump 4 (BP04). The pressure zones are

separated by a series of closed or partially closed valves between each zone to prevent or impede flow from one zone to the next, referred to as gate systems. There are four gate systems — Shepherd, Sierra, Southwest, and BP04 — separating the five pressures zones. The Highway 41 Pressure Zone was previously split into two pressure zones divided by a series of 26 gate valves closely following the alignment along Highway 41. However, these zones were combined into a single zone in 2015 by fully opening the Highway 41 gate valves, and as a result are not shown on Figure 3-2.



Legend

- Fresno Sphere of Influence
- Clovis Sphere of Influence
- Fresno City Limits
- County Islands
- North Area
- Southeast Development Area
- WRF Wastewater Reclamation Facility
- Streets

Areas Served Water by Others

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- Malaga Water District
- Park Van Ness Mutual Water District
- Pinedale County Water District
- CA State University, Fresno

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Prepared by: WSC

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0 3,750 7,500 15,000 US Feet

References:

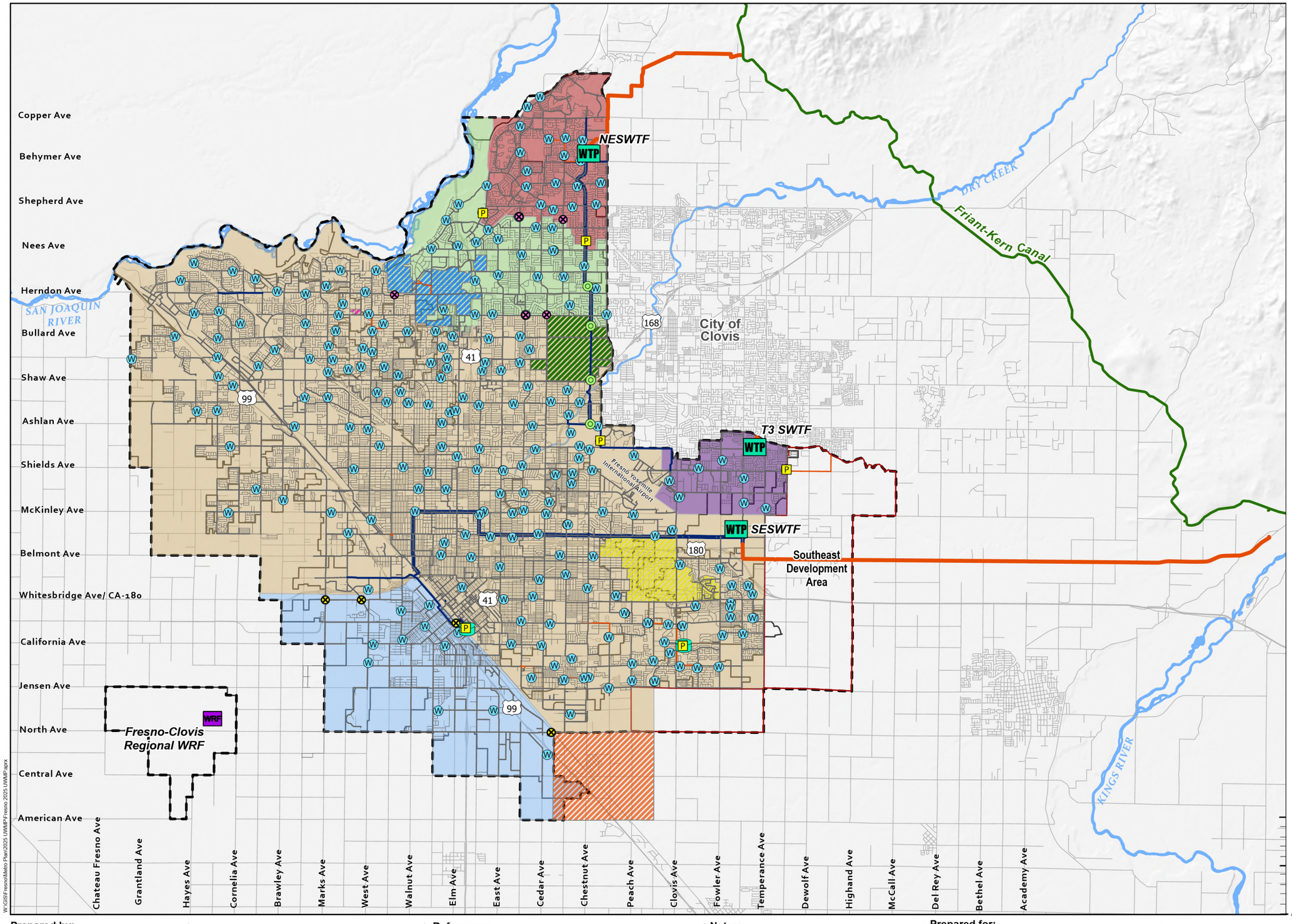
1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

Notes:

Prepared for: City of Fresno Department of Public Utilities

City of Fresno
2025 Urban Water Management Plan

Figure 3-1. City Service Area



Legend

City Facilities

- WTP — Water Treatment Plant
- P — Booster Pump Station
- Storage Facility
- W — Active Well
- Existing Turnout
- WRF — Wastewater Reclamation Facility

Gate System Valves

- Pressure Relief Valve
- Pressure Sustaining Valve

Water Mains by Diameter (inch)

- <10
- 10 - 16
- 16 - 30
- 30 - 72

Raw Water Mains by Diameter (inch)

- <10
- 10 - 16
- 16 - 30
- 30 - 72
- Friant-Kern Canal

Areas Served Water by Others

- Bakman Water District
- Malaga Water District
- Park Van Ness Mutual Water District
- Pinedale County Water District
- CA State University, Fresno

Pressure Zones

- Highway 41
- Booster Station 4
- Shepherd
- Sierra
- Southwest

City Features

- Southeast Development Area
- Fresno Sphere of Influence
- Fresno City Limits
- Streets

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Prepared by: WSC

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References:

1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

Notes:

Prepared for: City of Fresno Department of Public Utilities

City of Fresno
2025 Urban Water Management Plan

Figure 3-2. Water System

3.3 Service Area Climate

The City's service area is 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 11.5 inches per year, as shown in Table 3-2. However, rainfall can significantly vary year to year with almost 18 inches received in 2011 and less than 4 inches received in 2014. The 2012 to 2016 drought was marked by four consecutive years (2012 to 2015) of less than 10 inches of rainfall. As shown by the average evapotranspiration (ET_o) and temperature values in Table 3-2, 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.

Table 3-2. Average Monthly Climate Data

Month	Average Precipitation (inches)	Average ETo (inches)	Average High Temp (˚F)	Average Low Temp (˚F)
January	2.33	1.21	57.32	37.29
February	1.85	2.00	62.78	39.45
March	2.08	3.68	68.22	43.32
April	0.93	5.43	74.01	46.82
May	0.49	7.41	81.68	53.15
June	0.16	8.47	89.96	59.35
July	0.01	8.91	96.15	64.01
August	0.02	7.89	95.04	62.70
September	0.10	5.76	89.91	58.23
October	0.58	3.73	79.60	49.41
November	1.03	1.89	66.21	40.63
December	1.98	1.10	56.73	36.53
ANNUAL AVERAGE:	**11.56**	**57.48**	**76.47**	**49.24**

Source: From the California Irrigation Management Information System (CIMIS) website http://www.cimis.water.ca.gov. Data shown is the average of the Fresno State 80 station from October 1988 through December 2025 (DWR, 2026).

3.4 Service Area Population and Demographics

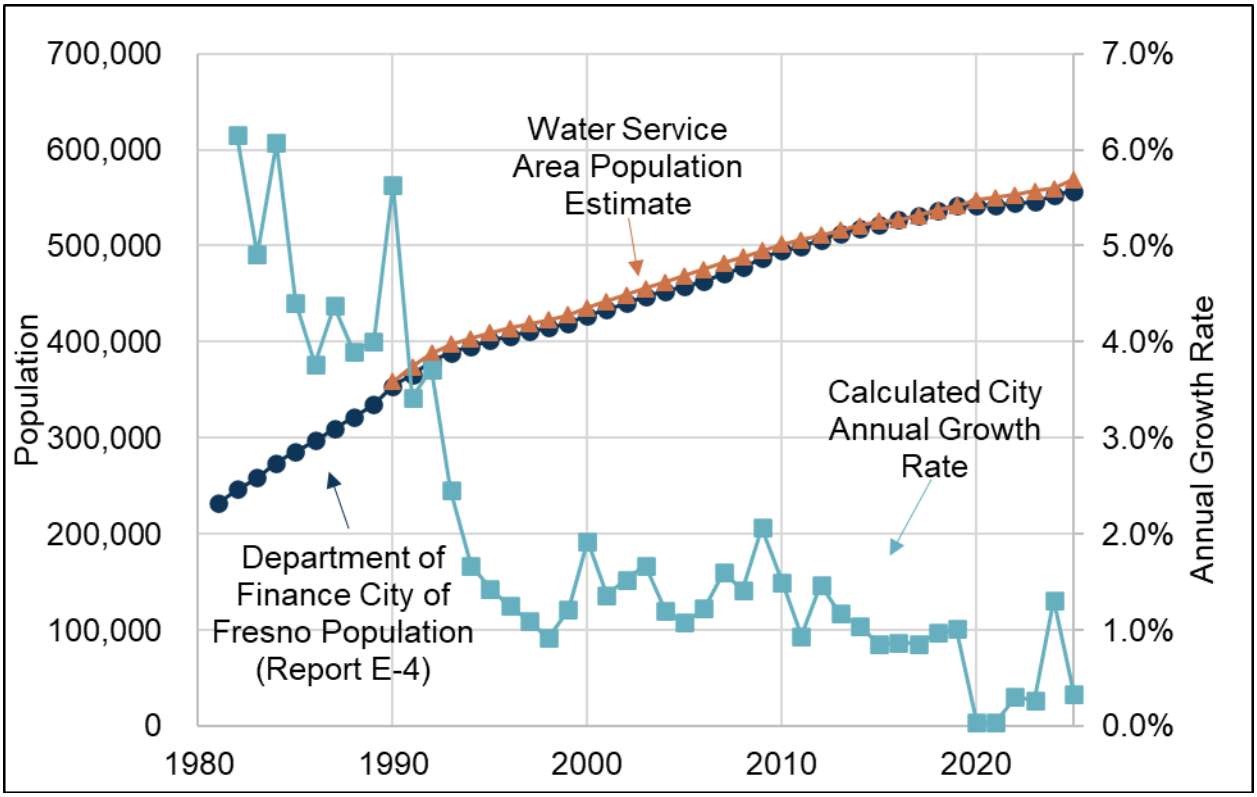
The City experienced rapid growth since it was founded by the Central Pacific Railroad in 1872 up through the mid-1990s, when the City's annual growth rate was typically greater than 2%. From 1995 to 2015, the annual growth rate decreased to an average of 1.3%, and since 2015, the rate has not averaged less than 1.0% per year.

The population served by the City Water Division is slightly higher than the City's population after adding unincorporated areas served by the City and removing areas within the City limits served by private water companies, special districts, or private wells. The City acquired County service areas and facilities in 1989, which increased the service area population to slightly greater than the City population since 1990.

Figure 3-3 compares the historic City population to the water service area population since 1990. Water service area population estimates prior to 1990 were unavailable for comparison to the City's population. The City Water Division's methodology for calculating the population of the City's water service area involves summing all the Census tract data for the City's overall service area and subtracting out tracts not served by the City. These tracts included areas served by Pinedale, Bakman, and CSUF, as well as areas outside the City service area, unserved areas within County areas, unserved areas within City areas, and areas with only partial service (i.e., straddling City service areas).

The 2021 to 2025 population served by City was estimated using the annual water service connections and population estimates from the 2020 U.S. Census Bureau. The 2020 population and water service connections were used to derive a 2020 persons per connection factor that was applied to the 2021 to 2025 connections and used to estimate the water service area population. Based on this methodology, the water service area population is estimated at 568,964 in 2025, compared to 557,032 for the total City population in Jan 2025 (California Department of Finance, 2026). For comparison, in the 2020 UWMP, the City Water Division population served was estimated as 550,217 in 2020 compared to the total City population of 542,206 (California Department of Finance, 2026).

Figure 3-3. City of Fresno and Water Service Area Historic Population



The City's General Plan and specific plans are the City's primary growth planning documents from which the baseline water service area population projection for this UWMP was developed. The General Plan includes population estimates for the City planning area, which includes all areas within City limits and unincorporated areas outside of City limits within the City's SOI, based on projections developed by the Fresno Council of Governments and estimates a buildout population of 921,057 in 2056. In 2017 the Fresno Council of Governments developed population projections in 5-year increments through 2050 for all cities within Fresno County (Applied Development Economics, Inc. and Mintier Harnish Associates, 2017). The Fresno Council of Governments' 2017 report projects the City's population will grow at an annual growth rate ranging from 0.92–1.44%, with an average annual growth rate between 2020 and 2056 (buildout) of 1.03% per year. These population projections and growth rate have been incorporated in the City's General Plan population projections.

Based on discussions with the City's Planning and Development Department, the City's water service area population is anticipated to continue to grow along with the City, with some slightly higher growth years anticipated within the next 10 years due to multiple large developments planned for completion in the near term. For planning purposes, this UWMP assumes the City will slowly incorporate areas served by others within the City's

SOI by buildout in year 2056. As such, the long-term water service area population annual growth rate is expected to be 1.6% between 2025 and 2056 to account for absorbing these areas into the City's water system.

The baseline population projection starts with the 2025 water service area population estimated from the 2020 Census population and water service connection data and grows based on areas anticipated to be developed by 2035, and then linearly beyond 2035 to meet the buildout population in 2056. The City's 2025 population estimate includes the entire City planning area, including areas not served water by the City and areas currently outside the City limits but within the SOI, and is lower than the current water service area population. The water service area population projection assumes the City will incorporate all areas currently served by others and grow to provide water service to all areas within the SOI by buildout. Because the water service area has more growth potential than the City planning area, the annual average growth rate as calculated ranges from 1.1–2.6% between 2025 and 2056, with an average annual growth rate of approximately 1.8% between 2025 and 2050 that continues to slow through the buildout. Table 3-3 shows the water service area population projections through 2050 in five-year increments.

Table 3-3. Current and Projected Population (DWR Table 3-1R)

Population Served	2025	2030	2035	2040	2045	2050
TOTAL:	568,964	644,146	719,327	765,278	812,529	861,080

3.4.1 Other Social, Economic, and Demographic Factors

Large portions of the City of Fresno are considered a disadvantaged community (DAC) due to high levels of poverty. According to the 2020 Census, approximately 20.1% of persons in the City are below the poverty line (U.S. Census Bureau, 2020). The City remains cognizant of the potential impacts of water rates on customers and recognizes that income and poverty levels may influence the feasibility and effectiveness of certain water conservation strategies. These socioeconomic factors may limit the ability of some customers to participate in cost-based programs, such as rebate or incentive programs, and will be considered when evaluating and implementing future conservation measures.

Additionally, the City of Fresno includes a diverse population with multiple cultures that may include different water-use patterns or needs. According to the 2020 Census, approximately 42.7% of households have a language other than English spoken at home.

4 Water Use Characterization

This section describes and quantifies the City's past, current, and future water use through 2050. The City provides potable water to all its customers, which are comprised of about 90% residential and 10% commercial, institutional, industrial, and landscape accounts. In 2025, potable water uses were about 66% residential, 15% commercial and institutional, 4% industrial, 10% landscape, and 5% losses.

IN THIS SECTION

- Non-Potable Versus Potable Water Use
- Past, Current, and Projected Water Use
- Water Use for Lower Income Households
- Climate Change Considerations

4.1 Non-Potable Versus Potable Water Use

The City serves its customers potable water for residential, commercial, institutional, industrial, and landscape irrigational demands through its potable water distribution system.

The City also diverts raw surface water obtained from USBR and FID to recharge basins throughout the service area. The raw surface water recharges the groundwater basin to sustain the groundwater supply for the City. The groundwater recharge volume can vary based on surface water supply availability and is represented as an addition to annual groundwater supplies as discussed in Section 6. The City coordinates with FID for the delivery of the recharge water, utilizing FID's existing system of channels and pipelines to convey the raw water, and with Fresno Metropolitan Flood Control District (FMFCD) to deliver water to FMFCD's stormwater retention and recharge basins or City recharge basins.

In addition, the City serves a limited number of customers secondary treated and tertiary treated recycled water for agricultural irrigation and landscape irrigation, respectively. The recycled water demands are discussed in Section 6.5.

4.2 Past, Current, and Projected Water Use

The following sections document the past and current water use for each sector, and the projected water use through 2050.

4.2.1 Water Use Sectors

Records of historical water consumption serve as the basis for developing water demands by water use sector. Water consumption is the volume of water measured at each metered service.

The City tracks water consumption across different water use sectors listed in the CWC and listed in DWR Tables 4-1R and 4-2R in Appendix B:

- Single-Family Residential
- Multifamily Residential
- Commercial and Institutional / Governmental
- Industrial
- Landscape
- Distribution System Losses

In addition to the water uses listed in the CWC, the City participates in exchanges and transfers, provides temporary travel meters for temporary water use, and diverts non-

potable surface supplies for groundwater recharge, as described below. The City does not provide water for sales to other agencies, saline water intrusion barriers, or agricultural use.

4.2.1.1 Exchanges

Since 1976, the City has had a water exchange agreement with FID for delivery of the City's percolated wastewater effluent — considered equivalent to tertiary recycled water treatment — to FID canals. This is not counted as a water use in this section and is discussed as a water supply in Section 6.7.2.

4.2.1.2 Other

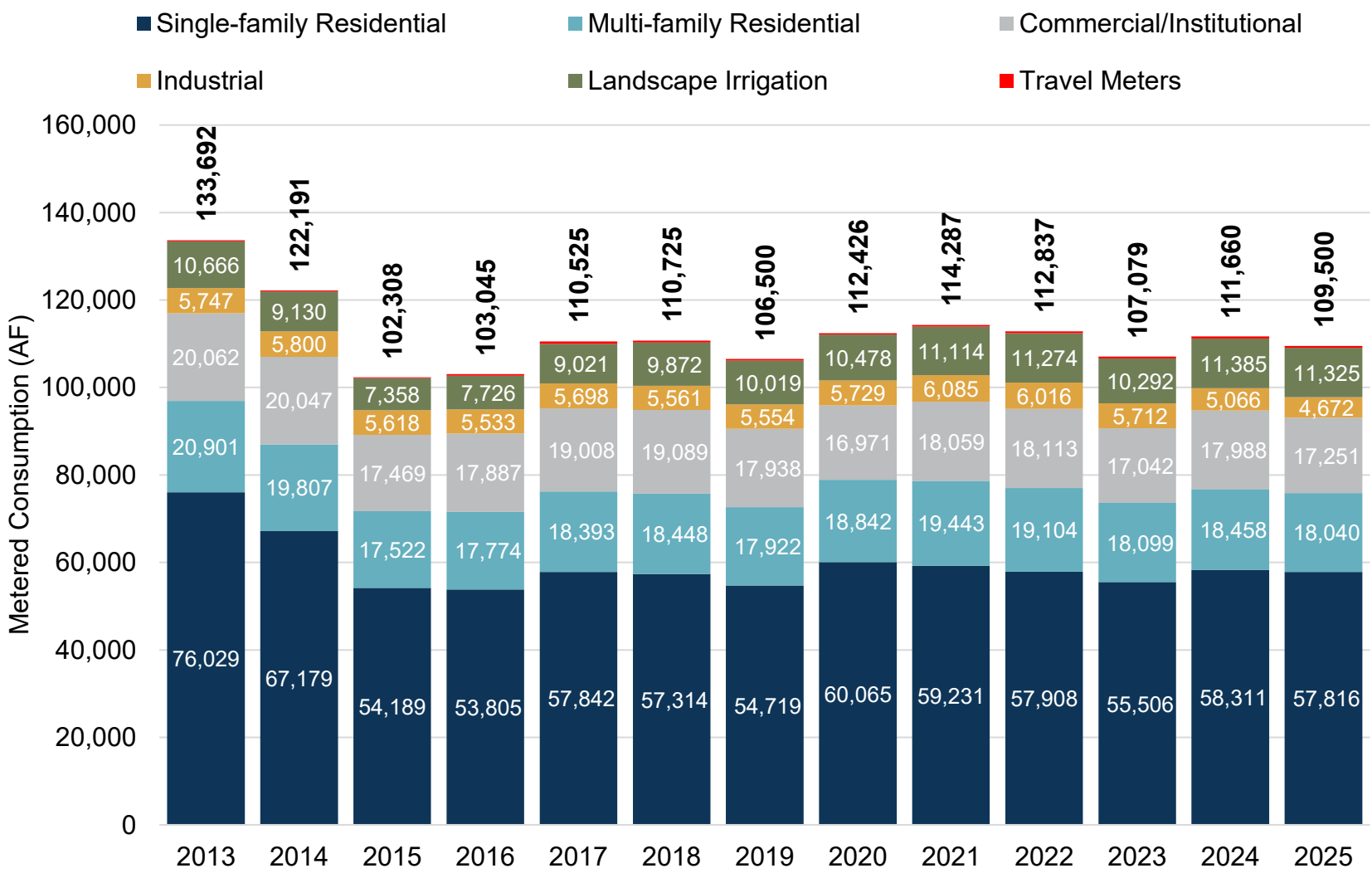
A small, quantified water demand has been classified as "other" to account for temporary travel or construction meters for water used for dust control. This type of use typically accounts for less than one percent of total water use.

4.2.2 Past Water Use

Since 2013, all water services in the City's water service area have been metered. Prior to 2013, the City estimated single-family residential water use, since these services were not equipped with meters, by subtracting all other metered uses (commercial, institutional, industrial, and irrigational), plus 10% assumed losses, from production data. Water consumption for the City's water service area by customer type for 2013–2025 is shown on Figure 4-1.

As shown in the figure, single-family residential water use has decreased by about 20,000 AFY since the Single-Family Metering Program was completed in 2013, even with growth in single-family residential connections. Multi-family residential, commercial, and institutional services have historically been metered, and consumption has also decreased since 2013. Industrial and landscape irrigation uses are at similar levels to 2013 consumption, even as new customers have connected to the City's water system. Landscape irrigation demands did decrease in 2015 and 2016, likely due to the drought restrictions, but have now recovered after the drought ended in 2017.

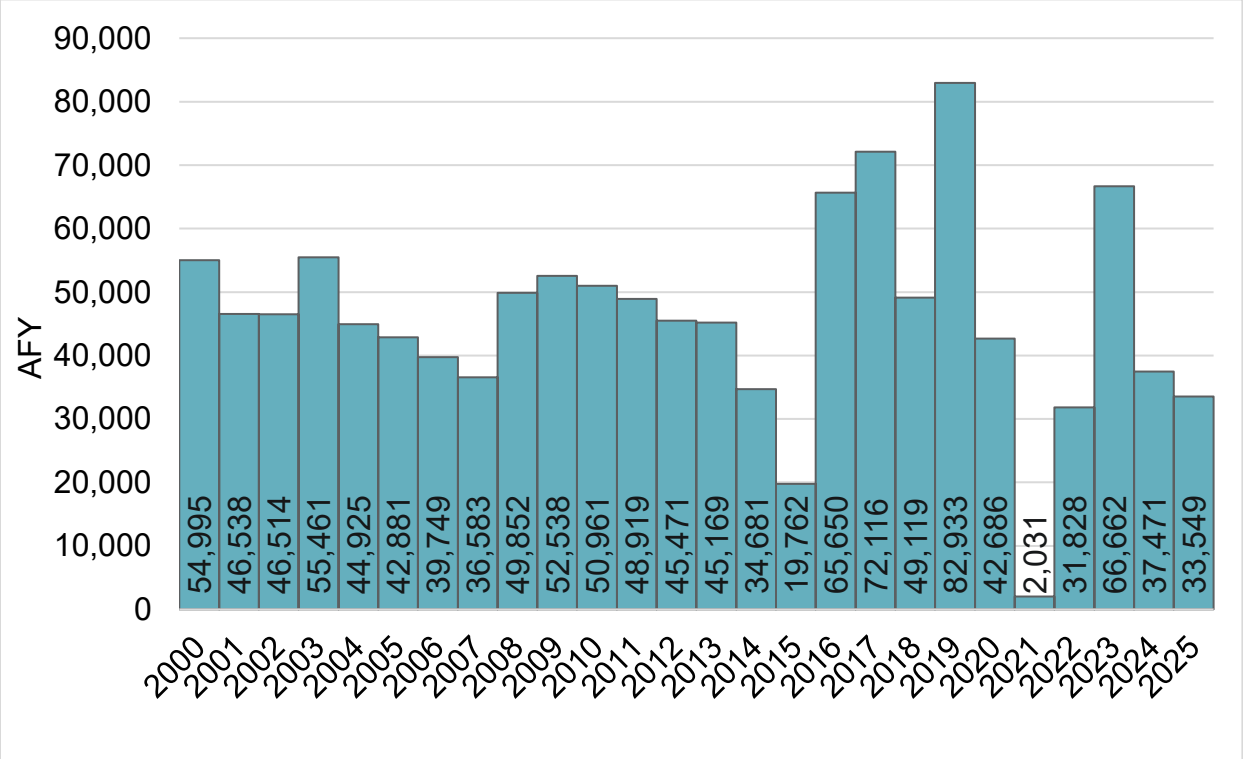
Figure 4-1. Historical Consumption by Customer Type (2013-2025)



The City also uses its raw surface water for groundwater recharge within the City. Figure 4-2 shows the historic volume of the City's raw surface water used for groundwater recharge since 2000. Over the last 25 years (2000–2025), the average annual intentional recharge of surface water was 46,117 AFY. Total recharge has ranged from a high of 82,933 AF in 2019 and a low of 2,031 AF in 2021 due to limited surface water supplies. The four highest recharge years over the last 25 years occurred within the last ten years: 2016, 2017, 2019, and 2023. The increases in recharge volume were due to significant increases in recharge capacity at City basins with the addition of several basins (Nielsen, Fancher), proactive maintenance of basins to maximize percolation capacity, and a large surface water supply during the wet years of 2019 and 2023. The annual variability between years is caused by several factors, including basin availability, water delivery season, canals delivery capacity, pond maintenance, or length of wet seasons.

Historically FID has had the capacity to deliver all the City's requested water for recharge during the irrigation season. However, during 2023, one of the wettest years on record, the City had additional supply that they were unable to recharge due to capacity constraints within FID's conveyance system. The City's recharge was also lower in 2024 and 2025 due to a shorter irrigation season where FID's canals were operating and able to deliver the City's water to recharge basins. The City's ongoing Metro Plan update further explores these constraints and will include recommendations to maximize the City's recharge potential.

Figure 4-2. Historic Recharge of City Surface Water



4.2.3 Distribution System Water Losses

Real losses, as defined in the American Water Works Association (AWWA) Water Audit tool are:

> "Physical water losses from the pressurized system (water mains and customer service connections) and the utility's storage tanks, up to the point of customer consumption. In metered systems, this is the customer meter; in unmetered situations, this is the first point of consumption (stop tap/tap) within the property. The annual volume lost through all types of leaks, breaks, and overflows depends on frequencies, flow rates, and average duration of individual leaks, breaks, and overflows."

The City's system losses have many different possible causes such as hydrant flushing/testing, construction, firefighting, system leaks, water main breaks, and meter error. The past five years of distribution system losses are listed in Table 4-1 and the results of the 2021-2024 AWWA Water Audit Tool are provided in Appendix D. The AWWA Audit Worksheet was not completed for 2025 prior to the submittal of this plan, so water losses in 2025 were estimated based on the difference between metered water production and metered water use for the 2025 calendar year. The estimated loss in 2025 is 5,149 AF and is approximately 4.5% of the overall system production. Over the last five years, the City's water losses ranged from about 4% to 8% of total demand.

As shown in Table 4-1**,** the City's water loss volume was significantly reduced in 2024 and 2025 compared to previous years. This is because in 2024 the City began better tracking water used at fire hydrants for flushing and fire protection, irrigation use at the City's wells, and water used for backwashing at certain well treatment sites. While the City continues to reduce water losses, the age of the existing water infrastructure makes it challenging to fully manage and eliminate all losses.

Table 4-1. 12 Month Water Loss Audit Reporting (DWR 4-5R)

Report Period Start Date		Volume of Water Loss, AFY	Percentage Loss of Production
MM	YYY		
1	2021	8,601	7.0%
1	2022	8,975	7.3%
1	2023	9,524	8.1%
1	2024	4,364	3.8%
1	2025	5,149	4.5%

Note: For 2021 through 2024, volume of water loss is taken from the AWWA Water Audit Tool. For 2025, the volume of water loss is the difference in metered production and metered consumption.

CWC Section 10631 (d)(3)(C) requires water suppliers to provide data to determine if the supplier will meet its State Water Board water loss performance standard. Table 4-2 compares the City's Water Loss Performance Standard to the reported real and apparent water loss in the City's 2024 AWWA Water Loss Audit (see Appendix D) in gallons per service connection per day (gpscd). As shown, the City met its real water loss standard in 2024. However, the City's estimated apparent water losses, which include systematic data handling errors, customer metering inaccuracies, and unauthorized consumption, is higher than the City's apparent water loss standard. The City plans to continue to manage and minimize water losses through its water loss reduction programs, discussed in Section 9.2.5.

Table 4-2. Progress Toward 2028 Water Loss Standard (DWR Table 4-6R)

	Real Water Loss	Apparent Water Loss
City Water Loss Performance Standard	15.5 gpscd	10.3 gpscd
2024 Actual Loss[1]	9.5 gpscd	17.6 gpscd
Difference	**6 gpscd**	**-7.3 gpscd**

Note:

1. 2024 real and apparent water losses are calculated based on information provided on the City's 2024 AWWA Water Loss Audit, provided in Appendix D.

4.2.4 Current Water Use

Table 4-3 provides the breakdown of actual potable and non-potable water use by sector type in 2025. As shown in Table 4-3, single-family residential water use is the largest use type in the City and accounted for about 50% of water use in 2025. Multifamily residential use was the second largest, accounting for approximately 16% of water use in 2025. Together, residential water use accounts for about 66% of all potable water uses in the City's service area. The remaining potable water uses consist of mainly commercial and institutional water use, which are tracked together and included only on the commercial use row on Table 4-3, followed by landscape irrigation and industrial usage. Distribution losses accounted for approximately 4.5% of potable water used in 2025 (perTable 4-1).

Table 4-3. 2025 Actual Water Use (DWR Table 4-1)

Use Type	Additional Description	Level of Treatment	2025 Volume	Percent of Total Potable Demand[1]
Single Family Residential		Potable	57,816	50.4%
Multi-Family Residential		Potable	18,040	15.7%
Commercial	Includes Institutional	Potable	17,251	15.0%
Industrial		Potable	4,672	4.1%
Landscape	Primarily CII	Potable	11,325	9.9%
Other	Travel Meters	Potable	396	0.3%
Losses		Potable	5,149	4.5%
Total Potable Demand		**Potable**	**114,649**	**100%**
Groundwater Recharge	Raw Surface Water	Non-Potable	33,962	N/A
Landscape	Recycled Water CII	Non-Potable	325	N/A
Total Non-Potable Demand			**34,287**	N/A
TOTAL			**148,936**	

Note:

1. Percentages are rounded to the nearest tenth.

4.2.5 Projected Water Use

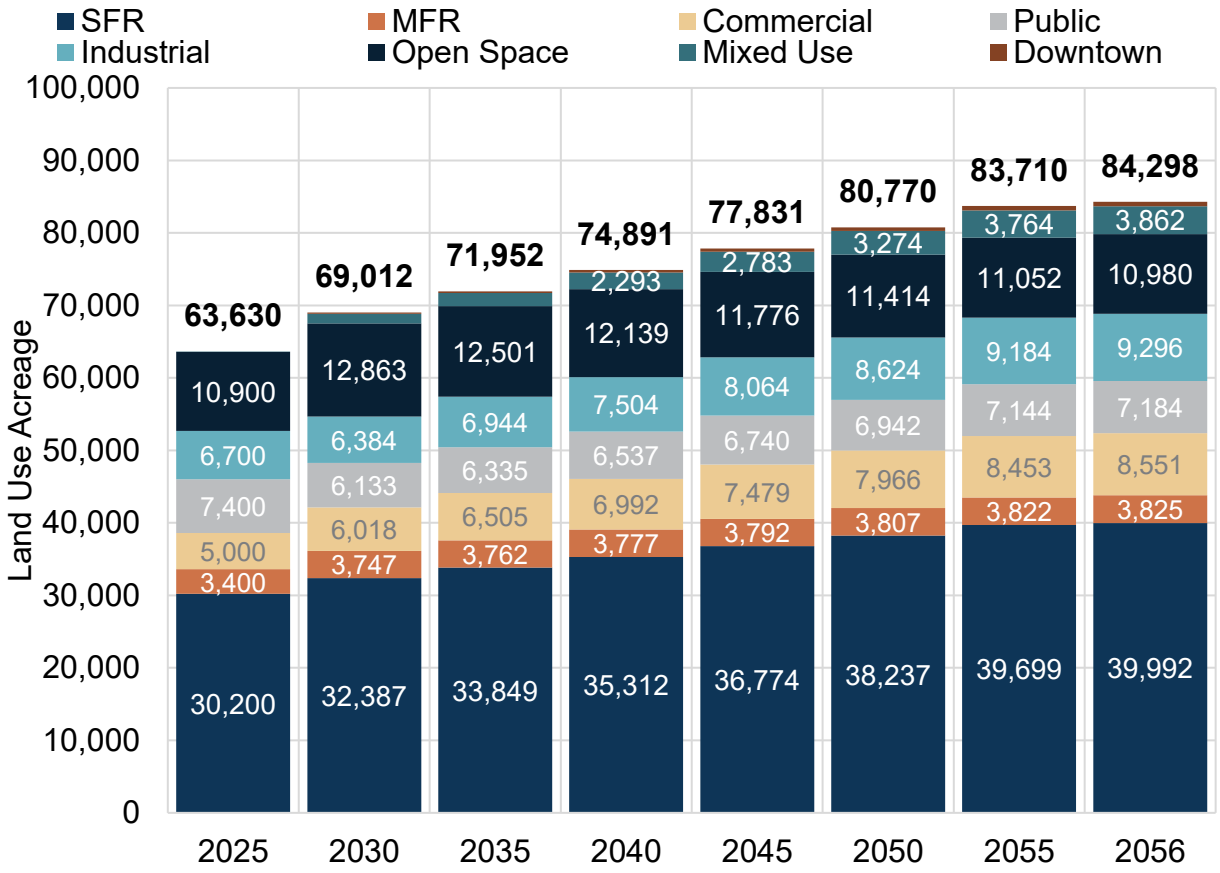
4.2.5.1 Land Use Projections

The potable demand projections through 2050 for normal water years (defined in Section 7.2.3) were developed for the City's ongoing Metro Plan update and follow the methodology for land use-based projections described in Appendix K of the 2025 UWMP Guidebook. Under this methodology, existing land use and demand is accounted separately from future land use and demand. This allows different demand factors to be applied to current land use areas and future land use areas. Future land use areas represent future customers and developments that are expected to be more water efficient than existing land uses and buildings due to the California Plumbing Code and use of higher efficiency appliances and landscapes.

The existing and future land use acreage was sourced from the City's Geographic Information System database and the City's General Plan. The existing land use shapefile and associated acreage for each land use classification were used to represent 2025 land use data. Areas not served by the City were excluded from the existing land use shapefile. The future land use shapefile corresponds with the planned land use at buildout as described in the City's General Plan representing the year 2056. Although the City does not have any plans to serve areas currently served by others within the City limits, all areas within the City SOI were assumed to be served by the City by buildout for conservative planning purposes.

The land use acreage between 2025 and 2056 was estimated in 5-year increments by defining areas planned to be developed by 2030 from the City's Planning Department and then by linearly interpolating the remainder of the change in acreage for each land use category between 2030 and 2056. This results in a 1.6% annual growth rate from 2025 to 2030 and a 0.8% annual growth rate from 2030 to 2056. Figure 4-3 shows the existing and projected land use by customer class used to develop the projections.

Figure 4-3. Existing and Projected Land Use through Buildout



Note: Acreage values for Mixed-use and Downtown land use types are not shown every year for clarity, but are included in the total acreage value.

4.2.5.2 Demand Factors

Land use-based water demand factors were developed using 2018 metered consumption data matched to 72 categories of land use data. These demand factors are applied to the land use acreage by category to develop the demand projection through 2050. Demand factors for land uses that grow over time and represent new developments were assigned a lower demand factor than existing developments. Additionally, demand factors were assumed to slowly reduce over time due to passive conservation, which includes the replacement of older water fixtures and appliances with more efficient types now required as part of the California Plumbing Code. The passive conservation savings are projected to be greater for existing customers than future customers because future customers are already assumed to have a lower water demand factor and meet the plumbing code.

Future savings due to passive conservation were developed using the Alliance for Water Efficiency (AWE) Water Conservation Tracking Tool. The Tracking Tool is an Excel tool that can incorporate water service area-specific data to estimate natural replacement rates of fixtures and future savings based on the California Plumbing Code.

Table 4-4 lists the passive conservation savings assumption incorporated in the potable demand projections. Existing unit demand factors are reduced by the percentages listed to develop the future development unit demand factors. As shown in the table, this assumes future residential and non-residential units are 10% and 5% more water efficient, respectively, than existing units due to changes in the plumbing code and ever-increasing new water efficient technology. Table 4-5 compares the total potable demand projections without the estimated savings due to passive conservation through 2050.

Table 4-4. Passive Conservation Savings Assumptions

Land Use Type	Future Development Unit Demand Factor Reduction[1]	Existing Development Annual Passive Conservation Savings[2]	Future Development Annual Passive Conservation Savings[3]
Residential/Mixed Use	10%	0.20% per year	0.04% per year
Commercial/Downtown	5%	0.05% per year	0.01% per year
Public	5%	0.05% per year	0.01% per year
Industrial	5%	0.05% per year	0.01% per year
Open Space/ Landscape Irrigation	0%	0% per year	0% per year

Notes:

1. Existing unit demand factors are reduced by the percentages listed to develop the future development unit demand factors.
2. Existing development annual passive conservation savings were developed using the AWE Water Conservation Tracking Tool.
3. Future development passive conservation savings are assumed to be one-fifth the rate of existing development passive conservation savings.

Table 4-5. Projected Future Savings for Potable Demands

	2030	2035	2040	2045	2050
Total Potable Demand, No Conservation	149,508	157,424	165,341	173,258	181,175
Estimated Passive Conservation	2,006	2,994	3,974	4,944	5,905
Total Potable Demand	**147,502**	**154,430**	**161,367**	**168,314**	**175,270**

4.2.5.3 Demand Projections

Table 4-6 provides the projected potable demands by use type based on the methodology described above. The projected water losses are 8% of projected potable demand, and consistent with the historic water loss for the City. Potable demands are projected to increase by nearly 30% over the next 5 years due to planned development within the City. If the development occurs at a slower pace than assumed, then the pace of demand increases would decrease.

Table 4-6 also includes the projected raw surface water used for groundwater recharge and recycled water demand through the planning period for normal years. The City intends to maximize recharge every year. The projected groundwater recharge water use is based on average recharge projected during a normal year. The actual volume

recharged would vary based on the available surface water supplies each year, as well as available basin capacity and other factors, and may be lower in dry years or higher in wet years. See Section 6.3 for more information on projected groundwater recharge using surface water supplies.

Recycled water use is projected to include the continued deliveries of recycled water for landscape irrigation and adding customers to the existing recycled water system. See Section 6.5 for more information on the recycled water system.

Table 4-6. Projected Demands for Potable and Non-Potable Water (DWR Table 4-2)

Use Type	Additional Description	Projected Water Use				
		2030	2035	2040	2045	2050
Single Family Residential		80,429	82,934	85,437	87,936	90,434
Multi-Family Residential		20,654	21,737	22,831	23,935	25,050
Commercial	Includes Institutional	21,259	22,774	24,290	25,807	27,325
Industrial		9,003	9,922	10,841	11,758	12,675
Landscape	Primarily CII	5,045	5,437	5,829	6,221	6,613
Other	Travel Meters	201	202	203	204	205
Losses		10,911	11,424	11,938	12,453	12,968
POTABLE TOTAL		**147,502**	**154,430**	**161,369**	**168,314**	**175,270**
Groundwater Recharge	Raw Water	61,300	64,300	66,100	66,200	66,200
Landscape	Recycled Water CII	980	1,430	1,430	1,430	1,430
NON-POTABLE TOTAL		**62,280**	**65,730**	**67,530**	**67,630**	**67,630**
TOTAL		**209,782**	**220,160**	**228,899**	**235,944**	**242,900**

4.2.5.4 Future Conservation

In 2018, following the unprecedented drought, California Legislature established a framework centered on “Making Water Conservation a California Way of Life.” The goal was to help the State better prepare for droughts and climate change by establishing statewide water efficiency standards and incentivizing recycled water (DWR, SWRCB, 2018). The resulting legislation of Senate Bill 606 and Assembly Bill 1668 and the water use regulations officially adopted by the SWRCB on July 3, 2024 establishes unique water budget-based Urban Water Use Objectives (UWUO) for each urban retail water supplier in the State. The regulation requires suppliers to calculate an UWUO consisting of these core components:

- Residential Indoor Water Use Budget

- Residential Outdoor Water Use Budget
- Commercial, Industrial, and Institutional (CII) Dedicated Irrigation Meters Outdoor Water Use Budget
- Real Water Loss Budget

Each component of the UWUO has associated water efficiency standards that become increasingly stringent through 2040 as shown in Table 4-7. The key standards are residential indoor water use in gallons per capita per day (GPCD), Landscape Efficiency Factors (LEF) for calculating the outdoor water use budget, and real water loss measured in gpscd. Annually updated supplier-specific input data is also required for population, climate, landscapes, and real water losses. The UWUO does not include some uses, such as CII indoor use or other uses that are considered "Excluded Demands."

Table 4-7. Water Efficiency Standard by Reporting Period

Fiscal Year	Residential Indoor GPCD	Residential Outdoor LEF	CII Dedicated Irrigation Meters	Real Water Loss Budget[1]
23/24	55	0.8	Actual Reported "Landscape" Volume	Actual Reported or Budget
25/26	47	0.8	Actual Reported "Landscape" Volume	Actual Reported or Budget
30/31	42	0.8	0.8 LEF (starts July 1, 2028)	Budget (starts July 1, 2027)
35/36	42	0.63	0.63 LEF	Budget
40/41	42	0.55	0.45 LEF	Budget

Note:

1. The Real Water Loss Budget is a supplier's standard for real water loss (gpscd) applied to total service connections.

DWR and SWRCB have developed an annual reporting framework, tools, and guidance for calculating the UWUO and comparing it to the actual use for that year. The SWRCB's "Water Use Objective Exploration Tool" allows users to enter varying efficiency standards and baseline year(s) of input data to calculate and visualize a comparison of historic demand to the UWUO with selected standards. The SWRCB's "Annual UWUO and Water Use Report" tool pre-populates input data and standards for the given reporting year.

The City is currently working towards meeting their UWUO. Based on the City's Annual UWUO Report for water use in Fiscal Year 2024, the City's UWUO was 89,119 AF and the actual water use that contributes to the UWUO was 88,505 AF, therefore meeting the UWUO requirements for Fiscal Year 2024.

As water efficiency standards ramp down and depending on annual input data fluctuations, the City's estimated UWUO reduction needed by 2040 may exceed projected

baseline usage by 30%. According to the regulations, suppliers who must achieve over a 30% reduction in their 2040 UWUO compared to baseline usage are permitted to follow an alternative compliance method. This alternative method requires an annual decrease of 2% in GPCD compared to the baseline usage. The SWRCB also recognizes equity considerations for disadvantaged communities in implementing conservation measures to comply with the UWUO. The SWRCB has indicated that suppliers serving disadvantaged communities, which includes the City, with an estimated UWUO reduction from baseline usage of 20% or greater by 2040 may be eligible to meet their UWUO with a 1% reduction in GPCD compared to the baseline usage.

While the City intends to ultimately meet its UWUO, it recognizes that water demands may initially continue to follow historic patterns and may take longer than anticipated to fully align with the UWUO targets. As a result, the City is evaluating the alternative compliance pathway as a potential means of demonstrating compliance during the transition period. The City is also looking into an updated residential land area measurement to reflect recent growth in their water budget. Higher conservation demand projections that align with UWUO targets are considered within a demand envelope as part of the ongoing Metro Plan update.

4.2.6 Characteristic Five-Year Water Use

In addition to past and projected uses, the UWMP more closely analyzes anticipated conditions for the next five years (2026 – 2030). In the next five years, City anticipates that demands may increase by nearly 30% from current conditions due to planned development withing the City's service area. Details on an analysis for the next five years are discussed in Section 7.3.

Table 4-8. Characteristic Five-Year Water Use

	Projected Water Use (AF)				
Use Type	**2026**	**2027**	**2028**	**2029**	**2030**
Potable Demand	121,220	127,790	134,361	140,931	147,502
Non-Potable Demand	56,460	57,920	59,380	60,840	62,300
TOTAL	**177,680**	**185,710**	**193,741**	**201,771**	**209,802**

4.3 Water Use for Lower Income Households

CWC Section 10631.1 requires demand projections to include projected water use for single-family and multi-family residential housing needed for lower income households. Low-income households are defined as households making less than 80% of area median

income, adjusted for family size. The Regional Housing Needs Assessment (RHNA) determines the housing needs in each jurisdiction over the planning period.

The Fresno Council of Governments (COG) prepared an update to the Fresno Multi-Jurisdiction Housing Element and Regional Housing Needs Allocation (RHNA) to cover the period of December 31, 2023–December 31, 2031. On December 12, 2024, the Fresno City Council adopted the Fresno County Multi-Jurisdictional 2023-2031 Housing Element with Appendix 1E: Fresno City. The main body of the document takes a regional approach to housing across Fresno County, while Appendix 1E applies specifically to the City of Fresno.

The Fresno County Multi-Jurisdictional 2023-2031 Housing Element with Appendix 1E: Fresno City specifies the City's RHNA goals include 15,324 new housing units through 2031 for extremely low, very low, and low income levels (Fresno Council of Governments, 2024).

Table 4-9 includes the Housing Element identified available single-family and multifamily acres to be developed and dwelling units for Extremely Low, Very Low, Low, Moderate, and Above Moderate income levels (Fresno Council of Governments, 2024). This data was used to determine the number of acres of both single-family and multifamily land use that needs to be developed by 2031 to meet the 15,324 lower income units target for RHNA. The identified acres needed for low-income development by 2031 was applied to the average water demand factor for multifamily land uses to project the lower income water demands through 2031 to meet RHNA, shown in Table 4-9.

Table 4-9. Lower Income Dwelling Units and Acres to be Developed through 2031 and Estimated Water Demand

Fresno Housing Element (2023-2031)	Total
Acres Available for Low-Income Development	573.9
Total Dwelling Units	17,095
Dwelling Unit per Acre	29.79
Dwelling Unit Needed to Meet RHNA	15,324
Acres to be developed to Meet RHNA	514.40
Average Water Demand Factor (AF/ Acre)	5.13
Low-Income Demand to meet RHNA from years 2025 – 2031 (AF)	2,638
Annual Low-Income Demand to meet RHNA (AFY)	**376**

Note: All low-income housing units are slated as multifamily residential units.

Based on the estimated low-income water demand to meet the RHNA requirements by 2031, the annual projected low-income households demand is 376 AFY for multifamily

residential, or approximately 1.6% of the anticipated growth in potable demand through 2031. For the purposes of this plan, the current RHNA projected low-income growth and water demands was applied through the UWMP planning period of 2050 to estimate projected low income demand, presented in Table 4-10. However, lower income demands beyond 2031 will be based on the next Housing Element and RHNA Update expected in 2032 and may change in the future. All housing units and associated population are included in the adopted General Plan, and the demands for these units that occur within the water service area boundaries are included in the future water demands presented in this plan.

Table 4-10. Lower Income Household Projected Water Demands

Low Income Demand	2030	2035	2040	2045	2050
Multifamily Residential Demand (AF)	2,419	2,533	2,646	2,760	2,874

Note: All projected low-income housing is estimated to be multifamily residential units.

4.4 Climate Change Considerations

California's climate has always experienced frequent and sometimes prolonged droughts. Water users have developed major infrastructure and water management plans and strategies to largely dampen the effects of such droughts. Changes in climate, especially higher temperatures, are making these droughts deeper and longer, which will require additional preparations (Lund, 2022).

Concentrations of heat-trapping gases, such as carbon dioxide and methane, are increasing in the atmosphere to cause climate change and contributing to global planet warming. The impacts of climate change in California have been studied and modeled in depth, and general trends and impacts of climate change can be predicted. Climate models differ on average annual precipitation projections but coincide on other hydrologic metrics relevant to water resources management, including (Persad, Inter-model agreement on projected shifts in California hydroclimate characteristics critical to water management, 2020):

- Snowpack declines
- Increased fraction of precipitation on extreme rainfall days
- Shorter, sharper rainy season
- Increased evapotranspiration
- Higher frequency of extremely wet and extremely dry years
- Higher incidence of extreme dry year followed by an extreme wet year or vice versa.

While these climate changes affect the availability, volume, and quality of California and the City's water supplies, it will also impact the City's water demand.

Climate change impacts were considered in the North Kings Groundwater Sustainability Plan (NKGSP) based on DWR's Guidance for Climate Change Data Use during Groundwater Sustainability Plan Development (Department of Water Resources, 2018) and the related Sustainable Groundwater Management Act climate change website. As documented in the NKGSP, the DWR climate change datasets were developed for the California Water Commission's Water Storage Investment Program (WSIP), are consistent with other DWR programs, are based on the best available science, build on previous efforts, incorporate the latest advances in projections, and follow the Climate Change Technical Advisory Group guidance (Provost & Pritchard, 2022).

Changing precipitation and increased temperature and evapotranspiration (ETo) rates are expected to have the greatest impact on future demands, especially for outdoor water use. The WSIP climate change data sets estimate minimal changes to precipitation due to climate change from the historic period. The same datasets predict the ETo rate estimates with climate change will increase 3% by 2030 and up to 8% by 2070. More specifically, the ETo rate is predicted to increase the most in typically low ETo months (winter) and when irrigation is limited. The ETo rate is also predicted to be only slightly higher than historic in warmer months during the irrigation season. While higher ETo rates would increase irrigation demands, they are not anticipated to substantially impact the City's urban water use. The City proactively tracks ETo within its service area to evaluate its changes and impacts on water use. The climate change impacts to supply sources are discussed in Section 6.10.1.

5 SB X7-7 Baselines, Targets, and 2025 Compliance

This section describes compliance with SBX7-7's required 20% reduction of water use by 2020.

5.1 Baseline and Targets

Senate Bill 7 of Special Extended Session 7 (SBX7-7) was incorporated into the UWMP Act in 2009 and requires that all water suppliers increase water use efficiency with the overall goal to decrease per-capita water consumption within the state by 20% by the year 2020.

SBX7-7 required DWR to develop certain criteria, methods, and standard reporting forms through a public process that water suppliers could use to establish their baseline water use and determine their water conservation targets. SBX7-7 and DWR's Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use (DWR, 2016) specify methodologies for determining the City's baseline water demand, 2015 interim urban water use target, and the 2020 urban water use target, as described in the City's 2020 UWMP. The selected procedures used to develop the City's SBx7-7 baseline and targets are listed below:

- Calculate baseline water use, which is the average gross daily water use per capita, reported in gallons per capita per day (GPCD), based on gross water use and service area population for a continuous 10-year period ending no earlier than December 31, 2004.
- Calculate urban water use target using one of the four methods described below.
- Check and confirm the urban water use target using the five-year running average.
- Calculate the interim urban water use target (equal to the average of the baseline and confirmed urban water use target).
- Calculate the compliance daily per capita water use (equal to the gross daily water use per capita during the final year of the reporting period).

DWR allows the urban water supplier to choose one of four different methods to calculate the urban water use target in Step 2 above.

- **Method 1** involves calculating the target based on 80% of baseline daily per capita water use and the interim target based on 90% of the baseline daily per capita water use.
- **Method 2** involves calculating the per capita daily water use by using the sum of performance standards applied to indoor residential use, landscaped area water use, and commercial, industrial, and institutional uses.
- **Method 3** calculates the water use target as 95% of the applicable state hydrologic region target as stated in the draft 20x2020 Water Conservation Plan.
- **Method 4** is an approach developed by DWR that uses a spreadsheet to calculate estimated water savings factors to estimate targets.

The City selected Method 1 for determining its 2015 Interim and 2020 Final urban water use targets during the preparation of its 2010 UWMP. This selection was made after reviewing the four alternative methods available. Rather than duplicating the evaluation for this plan update, the reader is directed to Appendix I of the City's 2010 UWMP for details, as the previous City adopted evaluation is still applicable and results in the same target method selection.

The City's 2015 UWMP reviewed and updated the 10-year and five-year Baseline Daily Per Capita Water Use and 2020 Target, included in Table 5-1. The continuous time period used in the 2015 UWMP for the 10-year baseline period is 1999–2008 and has an associated average daily per capita water use of 309 GPCD. The continuous time period that was used in the 2015 UWMP for the five-year target confirmation baseline period was 2003–2007, which has an associated average daily per capita water use of 304 GPCD. The confirmed 2020 target was established as a 20% reduction from the 10-year baseline per capita use and is 247 GPCD. Refer to Chapter 5 of the City's 2015 UWMP for more information on how the baselines and targets were developed.

5.2 2020 Compliance

The City's actual 2020 GPCD was used to determine if the City met its compliance target. The City's 2020 GPCD was calculated based on the 2020 population output of the DWR population tool (550,217 population) and the City's 2020 gross water use (121,993 AF) based on metered water production at each of the City SWTFs and municipal groundwater wells. Using these values, the City's 2020 per capita water use was 198 GPCD. Refer to Chapter 5 of the City's 2020 UWMP for more information on how the 2020 per capita water use was calculated.

As shown in Table 5-1, the City met its target GPCD in 2020, meaning the City's actual 2020 water use (198 GPCD) was below its maximum water use target (247 GPCD). Ongoing implementation of the City's conservation program, among other actions, will help the City prevent substantial increases to the current daily per capita water use going forward and stay in compliance with SB X7-7. In 2025, the City's per capita water use was 180 GPCD based on 114,649 AF of potable water use (Table 4-3) with a 568,964 population (Table 3-3), indicating the City remains below its 2020 water use target. The City is also planning to implement additional conservation as needed to meet their UWUO as required by State Regulations, discussed in Section 4.2.5.4.

Table 5-1. SB X7-7 2020 Target Progress (DWR Table 5-1)

2020 Target GPCD	2020 Actual GPCD	Did Supplier Achieve Target?
247	198	Yes

6 Water Supply Characterization

This section describes and quantifies the City's current and projected potable and non-potable water supplies. It provides a narrative description of each supply source and quantifies the supply availability for each supply source identified.

IN THIS SECTION

- Water Supply Characterization
- Future Water Project
- Energy Intensity

6.1 Water Supply Analysis Overview

The City relies on water from the following sources:

- Groundwater from the North Kings Subbasin
- Surface water from Central Valley Project (CVP), through a contract with the United States Bureau of Reclamation (USBR)
- Surface water from the Kings River, through a contract with Fresno Irrigation District (FID)
- Recycled water produced at the City's Regional Wastewater Reclamation Facility (RWRF) and North Fresno Wastewater Reclamation Facility (NFWRF).

Water production in the City consisted of 100% groundwater prior to the commissioning of the City's first surface water treatment facility (SWTF) in 2004. Since 2004, the City has invested in expanding its surface water treatment capabilities and now has three SWTFs that provide approximately half of all potable water demands in the service area.

This section provides a discussion of the City's existing and planned supplies through 2050. This section also discusses supply availability and reliability under normal supply conditions (normal water year), during a single dry year, and for a drought lasting five years. Reliability under these conditions is also discussed in Section 7.

6.2 Groundwater

The City overlies the Kings Subbasin, which is part of the greater San Joaquin Valley Groundwater Basin. The City is one of many water purveyors that use groundwater from the Kings Subbasin. The City has a network of over 250 municipal wells and currently operates 194 municipal supply wells within the Kings Subbasin. Until 2004, the City relied solely on groundwater to meet water demands. The City's desire is to continue to use groundwater within a larger conjunctive use program that maximizes its existing water rights and surface water supply sources.

6.2.1 Basin Description

DWR has partitioned the State into 10 major hydrologic regions (also referred to as "basins") and then further divided each basin into subbasins. The City is located in the Kings Subbasin (DWR Groundwater Subbasin Number 5-22.08) and lies within the larger San Joaquin Valley Groundwater Basin in the Central Valley of California. The Kings Subbasin covers approximately 1,530 square miles (sq mi).

6.2.1.1 Basin Location

The San Joaquin Valley Groundwater Basin is bounded to the north by the Sacramento-San Joaquin Delta and Sacramento Valley, to the east by the Sierra Nevada Mountains, 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 San Joaquin Valley Groundwater 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, to the south by the southern fork of the Kings River, and to the west by the Delta-Mendota and Westside Subbasins (DWR, 2006).

The Kings Subbasin is split into seven Groundwater Sustainability Agency (GSA) management areas, with Fresno located in the North Kings GSA. Figure 6-1 illustrates the location of the City within the Kings Subbasin.

6.2.1.2 Area Geology

The upper several hundred feet of geology within the Kings Subbasin generally consists of highly permeable, coarse-grained deposits, which are termed older alluvium. Figure 6-2 presents an idealized hydrogeologic cross-section that illustrates the general depth of various lithologic features within the Kings Subbasin, near the City.

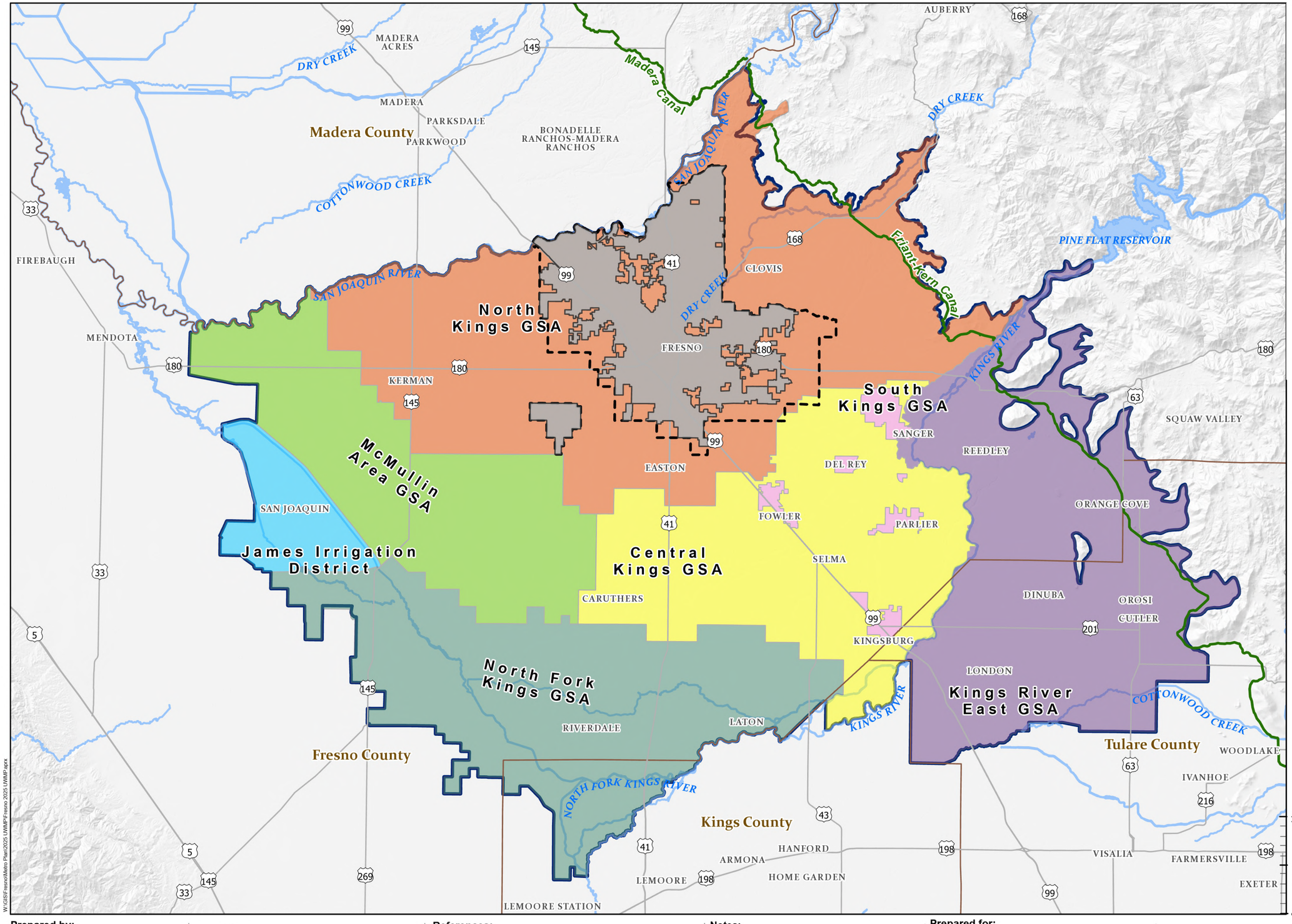
Coarse-grained stream channel deposits, associated with deposits by the ancestral San Joaquin and Kings Rivers, underlie much of northwest Fresno (Layer 3 and 4 in Figure 6-2). There is a laterally extensive clay layer, at an average depth of approximately 250 feet below the ground surface, beneath most of the south and southeastern portions of the City.

Below the older alluvium, to depths ranging about 600–1,200 feet below ground surface, the finer-grained sediments of the tertiary-quaternary continental deposits are typically encountered (Layer 5 in Figure 6-2). 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.

The aquifer beneath the City was characterized using data compiled during aquifer tests performed at the City's production wells. Aquifer test data (pump tests) were reviewed to evaluate specific capacity, which indicates the ability of a particular well to produce water. Figure 6-3 presents the estimated specific capacity of each active well from 2020 pump

test data. As shown in the figure, the northwestern and southwestern portions of the City have wells with higher specific capacities.



Legend

Groundwater Sustainability Agency

- Central Kings GSA
- James Irrigation District
- Kings River East GSA
- McMullin Area GSA
- North Fork Kings GSA
- North Kings GSA
- South Kings GSA
- Fresno City Limits
- Fresno Sphere of Influence
- Kings Groundwater Subbasin
- Major Watercourses
- Lakes and Reservoirs
- County Boundary
- Canal

San Joaquin Valley Groundwater Basin

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Prepared by: WSC

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References:

1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet
Projection: Lambert Conformal Conic
Datum North American 1983

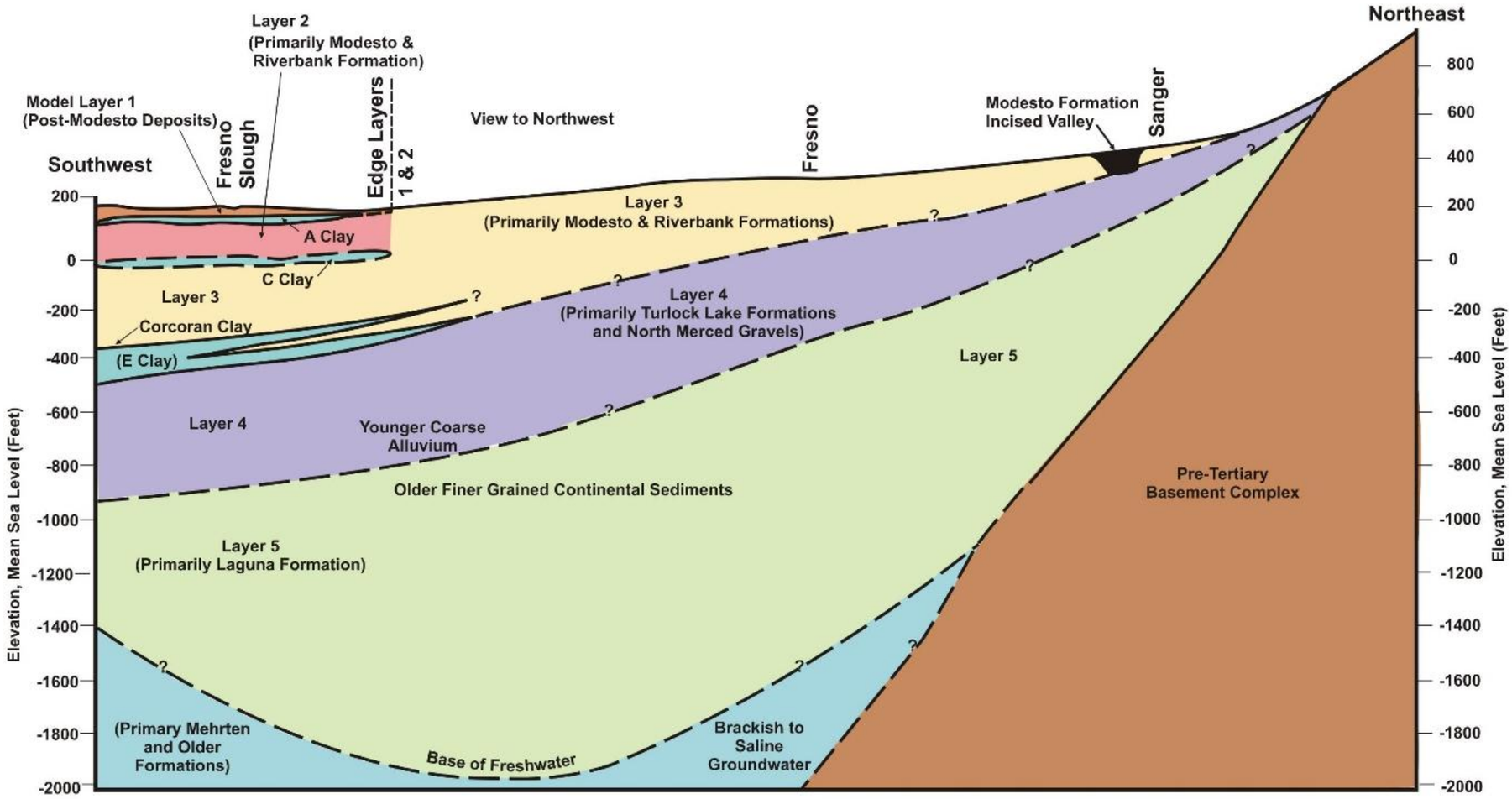
Notes:

Prepared for: City of Fresno Department of Public Utilities

City of Fresno
2025 Urban Water Management Plan

Figure 6-1. Kings Subbasin

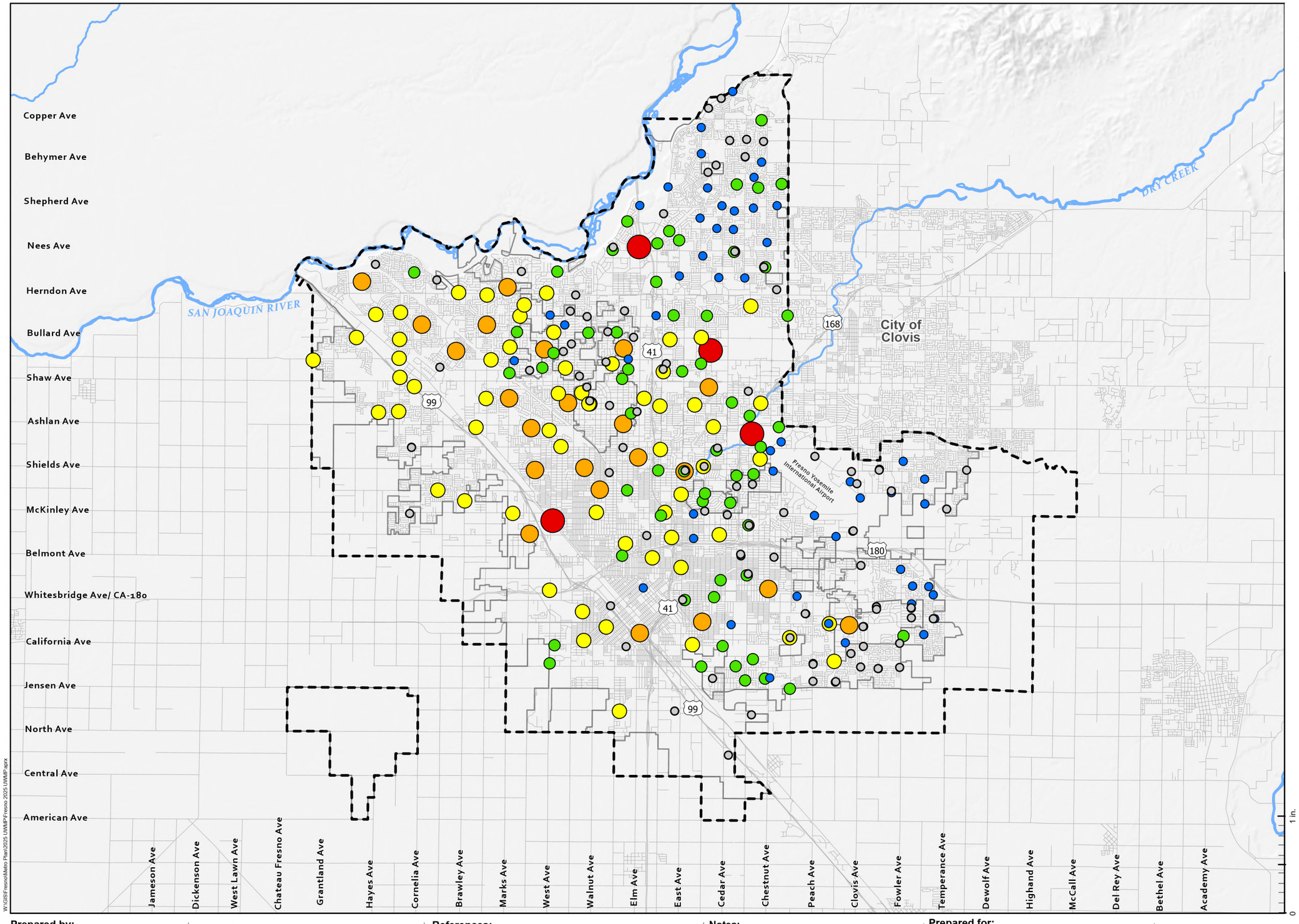
Figure 6-2. Kings Groundwater Subbasin Conceptual Hydrogeologic Cross Section, Southwest-Northeast



Primary Sources

Croft, 1969
Muir, 1977
Lettis, 1982
Page and LeBlanc, 1969
Cehrs, et. al. 1980
Wiseman. et. al: 2002b

Figure from *Kings Basin Integrated Hydrologic Modeling Hydrogeologic Investigation Technical Memorandum*, dated February 2006, prepared by Brown & Caldwell and Wrime.



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Well Specific Capacity (gpm/ft)

- Unknown
- < 20
- 20 - 50
- 50 - 100
- 100 - 200
- 200 - 450
- Fresno Sphere of Influence
- Fresno City Limits
- Streets

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Prepared by:

WSC

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References:

1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

Notes:

1. Well specific capacity was provided by the City and calculated using 2020 data.

Prepared for:

City of FRESNO Department of Public Utilities

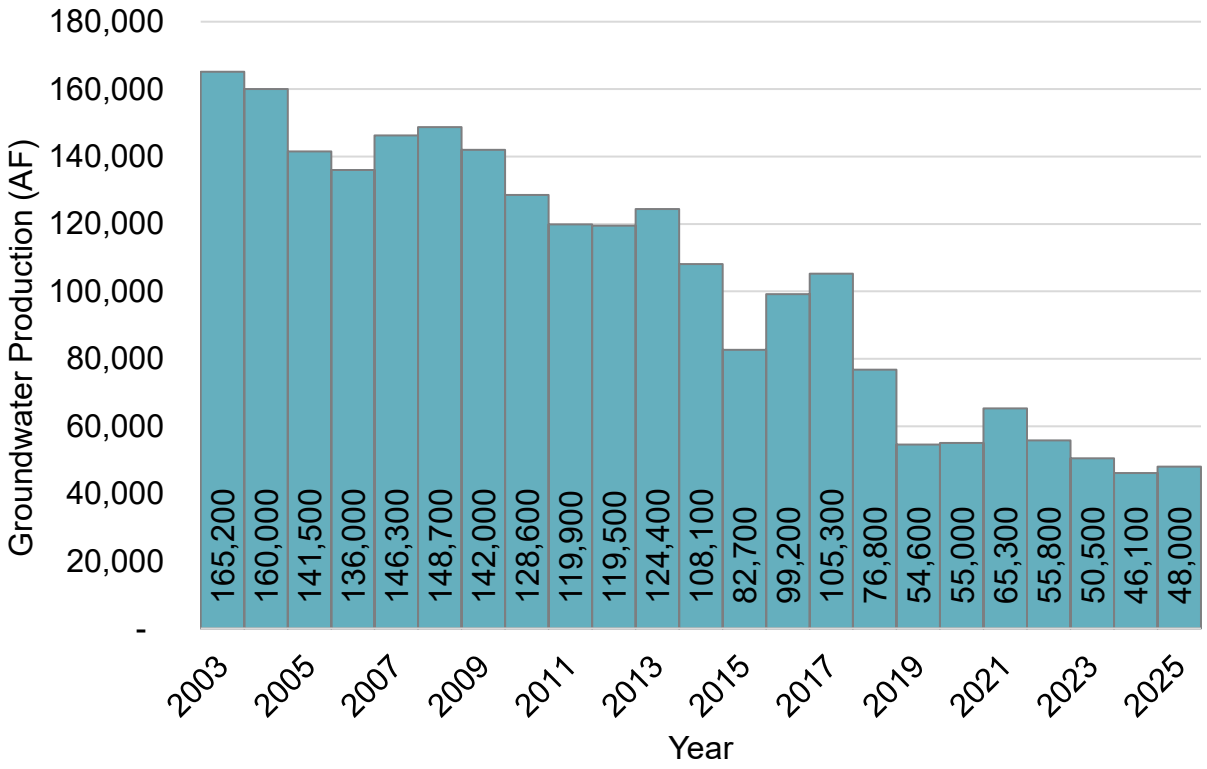
City of Fresno
2025 Urban Water Management Plan

Figure 6-3. Well Specific Capacity

6.2.2 Historic Groundwater Pumping

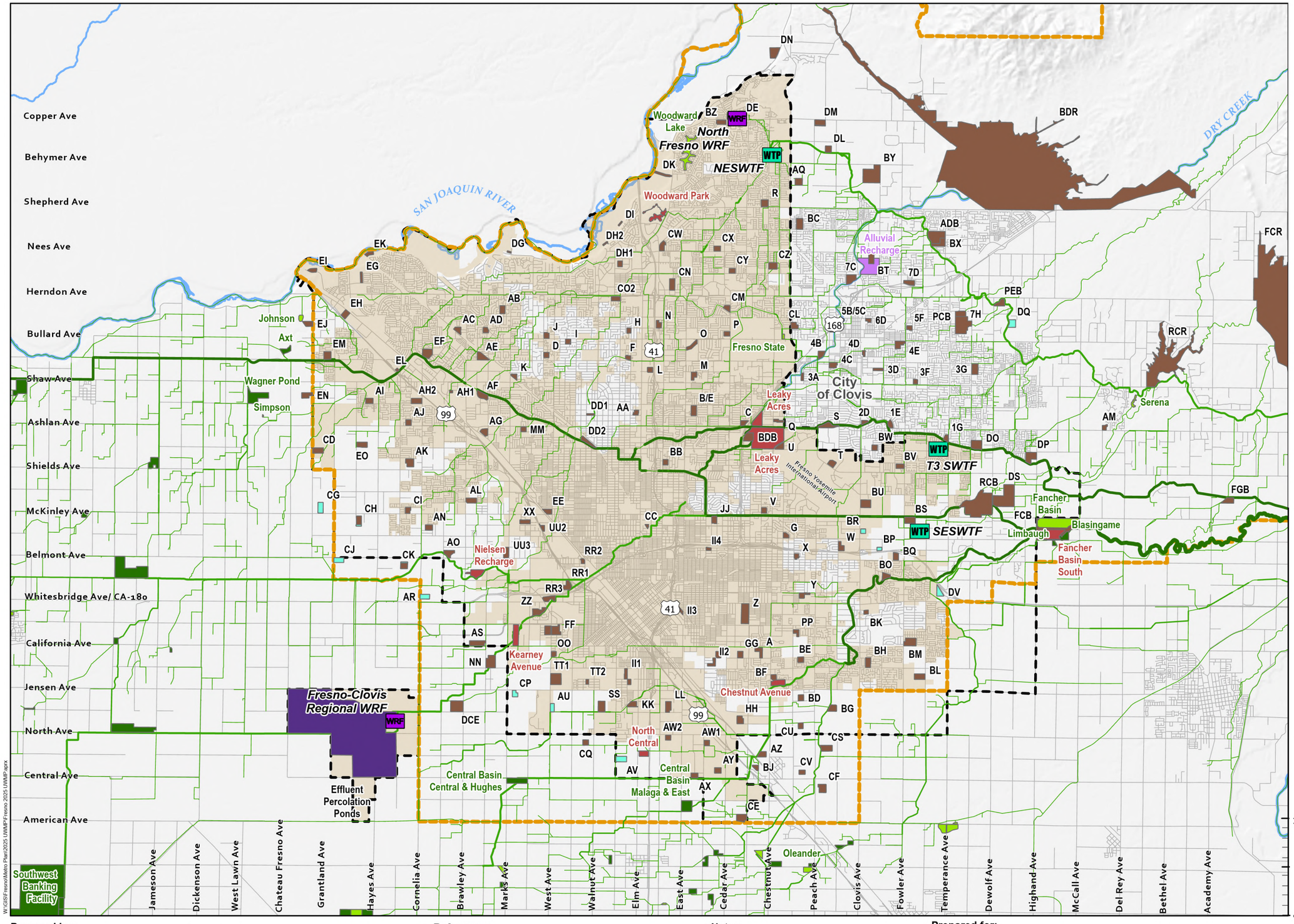
The City has historically relied on groundwater as its main supply source prior to the construction of its SWTFs. With the recent investments in surface water infrastructure, the City has been able to drastically reduce its groundwater pumping. Figure 6-4 shows the historic groundwater pumping since 2003. As shown, pumping has dropped significantly since 2003, the City's peak year for groundwater production.

Figure 6-4. Historic Groundwater Production



6.2.3 Groundwater Recharge

The City has long made efforts toward offsetting the decline of groundwater levels and minimizing overdraft conditions through an active intentional recharge program that started in 1971 (CH2MHill, 1992). Through cooperative agreements with FMFCD and FID, the City has access to not only City-owned basins, but also to basins owned by FMFCD and FID. Figure 6-5 shows active and proposed recharge basins as well as FID canals, which the City utilizes as part of groundwater recharge program. Flood control and recharge basins are used throughout the service area to recharge both stormwater and surface water.



Legend

Groundwater Recharge Basins

- FID Basin
- Privately Owned Basin
- City of Clovis Basin
- City of Fresno Basin
- RWRF Effluent Percolation Area
- FMFCD Basin
- FMFCD Proposed Basin
- FMFCD Boundary
- WRF Wastewater Reclamation Facility
- WTP Water Treatment Plant

FID Facilities by Capacity

- Less than 35 cfs
- 35 - 150 cfs
- 150 - 350 cfs
- 350 - 900 cfs
- 900 - 1500 cfs

- Fresno Sphere of Influence
- Fresno City Limits
- Streets

Recharge Basin Summary

Owner/ Operator	No. of Basins	Total Area (acres)
FID	25	2,900
Private Owner	8	300
City of Clovis	1	90
City of Fresno	11	450
City of Fresno RWRF	---	2,000
FMFCD (Existing)	166	8,500
FMFCD (Proposed)	12	140

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Prepared by: WSC

References:

1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

Notes:

Prepared for: City of Fresno Department of Public Utilities

City of Fresno
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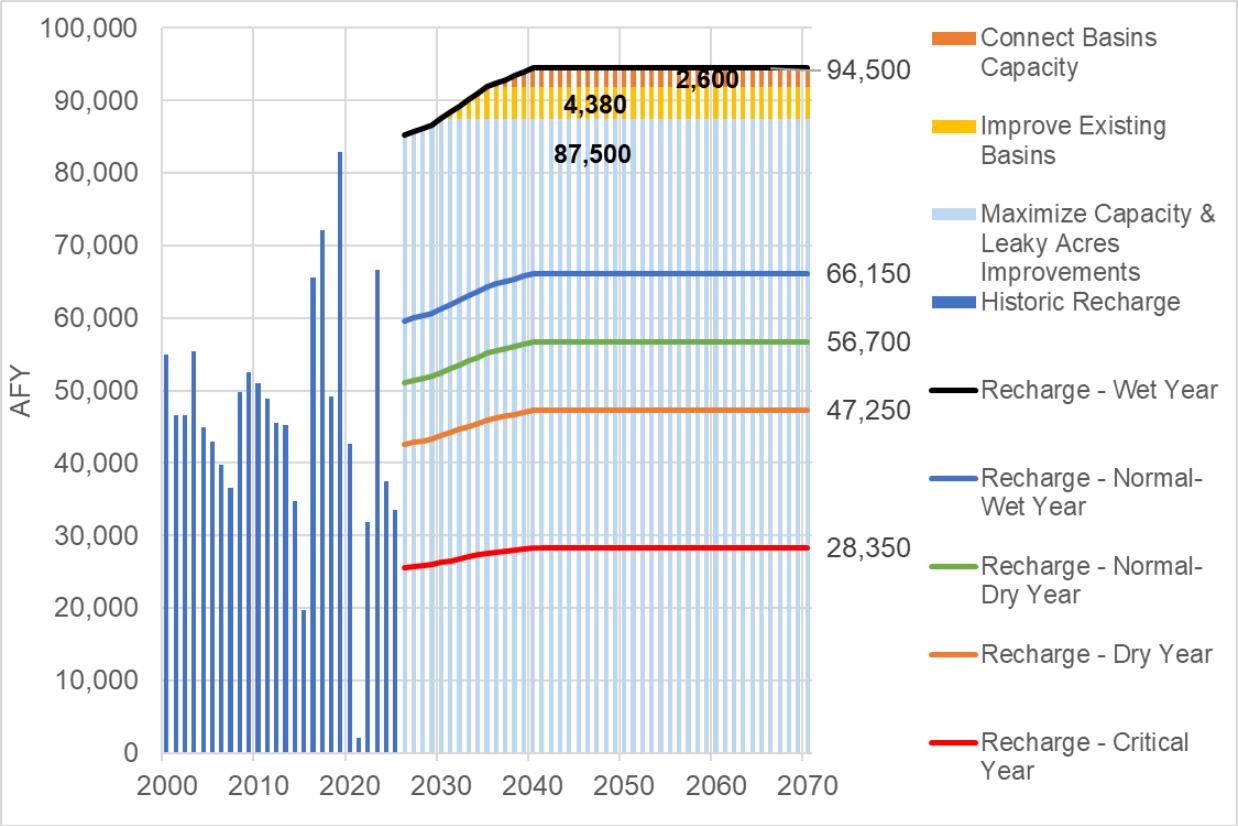
Figure 6-5. Groundwater Recharge System

As described in Section 4, the City plans to continue its groundwater recharge program to protect the groundwater basin. Figure 6-6 presents the volume of water the City has historically recharged along with recharge projections. The volume of water recharged varies each year depending on several factors, including basin availability, water delivery season, canals delivery capacity, pond maintenance, or length of wet seasons. Historically FID has had the capacity to deliver all the City's requested water for recharge during the irrigation season, until recent years when capacity constraints within FID's conveyance system and a shorter irrigation season limited delivery of City surface water for recharge. The City's ongoing Metro Plan update will further explore these constraints and will include recommendations to maximize the City's recharge potential.

The City intends to maximize recharge every year, and gradually increase recharge through proactive basin maintenance, improvements to City owned basins, connecting more basins to FID's conveyance system, and improved coordination with FMFCD and FID for recharge operations. The projected maximum volume of water the City could recharge based on hydrologic year type[1] is presented in Figure 6-6. As described in Section 4.2.5.3, the normal year groundwater recharge is based on the normal-wet year projected recharge volume but the actual volume recharged each year will be based on the available surface water supplies combined with available basin capacity and other factors. Recharge will be higher in wet years to build additional groundwater storage for dry years when recharge will be less than the projected normal year average.

[1] Year types align with the 2006 San Joaquin River Restoration Settlement Agreement six hydrologic year types described in Section 6.3.1.

Figure 6-6. Historic Recharge and Projected Maximum Recharge Potential



6.2.4 Groundwater Management

In 2014, the Sustainable Groundwater Management Act (SGMA) was passed and is codified in CWC Section 10720 et seq. This legislation created a statutory framework for groundwater management in California that can be sustained during the planning and implementation horizon without causing undesirable results. SGMA requires governments and water agencies of "critically overdrafted" basins to reach sustainability by 2040. The Kings Subbasin was designated a high priority, critically overdrafted basin and the North Kings GSA is working within the SGMA framework to reach groundwater sustainability.

The City was a founding member of the North Kings GSA, which consists of the following public agencies and participating agencies:

- Fresno Irrigation District (member)
- City of Fresno (member)
- City of Clovis (member)
- City of Kerman (member)
- County of Fresno (member)

- Bakman Water Company (participating agency)
- Biola Community Services District (member)
- Garfield Water District (member)
- International Water District (member)
- Fresno Metropolitan Flood Control District (participating agency)

The Kings Subbasin contains seven GSAs, including the North Kings GSA, as listed below and shown in Figure 6-1:

- Central GSA
- James Irrigation District GSA
- Kings River East GSA
- McMullin Area GSA
- North Kings GSA
- North Fork Kings GSA
- South Kings GSA

The seven GSAs operate cooperatively across the basin via a coordination agreement that ensures common approaches to sustainability items such as similarity of data usage and methodologies, consistent interpretations of the basin setting, and common assumptions and development of water budgets, monitoring networks, sustainable management criteria and data management systems.

The North Kings GSA prepared and submitted its Groundwater Sustainability Plan (GSP) in January 2020 and resubmitted a revised GSP in July 2022 addressing DWR's comments (Provost & Pritchard, 2022). DWR approved all seven Kings Basin GSPs with corrective actions, including the North Kings GSP, in August 2023. This was a significant milestone indicating the North Kings GSA can continue to locally carry out sustainability efforts. The North Kings GSA updated its GSP to incorporate DWR's correction actions, which was resubmitted to DWR in January 2025 (Provost & Pritchard, 2025), enabling the GSA to maintain the approval granted by DWR in 2023 and proceed with implementing SGMA at a local level.

As required by SGMA, the North Kings considers six sustainability indicators:

- Chronic lowering of groundwater levels indicating significant and unreasonable depletion of supply
- Significant and unreasonable reduction of groundwater storage
- Significant and unreasonable seawater intrusion
- Significant and unreasonable degraded water quality
- Significant and unreasonable land subsidence

- Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water

Each indicator has an identified undesirable result, measurable objective, and minimum threshold. The measurable objective and minimum threshold allow the North Kings GSA to evaluate progress for the subject indicator and determine if conditions are improving, remaining stable, or degrading. The sustainability indicators of primary concern within the City are groundwater levels, groundwater storage, and groundwater quality. A link to the 2025 GSP is provided in Appendix E\ of this UWMP.

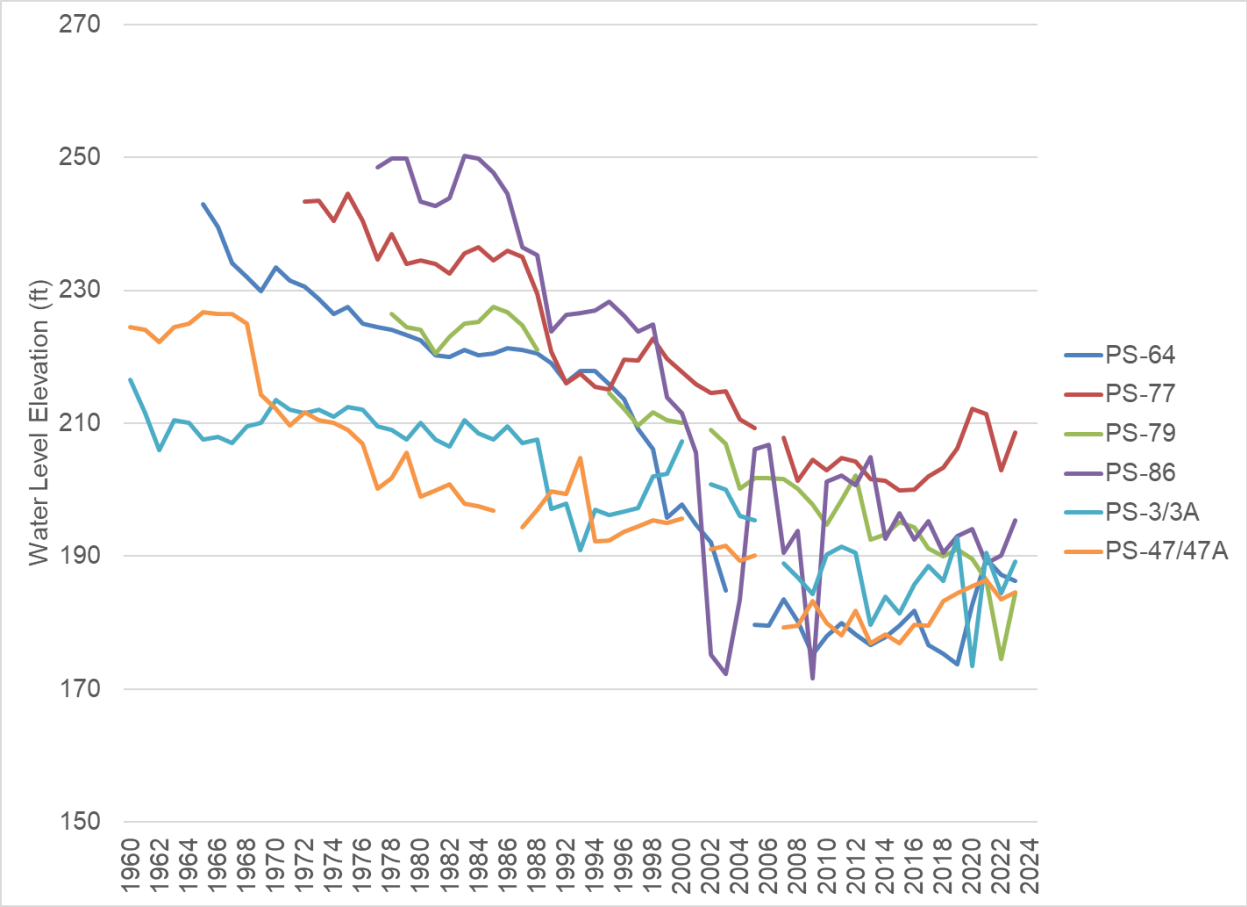
6.2.5 Overdraft Conditions

SGMA directs DWR to identify groundwater basins and subbasins in conditions of critical overdraft. As defined by SGMA, "A basin is subject to critical overdraft when continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts." As mentioned, DWR classifies the Kings Basin as being in a state of critical overdraft, and the future of the groundwater basin has been projected to see continued overdraft conditions.

The Kings Subbasin groundwater aquifer supplies the City, other municipalities, agriculture, and rural residential areas with a consistent source of water. Like much of the Kings Subbasin, groundwater levels beneath the City were relatively shallow at 25 feet below ground surface in 1940, prior to the start of World War II (Fresno City Water, Engineering Department, 1940). After the war, the State, including the City, began growing at a rapid rate. For the period from 1959 to 1968 it was reported groundwater levels declined at a rate of 2.8 feet per year (John Carollo Engineers, 1969). The City continued to rely on the groundwater aquifer for decades, monitoring groundwater levels continuously. Groundwater levels since 1990 declined at a lower rate than previously. Rates of decline slowed further starting in 2004 when the NESWTF started operations and the City renewed focus on increasing groundwater recharge. Since 2019, following startup of the SESWTF in late 2018, surface water has accounted for more than half of the total water supply in the City. With the reduced pumping due to higher reliance of surface water, the groundwater levels have begun to increase in certain areas of the City in the last few years. Figure 6-7 provides a depiction of the City's depth to groundwater for six representative wells across the City service area since 1960.

The City expects to continue to operate its three SWTFs and pump groundwater at a lower rate than historically so that the groundwater basin can recover. One of the primary objectives for the City as described in its current Metro Plan is to maximize the use of available surface water treatment supplies to reduce overall reliance on groundwater.

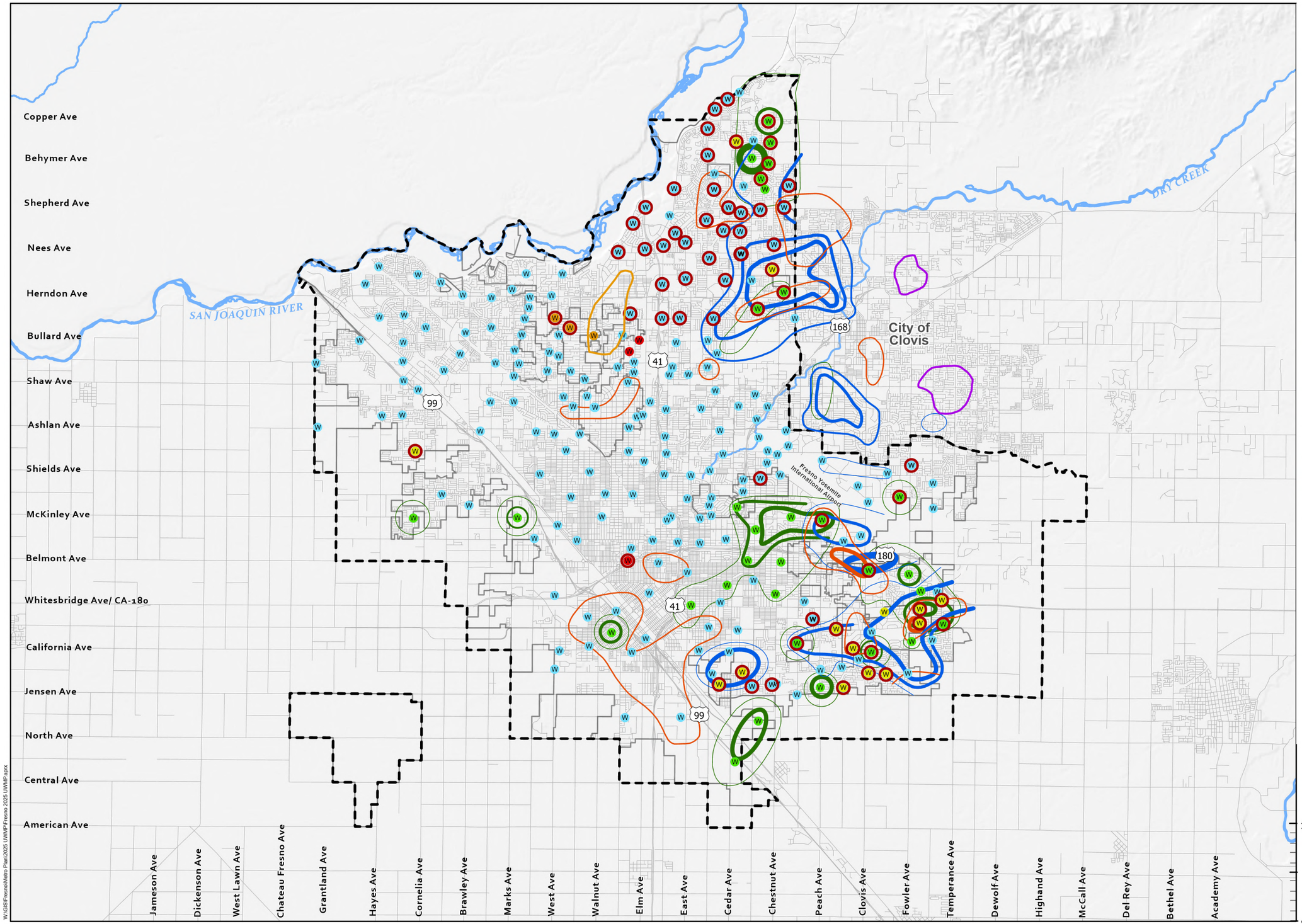
Figure 6-7. Time Series of Groundwater Levels at Representative Wells



6.2.6 Groundwater Quality

Groundwater within the North Kings Subbasin generally meets primary and secondary drinking water standards for municipal water use and is described as being bicarbonate type water, including calcium, magnesium, and sodium as the dominant ions (DWR, 2006). Total dissolved solids (TDS) concentrations rarely exceed 600 mg/L and range from 200 to 700 mg/L (DWR, 2006). However, the groundwater basin has been impacted by chemical contaminants, to which the City has responded by installing wellhead treatment in certain areas to continue fully utilizing the groundwater basin resources.

Figure 6-8 presents the general location of regional plumes and certain point sources within the City. The primary contaminants in the basin are nitrate, manufactured chemicals 1,2-dibromo-3-chloropropane (DBCP), 1,2,3-trichloropropane (1,2,3-TCP), trichloroethylene (TCE), and perchloroethylene (PCE).



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Nitrate-Nitrogen Contamination and Concentration

- 5 mg/L
- 10 mg/L

DBCP Contamination and Concentration

- 0.01 ppb
- 0.02 ppb
- 0.05 ppb
- 0.1 ppb
- 0.2 ppb

1,2,3-TCP Contamination and Concentration

- 5 ppt
- 10 ppt
- 20 ppt
- 50 ppt
- 100 ppt

Other Plumes

- TCE Plume
- EDB Plume (old)

Well Pumped to Control Contaminant Plumes

- DBCP
- PCE
- TCE
- TCP
- No Minimum Pumping
- Well Head Treatment
- Fresno Sphere of Influence
- Fresno City Limits
- Streets

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Prepared by: WSC

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References:

1. Coordinate System: NAD 1983 StatePlane California IV FIPS 0404 Feet
Projection: Lambert Conformal Conic
Datum: North American 1983

Notes:

1.Wells updated as of April 2026. Some wells share treatment and convey water via a raw water pipeline to another well's treatment site. Wellhead treatment types includes activated carbon for VOC/SOCs, air stripping for VOCs, blending, degassing tank, corrosion control treatment, H2S odor control, and manganese treatment, or a combination of such.
2. Plumes were updated as of July 2021.

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2025 Urban Water Management Plan

Figure 6-8. Regional Groundwater Contamination

The City has received settlements in lawsuits related to these contaminants and has constructed wellhead treatment systems and implemented blending plans for certain wells.

Approximately 39 City wells are being treated for these contaminants and an additional 20 wells include treatment for iron, manganese, and hydrogen sulfide removal or corrosion control.

As shown in the figure, most groundwater contamination occurs in the northeast portion of the City. Over 90 active wells are impacted by at least one contaminant, while some wells are impacted by multiple contaminants (overlapping plumes on the figure). The City also manages contamination by pumping specific wells to control contaminant plumes.

6.2.7 Estimated Groundwater Yield

6.2.7.1 Previous UWMP Projection

Previous UWMPs relied on information from a hydrologic groundwater and surface water model that was prepared for the Upper Kings Basin Integrated Regional Water Management Authority to estimate the City's groundwater yield. The City contributed additional funding to the effort so the model would be more refined for its service area and capable of assisting in the development of the City's previous Metro Plan. The Kings Basin Integrated Groundwater and Surface Water Model (IGSM) was completed in 2007 and provided outputs specific to the City SOI (WRIME, 2007). The IGSM was developed and calibrated utilizing data for the period of 1964–2004. Building off the calibrated IGSM, additional modeling was conducted in 2008 to evaluate the City's proposed water supply plan and its ability to attain the balanced use of groundwater by the buildout year of 2025. The estimated groundwater yield projection within the City's SOI based on the IGSM is presented in Table 6-1. The projections consist of:

- **Natural Recharge:** Based on estimated deep percolation from rainfall and irrigation-applied water, which will increase as the City's service area increases but is offset by decreased irrigation with increased urbanization.
- **Net Subsurface Inflow:** Representing inflows from adjacent areas into groundwater underneath the City's service area, which is projected to increase through build out based on the IGSM modeled conditions and results, which may not be representative of current and future conditions.
- **Intentional Groundwater Recharge:** Refer to Section 6.2.3 for a discussion of intentional groundwater recharge projections.

Table 6-1. Groundwater Yield Projection based on King's Basin IGSM (AFY)

	2030	2035	2040	2045	2050	2056
Natural Recharge[1]	25,910	26,200	26,490	26,790	26,890	27,000
Net Subsurface Inflow[1]	52,320	54,720	57,120	59,530	61,930	64,800
Total	**78,230**	**80,920**	**83,610**	**86,320**	**88,820**	**91,800**
Intentional Recharge[2]	61,300	64,300	66,100	66,200	66,200	66,200
Total with Recharge	**139,530**	**145,220**	**149,710**	**152,520**	**155,020**	**158,000**

Note:

1. Based on the Kings Basin IGSM and projected City land growth to its SOI.
2. Based on Normal-Wet hydrologic year type. Refer to Section 6.2.3 for projection basis.

6.2.7.2 Water Budgets

Since development of the IGSM, the City has reduced groundwater pumping substantially but has not observed groundwater level increases that would be expected based on the IGSM model. Groundwater levels in some areas of the City have been increasing since the SESWTF came online in 2018 and groundwater levels are expected to continue to rise as surface water is predominantly used to meet demands. Currently, groundwater levels under the City create a gradient that draws underflow from the San Joaquin River and, in some sections, from surrounding areas. As groundwater levels rise due to reduced pumping and demands are met by the SWTFs, subsurface inflows are expected to decrease. However, projecting the change in net inflows is difficult because historic groundwater basin behavior when groundwater levels are low and/or declining may not be representative for future conditions when groundwater levels are higher and/or rising.

To develop a preliminary estimate of existing net inflows for the Metro Plan Update, a groundwater budget was developed for the City based on 2019 data to represent current conditions during a "normal" hydrologic year type. A detailed description of the 2019 groundwater budget is included in Appendix F, and is summarized below in Table 6-2.

Table 6-2. Representative Year (2019) Water Budget (AFY)

Item	Volume (AFY)
INPUT	
Surface Water for City Public Supply	74,200
Surface Water for Intentional Recharge	61,600
Surface Water to CSUF Farms	1,550
Urban Storm Water Runoff Recharge	11,200
Groundwater Inflow	29,100
Canal Seepage	10,000
Recycled Water	340
Rural Canal Seepage	11,550
SUBTOTAL	**199,540**
OUTPUT	
Sewage Export	63,600
Residential Consumptive Use	50,100
Other Consumptive Use	9,750
Groundwater Outflow	7,650
Rural Crop Consumption	30,250
SUBTOTAL	**161,350**
CHANGE IN STORAGE	
Change in Storage from Water Budget	38,190
Change in Storage from Water Level Change	41,100
AVERAGE CHANGE IN STORAGE	**39,650**

Source: Refer to Appendix F.
Note: All values are rounded to the nearest tenth.

For the water budget, sources of water inputs include:

- Historic surface water delivered to the City for treatment and potable use and for intentional recharge, and to irrigated lands. The metered surface water delivered to the treatment plants and Fresno State Farms is used, and surface water used for intentional recharge is based on the FID's estimated recharge volume delivered to each recharge basin.
- Recharge of urban storm runoff in basins was estimated using annual rainfall data and the total acreage of residential, commercial, and industrial land uses by quadrant, multiplied by 0.15 runoff coefficient.

- The groundwater inflow includes San Joaquin River seepage estimates and inflow estimates around the City and quadrant boundaries using annual measured groundwater levels and flow gradients.
- Canal seepage was estimated using canal length and lining statues by quadrant in the SOI, along with estimated canal flowrates. The volumes for the urban and rural are accounted separately.
- Historic recycled water used within the City's urban areas.

For the water budget, sources of water output include:

- Historic sewage exports based on wastewater flows by quadrant developed using land use data, sewer flow factors by land use type, and the total wastewater flow generated in the City.
- Consumptive use was developed for residential use, other uses in the urban area, and for rural crop use:
    - Residential consumptive use was developed using water delivered by quadrant and subtracting out the wastewater flows to estimate outdoor water use. This volume was multiplied by 0.7 to reflect an average irrigation efficiency of 70%.
    - Other consumptive uses include golf courses, parks, cemeteries and schools that use their own irrigation well. The consumptive use was estimated by quadrant using the acreage of each identified site and the estimated irrigation volume incorporating an average irrigation efficiency of 70%.
    - Rural crop consumptive use was estimated similar to the irrigable lands above with considerations of crop type and water usage.
- Groundwater outflows are estimated at the City and quadrant boundaries using annual measured groundwater levels and flow gradients.

The difference between the inputs and outputs in Table 6-2 were used to calculate the change in groundwater storage for the water budget and are compared to the estimated change in storage using actual water-level changes for 2019. The 2019 water budget estimates a net groundwater inflow of 22,450 AF based on groundwater inflow of 29,000 AF and groundwater outflow of 7,650 AF.

6.2.7.3 Groundwater Projection

Groundwater levels in some areas of the City have been increasing since the SESWTF came online in late 2018 and groundwater levels are expected to continue to rise as surface water is predominantly used to meet demands. Currently, groundwater levels under the City create a gradient that draws underflow from the San Joaquin River and, in

some areas, from surrounding areas. As groundwater levels rise due to reduced pumping and demands are met by the SWTFs, subsurface inflows are expected to decrease. However, projecting the change in net inflows is difficult because historic groundwater basin behavior when groundwater levels are low and/or declining may not be representative for future conditions when groundwater levels are higher and/or rising.

The groundwater projection used in this UWMP is included in Table 6-3 and is based on the 2019 groundwater budget estimates, summarized in Section 6.2.7.2 and detailed in Appendix F, to represent current groundwater conditions. The 2019 groundwater budget estimated 22,500 AFY of total net subsurface inflows, which is a significant decrease from the 2007 groundwater modeling, described in Section 6.2.7.1. The likely cause is reduced groundwater pumping causing rising groundwater levels. Natural recharge was not explicitly included in this projection so about 26,000 AFY was assumed based on the 2014 IGSM modeling for a total groundwater yield of 48,500 AFY.

The groundwater projection also includes projected normal groundwater recharge, discussed in Section 6.2.3. However, during wet years the City will recharge more water when it is available to allow to the City to draw on additional groundwater during dry years when surface water is not available. Intentional recharge is included in both demand projections as well as contributing to the estimated groundwater projection.

As groundwater levels rise in the City due to less groundwater production than historical use, the City is building local groundwater storage for use during dry periods to meet its customers' demands. A groundwater storage evaluation will be included in the City's Metro Plan Update.

Table 6-3. Groundwater Projection for Normal Years (AFY)

	2030	2035	2040	2045	2050
Natural Recharge[1]	25,910	26,200	26,490	26,790	26,890
Net Subsurface Inflow[2]	22,500	22,500	22,500	22,500	22,500
Total	**48,410**	**48,700**	**48,990**	**49,290**	**49,390**
Intentional Recharge[3]	61,300	64,300	66,100	66,200	66,200
Total with Recharge	**109,710**	**113,000**	**115,090**	**115,490**	**115,590**

Notes:

1. Based on Kings Basin IGSM and projected City land growth (Table 6-1).
2. Based on 2019 water budget estimated subsurface inflow, described in Section 6.2.7.2 and Appendix F.
3. Projected normal year intentional recharge from Section 6.2.3.

6.3 Surface Water

With the completion and operation of the SESWTF, surface water is now a primary water supply used to meet potable demands within the City. The City contracts with FID for Kings River water and with the USBR for CVP water from the Friant-Kern Canal. The surface water supply is used either for potable uses through treatment and distribution or delivery to recharge basins for groundwater recharge.

The Kings River water year (WY) is October through September while USBR uses a WY of March through February. The City has historically used a calendar year (CY) for its analysis, so monthly water supply information was compiled in CY format for this report.

6.3.1 USBR Friant Division Contract Supply

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

Construction of Friant Dam was completed in 1947 and began making diversions to the Friant-Kern Canal in 1949. Full operations of the CVP Friant Division did not commence until the Madera Canal was completed in 1951. Class 1 water was intended to be a supply that would be dependable in practically every year, regardless of the type of hydrologic WY. Class 2 water is essentially excess water available as determined by USBR and less reliable than Class 1 water.

Class 1 water has historically been very reliable until the 2006 San Joaquin River Restoration Settlement Agreement between the Departments of the Interior and Commerce, the Natural Resources Defense Council, and the Friant Water Users Authority (which is now the Friant Water Authority). The City is a member of the Friant Water Authority. The Settlement ended an 18-year legal dispute over the operation of Friant Dam brought by a coalition of conservation and fishing groups. The agreement characterized Class 1 deliveries by six hydrologic year types based on a recurrence over an 82-year simulation (1922–2003): wet, normal-wet, normal-dry, dry, critical-high, critical-low. The projected surface water available for the City from USBR during each hydrologic year defined by the 2006 Settlement Agreement is summarized in Table 6-4. As shown in the table, the average simulated delivery is 53,680 AFY and the median simulated delivery, which is similar to normal year delivery, is 60,000 AFY. The median

value is higher than the average value because a 100% allocation of 60,000 AF is simulated in 50 of 82 years, but the dry and critical years result in substantial reductions which bring down the average allocation.

Table 6-4. Available USBR Simulated Allocation (1922-2003)

Water Year Type	% of Years Over Simulation Period of Deliveries[1]	Range of Allocation to City (AF)	Average Allocation to City (AF)
Wet	Highest 20%	60,000	60,000
Normal-Wet	50% to 80%	60,000	60,000
Normal-Dry	20% to 50%	47,500 to 60,000	57,060
Dry	5% to 20%	28,100 to 46,800	36,575
Critical[2]	Lowest 5%	13,900 to 24,700	19,025
	Total	**Average**	**53,680**
		Median	**60,000**

Source: 2006 Settlement Agreement

Notes:

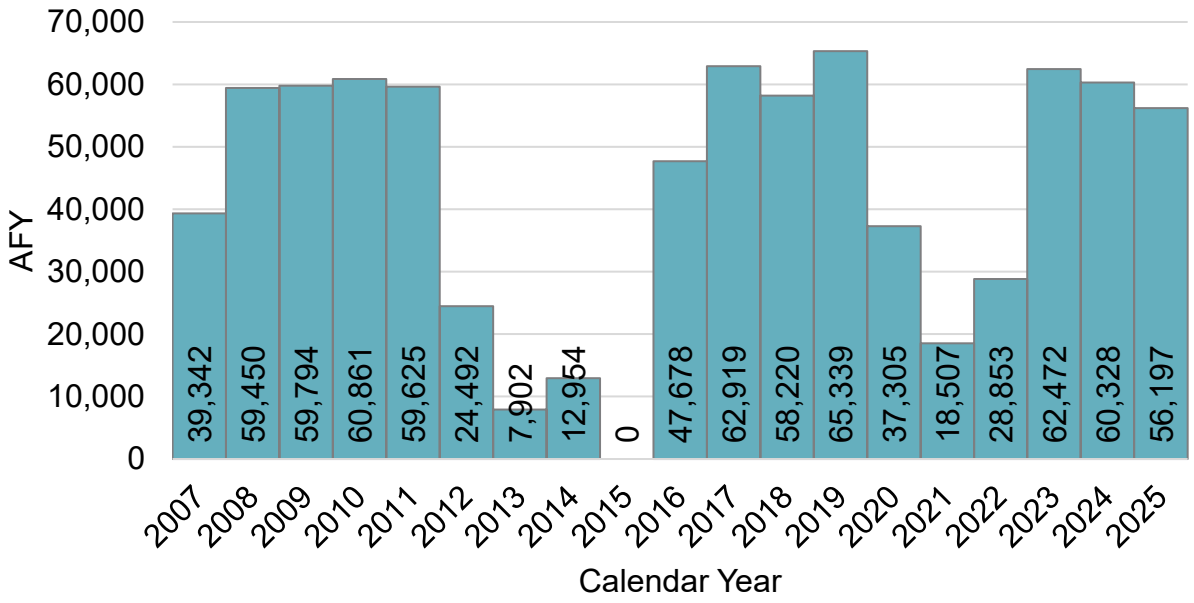
1. As defined in 2006 Settlement Agreement
2. Includes both critical-high and critical-low, which are differentiated by the amount of unimpaired runoff. The simulation uses deliveries through 2006 and does not include the zero allocation years in 2014 and 2015.

The Settlement Agreement estimates the reduced supply available to the City compared to historic supplies, with the impacts most evident in dry years. Restrictions on exports from the Delta have hindered the USBR from making deliveries to the Exchange Contractors via the Delta-Mendota Canal. The Exchange Contractors allowed the formation of the CVP Friant Division by agreeing to not exercise their historic pre-1914 water rights to the San Joaquin and Kings Rivers if guaranteed water deliveries continued through the Delta-Mendota Canal or other facilities. If USBR is unable to deliver water to the Exchange Contractors, they have the right to receive their water from the San Joaquin River, which reduces the Class 1 water availability (History of SJRECWA Exchange Contractors, n.d.).

Reduced deliveries from the Delta to the Exchange Contractors resulted in the CVP Friant Division contractors with zero allocations of Class 1 water in USBR WY 2014 and 2015, though the City received USBR deliveries in CY 2014 (prior to the USBR WY starting in March). Annual USBR deliveries since 2007 are shown in Figure 6-9 for CY. The

availability and reliability of the City's surface water supplies through its USBR contract are discussed further in Section 6.7.

Figure 6-9. USBR Deliveries to City Since 2007



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

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

6.3.2 Fresno Irrigation District Supply

FID is one of 28 agencies that receives an entitlement of water from the Kings River through the Kings River Water Association. Water entitlements for Kings River Water Association contract members is determined based on a methodology that was initially developed in 1917–1919 to established entitlements for early claimed rights holders. The methodology was based on historic mean daily natural flow conditions at Piedra, which is approximately three miles downstream from the then yet to be built Pine Flat Dam and "at the heart of Kings River uses, regulation, and stream control and storage" (Kings River Water Association and Kings River Conservation District, 2003).

In 2016, the Revised, Amended, and Restated Cooperative Agreement was executed between FID and the City for Water Utilization and Conveyance (2016 FID Agreement) (Appendix H). The 2016 FID Agreement replaces the 1976 Cooperative Agreement and ends in 2035. The Agreement identifies the City's contracted percentage of FID's Kings River water based on the City's water service area located within FID service area as a percentage of the FID land area. FID land area varies slightly every year because it is dependent on the acreage receiving water deliveries for that year rather than the total acreage within FID (roughly 200,000 acres). As the City incorporates new land area into its service area, the percentage of FID supply increases. However, the 2016 FID Agreement sets the maximum percentage as 29.0%, although the City's service area is anticipated to expand and encompass more than 29.0% of FID's service area after 2030. In 2025, the City's percentage of overall FID Kings deliveries was approximately 26%. The FID Agreement identifies that the 29.0% maximum was based on moderate growth in Growth Area 1 of the City's SOI (shown in Exhibit C in the 2016 Agreement). As such, the supply projections in this plan limit the City's FID supply with the 29.0% cap, but if the agreement were revised in the future the City's FID allocation percentage could grow beyond 29.0% as the water service area expands.

The City has historically not used all of its available allocation in any given year, although it pays a flat rate for its total allocation regardless of use. Water unused by the City is reallocated by FID to its other customers.

The City's potential supply from FID was summarized using actual Kings River deliveries for CYs 1964–2025, then categorized by the same WY types used for the USBR Friant supply. The range and average FID deliveries by WY type is shown in Table 6-5. The average of delivery totals of FID Kings River deliveries is 452,541 AF, which equates to an average potential City supply of about 131,600 AF, assuming the maximum 29.0% City supply percentage. Based on the City land use growth projections used to develop the City's demand projections presented in Table 4-6, the City is expected to be at the 29.0% cap by 2030.

Table 6-5. FID Diversions by Water Year Type

Water Year Type[1]	Total FID Deliveries (AF)[2]		City's Kings River Allocation at 29% Cap
	Range	Average	
Wet	563,500 to 644,600	590,679	171,300
Normal-Wet	452,800 to 563,500	513,680	149,000
Normal-Dry	362,600 to 448,000	415,000	120,400
Dry	253,700 to 362,000	315,674	91,500
Critical	158,100 to 253,300	210,195	61,000
Average		**452,541**	**131,600**

Notes:

1. As defined in 2006 Settlement Agreement
2. Assigned water year type defined in defined in 2006 Settlement Agreement to FID deliveries from 1964 to 2025

6.4 Stormwater

The Fresno-Clovis Metropolitan Area and surrounding rural vicinities are within the service area boundaries of the FMFCD, which has primary responsibility for managing the local stormwater flows. Most stormwater in the City drains to urban stormwater basins, where the water is retained to attenuate peak flow runoff and recharge stormwater, or is pumped to local irrigation canals for conveyance away from the municipal areas. FMFCD's operation of stormwater basins is predicated on maintaining storage capacity for rain events, which limits accessibility for recharge activities during the rainy season. FMFCD estimates the amount of stormwater that is recharged each wet season. However, recharge attained with the FMFCD basins largely occurs in May through October when limited storage capacity is required. Dry-season recharge is accomplished by diverting surface waters, from the Kings River and Millerton Reservoir, using City-allocated surface water. It is difficult to estimate stormwater recharge volumes as there is no physical measurement of stormwater flows into the basins, and infiltration rates can vary with water elevation and degree of siltation in the basin. However, FMFCD estimates that stormwater recharge in urban basins during the winter months may range from 7,000 AFY to 22,200 AFY. Stormwater capture and infiltration are considered an integral component of natural groundwater recharge discussed in Section 6.2.7.

6.5 Wastewater and Recycled Water

6.5.1 Recycled Water Coordination

The City owns and operates two water reclamation facilities: 1) the Fresno-Clovis Regional Wastewater Reclamation Facility (RWRF) and 2) the North Fresno Wastewater Reclamation Facility (NFWRF), both of which can produce Title 22 recycled water (recycled water that meets California regulatory reuse standards) for use within the City's service area. They are described further in Section 6.5.3.

Recycled water coordination with other water agencies and potential consumers within the planning area is inherently within the purview of the City's Department of Public Utilities (DPU) as this department provides both water and wastewater services. DPU has been on the forefront of numerous water supply preservation, enhancement, and development projects and programs for decades. The concept of multiagency coordination is fully embraced by the department as is evident with the previously discussed joint agency agreements and the commitment to construct new infrastructure to further develop new resources. The endeavor to develop recycled water as a resource was a feature of a development in north Fresno.

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

The City owned RWRF serves the City as well as a portion of the City of Clovis, Pinedale, and areas of Fresno County outside of City limits. Other wastewater collection agencies within and adjacent to the City include:

- **City of Clovis**: The RWRF was developed under a Joint Powers Authority agreement executed in 1977 among the City of Fresno, the City of Clovis, and the County of Fresno. Both of the cities contribute to the cost of operations, maintenance, and capital expenditures for the RWRF based on formulas in the agreement. Clovis maintains rights and capacity to discharge up to 9.3 mgd to the RWRF, which provides service for most of the Clovis' sewer flows.

  The City of Clovis also completed construction of its own wastewater treatment facility in 2009 that serves a portion of Clovis and produces tertiary level effluent that is distributed in a dedicated purple pipe system within portions of its service area.
- **The County of Fresno** is a party to the RWRF Joint Powers Authority for treatment of flows from unincorporated areas encompassed by the City's service area.
- **Malaga County Water District** provides water and sewer service to an unincorporated county area of about 2.25 sq mi, which covers a small portion of the

City's SOI. The district provides wastewater collection and treatment for residential and non-residential customers.

- **Pinedale County Water District** provides water, sewer, and solid waste service to an area of about 2 sq mi, which covers an unincorporated County island and a portion of the City. The district provides wastewater collection to an area of 699 acres and diverts the flow to the City's collection system for treatment at the RWRF.
- **Pinedale Public Utility District** currently provides street lighting, street sweeping, and landscape maintenance, and previously provided wastewater collection in its service area. Effective July 1, 2024, the City took over wastewater collection in the district service area, and wastewater from the district service area is conveyed to the RWRF for treatment. The district provides the remaining services to an area of 362 acres in the northern portion of the City, serving both an unincorporated County island and portions of the City.

6.5.2 Wastewater Collection, Treatment, and Disposal

The City's wastewater collection system was originally developed in 1891 with the installation of a 24-inch outfall sewer that discharged to a 40-acre sewer farm located southwest of town. The amount of land and facilities at this location continued to be expanded as the City grew over the years. Today, the City's wastewater collection system consists of about 1,630 miles of pipes ranging in size from 4 inches in diameter to 84 inches in diameter. This collection system also utilizes 15 lift stations throughout the City, ranging in pumping capacity from 0.25 mgd to 2.2 mgd.

The City is served by two wastewater treatment plants, briefly described below.

6.5.2.1 Fresno-Clovis Regional Wastewater Reclamation Facility

The RWRF has developed from what was once a sewer farm to what is now a state-of-the-art wastewater treatment facility. In 1966, the City of Fresno was appointed the sewering agency for the local metropolitan region and shortly after began long-range planning and construction of new facilities to handle increasing flows and regulatory requirements. The RWRF treats flows from not only the City, but also sewered County areas (some county areas remain unsewered), the City of Clovis, Pinedale County Water District, and Pinedale Public Utility District.

Flows received at this facility peaked at 81,100 AF in 2006 and have been steadily decreasing since, with the average influent flow about 62,500 AF over the last five years. The RWRF includes preliminary, primary, secondary, and tertiary treatment units with disinfection. Secondary treatment consists of three treatment trains with an annual average capacity of 87 mgd, consisting of 30 mgd for Train A and 57 mgd for Trains B

and C combined. In 2017, a 5-mgd tertiary recycled water treatment system — the Tertiary Treatment and Disinfection Facility (TTDF) — was completed. The system can be expanded to 15 mgd and ultimately to 30 mgd.

The City has three primary means of effluent disposal:

1. Undisinfected secondary effluent to on-site and off-site farmland for restricted irrigation
2. Undisinfected secondary effluent to percolation ponds
3. Disinfected tertiary effluent to the recycled water distribution system

The percolated effluent has historically been considered equivalent to Title 22 tertiary treated water by the State Water Resources Control Board Division of Drinking Water (DDW). The City has been extracting this water for reuse in areas within and surrounding the RWRF, as well as to FID's canals, through an exchange agreement for delivery to FID agricultural customers.

The discharged effluent is within the City boundaries and located just southwest of the metropolitan area. The treated effluent percolation ponds are within the City's SOI and hydrologic sphere that benefit the City's overall regional water budget. See Figure 3-1 for a depiction of the facility's location relative to the metropolitan area.

6.5.2.2 North Fresno Wastewater Reclamation Facility

The NFWRF was constructed as part of a residential, commercial master planned development located in the north eastern portion of the City. As a condition of the planned community, the developer was required to construct a wastewater treatment facility that would produce tertiary level effluent for use within the adjacent golf course to minimize the project's impact on water resources. This facility is presently rated at 0.71 mgd (average monthly flow) and 1.07 mgd (maximum daily flow). However, the ultraviolet (UV) light disinfection system was only validated for 300 gpm (0.43 mgd), which is the current flow limit until the DDW approves a higher flow. This facility is expandable to 1.25 mgd (average monthly flow). The disinfected tertiary effluent from the plant is largely used to irrigate the golf course within Copper River Ranch. In 2025, the NFWRF treated 288 AF of wastewater, with approximately 26 AF applied to golf course irrigation. The City is currently implementing projects at the NFWRF to improve availability of recycled water for golf course irrigation in the future. Treated but unused effluent is diverted to the City's collection system to the RWRF.

6.5.3 Recycled Water System Description

The City is currently updating its Water Reuse Master Plan to evaluate the target volume of reuse in the City beyond the southwest system considering new conditions, regulations, and economics.

6.5.3.1 Fresno-Clovis Regional Wastewater Reclamation Facility

As mentioned above, the RWRF produces undisinfected secondary effluent for restricted irrigation to on-site and off-site farmlands and disinfected tertiary treated effluent for the recycled water distribution system. Table 6-6 provides the annual quantities of recycled water applied to these crops for the period from 2021–2025.

Table 6-6. Historic Recycled Water Used Within Service Area (AFY)

Recycled Water Facility	2021	2022	2023	2024	2025
RWRF, Secondary Effluent (Non-Food Crop Irrigation)	5,779	7,776	4,885	6,478	6,373
RWRF, Tertiary Effluent	878	219	283	253	298
NFWRF	109	131	37	35	26
TOTAL	**6,766**	**8,126**	**5,205**	**6,766**	**6,697**

Note: Historic recycled water volume is based on the metered recycled water pumped into the system.

The City's RWRF diverts a portion of the undisinfected secondary effluent to irrigate non-food crops grown adjacent to this facility. The practice of using secondary effluent to irrigate non-food crops has been carried-out for decades and is expected to continue for the foreseeable future. The City owns nearly 3,300 acres of land for and around the RWRF, consisting of percolation ponds (1,750 acres) and other land available to farm non-food crops.

Additionally, the RWRF produces Title 22 disinfected tertiary treated effluent through the TTDF, completed in 2017, and through tertiary equivalent soil aquifer treated recycled water recovered from the percolated secondary effluent.

A series of 15 groundwater wells located at the RWRF are used to extract previously percolated effluent groundwater from beneath the facility. The extracted groundwater has the potential to be used for higher beneficial use if it can be demonstrated this water has attained a level of treatment satisfactory to meet disinfected tertiary levels. The City embarked on a joint project with the WateReuse Research Foundation to demonstrate to State regulatory agencies the soil aquifer treated recycled water met Title 22 levels. The culmination of this study is presented in a final report entitled "Demonstration of Filtration

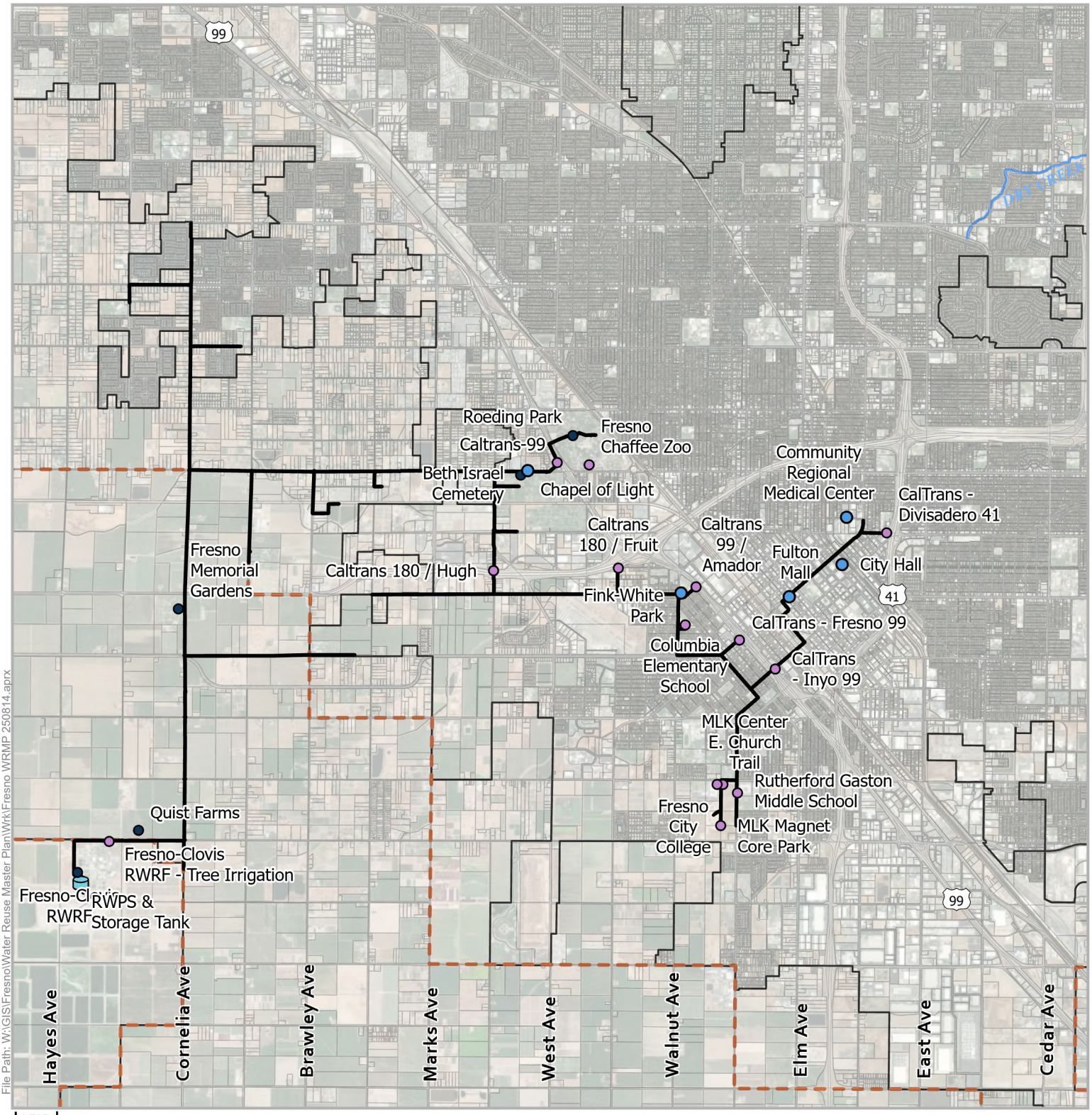
and Disinfection Compliance Through Soil-Aquifer Treatment," which was completed in 2013 (WateReuse Research Foundation, 2013). This study concluded that, based on the documented sampled water quality data, the extracted groundwater met requirements for classification as disinfected tertiary level recycled water. The SWRCB DDW stated that the percolated effluent water meets the tertiary treatment classification, and the City is making plans for its use as part of its recycled water production and distribution system (California Regional Water Quality Control Board, 2018). The combined rated production yield of the 15 wells, if run year-round, would be approximately 32,000 AFY. The City plans to blend the recycled extraction well water with the disinfected tertiary level recycled water produced from the 5 mgd TTDF to feed the southwest recycled water distribution system. As new sales grow for the recycled water, additional recycled water from extraction wells will be utilized to feed the City's southwest recycled water system.

The recovered groundwater is also used for on-site irrigation and transport to FID canals for delivery to customers during the irrigation season, as facilitated through an exchange agreement with FID. More information on the City's FID RWRF Exchange Agreement is discussed in Section 6.7.

The City's existing recycled water system is located in the southwest area of the City, expanding from the Fresno RWRF, as shown in Figure 6-10. The southwest recycled water system consists of a 3.2 million gallon recycled water reservoir located at the RWRF, a 6,000 gpm (8.64 mgd) recycled water pump station located at the RWRF, a 640-gpm booster pump station (Roeding Park Booster), and approximately 24 miles of 10-inch to 54-inch recycled water pipeline. The City is evaluating potential expansion of the recycled water system in its ongoing Water Reuse Master Plan update (WSC, 2026).

6.5.3.2 North Fresno Wastewater Reclamation Facility

As described earlier, the City has an existing wastewater plant in the north eastern portion of the City that receives and treats sewage from the residential and commercial master planned community. The NFWRF was constructed in 2008 but was not fully operational until 2009 due to the inability to properly run at extremely low flow conditions. Subsequent modifications to improve treatment at the plant were made in 2010 and again in 2014 to adopt UV disinfection. The disinfected tertiary effluent is conveyed in a dedicated pipeline to the golf course within Copper River Ranch for irrigation purposes. The quantities used for irrigation purposes are shown in Table 6-6 for the period of 2021–2025.



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Legend

- Fresno Sphere of Influence
- Fresno City Limits
- Parcels
- Existing Recycled Water Storage
- Current Recycled Water Customer
- In Progress Recycled Water Customer
- Shelved

Recycled Water Pipes

- Existing Recycled Water Pipes
- Proposed Recycled Water Pipes - In Progress

N

0 0.75 1.5 Mi

0 1 2 Km

Notes:

Prepared by

WSC

Prepared for

City of FRESNO Department of Public Utilities

2025 Urban Water Management Plan

Figure 6-10. Existing Recycled Water System

6.5.4 Potential, Current, and Projected Recycled Water Uses

The 2025 actual recycled water use and projected recycled water use through 2050 in the City's service area is included in Table 6-7. Secondary undisinfected reuse is projected to continue to be used to irrigate non-food crops adjacent to the RWRF in the future. The projected secondary undisinfected use going forward is based on the average use from 2021 to 2025. The amount of tertiary recycled water from the RWRF is projected to increase by 850 AFY by 2035 (for a total use of about 1,150 AFY) for landscape irrigation and non-irrigation uses as the southwest recycled water system is built out. Tertiary recycled water from the NFWRF is projected to increase to 280 AF by 2030.

The 2020 UWMP anticipated that 14,220 AFY of recycled water would be produced and utilized in 2025. The previous projected increases in recycled water were based on maximizing use tertiary recycled water at the RWRF and NFWRF. Since 2020, the City's tertiary reuse declined as the City established recycled water rates to be paid by recycled water customers. The City is currently preparing a Water Reuse Master Plan that is evaluating recycled water alternatives in the City to serve as a new guiding planning document for recycled water use by the City.

Table 6-7. Recycled Water Use within Service Area (DWR Table 6-4R)

Beneficial Use Type	General Description of Uses	Level of Treatment	2025	2030	2035	2040	2045	2050
Agricultural Irrigation[1]	Irrigate non-food and limited food crops	Secondary, Undisinfected	6,373	6,300	6,300	6,300	6,300	6,300
Landscape Irrigation (excludes golf courses)	Distributed through the southwest recycled water distribution system	Tertiary	298	700	1,150	1,150	1,150	1,150
Golf Course Irrigation	Copper River Golf Course	Tertiary	26	280	280	280	280	280
TOTAL			**6,697**	**7,280**	**7,730**	**7,730**	**7,730**	**7,730**

Note:

1. Recycled water for agricultural irrigation does not offset the City's potable water demands, and as such, is excluded from projected recycled water in subsequent tables.

6.5.5 Actions to Encourage and Optimize Future Recycled Water Use

The City is currently preparing a Water Reuse Master Plan to optimize future recycled water use. The City prepared a Recycled Water Master Plan in 2010 (Carollo, 2010), that identified the need for the City to adopt an ordinance to establish a recycled water policy and criteria for its use within the City's SOI. On July 14, 2014, the Recycled Water Ordinance was adopted by the City Council, laying the foundation for the expanded use of recycled water within the City. The Recycled Water Ordinance was subsequently amended in 2021 (Ordinance 2021-026).

The focus of the ordinance includes the following:

- Establish the City Director of Public Utilities as the administrative authority for recycled water service.
- Define eligible service areas consistent with the Recycled Water Master Plan.
- Provide a framework for voluntary recycled water use across user types.
- Identify when new development may be required to install recycled water infrastructure.
- Establish requirements for user agreements, site supervision, and application procedures.
- Require preparation and implementation of Rules and Regulations governing recycled water use.
- Encourage voluntary retrofits of existing potable water customers.
- Allow recycled water use for specific applications such as irrigation and construction (e.g., dust control).
- Establish pricing through user agreements.
- Provide enforcement, penalties, and severability provisions.

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

6.6 Desalinated Water

The City is located in the central San Joaquin Valley; therefore, seawater desalination is not applicable to the City. Additionally, the groundwater that exists within the immediate area of the City is not brackish in nature and does not require desalination treatment.

6.7 Water Exchanges and Transfers

6.7.1 USBR Supply

The Central Valley Project Improvement Act (CVPIA) of 1992 authorized the transfer of all or a portion of a CVP contractor's water supply to any other California water users or water agencies. The CVPIA allows water transfers as long as they are consistent with federal and state water laws. The primary component of the CVPIA that specifies water transfer provisions for federal water supplies is Section 3405(a), which includes provisions regarding maximum annual water transfer, beneficial use, and approvals.

As part of the City's current Metro Plan update, the City is evaluating potential future water transfers and exchanges of its periodically available USBR water. Currently, the City does not have any plans to transfer its USBR water to other California water users.

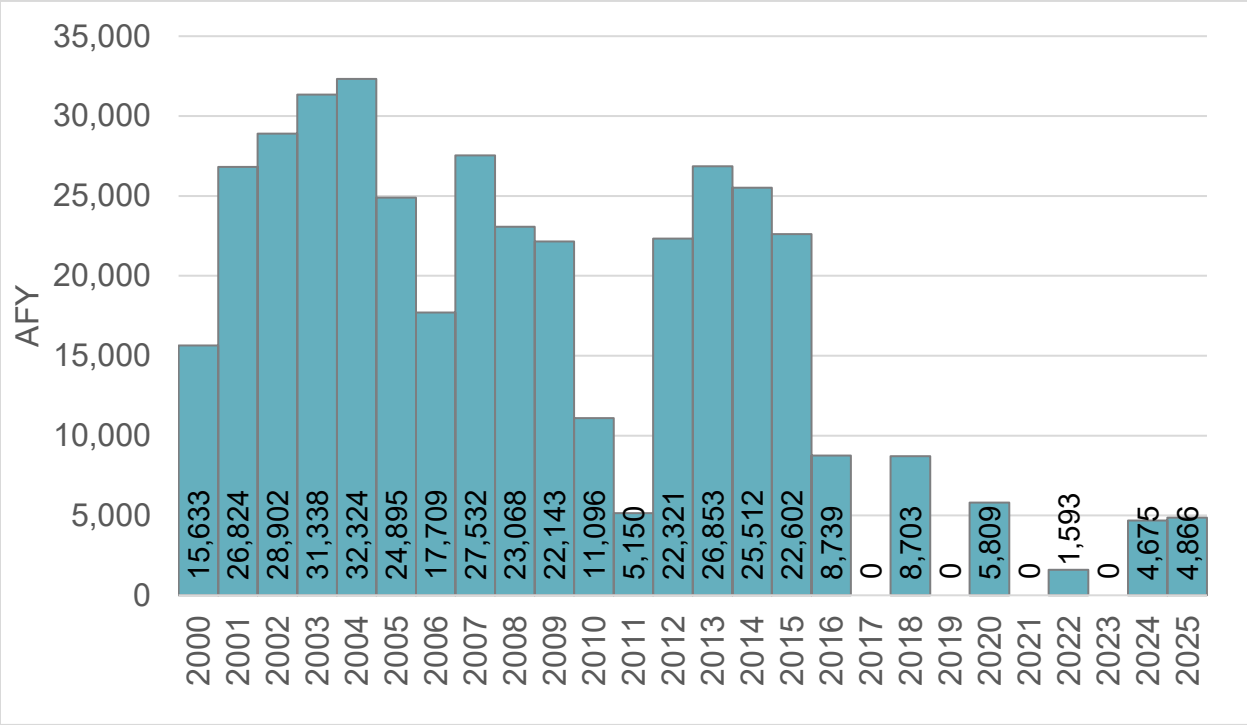
6.7.2 FID / RWRF Groundwater Exchange

Since 1974, the City has had an agreement with FID to exchange recycled water for the delivery of surface water east of the City (Appendix H). The Agreement between FID and the City for Exchange of Recycled Water allows for water pumped from beneath the RWRF to be conveyed to FID's Dry Creek and Houghton Canals for delivery to growers west of the City. In exchange for the water delivered to FID by the City, FID agreed to deliver 46% of the total from either its Kings River entitlement or USBR Class II supply to growers or basins in the eastern portion of FID "insofar as is feasible and practical." The water is to be considered additional to the water that would have been delivered to the eastern portion of FID, such that the additional delivered water used by growers is assumed to offset groundwater pumping in the area and, therefore, provide a groundwater basin benefit. This is an indirect benefit to the City.

The agreement includes a minimum of 100,000 AF delivered over a 10-year period and no more than 30,000 AF in any given year. As shown in Figure 6-11, the City exceeded the maximum yearly delivery in 2003 and 2004 and has maintained more than 100,000 AF of deliveries over a 10-year period. Since 2016, the City has reduced RWRF groundwater exchange deliveries. This agreement had a twenty-year term, which has since expired. However, per the Agreement, "the contract shall continue in effect after the end of said terms except that" it can be terminated with a one-year notice written by either party. The City is currently discussing an update to the agreement with FID, and in the interim, the City and FID have agreed to a one-year pilot project that can be renewed each year until an amended and reinstated agreement is executed to continue groundwater exchange deliveries. The pilot project is currently in its third year of operation, with annual exchange volumes determined on a year-to-year basis and

changes FID's point of delivery back to the City to provide real water benefits. The City's Water Reuse Master Plan will identify and recommend other beneficial uses for the City's percolated effluent.

Figure 6-11. Historical RWRF Groundwater Exchange Deliveries



6.7.3 Emergency Interties

In 2007, the cities of Fresno and Clovis executed an agreement for interconnection of their potable water systems to provide service during emergencies and other times of hardship in either community. The agreement covers interconnections, including apportionment of capital costs, at two locations: Leonard Avenue at the Gould Canal alignment and Behymer Avenue at Willow Avenue.

The agreement provided for temporary deliveries from Clovis to southeast Fresno through the Leonard connection through 2013. The Leonard interconnection was constructed and remains in place for emergency uses through manual operation.

The agreement also provided for temporary deliveries from Fresno to northern Clovis through the Behymer connection through 2015. However, the Behymer interconnection has yet to be constructed and, if constructed in the future, would serve only for emergency use.

6.8 Future Water Projects

The City is currently updating its Metro Plan and Water Reuse Master Plan, which will recommend programs and projects to improve the City's water supply portfolio and continue providing a safe, reliable, and sustainable water supply. While the outcomes of the Metro Plan update are currently being developed, the City's ongoing and future projects to improve its supply portfolio include:

- Expansion of recycled water distribution system
- Expansion of groundwater recharge program
- Expansion of surface water treatment capacity
- Beneficial transfers and exchanges

6.8.1 Recycled Water

As mentioned in Section 6.5.5, the City has made significant improvements to the recycled water system over the last five years and is currently focused on connecting customers that are proximate to the existing recycled water distribution system. The City is currently working with 12 customers with roughly 400 AFY of demand, including Caltrans for irrigation along sides of highways, two schools, a public park and trail, and the Fresno Chaffee Zoo. The City has also identified another 20 potential irrigation customers with public owners (e.g., City, County, public school district) with roughly 450 AFY of demand (WSC, 2026). Larger recycled water system expansion alternatives will be considered in the future.

6.8.2 Groundwater Recharge

With the acknowledgement that the groundwater aquifer is and will remain an integral resource, the City is currently evaluating an expanded recharge program as part of the Metro Plan update, and has recently purchased property in the northwest area of the City that is being evaluated as a potential future recharge basin. Expanding intentional recharge may include the development of new dedicated intentional recharge facilities; joint projects with FMFCD and, potentially, FID for proactive basin maintenance and connecting additional basins to FID's conveyance system; improvements at City owned recharge basins; and improved coordination with FMFCD and FID. The target for recharge expansion is to maximize storage within the groundwater basin and optimize use of available surface water supplies in normal years. The stored water will be used more in the single-dry year and consecutive dry years when surface water supplies are less available.

The timing for groundwater recharge capacity expansion will be examined as part of the Metro Plan update and, for the UWMP it is assumed that recharge capacity will increase by about 6,700 AF by 2050 as described in Section 6.2.3.

6.8.3 Surface Water Treatment

A key component to the success of the City's ability to reverse the long-time overreliance on groundwater is the construction of its surface water treatment facilities. These have allowed the City to optimize the use of available surface water supplies. The City's NESWTF currently has a 30 mgd capacity and the capability to expand up to 60 mgd. The SESWTF is currently permitted to produce up to 54 mgd but, with the subsequent rerating of the media filters, will be capable of operating at a rated capacity of 80 mgd.

The timing for the SWTF expansion will be examined as part of the Metro Plan update and determined based on need as the City grows and demands increase.

6.8.4 Transfers and Exchanges

As mentioned in Section 6.7.1, the City is evaluating future beneficial transfers and exchanges of the City's USBR water in water years when available water supplies exceed demands.

6.9 Summary of Existing and Planned Supplies

Summaries of the existing and planned sources of water are provided in Table 6-8 and Table 6-9.

Table 6-8. 2025 Actual Water Supplies (DWR Table 6-8) (AFY)

Water Supply	Actual Volume (AFY)	Water Type
Groundwater	47,976	Potable
USBR CVP	56,197	Potable
FID Kings River	44,438	Potable
Recycled Water, RWRF	298	Non-Potable
Recycled Water, NFWRF	26	Non-Potable
TOTAL	**148,936**	

Note: Values rounded to the nearest whole number.

Table 6-9. Projected Water Supplies (DWR Table 6-9) (AFY)

Water Supply	2030	2035	2040	2045	2050
Groundwater	109,710	113,000	115,090	115,490	115,590
USBR CVP	60,000	60,000	60,000	60,000	60,000
FID Kings River	131,600	131,600	131,600	131,600	131,600
Recycled Water, RWRF	700	1,150	1,150	1,150	1,150
Recycled Water, NFWRF	280	280	280	280	280
TOTAL	**302,290**	**306,030**	**308,120**	**308,520**	**308,620**

Note: Values rounded to the nearest tenth.

The City currently balances its surface water supplies and groundwater based on minimum production for operation of the SWTFs and minimum groundwater pumping to manage and control contamination plumes and prevent their spread. The minimum operation conditions typically occur in the low-demand winter months, and the City can increase surface water production during peak demand months when surface water is available. In normal and wet years, the City intends to rely on more surface water supply and recharge raw surface water to replenish the groundwater basin and build storage for dry years. In dry years, when surface water is less available, the City will ramp up well production to meet demands. The City is expected to continue this supply management strategy in the future.

6.10 Special Conditions

This section details climate change and future regulatory conditions that impact the City's supply sources.

6.10.1 Climate Change Effects

Climate change is already impacting the City's surface water supplies. The City's surface water allocations from 2000-2020 were 15% below the allocations from 1970-2000. Recent research has shown that 2000-2020 would have represented dry conditions, but climate change has caused it to be the driest period in 1,200 years (Williams A. C., 2022). This study notes that increasing emissions have made the recent megadrought 72% worse.

The potential impacts of climate change on the City's water resources in the future are described below:

Kings River and USBR Surface Water Supplies: Climate change is expected to have the largest impact on the City's surface water supply allocations.

- Increased temperatures increase reservoir evaporation and evapotranspiration within the watershed, especially at high elevations within the Sierra Nevada Mountain range, reduce soil moisture, and decrease stream baseflows in the summer and early fall, reducing reservoir yields and leaving less water available for delivery. (USBR, 2021)
- Increased temperature will also lead to more precipitation falling as rainfall rather than snow. Reduced snowpack will stress reservoir operations during flood control season and lead to reduced reservoir yields. Climate models for the San Joaquin River Basin and Sierra Nevada Mountains predict decreasing snowpack throughout the century as temperatures rise. This will cause precipitation that typically falls as snow to fall as rain and shift the wet season runoff to earlier in the season, potentially by two to four months earlier by 2100. (Fernandez-Bou, 2022) (Siirila-Woodburn, 2021)
- Changes in annual precipitation vary by climate model, but many predict little annual change to precipitation, but rather more intense rainfall during the winter months and a longer dry season. With limited surface water storage, this may result in more frequent flooding and lower annual yields from reservoirs. (USBR, 2021)
- Climate change and global warming will contribute to deeper and longer droughts that result in low allocations for longer periods, causing a need for increased use of other sources (such as higher groundwater production). (Williams A. P., 2020)
- Climate change will also impact the quality of surface water supplies and lead to potential water quality degradation:
    - Warmer temperatures and lower reservoir levels can lead to algae blooms, impacting surface water treatment. Increased raising and lowering of reservoir levels can lead to plant growth on surfaces at low reservoir levels followed by plant death when reservoir levels increase, causing nutrient loading and algae bloom concerns. (Fernandez-Bou, 2022)
    - Higher temperatures and reduced soil moisture lead to increasingly dry vegetation which means increased fuel for intense wildfires, as California has seen in recent years. (Ortiz-Partida, Weintraub, Fernadez-Bou, Maskey, & Mahesh, 2020) Wildfire occurrence in watersheds can lead to temporary higher runoff, but also leads to increased sediment in reservoirs, reducing overall storage capacity and resulting in long-term reduction in yields. (Fernandez-Bou, 2022)

Groundwater Supply:

- Lower annual surface water supplies reduce the available water for intentional recharge, an important component of the City's conjunctive-use strategy and for groundwater basin recovery. As described above, reduced snowpack will shift runoff to earlier in the season and rainfall events will be more intense in the future and fall during a shorter period. This could result in surface water supplies for recharge being

available in the rainy season and less available through the drier period. The City has historically used FMFCD basins for more than 50% of its annual intentional recharge, which are unavailable for City use in the winter when the basins are used for flood control and stormwater routing. The number of weeks the FMFCD basins are available for City recharge could become more limited in the future because of the shifting runoff patterns, further reducing the City's capacity to recharge using the FMCFD basin.

- Increased pumping to replace diminishing surface water supplies will increase groundwater overdraft (Fernandez-Bou, 2022). While the City is projected to have adequate supplies in the near-term, other pumpers in the North Kings Groundwater Basin will likely need to increase groundwater production as surface water supplies decline, which could impact groundwater gradients below the City and increase subsurface outflows away from the City, reducing the City's overall groundwater yield.
- Changing rainfall patterns, including more intense rainfall and longer dry periods, may reduce the natural recharge, or deep percolation, to the groundwater basin. Natural recharge, along with subsurface inflows, contribute to the basin's sustainable yield. Additionally, as pumping increases to supplement reduced surface water supplies, compactable soils may contribute to land subsidence in the basin and interrupt deep percolation (Fernandez-Bou, 2022). However, the City has not seen evidence of land subsidence in its service area.
- Over pumping and a lower groundwater table is generally linked to poorer water quality (Ortiz-Partida, Weintraub, Fernadez-Bou, Maskey, & Mahesh, 2020). Climate change impacts to groundwater quality degradation have already been seen during the last drought. As groundwater levels decreased during extended drought years, the number of wells impacted by carbon dioxide and arsenic in the groundwater had increased across the City. This is already causing additional groundwater treatment costs.

This plan considers water supply during a single-dry year or multi-dry year scenario, which may occur more often due to climate change, further in Section 7.

6.10.2 Regulatory Conditions

The City has existing contracts for surface water supplies with no known reductions that might result from future regulation. The City's groundwater supply is from an unadjudicated basin that is considered reliable. The GSA is currently working toward determining a safe yield for the Kings Subbasin, which is the amount of water that can be pumped over a long-term period without producing undesirable results, such as overdraft. The City is an active member of the GSA, working collaboratively to bring the basin into balance while protecting the City's groundwater supply.

Federal and California regulations for per- and polyfluoroalkyl substances (PFAS) have affected the City's use and management of certain groundwater wells, and will likely do so in the future. The City monitors its groundwater wells for PFAS and other potential contaminants as required by federal and state regulations. Federal and state regulations for PFAS are expected to require substantial expenditures of funds for the City to treat groundwater wells to comply with the regulations.

6.11 Energy Intensity

Pursuant to CWC Section 10631.2(a), readily available information regarding energy intensity shall be reported in the 2025 UWMP. For the City, this includes the total energy usage at each production facility, including each well site and the three SWTFs. The electrical usage includes the energy to produce, treat, and pump the water into the distribution system. Because the City's distribution system includes over 200 groundwater wells, Table 6-10 presents the total energy usage, water produced, and average energy intensity for all groundwater wells and for each SWTF following the methodology presented the Guidebook. The energy intensity varies significantly between groundwater wells depending on the depth to the groundwater table, if the well includes treatment beyond disinfection, and other local conditions. The total energy intensity for all production and treatment in the City's distribution system in 2025 was 2,371 Kilowatt-hours per acre-foot (kWh/AF).

Table 6-10. Water System Energy Intensity in 2025

	Electricity (kWh)	Treated Water Deliveries (AF)	Energy Intensity (kWh/AF)
Wells	24,555,422	47,976	512
NESWTF	6,581,275	23,191	284
SESWTF	12,799,861	43,235	296
T-3 SWTF	316,224	247	1,279
TOTAL	**44,252,782**	**114,649**	**2,371**

7 Water Service Reliability and Drought Risk Assessment

This section describes the City's water service reliability through 2050. As required by the UWMP Act, the assessment must compare total projected water supply and demands over the next 25 years in five-year increments under normal, single dry water years, and multiple dry water years. This section also includes the drought risk assessment, which provides a snapshot of the anticipated surplus or deficit if a drought were to occur in the next five years.

IN THIS SECTION

- Water Service Reliability Assessment
- Drought Risk Assessment

7.1 Introduction

Water service reliability is determined based on the security of water supply and water infrastructure security. The supply reliability assessment discusses factors (i.e., climatic, environmental, water quality, and legal) that could potentially limit the expected quantity of water available from City's current and projected sources of supply through 2050. Multiple drought scenarios are considered and the quantitative impacts of the aforementioned factors on water supply and demand are discussed, as well as possible methods for addressing these issues.

Evaluating the water service reliability is critical for water management as it can help identify potential problems before these happen. Water managers can then take proactive steps to mitigate shortages by encouraging water use efficiency, securing new water supplies and/or investing in infrastructure.

7.2 Water Service Reliability Assessment

This section describes the City's 2025 UWMP water service reliability assessment through 2050 under normal, single dry water year, and five-year consecutive dry period. The City's 2025 UWMP water service reliability assessment results indicate that no water shortages are anticipated.

7.2.1 Constraints on Water Sources

7.2.1.1 Groundwater

Groundwater has long been the primary water supply source for the City. Before the City's investments to increase its use of surface water with the construction of its NESWTF, T-3 SWTF, and SESWTF, groundwater levels were declining, and the falling levels were a potential constraint. Groundwater levels in some areas of the City have increased over the last ten years as a result of the City's using less groundwater and are expected to continue to increase as the City pumps less groundwater in the future.

The North Kings GSP has set sustainability indicators for chronic lowering of groundwater levels and reduction of groundwater storage in the basin. The current GSP defines minimum thresholds and measurable objectives for the basin to allow the North Kings GSA to evaluate its progress toward sustainability and determine whether conditions are improving, remaining stable, or degrading, consistent with SGMA requirements.

Another constraint to the use of groundwater stems from the negative impacts from contamination (see Section 6.2.6). To ensure the continued beneficial use of the groundwater supply, the City has set minimum pumping requirements for specific wells

to prevent the spread of existing groundwater plumes to other areas in the City and to protect the basin. The City will remain proactive in pursuing responsible parties so the proper remediation is conducted to preserve the groundwater system as a viable and sustainable resource in perpetuity. Largely, the City has been able to rely on the relatively good quality of this resource.

7.2.1.2 USBR

The City has a contract for 60,000 AFY of Class 1 water with the USBR. Analysis supporting the 2006 San Joaquin River Settlement is the basis for USBR supply projections. The settlement is based on ensuring flows downstream of Millerton Dam for varying hydrologic conditions, which can constrain surface water supplies available to the CVP Friant Division contractors, such as the City.

Another constraint that affects the consistency of this supply are the restrictions that have been imposed on water diversions from the Delta (see Section 6.3.1). The resulting impacts associated with the restrictions from the Delta have been more detrimental to water supplies for the CVP Friant Division contractors than the above-discussed settlement, as the latter resulted in two years of zero allocations for the CVP Friant Division contractors in 2014 and 2015.

The construction of a raw water pipeline in 2018 to convey USBR water from the Friant-Kern Canal to the NESWTF, referred to as the Friant-Kern Canal Pipeline, has improved the reliability and water quality of deliveries to the NESWTF. The NESWTF is now capable of year-round operation, and the original connection from FID's Enterprise Canal still exists as a backup delivery system if needed.

Every three years, the Friant-Kern Canal is removed from service for maintenance, and during these shutdowns the City has the flexibility to deliver its Kings River supply to the NESWTF to allow for its continued use.

7.2.1.3 FID

The City has an agreement with FID to deliver a percentage of FID's Kings River allocation to the City. The percentage varies year to year based on the City's service area within FID's service area, described in Section 6.3.2, and is currently about 26%. Water supplied from the FID contract is most susceptible to annual hydrologic conditions. The City's annual FID supply allocation is dependent on annual precipitation, Sierra Nevada mountain snowpack, and natural river flow conditions. The annual variability of these sources results in variable allocations to the City. Based on the foregoing data, FID receives an annually adjusted entitlement, the delivery of which will fluctuate throughout the irrigation delivery season. The City in turn receives its pro rata allocation based on the foregoing entitlement determination.

Another factor that may constrain the availability of Kings River water supply is scheduled maintenance of FID's vast canal network. FID typically terminates water deliveries to the City's water treatment facilities in the months of November and/or December so they can perform necessary infrastructure repairs and maintenance. However, the City constructed a dedicated 13-mile, 72-inch-diameter raw water pipeline to deliver Kings River water to the SESWTF to allow for year-round operations and prevent shutdowns due to FID maintenance. Deliveries to intentional recharge facilities will continue to be supplied through the FID canal system and constrained to the irrigation season.

7.2.1.4 Recycled Water

The City currently produces and delivers recycled water from its RWRF and NFWRF. The RWRF produces tertiary treated recycled water at its 5 MGD capacity TTDF. The largest constraint on this supply is the total demand for current and planned customers connected to the recycled water system. The City is currently preparing a Water Reuse Master Plan to evaluate future opportunities and recommendations for the recycled water system.

The NFWRF is rated for an average monthly flow of 0.71 mgd, but its recycled water production is constrained by its UV light disinfection system that was only validated for 0.43 mgd. This facility is expandable to 1.25 mgd (average monthly flow). The disinfected tertiary effluent from the plant is used to irrigate the golf course within Copper River Ranch. The City is currently implementing projects at the NFWRF to improve availability of recycled water for golf course irrigation in the future.

7.2.2 Description of Management Tools and Options

The City currently manages its surface water and groundwater supply by maximizing surface water for potable use and intentional recharge during wet and normal years, while relying on groundwater during dry years. The City is currently updating its Metro Plan, which will recommend projects and programs to optimize the use of its supply portfolio and further improve supply resilience. Supply management tools are an expected outcome of the Metro Plan update; however, the City's ongoing supply management is intended to maximize local supplies and improve the groundwater basin storage. Current actions include enhanced groundwater management and intentional recharge, increased recycled water use, and continued conservation through the implementation of demand management measures.

7.2.3 Year Type Characterization

In accordance with CWC Section 10635(a), every urban water supplier must provide their expected water service reliability for a normal year, single dry year, and a drought lasting five consecutive years from 2030 through 2050.

DWR defines these years as:

- **Normal Year:** This condition represents a single year or an averaged range of years that most closely represents the average water supply available. Average surface water and groundwater supplies to the City were used for this analysis.
- **Single Dry Year:** The single dry year is recommended to be the year that represents the lowest water supply available. For the City, the single-dry year is based on 2015 hydrology.
- **Five-Consecutive Year Drought:** The driest five-year historical sequence for the supplier, which may be the lowest average water supply available for five years in a row. For the City, the driest five-year historical sequence is 2012 to 2016.

7.2.4 Supply and Demand Comparison

For the water service reliability assessment, supply projections are made based on historic water allocations for surface water supplies, historic municipal water well pumping for groundwater, and projected utilization for recycled water, as described below.

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

Results of the water supply and demand analysis for normal, single dry, and five-year consecutive drought are shown in the following sections.

7.2.4.1 Normal Year

Water supply for the normal-year condition is provided based on:

- **Groundwater**: Estimated groundwater yield from Table 6-3.
- **USBR**: Long-term average allocation from Table 6-4.
- **Kings River**: Long-term average allocation from Table 6-5.
- **Recycled Water**: Projected supply from Table 6-7, excluding agricultural irrigation demand that does not offset the City's potable demand.

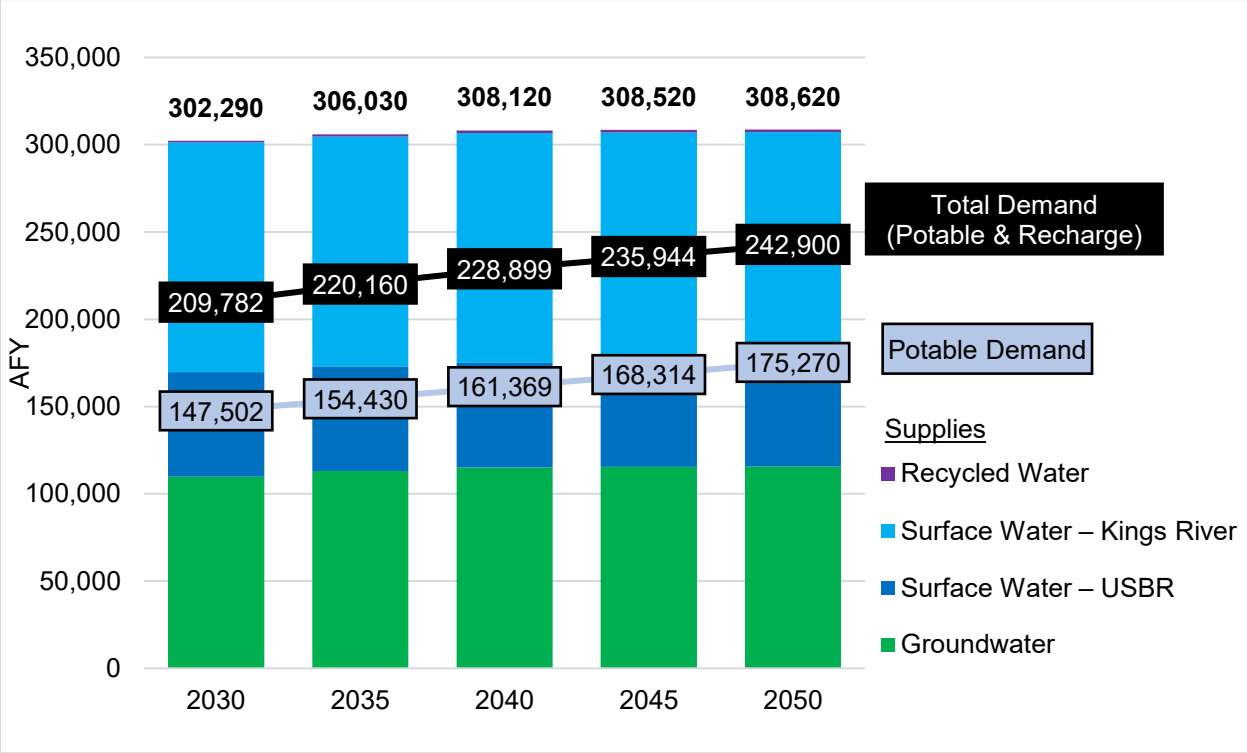
Table 7-1 and Figure 7-1 compare the projected normal year demand (potable customer demand and total demand with recharge) to the projected supply. **As shown, the City has adequate supplies to meet customer demand and perform recharge operations during a normal year type.**

Table 7-1. Normal Year Supply and Demand Comparison

	2030	2035	2040	2045	2050
Supplies					
Groundwater	109,710	113,000	115,090	115,490	115,590
Surface Water – USBR	60,000	60,000	60,000	60,000	60,000
Surface Water – Kings River	131,600	131,600	131,600	131,600	131,600
Recycled Water	980	1,430	1,430	1,430	1,430
Supply Totals	**302,290**	**306,030**	**308,120**	**308,520**	**308,620**
Demands					
Potable Demand	147,502	154,430	161,369	168,314	175,270
Recycled Water Demand	980	1,430	1,430	1,430	1,430
Groundwater Recharge Demand	61,300	64,300	66,100	66,200	66,200
Total Demand	**209,782**	**220,160**	**228,899**	**235,944**	**242,900**
Difference	**92,508**	**85,870**	**79,221**	**72,576**	**65,720**

Note: Values rounded to the nearest whole number.

Figure 7-1. Normal Year Supply and Demand Assessment



7.2.4.2 Single-Dry Year

The single-dry-year supply availability is based on 2015 because this was the year the City had the lowest surface water supply. Water supply for the single-dry-year condition is based on:

- **Groundwater**: Estimated groundwater yield from Table 6-3, plus pumping of stored groundwater beyond its estimated normal groundwater yield during dry periods. The City would balance out the pumping from storage with recharge during normal and wet periods.
- **USBR**: Actual allocation in 2015 (0 AF).
- **Kings River**: Actual FID Kings River entitlement in 2015 (158,109 AF) with the City's projected 29.0% of FID supply for the future years (42,852 AF to the City).
- **Recycled Water**: Projected supply from Table 6-7, excluding agricultural irrigation demand that does not offset the City's potable demand.

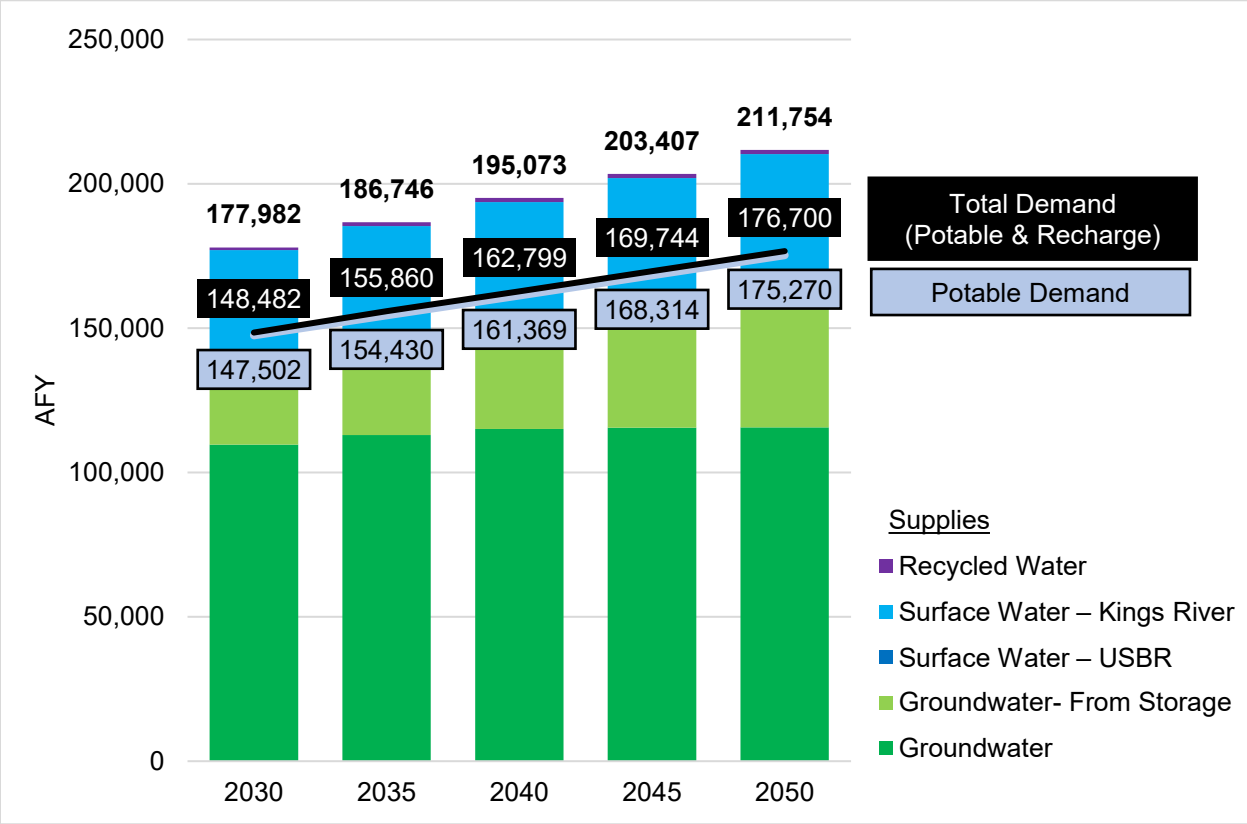
Table 7-2 and Figure 7-2 compare the projected demand to the projected supply for a single-dry year. As shown, during a dry year the City would limit groundwater recharge due to limited surface water supplies and pump additional groundwater to meet customer demand as needed. **The supply assessment demonstrates a 20% water supply buffer compared to projected potable demand.**

Table 7-2. Single Dry Year Supply and Demand Comparison

	2030	2035	2040	2045	2050
Supplies					
Groundwater	109,710	113,000	115,090	115,490	115,590
Groundwater- From Storage	21,441	26,464	32,701	40,635	48,882
Surface Water – USBR	0	0	0	0	0
Surface Water – Kings River	45,852	45,852	45,852	45,852	45,852
Recycled Water	980	1,430	1,430	1,430	1,430
Supply Totals	**177,982**	**186,746**	**195,073**	**203,407**	**211,754**
Demands					
Potable Demand	147,502	154,430	161,369	168,314	175,270
Recycled Water Demand	980	1,430	1,430	1,430	1,430
Groundwater Recharge Demand	0	0	0	0	0
Total Demand	**148,482**	**155,860**	**162,799**	**169,744**	**176,700**
Difference	**29,500**	**30,886**	**32,274**	**33,663**	**35,054**

Note: Values rounded to the nearest whole number.

Figure 7-2. Single Dry Year Supply and Demand Assessment



7.2.4.3 Five Consecutive Dry Years

Water supply for the five-year drought condition is based on:

- **Groundwater**: Estimated sustainable yield from Table 6-3, plus pumping of stored groundwater beyond its estimated normal groundwater yield during dry periods, if needed. The City would balance out the pumping from storage with recharge during normal and wet periods.
- **USBR**: Actual allocations in 2012 to 2016, which ranged from 0 to 45,000 AF.
- **Kings River**: Actual FID Kings River entitlement in 2012 to 2016, which ranged from 158,109 to 433,932 AF, with the projected 29.0% City percentage of FID supply for the future years, resulting in 45,852 to 125,840 AF to the City.
- **Recycled Water**: projected supply from Table 6-7, excluding agricultural irrigation demand that does not offset the City's potable demand.

Table 7-3 and Figure 7-3 compare the projected demand to projected supplies during the five consecutive dry year scenario. **Despite severe reductions of surface water supplies during dry years, the City has sufficient supplies to meet projected**

demand and maintain a 20% water supply buffer. The City expects to build groundwater storage through in-lieu and intentional recharge and during normal and wet years for use during dry years when surface water supplies are limited.

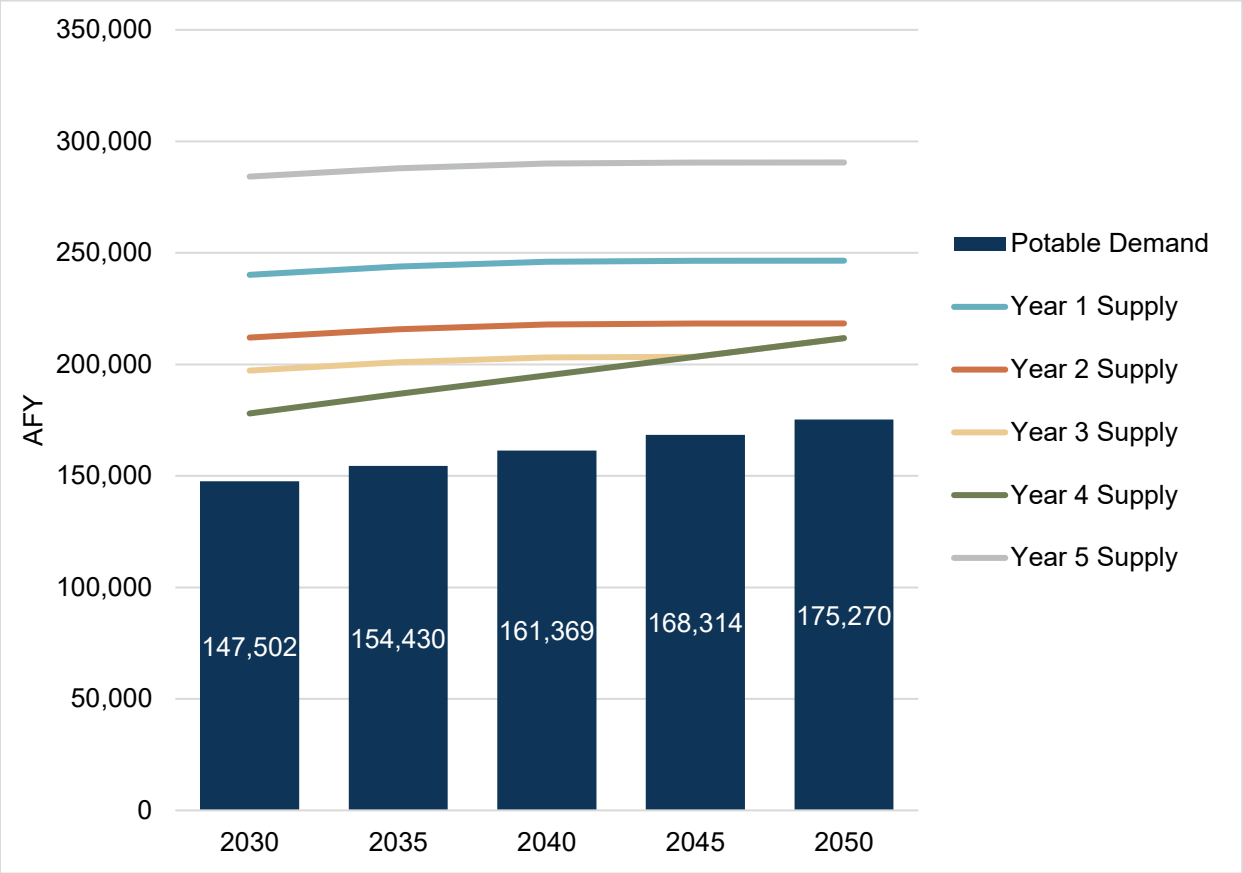
Table 7-3. Multiple Dry Years Supply and Demand Comparison

	2030	2035	2040	2045	2050
Year 1					
Groundwater	109,710	113,000	115,090	115,490	115,590
Groundwater – From Storage	0	0	0	0	0
Surface Water – USBR	24,492	24,492	24,492	24,492	24,492
Surface Water – Kings River	104,974	104,974	104,974	104,974	104,974
Recycled Water	980	1,430	1,430	1,430	1,430
Supply Totals	**240,156**	**243,896**	**245,986**	**246,386**	**246,486**
Potable Demand	147,502	154,430	161,369	168,314	175,270
Recycled Water Demand	980	1,430	1,430	1,430	1,430
Groundwater Recharge Demand	62,174	57,150	50,913	42,979	34,732
Total Demand	**210,656**	**213,010**	**213,712**	**212,723**	**211,432**
Difference:	**29,500**	**30,886**	**32,274**	**33,663**	**35,054**
Year 2					
Groundwater	109,710	113,000	115,090	115,490	115,590
Groundwater – From Storage	0	0	0	0	0
Surface Water – USBR	7,902	7,902	7,902	7,902	7,902
Surface Water – Kings River	93,426	93,426	93,426	93,426	93,426
Recycled Water	980	1,430	1,430	1,430	1,430
Supply Totals	**212,018**	**215,758**	**217,848**	**218,248**	**218,348**
Potable Demand	147,502	154,430	161,369	168,314	175,270
Recycled Water Demand	980	1,430	1,430	1,430	1,430
Groundwater Recharge Demand	34,036	29,012	22,776	14,842	6,594
Total Demand	**182,518**	**184,872**	**185,575**	**184,586**	**183,294**
Difference:	**29,500**	**30,886**	**32,274**	**33,663**	**35,054**

Year 3					
Groundwater	109,710	113,000	115,090	115,490	115,590
Groundwater – From Storage	0	0	0	0	8,212
Surface Water – USBR	12,954	12,954	12,954	12,954	12,954
Surface Water – Kings River	73,568	73,568	73,568	73,568	73,568
Recycled Water	980	1,430	1,430	1,430	1,430
Supply Totals	**197,212**	**200,952**	**203,042**	**203,442**	**211,754**
Potable Demand	147,502	154,430	161,369	168,314	175,270
Recycled Water Demand	980	1,430	1,430	1,430	1,430
Groundwater Recharge Demand	19,229	14,206	7,969	35	0
Total Demand	**167,711**	**170,066**	**170,768**	**169,779**	**176,700**
Difference:	**29,500**	**30,886**	**32,274**	**33,663**	**35,054**
Year 4					
Groundwater	109,710	113,000	115,090	115,490	115,590
Groundwater – From Storage	21,441	26,464	32,701	40,635	48,882
Surface Water – USBR	0	0	0	0	0
Surface Water – Kings River	45,852	45,852	45,852	45,852	45,852
Recycled Water	980	1,430	1,430	1,430	1,430
Supply Totals	**177,982**	**186,746**	**195,073**	**203,407**	**211,754**
Potable Demand	147,502	154,430	161,369	168,314	175,270
Recycled Water Demand	980	1,430	1,430	1,430	1,430
Groundwater Recharge Demand	0	0	0	0	0
Total Demand	**148,482**	**155,860**	**162,799**	**169,744**	**176,700**
Difference:	**29,500**	**30,886**	**32,274**	**33,663**	**35,054**
Year 5					
Groundwater	109,710	113,000	115,090	115,490	115,590
Groundwater – From Storage	0	0	0	0	0
Surface Water – USBR	47,678	47,678	47,678	47,678	47,678
Surface Water – Kings River	125,840	125,840	125,840	125,840	125,840
Recycled Water	980	1,430	1,430	1,430	1,430
Supply Totals	**284,208**	**287,948**	**290,038**	**290,438**	**290,538**
Potable Demand	147,502	154,430	161,369	168,314	175,270
Recycled Water Demand	980	1,430	1,430	1,430	1,430
Groundwater Recharge Demand	106,226	101,202	94,965	87,031	78,784
Total Demand	**254,708**	**257,062**	**257,764**	**256,775**	**255,484**
Difference:	**29,500**	**30,886**	**32,274**	**33,663**	**35,054**

Note: Values rounded to the nearest whole number.

Figure 7-3. Five Consecutive Dry Year Supply and Demand Assessment



7.3 Drought Risk Assessment

CWC Section 10635 (b) requires a drought risk assessment (DRA). The DRA provides a quick snapshot of the anticipated surplus or deficit if a five-consecutive year drought were to occur in the next five years. The DRA can be modified or updated outside of the UWMP five-year plan cycle, so a description of the data, methodology, and basis for shortage conditions are included here. The DRA evaluates each water supply's reliability and compares available water supplies and projected demands during a five-consecutive dry years scenario. This short-term analysis can help water suppliers foresee undesired risks, such as upcoming shortages, and provide time to evaluate and implement the necessary response actions needed to mitigate shortages in a less impactful manner to the community and environment.

The projected gross water use for the five-year DRA is based on unrestricted potable demand presented in Table 4-8, unrestricted recycled water demand, and reduced groundwater recharge to maintain a 20% potable water demand buffer.

The reliability of supplies over a five-consecutive-year drought is described in Section 7.2.4.3 and summarized below for 2026 through 2030:

- **Groundwater:** Based on interpolating between 2025 and 2030 values in Table 6-3, plus pumping of stored groundwater beyond its estimated normal groundwater yield in 2029. The City would balance out the pumping from storage with recharge during normal and wet periods.
- **USBR:** Based on the actual supply allocations from these sources during the driest consecutive five-year drought (2012–2016).
- **Kings River:** Based on actual FID Kings River entitlement in 2012 to 2016, which ranged from 158,109 to 433,932 AF, with the projected City percentage of FID supply growing from 26% in 2026 to 29% by 2030, resulting in 44,903 to 125,840 AF to the City.
- **Recycled Water:** Based on interpolating between the 2025 and 2030 values in Table 6-7, excluding agricultural irrigation demand that does not offset the City's potable demand.

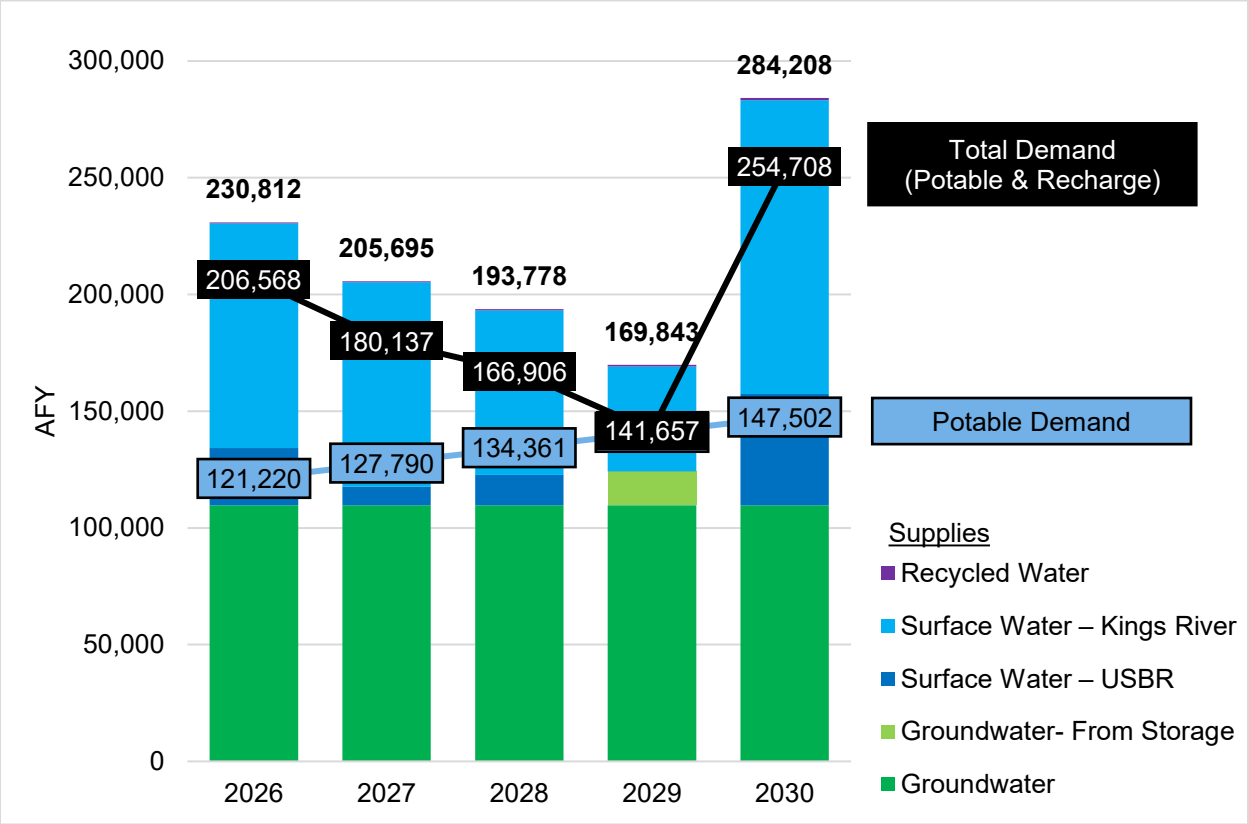
Table 7-4 compares the total projected supply and demand for the five-year DRA for 2026 through 2030. As shown, the City does not expect to enact its WSCP for a five-consecutive-year drought based on the unrestricted potable demand projections and the current supply portfolio and reliability. Figure 7-4 compares the supply and demand in the five-year DRA. In year four, limited surface water results in the City reducing groundwater recharge and pulling additional groundwater from storage to meet customer demand and maintain a 20% water supply buffer.

Table 7-4. Five-Year Drought Risk Assessment

	2026	2027	2028	2029	2030
Groundwater	109,710	109,710	109,710	109,710	109,710
Groundwater – From Storage	0	0	0	14,505	0
Surface Water – USBR	24,492	7,902	12,954	0	47,678
Surface Water – Kings River	96,286	87,628	70,524	44,903	125,840
Recycled Water	324	455	590	726	980
Supply Totals	**230,812**	**205,695**	**193,778**	**169,843**	**284,208**
Potable Demand	121,220	127,790	134,361	140,931	147,502
Recycled Water Demand	324	455	590	726	980
Groundwater Recharge Demand	85,025	51,891	31,955	0	106,226
Total Demand	**206,568**	**180,137**	**166,906**	**141,657**	**254,708**
Difference:	**24,244**	**25,558**	**26,872**	**28,186**	**29,500**

Note: Values rounded to the nearest whole number.

Figure 7-4. Five Year (2026-2030) Drought Risk Assessment



8 Water Shortage Contingency Plan

The Water Shortage Contingency Plan (WSCP) is a detailed plan for how the City intends to act in the case of an actual water shortage condition. This allows for management of a shortage with predictability and accountability. This section provides an overview of the contents of the City's WSCP. The standalone WSCP is included in Appendix I.

IN THIS SECTION

- Overview of WSCP Components

8.1 Introduction

CWC Section 10632 requires that every urban water supplier shall prepare and adopt a standalone WSCP as part of its UWMP. The City's WSCP is included as Appendix I and will be separately submitted to DWR. The WSCP is developed independently of the 2025 UWMP and can be amended, as needed, without amending the UWMP.

The WSCP is a strategic plan that the City uses to prepare for and respond to foreseeable and unforeseeable water shortages. A water shortage occurs when the water supply available is insufficient to meet the normally expected customer water use at a given point in time. A shortage may occur due to a number of reasons, such as water supply quality changes, climate change, drought, regional power outage, and catastrophic events (e.g., earthquake). Additionally, the State may declare a statewide drought emergency and mandate that water suppliers reduce demands, as occurred in 2014. The WSCP serves as the operating manual that the City will use to prevent catastrophic service disruptions through proactive, rather than reactive, mitigation of water shortages.

The WSCP provides a process for an annual water supply and demand assessment and structured steps designed to respond to actual conditions. This level of detailed planning and preparation provides accountability and predictability and will help the City maintain reliable supplies and reduce the impacts of any supply shortages and/or interruptions.

The WSCP must be updated based on new requirements every five years and will be adopted as a current update for submission to DWR.

8.2 Overview of WSCP Components

The Water Code establishes several prescriptive elements that must be included in a retail water supplier's WSCP. Each element and its location within the WSCP is described below.

Water Supply Reliability Analysis: Summarizes the City's water supply analysis and reliability and identifies any key issues that may trigger a shortage condition.

Annual Water Supply and Demand Assessment Procedures: Describes the key data inputs, evaluation criteria, and methodology for assessing the system's reliability for the coming year and the steps to formally declare any water shortage levels and response actions.

Shortage Stages: Establishes water shortage levels to clearly identify and prepare for shortages.

Shortage Response Actions: Describes the response actions that may be implemented or considered for each stage to reduce gaps between supply and demand.

Communication Protocols: Describes communication protocols under each stage to ensure customers, the public, and government agencies are informed of shortage conditions and requirements.

Compliance and Enforcement: Defines compliance and enforcement actions available to administer demand reductions.

Legal Authorities: Lists the legal documents that grant City of Fresno the authority to declare a water shortage and implement and enforce response actions.

Financial Consequences of WSCP Activation: Describes the anticipated financial impact of implementing water shortage stages and identifies mitigation strategies to offset financial burdens.

Monitoring and Reporting: Summarizes the monitoring and reporting techniques to evaluate the effectiveness of shortage response actions and overall WSCP implementation. Results are used to determine if additional shortage response actions should be activated or if efforts are successful and response actions should be reduced.

WSCP Refinement Procedures: Describes the factors that may trigger updates to the WSCP and outlines how to complete an update.

Special Water Feature Distinctions: Identifies exemptions for decorative features aside from pools and spas.

Plan Adoption, Submittal, and Availability: Describes the process for the WSCP adoption, submittal, and availability after each revision.

The WSCP was prepared in conjunction with the 2025 UWMP and is a standalone document that can be modified as needed. The document is compliant with the CWC Section 10632 and incorporates guidance from the DWR UWMP Guidebook.

9 Demand Management Measures

This section describes City's efforts to promote water use efficiency, reduce demand on the water supply, and prepare for future requirements.

IN THIS SECTION

- Existing Demand Management
- Reporting Implementation
- Water Use Objectives

9.1 Introduction

The City employs several water conservation programs, more than State-mandated water restrictions to promote conservation and manage water demand. These measures help reduce overdraft of the City's groundwater basin and have aided the City in meeting its water use targets discussed in Section 5.

9.2 Existing Demand Management Measures

The following sections provide a description of the Demand Management Measures (DMMs), including the nature and extent of each.

9.2.1 Water Waste Prevention Ordinances

The City prohibits water waste through implementation of the Urban Water Conservation and Excessive Water Use ordinance (see Section 6-520 of the Fresno Municipal Code). The ordinance includes such prohibitions as not washing hardscapes, using a nozzle-controlled hose, and using irrigation practices. The WSCP, included in Appendix I, contains a more in-depth discussion of these prohibitions and consequences associated with them.

The City has a water waste hotline and a reporting form on the City website and keeps records of water waste violations. Communication to the City's diverse customer base is always taken into consideration, and the City has personnel with Spanish and Hmong language proficiency. All Water Conservation Representatives use advanced metering infrastructure (AMI) to monitor and confirm excessive or negligent water waste incidents.

The Water Conservation staff can be reached at (559) 621-CITY for after-hours emergencies. Online forms are also available to the public at https://www.fresno.gov/publicutilities/.

9.2.2 Metering

In 2008, the City embarked on a project to install meters on all single-family residential service connections throughout the service area. The water meter project was completed in 2013. The City already had water meters on all existing multifamily residential, commercial, industrial, landscape irrigation, and fire services.

With completion of the metering project, the City can now monitor water use more closely and provide customers with an understanding of water use, which has led to reducing water consumption significantly since 2013. The City will continue to monitor water use through the metering data and use the data to analyze demand trends and plan for future water shortages.

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

The City also routinely tests and calibrates meters to ensure accuracy in reading and billing. Typically, meters are tested in place in the field or at a test bench in the meter shop. Field testing involves using calibrated flow meters to monitor the flow through a test port on or attached to the meter and comparing the measured flow to the meter reading. The majority of large meters, three inches and above, have a bypass valve that will be turned on during the meter test so as not to disrupt water use to the property. In the case where a bypass valve is not in place, the customer is notified at least 48 hours before the test date.

With most meters being two inches or smaller, testing every meter is not logistically or economically feasible; therefore, a statistical sampling of each size is tested each year based on the following criteria:

- Meters six inches and above are tested annually.
- Meters three inches to four inches are tested at least once every two years.
- Meters three-fourths of an inch to two inches are tested if a customer disputes the accuracy.

The City performs more frequent testing on larger meters on the basis that an error in their registration has a greater effect on customer equity and revenue issues. Meters registering larger volumes are given priority regardless of when they were last tested.

The City also shares meter data with the customers through its EyeOnWater tool available on its website or on a mobile app. This allows customers to monitor and better understand their hourly, daily, weekly, and monthly water usage, trends, and how they compare to average users.

9.2.3 Conservation Pricing

The City's customers are subject to the water rate structure adopted by the City Council through the Proposition 218 process. The approved rate structure has a base price designated by meter size and a volumetric rate for water usage. Table 9-1 shows the rate structure. The City does not have conservation pricing.

Table 9-1. Current Water Rate Structure

METER SIZE	BASE RATE		USAGE CHARGES	
	DOMESTIC	IRRIGATION	100 CUBIC FEET (HCF)	1,000 GALLONS
¾" or smaller	$13.50	$10.70	$1.74 (per each HCF)	$2.33 (per each 1,000 gallons)
1"	$17.90	$13.40		
1.5"	$20.80	$15.20		
2"	$35.30	$24.10		
3"	$52.80	$34.90		
4"	$79.00	$51.00		
6"	$152.00	$96.00		
8"	$705.00	$436.00		
10"	$1,113.00	$687.00		
12"	$1,462.00	$901.00		

9.2.4 Public Education and Outreach

The City has worked diligently to connect with and educate the community it serves. Those efforts include an emphasis on water conservation techniques and the importance of reducing overall water demand, both specifically to the resident (in terms of fiscal impacts) and to the overall water supply.

The City's varied programs to incentivize water savings are frequently discussed, including the following items:

- Water-wise landscape consultation
- EyeOnWater tool
- Irrigation efficiency audit
- Assistance with setting irrigation controllers
- Interior/exterior water leak surveys
- Water meter use information

- Water use rebates, coupons, and permits
- Lawn-to-garden rebates
- Water conservation hotlines

9.2.4.1 Education and Outreach

The City's water conservation public information program is managed in-house with the assistance of Bodewell Group, formerly known as Southwest Strategies Group. Bodewell Group's services include strategic communications and integrated planning, messaging frameworks and narrative development, community outreach, multicultural and multilingual engagement, traditional and public relations and media relations, and crisis communications and rapid response.

The City's public information program has many components, including multimedia campaigns (paid and public service advertising), customer billing inserts, literature, public outreach activities, a speaker's bureau, and inter-agency partnerships. Many of the City's water conservation materials are provided in three languages: English, Hmong, and Spanish.

The City is a member of the Central Valley Water Awareness Committee (CVWAC), which is composed 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.

The City also conducts outreach events to the community, including:

- Setting up outreach booths providing water-saving info and rebate information at local festivals, parades, plant sales, home and garden shows, and fairs
- Participating in Annual Water Wise Plant Exchanges, a large community event to share water-wise plants and information and participate in hands-on activities
- Hosting Kids Water Camp, a large one-day event with hands-on activities for kids in third grade in all elementary schools in the service area
- Hosting workshops and speaker events about water-wise plants, gardening, and landscaping

9.2.4.2 Water Surveys

The City conducted 9,860 interior and exterior water leak surveys and tutorials between 2021 and 2025. Table 9-2 quantifies the number and types of surveys conducted.

Table 9-2. Interior and Exterior Surveys

Description/Year	2021	2022	2023	2024	2025	Total
Exterior Surveys						
Exterior Audit	465	625	621	549	620	2,880
Landscape Consultation	134	251	621	55	171	1,232
Large Turf Survey	4	0	0	0	0	4
Timer Tutorial	687	758	898	895	741	3,979
Interior Surveys						
Interior Audit	130	342	392	411	490	1,765
Totals	1,420	1,976	2,532	1,910	2,022	9,860

9.2.4.3 Rebate Programs

The City operates 12 rebate programs. Some of those that were active and used during the 2021–2025 reporting period are summarized in Table 9-3. The City also maintains a water conservation page on its website with links to its current rebates.

Table 9-3. Rebate Program Results

Measure	2021	2022	2023	2024	2025	Totals
Clothes Washer Rebate	469	182	173	150	156	1,130
Recirculating Hot Water Rebate	12	7	4	3	2	28
Smart Irrigation Controller Rebate	116	114	98	87	68	483
Micro Irrigation Retrofit Rebate	15	70	83	36	37	241
Soil Moisture Sensor Rebate	0	0	0	0	0	0
Rain Sensor Rebate	1	2	0	1	1	5
Rainwater Harvesting Rebate	2	7	0	2	3	14
Commercial Toilet Rebate	4	8	0	0	1	13
Commercial Urinal Rebate	0	0	0	0	0	0
Sprinkler Nozzle Rebates	11	14	5	2	3	35
Evaporative Cooler Rebate	0	0	0	0	0	0
Lawn To Garden Rebate	26	78	87	34	5	230
Total	**656**	**482**	**450**	**315**	**276**	**2,179**

9.2.5 Programs to Assess and Manage Distribution System Real Losses

As discussed in Section 4.2.3, the calculated loss was determined to be 4.5% in 2025 and is approximately 2.5% less than in 2021. With complete system metering, the City can track losses more closely and understand where possible losses are occurring and correct them as necessary. The City also recently started tracking water uses that were previously unmetered, such as water used at fire hydrants, wells sites for irrigation, and backwash water at some wellhead treatment facilities, resulting in a drop in water loss in 2024 and 2025 compared to historic water loss. The following measures are in place or are being developed to improve the system losses:

- The City has implemented meter testing frequency for 3-inch and larger meters.
- The City has an online tool as well as a telephone hotline available for the public to report water leaks, either on their property or within the public rights-of-way. This helps reduce detection time and limits the water loss from leaks.
- The City uses meter data to identify any meters not functioning correctly or any leaks in the system so that they can be replaced or repaired. This helps reduce unaccounted for water consumption.

Unauthorized consumption can be determined, at times, through the meter data also. If a meter shows no usage, the City can note the address and schedule a site visit to determine any possible issues.

9.2.6 Water Conservation Program Coordination and Staffing Support

The City employs a team of full-time staff year-round to administer and oversee its water conservation programs. Outreach to the City's diverse customer base is a key consideration, and the City has personnel with Spanish and Hmong language proficiency. All Water Conservation Representatives utilize AMIs to identify, monitor, and verify incidents of excessive or negligent water use.

9.2.7 Other Demand Management Measures

In addition to the water conservation programs, the City has also enacted watering schedules for the community that specify days and times customers are allowed to water, based on odd or even street addresses.

9.3 Implementation to Achieve Water Use Targets

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

The extensive metering program, replacement of turf, and replacement of over 10,000 high-water-use appliances (toilets and washing machines) over the last several years has helped the City maintain overall lower water consumption.

10 Plan Adoption, Submittal, and Implementation

This section describes the steps taken to make the UWMP and WSCP publicly available as well as adopt and submit the UWMP and WSCP in accordance with the Water Code.

IN THIS SECTION

- Completed Steps for UWMP and WSCP

10.1 Completed Steps for UWMP and WSCP

The City has notified the County of Fresno, the only city or county in which the City provides water, of its intent to review the UWMP and consider changes to the plan. The City also notified the City of Clovis of plan preparation. Both of these governmental entities as well as a host of local water purveyors and agencies (Table 2-1) were notified of the preparation of the UWMP and public hearing and were encouraged to participate in the development of this plan update. Copies of the notification letters are included in Appendix J.

Consistent with the legislative requirements for public noticing, the City published two notices in the Fresno Bee, at least five days apart over a two-week period, providing the date and time of the public hearing. The notices were published on June 3, 2026, and June 10, 2026.

The City held a public hearing and adopted the 2025 UWMP and WSCP on June 25, 2026. A copy of the adopting resolution is included in Appendix K. Before the public hearing, notices were published notifying the public of the date and time of the hearing.

Once the 2025 UWMP and WSCP have been adopted, a copy of the 2025 UWMP and WSCP and any subsequent amendments will be submitted to DWR, the State Library, and the County of Fresno.

Once the plan has been adopted, a hard copy will be made available for public reference at the City of Fresno Department of Public Utilities office at City Hall (located at 2600 Fresno Street) and the Water Division office (located at 1910 E. University Avenue). Additionally, an electronic copy will be uploaded to the City of Fresno website and made available for public reference.

If City identifies the need to amend this UWMP or WSCP, it will follow the same procedures used previously for notification to the County and the public and for initial adoption.

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Appendix A 2025 UWMP Checklist

A

Retail (x = required)	Wholesale (x = required)	Order	2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
x	x	1	Chapter 1	10615	A plan shall describe and evaluate sources of supply, reasonable and practical efficient uses, reclamation and demand management activities.	Introduction and overview	n/a	UWMP Executive Summary, Section 1 (Introduction), pp. 1-1 to 1-4 (TOC).
x	x	1	Chapter 1	10630.5	Each plan shall include a simple description of the Supplier's plan including water availability, future requirements, a strategy for meeting needs, and other pertinent information. Additionally, a Supplier may also choose to include a simple description at the beginning of each chapter.	Plan preparation	n/a	UWMP Executive Summary, Section 1 (Intro) and "UWMP Organization" (Section 1.3), pp. 1-1 to 1-4.
x	x	2.1	Section 2.1	10620(b)	Every person that becomes a Supplier shall adopt UWMP within one year after it has become a Supplier.	Plan preparation	n/a	UWMP Section 2.1 (Basis for Preparing a Plan), p. 2-2 (TOC).
x	n/a	2.5	Section 2.5	10644	Supplier shall report the Public Water Systems number, volume of delivered water, and number of connections that are included in this UWMP.	Plan preparation	2-1	Appendix B (DWR Standardized Tables); UWMP states "all required DWR standardized tables compiled in Appendix B."
x	x	2.5	Section 2.5	10644	Supplier shall report if this UWMP is an individual UWMP and whether the Supplier belongs to a regional UWMP or regional alliance.	Plan preparation	2-2	Appendix B (DWR Standardized Tables); also UWMP identifies this plan as a Retail UWMP and not a wholesale supplier.
x	x	2.5	Section 2.5	10644	Supplier shall report whether the data is in fiscal or calendar years and the units of measure used for reporting water volumes.	Plan preparation	2-3	UWMP Section 2.1 notes plan prepared on calendar year basis and volumes in AF; also Appendix B.
x	x	2.4	Section 2.4	10642	Provide supporting documentation that the 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 and contingency plan.	Plan preparation	n/a	UWMP Section 2.2 (outreach) + Section 10.1 (public notices/hearing; Appendix J letters).
x	x	2.4	Section 2.4.2	10620(d)(3)	Coordinate the preparation of its plan with other appropriate agencies in the area, including other Suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	Plan preparation	n/a	UWMP Section 2.2 + Table 2-1 (Agency Coordination and Outreach).
x	n/a	2.4	Section 2.4.1	10631(h)	Retail Suppliers will include documentation that they have provided their Wholesale Supplier(s)—if any—with water use projections from that source.	Plan preparation	2-4 R	UWMP Section 2.2 states supply agencies (USBR, FID) were notified and provided projections; see Table 2-1.
n/a	x	2.4	Section 2.4.1	10631(h)	Wholesale Suppliers will provide their Suppliers with identification and quantification of the existing and planned sources of water available from the Wholesale Supplier to the Supplier during various water year types.	Plan preparation	2-4 W	Not applicable: UWMP states City "does not wholesale water to any other agencies" (Retail supplier).
x	x	3	Chapter 3.0	10631(a)	Describe the Supplier service area.	System description	n/a	UWMP Section 3.1 (Service Area), pp. 3-2+; Figures 3-1/3-2 in Chapter 3.
x	x	3.3	Section 3.3	10631(a)	Describe the climate of the Supplier's service area.	System description	n/a	UWMP Section 3.2 (Service Area Climate), p. 3-9; Table 3-2.
x	x	3.4	Section 3.4.1	10631(a)	Provide the current and projected service area populations for 2030, 2035, 2040, 2045 and optionally 2050.	System description	3-1	UWMP Section 3.3 (Population/Demographics), p. 3-10; Table 3-3 includes 2030–2050.
x	x	3.4	Section 3.4.2	10631(a)	Describe other social, economic, and demographic factors affecting the Supplier's water management planning.	System description	n/a	UWMP Section 3.3 – "Other Social, Economic, and Demographic Factors" (DAC/poverty discussion).
x	x	3.5	Section 3.5	10631(a)	Describe the land uses within the service area… include the current and projected land uses within the existing or anticipated service area affecting the Supplier's water management planning. Describe the land uses within the service area.	System description and baselines	n/a	UWMP Section 3.1 (Land Uses); Table 3-1; projected land use shown in Figure 4-3 (Chapter 4).
x	Optional	4.2	Sections 4.2.3 and 4.2.4	10631(d)(1)	Quantify past, current, and projected water use, identifying the uses among water use sectors.	System water use	4-1 and 4-2	UWMP Chapter 4: Table 43 (DWR 4-1) and Table 4-6 (DWR 4-2); also Appendix B standardized tables.
x	Optional	4.3	Section 4.3.1	10631(d)(3)(A)	Report the distribution system water loss for each of the five years preceding the plan update.	System water use	4-5	UWMP Chapter 4 – Distribution System Water Losses; Table 4-1 (DWR 4-4R); supporting audits in Appendix D.
x	n/a	4.3	Section 4.3.2	10631(d)(3)(C)	Retail Suppliers shall provide data to show the distribution loss standards were met.	System water use	4-6	UWMP Chapter 4; Table 4-2 (Progress Toward 2028 Water Loss Standard).
x	n/a	4.2	Section 4.2.5.4	10631.1(a)	Include projected water use needed for lower income housing projected in the service area of the Supplier.	System water use	4-3	UWMP Section 4.3 (Water Use for Lower Income Households); Table 4-9 and Table 4-10.
x	n/a	4.2	Section 4.2.5.3	10631(d)(4)(A)	In projected water use, include estimates of water savings from adopted codes, plans, and other policies or laws.	System water use	4-3	UWMP Chapter 4 – Projected Water Use discussion of California Plumbing Code and passive conservation; Table 4-4 & Table 4-5.
x	n/a	4.2	Section 4.2.5.3	10631(d)(4)(B)	Provide citations of codes, standards, ordinances, or plans used to make water use projections.	System water use	4-3	UWMP Chapter 4 – Demand Factors / Projected Water Use references California Plumbing Code and methodology; tables 4-4 to 4-6 support projections.
x	n/a	4.2	Section 4.2.5.3	10631(d)(4)(B)(ii)	To the extent that a Supplier reports the information described in subparagraph (A), an urban water Supplier shall… Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.	System water use	4-3	UWMP Chapter 4 – Demand Factors explicitly includes passive conservation linked to plumbing code; see Tables 4-4 and 4-5.
x	x	4.2	Section 4.2.5.6	10635(b)	Demands under climate change considerations must be included as part of the drought risk assessment.	System water use	n/a	UWMP Section 4.4 (Climate Change Considerations) and Section 7.3 (Drought Risk Assessment).
n/a	x	5.1	Section 5.1	10608.36	Wholesale Suppliers shall include an assessment of present and proposed future measures, programs, and policies to help their Retail Suppliers achieve targeted water use reductions.	Baselines and targets	n/a	Not applicable: UWMP identifies City as Retail and not a wholesaler.
x	n/a	5.2	Section 5.2	10608.4	Retail Suppliers shall report on their compliance in meeting their water use targets. Reporting requirements will vary depending on whether the Supplier: - Was considered an urban retail water supplier in 2020, - Met its 2020 target in 2020, or - Was part of a merger or consolidation since 2020. Chapter 5 Subsections 5.2.1, 5.2.2, and 5.2.3 address each of these situations.	Baselines and targets	5-1	UWMP Chapter 5 (SBX7-7 compliance); Table 5-1.
x	x	6.1	Section 6.1	10631(b)(2)	When multiple sources of water supply are identified, describe the management of each supply in relationship to other identified supplies.	System supplies	n/a	UWMP Section 6.1 (Water Supply Analysis Overview); conjunctive use described in UWMP overview and WSCP reliability summary.
x	x	6.1	Sections 6.1 and 6.2	10631(b)(1)	Provide a discussion of anticipated supply availability under a normal, single dry year, and a drought lasting five years, as well as more frequent and severe periods of drought, including changes in supply due to climate change.	System supplies	n/a	UWMP Chapter 7 (Reliability) for normal/single-dry/multi-dry; supplies described in Chapter 6.

Retail (x = required)	Wholesale (x = required)	Order	2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
x	x	6.2	Section 6.2.2	10631(b)(4)(C)	Indicate whether groundwater is an existing or planned source of water available to the Supplier. If groundwater is identified as an existing or planned source of water… (include) a detailed description and analysis of the location, amount and sufficiency of groundwater pumped by the Supplier for the past five years.	Water supplies and recycled water	6-1	UWMP Section 6.2 (Groundwater); supporting figures/tables listed (e.g., historic groundwater production) and groundwater tables (Chapter 6).
x	x	6.2	Section 6.2.2	10631(b)(4)(A)	Indicate whether a groundwater sustainability plan or groundwater management plan has been adopted by the Supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	System supplies	n/a	Appendix E: North Kings Groundwater Sustainability Plan.
x	x	6.2	Section 6.2.2	10631(b)(4)(B)	Describe the groundwater basin.	System supplies	n/a	UWMP Section 6.2 (Groundwater); basin figures listed (e.g., Kings Subbasin).
x	x	6.2	Section 6.2.2	10631(b)(4)(B)	Indicate if the basin has been adjudicated and include a copy of the court order or decree and a description of the amount of water the Supplier has the legal right to pump.	System supplies	n/a	Not Applicable- Basin is not adjudicated and the City does not have a pumping allocation.
x	x	6.2	Section 6.2.2	10631(b)(4)(B)	For unadjudicated basins… (include) information as to whether DWR has identified the basin as a high- or medium-priority basin in the most current official departmental bulletin…	Water supplies and recycled water	n/a	UWMP Section 6.2 identifies basin as criticall overdrafted, and in Appendix E.
x	x	6.2	Section 6.2.2	10631(b)(4)(B)	For unadjudicated basins… describe efforts by the Supplier to coordinate with sustainability or groundwater agencies to achieve sustainable groundwater conditions.	Water supplies and recycled water	n/a	UWMP Section 2.2 shows coordination list includes North Kings Groundwater Sustainability Agency; groundwater coordination and management is described in Section 6.2.
x	x	6.2	Section 6.2.2.	10631(b)(4)(C)	If groundwater is identified as an existing or planned source of water… (include) a detailed description and analysis of the location, amount and sufficiency of groundwater pumped by the Supplier for the past five years.	System supplies	n/a	UWMP Section 6.2 (Groundwater) (see groundwater tables/figures listed for historic production).
x	x	6.2	Section 6.2.2	10631(b)(4)(D)	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	System supplies	6-9	UWMP Section 6.2 (Groundwater) + supply projection tables listed in Chapter 6 (e.g., groundwater projection table).
x	x	6.1	Section 6.1	10631(b)	Identify and quantify the existing and planned sources of water available for 2025, 2030, 2035, 2040, 2045 and optionally 2050.	System supplies	6-8 and 6-9	UWMP Section 6.9 (Summary of Existing and Planned Supplies); Table 6-8 (DWR 6-8) and Table 6-9 (DWR 6-9) listed.
x	x	6.2	Section 6.2.7	10631(c)	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	System supplies	n/a	UWMP Section 6.7 (Water Exchanges and Transfers), p. 6-34 (TOC).
x	n/a	6.2	Section 6.2.5	10633(a)	Describe the wastewater collection and treatment systems in the Supplier's service area with quantified amount of collection and treatment and the disposal methods.	System supplies (recycled water)	6-2	UWMP Section 6.5 (Wastewater and Recycled Water), p. 6-26 (TOC); recycled water tables listed in Chapter 6.
x	x	6.2	Section 6.2.5	10633(b)	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	System supplies (recycled water)	6-3	UWMP Section 6.5; recycled water tables listed (e.g., historic RW used).
x	x	6.2	Section 6.2.5	10633(c)	Describe the recycled water currently being used in the Supplier's service area.	System supplies (recycled water)	6-4	UWMP Section 6.5; Tables 6-6 to 6-7 listed.
x	x	6.2	Section 6.2.5	10633(d)	Describe and quantify the potential uses of recycled water and provide a determination of the technical and economic feasibility of those uses.	System supplies (recycled water)	6-4	UWMP Section 6.5 (TOC indicates location).
x	x	6.2	Section 6.2.5	10633(e)	Describe the projected use of recycled water within the Supplier's service area at the end of 5, 10, 15, and 20 years, and describe the actual use of recycled water in comparison to uses previously projected.	System supplies (recycled water)	6-4 and 6-5	UWMP Section 6.5; Tables 6-6 to 6-7 listed.
x	x	6.2	Section 6.2.5	10633(f)	Describe the actions that may be taken to encourage the use of recycled water and the projected results of these actions in terms of acre-feet of recycled water used per year.	System supplies (recycled water)	6-6	UWMP Section 6.5 (TOC indicates location).
x	x	6.2	Section 6.2.5	10633(g)	Provide a plan for optimizing the use of recycled water in the Supplier's service area.	System supplies (recycled water)	n/a	UWMP Section 6.5 and related planning references (e.g., Water Reuse Master Plan referenced in Section 1.4).
x	x	6.2	Section 6.2.6	10631(g)	Describe desalinated water project opportunities for long-term supply.	System supplies	6-7	UWMP Section 6.6 (Desalinated Water), p. 6-33 (TOC).
x	x	6.2	Section 6.2.10	10631(f)	Describe the expected future water supply projects and programs that may be undertaken by the water Supplier to address water supply reliability in average, single-dry, and for a period of drought lasting five consecutive water years.	System supplies	6-7	UWMP Section 6.8 (Future Water Projects), p. 6-36 (TOC).
x	x	6.3	Section 6.3 and Appendix O	10631.2(a)	The UWMP must include energy information, as stated in the code, that a Supplier can readily obtain.	System suppliers, energy intensity	O-1A, O-1B, O-1C, and O-2	UWMP Section 6.11 (Energy Intensity), p. 6-41; Table 6-10 (Water System Energy Intensity in 2025) listed.
x		7.1	Section 7.1	10634	Provide information on the quality of existing sources of water available to the Supplier and the manner in which water quality affects water management strategies and supply reliability.	Water supply reliability assessment	n/a	UWMP Section 7.1 (Introduction to reliability) and water quality discussion expected in supplies/reliability chapters.
x	x	7.2	Section 7.2	10635(a)	Service Reliability Assessment: Assess the water supply reliability during normal, dry, and a drought lasting five consecutive water years by comparing the total water supply sources available to the Supplier with the total projected water use over the next 20 years.	Water supply reliability assessment	7-2, 7-3, and 7-4	UWMP Section 7.2; reliability tables/figures listed (Tables 7-1 to 7-3; Figure 7-1 to 7-3).
x	x	7.2	Section 7.2.3	10620(f)	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	Water supply reliability assessment	n/a	UWMP Section 7.2.3 (referenced in Chapter 4 demand projection narrative); overall strategy also summarized in Section 1 and 6.
x	x	7.3	Section 7.3	10635(b)	Provide a drought risk assessment as part of information considered in developing the demand management measures and water supply projects.	Water supply reliability assessment	n/a	UWMP Section 7.3 (Drought Risk Assessment), p. 7-11 (TOC); Table 7-4.
x	x	7.3	Section 7.3	10635(b)(1)	Include a description of the data, methodology, and basis for one or more supply shortage conditions that are necessary to conduct a drought risk assessment for a drought period that lasts five consecutive years.	Water supply reliability assessment	n/a	UWMP Section 7.3 includes DRA description; methodology language present in DRA narrative excerpt.
x	x	7.3	Section 7.3	10635(b)(2)	Include a determination of the reliability of each source of supply under a variety of water shortage conditions.	Water supply reliability assessment	n/a	UWMP Section 7.3 (DRA) and supply reliability discussion; Table 7-4.
x	x	7.3	Section 7.3	10635(b)(3)	Include a comparison of the total water supply sources available to the Supplier with the total projected water use for the drought period.	Water supply reliability assessment	7-5	UWMP Section 7.3 (DRA) and associated tables/figures (e.g., five-year DRA figure/table listed).
x	x	7.3	Section 7.3	10635(b)(4)	Include considerations of the historical drought hydrology, plausible changes on projected supplies and demands under climate change conditions, anticipated regulatory changes, and other locally applicable criteria.	Water supply reliability assessment	n/a	UWMP Section 7.3 (DRA) + Section 4.4 (Climate Change Considerations).
x	x	8	Chapter 8	10632(a)	Provide a water shortage contingency plan (WSCP) with specified elements below.	Water shortage contingency planning	n/a	UWMP Chapter 8 (WSCP overview) + Appendix I = standalone WSCP.
x	x	8	Chapter 8	10632(a)(1)	Provide an analysis of water supply reliability (from Guidebook Chapter 7) in the WSCP.	Water shortage contingency planning	n/a	WSCP Section 1.0 (Water Service Reliability Analysis) references UWMP Section 7 reliability findings.
x	x	8.2	Section 8.2	10632(a)(2)(A)	Provide the written decision-making process and other methods that the Supplier will use each year to determine its water reliability.	Water shortage contingency planning	n/a	WSCP Section 2.0 (Annual Assessment Procedures) including data inputs/criteria/steps.
x	x	8.2	Section 8.2	10632(a)(2)(B)	Provide data and methodology to evaluate the Supplier's water reliability for the current year and one dry year pursuant to factors in the code.	Water shortage contingency planning	n/a	WSCP Section 2.0 (key inputs, evaluation criteria, annual assessment procedures).

Retail (x = required)	Wholesale (x = required)	Order	2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
x	x	8.3	Section 8.3	10632(a)(3)(A)	Define six standard water shortage levels of 10%, 20%, 30%, 40%, 50% shortage, and greater than 50% shortage. These levels shall be based on supply conditions, including percent reductions in supply, changes in groundwater levels, changes in surface elevation, or other conditions. The shortage levels shall also apply to a catastrophic interruption of supply.	Water shortage contingency planning	n/a	WSCP Section 3.0 (Water Shortage Stages) + crosswalk to DWR standardized levels.
x	x	8.3	Section 8.3	10632(a)(3)(B)	Suppliers with an existing WSCP that uses different water shortage levels must cross reference their categories with the six standard categories.	Water shortage contingency planning	8-1	WSCP Section 3.0 + Table 2 (DWR 8-1) and Figure 2 crosswalk.
x	x	8.4	Section 8.4	10632(a)(4)(A)	Suppliers with WSCPs that align with the defined shortage levels must specify locally appropriate supply augmentation actions.	Water shortage contingency planning	8-2	WSCP Section 4.3 + Table 4 (DWR 8-2R).
x	x	8.4	Section 8.4	10632(a)(4)(B)	Specify locally appropriate demand reduction actions to adequately respond to shortages.	Water shortage contingency planning	8-3	WSCP Section 4.2 + Table 3 (DWR 8-3).
x	x	8.4	Section 8.4	10632(a)(4)(C)	Specify locally appropriate operational changes.	Water shortage contingency planning	8-2	WSCP Section 4.4 (Operational Changes).
x	x	8.4	Section 8.4	10632(a)(4)(D)	Specify additional mandatory prohibitions against specific water use practices that are in addition to State-mandated prohibitions are appropriate to local conditions.	Water shortage contingency planning	Table 8-3	WSCP Section 4.1 (Year-Round Measures) + restrictions described; enforcement linkages in WSCP.
x	x	8.4	Section 8.4	10632(a)(4)(E)	Estimate the extent to which the gap between supplies and demand will be reduced by implementation of the action.	Water shortage contingency planning	8-2 and 8-3	WSCP Tables 3 & 4 include "How much is this going to reduce the shortage gap?" columns.
x	x	8.4	Section 8.4.6	10632.5	The UWMP shall include a seismic risk assessment and mitigation plan.	Water shortage contingency plan	n/a	WSCP Section 4.6 (Seismic Risk Assessment and Mitigation Plan).
x	x	8.5	Section 8.5	10632(a)(5)(A)	Suppliers must describe that they will inform customers, the public and others regarding any current or predicted water shortages.	Water shortage contingency planning	n/a	WSCP Section 5.0 (Communication Protocols) + Table 5.
x	x	8.5	Section 8.5	10632(a)(5)(B), 10632(a)(5)(C)	Suppliers must describe that they will inform customers, the public and others regarding any shortage response actions triggered or anticipated to be triggered and other relevant communications.	Water shortage contingency planning	n/a	WSCP Section 5.0 + Table 5.
x	n/a	8.6	Section 8.6	10632(a)(6)	Retail Supplier must describe how it will ensure compliance with and enforce provisions of the WSCP.	Water shortage contingency planning	n/a	WSCP Section 6.0 (Compliance and Enforcement) + Table 6 (Penalties).
x	x	8.7	Section 8.7	10632(a)(7)(A)	Describe the legal authority that empowers the Supplier to enforce shortage response actions.	Water shortage contingency planning	n/a	WSCP Section 7.0 (Legal Authority).
x	x	8.7	Section 8.7	10632(a)(7)(B)	Provide a statement that the Supplier will declare a water shortage emergency per Water Code Chapter 3. *Water Shortage Emergencies* .	Water shortage contingency planning	n/a	WSCP Section 7.0 references WC emergency authorities (e.g., 350 et seq.).
x	x	8.7	Section 8.7	10632(a)(7)(C)	Provide a statement that the Supplier will coordinate with any city or county within which it provides water for the possible proclamation of a local emergency.	Water shortage contingency planning	n/a	WSCP Section 7.0 states coordination with city/county for possible proclamation.
x	x	8.8	Section 8.8	10632(a)(8)(A)	Describe the potential revenue reductions and expense increases associated with activated shortage response actions.	Water shortage contingency planning	n/a	WSCP Section 8.0 (Financial Consequences).
x	x	8.8	Section 8.8	10632(a)(8)(B)	Provide a description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions.	Water shortage contingency planning	n/a	WSCP Section 8.0 (mitigation strategies; reserves, rate structure discussion).
x	n/a	8.8	Section 8.8	10632(a)(8)(C)	Retail Suppliers must describe the cost of compliance with Water Code Chapter 3.3, *Excessive Residential Water Use During Drought* .	Water shortage contingency planning	n/a	WSCP Section 8.0 discusses financial consequences/cost tracking; Chapter 3.3 compliance costs not explicitly labeled in excerpt.
x	n/a	8.9	Section 8.9	10632(a)(9)	Retail Suppliers must describe the monitoring and reporting requirements and procedures that ensure appropriate data are collected, tracked, and analyzed for purposes of monitoring customer compliance.	Water shortage contingency planning	n/a	WSCP Section 9.0 (Monitoring and Reporting) (AMI monitoring/enforcement approach).
x	x	8.10	Section 8.10	10632(a)(10)	Describe reevaluation and improvement procedures for monitoring and evaluation the WSCP to ensure risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented.	Water shortage contingency planning	n/a	WSCP Section 10.0 (WSCP Refinement Procedures).
x	n/a	8.11	Section 8.11	10632(b)	Analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas.	Water shortage contingency planning	n/a	WSCP Section 11.0 (Special Water Feature Distinction).
x	x	8.12	Section 8.12	10632(c)	Make available the WSCP to customers and any city or county where it provides water within 30 days after adoption of the plan.	Water shortage contingency planning	n/a	WSCP Section 12.0 (Plan Adoption, Submittal, and Availability).
x	n/a	9.1	Sections 9.1	10631(e)(1)	Retail Suppliers shall provide a description of the nature and extent of each demand management measure implemented over the past five years. The description will address specific measures listed in code.	Demand management measures	n/a	UWMP Chapter 9 (Demand Management Measures), p. 9-1 (TOC).
n/a	x	9.2	Sections 9.2	10631(e)(2)	Wholesale Suppliers shall describe specific demand management measures listed in code, their distribution system asset management program, and Supplier assistance program.	Demand management measures	n/a	Not applicable (Retail supplier; does not wholesale).
x	n/a	10	Chapter 10	10608.26(a)	Retail Suppliers shall conduct a public hearing to discuss adoption, implementation, and economic impact of water use targets (recommended to discuss compliance).	Plan adoption, submittal, and implementation	n/a	UWMP Section 10.1 documents public hearing/adoption (June 18, 2026) and notices; compliance discussion occurs in Chapter 5.
x	x	10.2	Section 10.2.1	10621(b)	Notify, at least 60 days prior to the public hearing, any city or county within which the Supplier provides water that the Supplier will be reviewing the UWMP and considering amendments or changes to the plan.	Plan adoption, submittal, and implementation	10-1	UWMP Section 10.1 states County of Fresno was notified and letters in Appendix J. Section 2.2 describes coordination and notice of preparation more than 60-days before the public hearing.
x	x	10.4	Section 10.4	10621(f)	Each urban water Supplier shall update and submit its 2025 plan to DWR by July 1, 202 6.	Plan adoption, submittal, and implementation	n/a	UWMP Section 1.2 states submittal due July 1, 2026.
x	x	10.2	Sections 10.2.2, 10.3, and 10.5	10642	Provide supporting documentation that the Supplier made the UWMP and WSCP available for public inspection, published notice of the public hearing, and held a public hearing about the UWMP and WSCP.	Plan adoption, submittal, and implementation	n/a	UWMP Section 10.1 lists notice dates and hearing/adoption (June 18, 2026); Appendix J letters; Appendix K resolution.
x	x	10.2	Section 10.2.2	10642	The Supplier is to provide the time and place of the hearing to any city or county within which the Supplier provides water.	Plan adoption, submittal, and implementation	10-1	UWMP Section 10.1: County notified; letters in Appendix J.
x	x	10.3	Section 10.3.2	10642	Provide supporting documentation that the UWMP and WSCP has been adopted as prepared or modified.	Plan adoption, submittal, and implementation	n/a	UWMP Section 10.1: adoption stated; resolution in Appendix K.
x	x	10.4	Section 10.4	10644(a)	Provide supporting documentation that the Supplier has submitted their UWMP to the California State Library.	Plan adoption, submittal, and implementation	n/a	UWMP Section 10.1: states UWMP/WSCP will be submitted to DWR, State Library, and County after adoption (future action).
x	x	10.4	Section 10.4	10644(a)(1)	Provide supporting documentation that the Supplier has submitted their UWMP to any city or county within which the Supplier provides water no later than 30 days after adoption.	Plan adoption, submittal, and implementation	n/a	UWMP Section 10.1: states copy will be submitted to County after adoption.
x	x	10.4	Sections 10.4.1 and 10.4.2	10644(a)(2)	The UWMP, or amendments to the UWMP, submitted to DWR shall be submitted electronically.	Plan adoption, submittal, and implementation	n/a	UWMP Section 10.1: states copy will be submitted to DWR after adoption.
x	x	10.7	Section 10.7.2	10644(b)	If revised, submit a copy of the WSCP to DWR within 30 days of adoption.	Plan adoption, submittal, and implementation	n/a	UWMP Section 10.1 and WSCP Section 12.0 states revised UWMP and WSCP will be submitted to DWR within 30 days of adoption.

Retail (x = required)	Wholesale (x = required)	Order	2025 Guidebook Location	Water Code Section	Summary as Applies to UWMP	Subject	Relevant Submittal Table	2025 UWMP Location
x	x	10.5	Section 10.5	10645(a)	Provide supporting documentation that, not later than 30 days after filing a copy of its UWMP with DWR, the Supplier has or will make the plan available for public review during normal business hours.	Plan adoption, submittal, and implementation	n/a	UWMP Section 10.1: after adoption, hard copy at City Hall and Water Division office; electronic copy on City website.
x	x	10.5	Section 10.5	10645(b)	Provide supporting documentation that, not later than 30 days after filing a copy of its WSCP with DWR, the Supplier has or will make the plan available for public review during normal business hours.	Plan adoption, submittal, and implementation	n/a	WSCP Section 12.0: after adoption, hard copy availability and electronic upload; submission to DWR described.
x	x	10.6	Section 10.6	10621(c)	If Supplier is regulated by the Public Utilities Commission, include its plan and contingency plan as part of its general rate case filings.	Plan adoption, submittal, and implementation	n/a	Not applicable: City is a municipal supplier (no PUC regulation mentioned in excerpt).

Appendix B DWR Standardized Tables

B

Submittal Table 2-1 Retail: Public Water Systems

	Has there been a change in the number of affiliated Public Water Systems since the 2020 UWMP? (OPTIONAL)		
Public Water System Number	**Public Water System Name**	**Number of Municipal Connections 2025**	**Volume of Water Supplied 2025**
Add additional rows as needed			
CA1010007	City of Fresno	141,447	148,936
	Total:	141,447	148,936
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.			
NOTES: Total water supplied include potable and non-potable water, including used for groundwater recharge.			

Submittal Table 2-2: Plan Identification

Select Only One	Type of Plan			
☑	Individual UWMP			
☐	Regional Urban Water Management Plan (RUWMP)		Name of RUWMP Drop down list	If "Other" specify name of RUWMP
NOTES:				

Submittal Table 2-3: Supplier Identification

Type of Supplier (select one or both)	
☐	Supplier is a wholesale supplier
☑	Supplier is a retail supplier
Fiscal or Calendar Year (select one)	
☑	UWMP Tables are in calendar years
☐	UWMP Tables are in fiscal years
If using fiscal years provide month and date that the fiscal year begins (mm/dd)	
Units of measure used in UWMP (select from drop down)	
Unit	AF
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.	
NOTES:	

Submittal Table 2-4 Retail: Water Supplier Information Exchange

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

Submittal Table 3-1 Retail: Population - Current and Projected | Water Code Section 10631(a)

Population Served	2025	2030	2035	2040	2045	2050(opt)
	568,964	644,146	719,327	765,278	812,529	861,080
NOTES:						

Submittal Table 4-1 Retail: Total Uses for Potable and Non-Potable Water - 2025 Actual | Water Code Section 10631(d)(1)

Use Type		2025 Actual	
Drop down list May select each use multiple times These are the only use types that will be recognized by the WUE data online submittal tool	Additional Description (as needed)	Potable or Non-Potable (OPTIONAL) Drop down list	Volume
Single Family		Potable	57,816
Multi-Family		Potable	18,040
Commercial	Includes Institutional	Potable	17,251
Industrial		Potable	4,672
Landscape		Potable	11,325
Other (optional)	Travel Meters	Potable	396
Distribution System Water Loss		Potable	5,149
Groundwater recharge		Non-Potable	33,962
Landscape		Non-Potable	325
		Subtotal Potable	114,649
		Subtotal Non-Potable	34,287
		Total:	148,936

DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.
USER TESTING: For reporting of STORAGE, see guidance in email.

NOTES: Institutional/governmental is included in the Commercial use type.

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... and shall include...
(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

Submittal Table 4-2 Retail: Total Uses of Potable, and Non-Potable Water - Projected | Water Code Section 10631(d)(1)

Use Type		Projected Water Use (Report To the Extent that Records are Available)					
Drop down list May select each use multiple times These are the only Use Types that will be recognized by the WUEdata online submittal tool	Additional Description (as needed)	Potable or Non-Potable (OPTIONAL) Drop down list	2030	2035	2040	2045	2050 (opt)
Single Family		Potable	80,429	82,934	85,437	87,936	90,434
Multi-Family		Potable	20,654	21,737	22,831	23,935	25,050
Commercial	Includes Institutional	Potable	21,259	22,774	24,290	25,807	27,325
Industrial		Potable	9,003	9,922	10,841	11,758	12,675
Landscape		Potable	5,045	5,437	5,829	6,221	6,613
Other (optional)	Tavel Meters	Potable	201	202	203	204	205
Distribution System Water Loss		Potable	10,911	11,424	11,938	12,453	12,968
Groundwater recharge		Non-Potable	61,300	64,300	66,100	66,200	66,200
Landscape		Non-Potable	980	1,430	1,430	1,430	1,430
Subtotal Potable			147,502	154,430	161,369	168,314	175,270
Subtotal Non-Potable			62,280	65,730	67,530	67,630	67,630
Total:			**209,782**	**220,160**	**228,899**	**235,944**	**242,900**

DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.
USER TESTING: For reporting of STORAGE, see guidance in email.

NOTES: Institutional/governmental is included in the Commercial use type.

Submittal Table 4-3 Retail: Inclusion in Water Use Projections | Water Code Section 10631 (a), 10631 (d)(4)(A), and 10631 (d)(4)(B)

Are Future Water Savings Included in Projections? (Refer to Appendix K of UWMP Guidebook) Drop down list (y/n)	Yes
If "Yes" to above: State the section or page number, in the cell to the right, where citations of the codes, ordinances, or otherwise are utilized in demand projections are found. **OPTIONAL** Suppliers may complete Optional Submittal Table 4-4 R to quantify the expected savings.	Section 4.2.5.3
Are Lower Income Residential Demands Included In Projections? (Refer to Appendix K of UWMP Guidebook) Drop down list (y/n)	Yes
OPTIONAL If the method for accounting Lower Income Residential Demands has been included, provide page number where this accounting can be found. (An example is included in Appendix K.)	Section 4.3
NOTES:	

OPTIONAL Submittal Table 4-4 R: Passive Water Savings Projection | Water Code Section 10631(d)(4)(A)

Description (Codes, Standards, Ordinances, or Plans)	Passive Savings				
	2030	2035	2040	2045	2050 (opt)
Passive Conservation	2,006	2,994	3,974	4,944	5,905
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.					
NOTES:					

Submittal Table 4-5 Retail: Water Loss Audit Reporting | Water Code Section 10631(d)(3)(A)

Public Water System ID # Reported in Table 2-1 R	Reporting Period	Submitted to DWR Water Loss Audit Program (yes/no)
Report all five years for each Public Water System as available.		
CA1010007	2021	Yes
CA1010007	2022	Yes
CA1010007	2023	Yes
CA1010007	2024	Yes
CA1010007	2025	No
DWR NOTES: Suppliers will provide a reference to the WUEdata submittals of their Water Loss Audit Reports		
NOTES: The 2025 Water Audit is in progress and will be submitted once it is completed.		

Submittal Table 4-6 Retail: Progress Towards 2028 Water Loss Standard | Water Code Section 10631(d)(3)(C)

Public Water System ID #	Did the Water Board Calculate a Water Loss	Real Water Loss	Apparent Water Loss

Submittal Table 4-6 Retail: Progress Towards 2028 Water Loss Standard | Water Code Section 10631(d)(3)(C)

Public Water System ID # Reported in Submittal Table 2-1 R	Did the Water Board Calculate a Water Loss Standard for this Public Water System? (y/n) If no, Supplier will not complete this row.	Real Water Loss					Apparent Water Loss				
		2028 Real Water Loss Standard per Unit per day (as calculated by the Water Board)	Units for Real Water Loss (as used by the Water Board) Drop down list	Number of Units (Connections or Miles corresponding with units selected.)	Volume of Total Real Loss (from AWWA Water Loss Audit)	2025 or Most Recent Year Real Water Loss Per Unit per Day	2028 Apparent Water Loss Standard per Unit per Day (as calculated by the Water Board	Units for Apparent Water Loss	Number of Connections	Volume of Total Apparent Loss (from AWWA Water Loss Audit)	2025 or Most Recent Year Apparent Water Loss Per Unit per Day
Add additional rows as needed.											
CA1010007	Yes	15.5	Gallons per Service Connection per Day (GPSCD)	141,623	1,525.90	**9.6**	10.3	Gallons per Service Connection per Day (GPSCD)	141,623	2,837.96	**17.9**

Water Board's Calculated Water Loss Standards

DWR NOTES: Units of measure (AF, CCF, MG) for Water Loss MUST remain consistent with units reported in Submittal Table 2-3. The units reported in Submittal Table 2-3 are used in this table's calculations.

NOTES: 2024 AWWA Water Loss Audit is the most recent available audit. All data is pulled from the 2024 Water Loss Audit.

Submittal Table 5-1 Retail: SB X7-7 2020 Target Progress | Water Code Section 10608.40

☐	Not an Urban Water Supplier in 2020. Supplier will not complete this table.					
				Only for suppliers that did not meet the		
Regional Alliance Target or Individual Target? Drop down list	2020 Target	Actual 2020 GPCD	Did Supplier Achieve Targeted Reduction for 2020?	Was Supplier part of a merger or consolidation since 2020?	Actual 2025 GPCD (From SB X7-7 Compliance Form)	Did Supplier meet the 2020 Target in 2025?
Individual Target	247	198	Yes			
DWR NOTES: Suppliers calculating a 2025 GPCD will need to complete and submit SB X 7-7						
NOTES:						

Submittal Table 6-1 Retail: Groundwater Volume Pumped | Water Code Section 10631(4) and

☐	Supplier does not pump groundwater. The supplier will not complete the table below.						
☐	All or part of the groundwater described below is desalinated. (OPTIONAL)						
Groundwater Type Drop Down List May use each category multiple times	**Water Type (OPTIONAL) Drop down list**	**Location or Basin Name**	**2021**	**2022**	**2023**	**2024**	**2025**
Alluvial Basin	Potable	San Joaquin Groundwater Basin: Kings Subbasin	65,347	55,835	50,537	46,117	47,976
		Total:	**65,347**	**55,835**	**50,537**	**46,117**	**47,976**
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported							
NOTES:							

Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2025 | Water Code Section 10633(a)

☐	There is no wastewater collection system. The supplier will not complete the table below.
	Percentage of 2025 service area covered by wastewater collection system (OPTIONAL)
	Percentage of 2025 service area population covered by wastewater collection system (OPTIONAL)

Wastewater Collection		Recipient of Collected Wastewater		
Name of Wastewater Collection Agency	**Wastewater Volume Metered or Estimated? OPTIONAL Drop Down List**	**Volume of Wastewater Collected from UWMP Service Area 2025**	**Name of Wastewater Treatment Plant (WWTP) Drop down list**	**Is WWTP Located Within UWMP Area? Drop Down List**
City of Fresno	Metered	60,582	Fresno Regional WWTF, Place ID 273115	Yes
City of Fresno	Metered	288	North Fresno WWRF, Place ID 215677	Yes
Total Wastewater Received from UWMP Service Area in 2025:		**60,869**		

DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.

NOTES:

Submittal Table 6-3 Retail: Wastewater Treatment and End Uses Within UWMP Service Area in 2025 | Water Code Section 10633(a)

☐	No wastewater is treated or disposed of within the UWMP service area. The supplier will not complete the table below.

Wastewater Treatment Plant Name and Place ID Number Drop down list	Does This Plant Treat Wastewater Generated Outside the UWMP Service Area? (OPTIONAL) Drop down list	2025 Volume of Wastewater Received from UWMP Service Area (As Reported in Submittal Table 6-2 R)	Total 2025 Volume of Water Treated	2025 End Uses of Wastewater in UWMP Service Area										
				Recycled Water Within UWMP Service Area		Recycled Water Outside of UWMP Service Area		Wastewater Discharged		Instream Flow Permit Requirements		Wastewater Delivered to Another Entity		
				Recycled Water Standard or Treatment Level Drop down list	Volume	Recycled Water Standard or Treatment Level Drop down list	Volume	Recycled Water Standard or Treatment Level Drop down list	Volume	Recycled Water Standard or Treatment Level Drop down list	Volume	Recycled Water Standard or Treatment Level Drop down list	Volume	Name of other entity
Add additional rows as needed														
Fresno Regional WWTF, Place ID 273115	Yes	60,582	60,582	Tertiary	298	Secondary, Undisinfected	6,373	Secondary, Disinfected - 23	53,911					
North Fresno WWRF, Place ID 215677	No	288	288	Tertiary	26			Tertiary	262					
Total:		**60,869**	**60,869**		**324**		**6,373**		**54,172**		**0**		**0**	

DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.

NOTES:

Submittal Table 6-4 Retail: Recycled Water Direct Beneficial Uses Within Service Area | Water Code Section 10633 (c)(d)

☐	Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will only complete the column on "Potential Recycled Water Use" and submit an accompanying narrative on the feasibility of that potential recycled water use.

Name(s) of Facility/ies Producing (Treating) the Recycled Water (OPTIONAL) :	City of Fresno Fresno-Clovis Regional Wastewater Reclamation Facility and Northwest Fresno Water Reclamation Facility
Name of Supplier Operating the Recycled Water Distribution System	City of Fresno
Supplemental Water Added in 2025 (volume) Include units (OPTIONAL) :	0
Source of 2025 Supplemental Water (OPTIONAL) :	

Use Type Drop down list	Water Type (after treatment if treated) (OPTIONAL)	Additional Information (as needed)	2025	2030	2035	2040	2045	2050 (opt)	Potential Recycled Water Use	
									Volume	Narrative page number
Agricultural irrigation	Non-Potable	Irrigate non-food and limited food crops	6,373	6,300	6,300	6,300	6,300	6,300	6,300	6-33
Landscape irrigation (exc golf courses)	Non-Potable	Distributed through the southwest recycled water distribution system	298	700	1150	1150	1150	1150	1150	6-33
Golf course irrigation	Non-Potable	Copper River Golf Course	26	280	280	280	280	280	280	6-33
		Total:	**6,697**	**7,280**	**7,730**	**7,730**	**7,730**	**7,730**	**7,730**	

DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.
Potential recycled water use - a description of the feasibility of these uses must be included in the narrative.

NOTES:

Submittal Table 6-5 Retail: 2020 UWMP Recycled Water Use Projection Compared to 2025 Actual | Water Code Section 10633

☐	Recycled water was not used in 2025 nor projected for use in 2020. The supplier will not complete the table below.		
Use Type		**2020 Projection for 2025**	**2025 Actual Use**
Agricultural irrigation	Non-food and limited food crop irrigation	8,310	6373
Landscape irrigation (exc golf courses)	Landscape irrigation, distributed through the southwest recycled water distribution system	5,800	298
Golf course irrigation	Copper River Golf Course	110	26
	Total:	**14,220**	**6,697**
DWR NOTES Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.			
NOTES:			

Submittal Table 6-6 Retail: Methods to Encourage Future Recycled Water Use | Water Code Section 10633 (f)

☐	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative		
☑	Provide page location of narrative in UWMP: Section 6.5.5.		
Name of Action	**Description**	**Planned Implementation Year**	**Expected Increase in Recycled Water Use**
Add additional rows as needed			
		Total:	
		Total (AF):	**0**
DWR NOTES: Units of measure (AF, CCF, MG) MUST remain consistent with units reported in Submittal Table 2-3. The units reported in Submittal Table 2-3 are used in this table's			
NOTES:			

Submittal Table 6-7 Retail: Expected Future Water Supply Projects or Programs | Water Code Section 10631 (f)

☐	No expected future water supply projects or programs that provide a quantifiable increase to the agency's water supply. Supplier will not complete the table below
☑	Some or all of the supplier's future water supply projects or programs are not compatible with this table and are described in a narrative format.
Section 6.8	Provide page location of narrative in the UWMP

Name of Future Projects or Programs	Joint Project with other suppliers?		Additional Description (as needed)	Water Type (after treatment if treated) (OPTIONAL) Drop Down list	Planned Implementation Year	Planned for Use in Year Type Drop Down List	Expected Increase in Water Supply to Supplier (This may be a range)
	Drop Down List (yes/no)	If Yes, Supplier Name					
Add additional rows as needed							
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.							
NOTES:							

Submittal Table 6-8 Retail: Water Supplies — 2025 Actual | Water Code Section 10631 (b)

Water Supply		2025		
Drop down list May use each category multiple times.These are the only water supply categories that will be recognized by the WUEdata online submittal tool	Additional Description (as needed)	Actual Volume	Water Type (after treatment if treated) (OPTIONAL) Drop Down list	Total Right or Safe or Sustainable Yield (OPTIONAL)
Groundwater (not desalinated)		47,976	Potable	
Surface water (not desalinated)	USBR CVP	56,197	Potable	
Surface water (not desalinated)	FID Kings River	44,438	Potable	
Recycled Water	RWRF	298	Non-Potable	
Recycled Water	NFWRF	26	Non-Potable	
Total:		**148,936**		

DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.

NOTES:

OPTIONAL Submittal Table 6-8DS: Source Water Desalination by Urban Water Supplier

☑	Supplier does not reduce salinity in either groundwater or surface water prior to distribution.										
Desalination Facility (Drop Down list)	Plant Capacity	Intake Type Drop down list	Source Water Type Drop down list	Influent TDS	Brine Discharge Drop down list	Volume of Water Desalinated					Name(s) of Agencies that Receive this Water
						2021	2022	2023	2024	2025	
					Total:	0	0	0	0	0	
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submital Table 2-3.											
NOTES:											

Submittal Table 6-9 Retail: Water Supplies — Projected | Water Code Section 10631 (b)

Water Supply			Projected Water Supply (Report to the Extent Practicable)									
			2030		2035		2040		2045		2050 (opt)	
Drop down list May use each category multiple times.These are the only water supply categories that will be recognized by the WUEdata online submittal tool	Additional Detail on Water Supply	Water Type (after treatment if treated) (OPTIONAL) Drop Down list	Reasonably Available Volume	Total Right or Safe or Sustainable Yield (OPTIONAL)	Reasonably Available Volume	Total Right or Safe or Sustainable Yield (OPTIONAL)	Reasonably Available Volume	Total Right or Safe or Sustainable Yield (OPTIONAL)	Reasonably Available Volume	Total Right or Safe or Sustainable Yield (OPTIONAL)	Reasonably Available Volume	Total Right or Safe or Sustainable Yield (OPTIONAL)
Groundwater (not desalinated)		Potable	109,710		113,000		115,090		115,490		115,590	
Surface water (not desalinated)	USBR CVP	Potable	60,000		60,000		60,000		60,000		60,000	
Surface water (not desalinated)	FID Kings River	Potable	131,600		131,600		131,600		131,600		131,600	
Recycled Water	RWRF	Non-Potable	700		1,150		1,150		1,150		1,150	
Recycled Water	NFWRF	Non-Potable	280		280		280		280		280	
		Total:	**302,290**	**-**	**306,030**	**-**	**308,120**	**-**	**308,520**	**-**	**308,620**	**-**

DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.
USER TESTING: For reporting of STORAGE, see guidance in email.

NOTES:

Table O-1B: Recommended Energy Reporting - SINGLE DELIVERY PRODUCT - TOTAL UTILITY APPROACH

Water Delivery Product drop down list (If delivering more than one type of product use Table O-	**Retail Potable Deliveries**	**Urban Water Supplier Operational Control**		
Start Date of Reporting Period	**1/1/2025**	**Sum of All Water Management Processes**	**Non-Consequential Hydropower**	
End Date of Reporting Period	**12/31/2025**			
Is upstream embedded energy in the values reported?	**No**			
Units of Measure for Water	**AF**	**Total Utility**	**Hydropower**	**Net Utility**
Volume of Water Entering Process		**114,649**		**114,649**
Energy Consumed (kWh)		**442,527,825**		**442,527,825**
Energy Intensity (kWh/vol. converted to MG)		**11,845**	**0**	**11,845**
Quantity of Self-Generated Renewable Energy				
0	**kWh**			
Data Quality (Estimate, Metered Data, Combination of Estimates and Metered Data)				
Metered Data				
Data Quality Narrative:				
Narrative:				

OPTIONAL Submittal Table 7-1 Retail: Basis of Water Year Data (Reliability Assessment)

Year Type	Base Year (If not using a calendar year, type in the last year of the fiscal, water year, or range of years, for example, water year 2024-2025, use 2025)	Available Supplies if Year Type Repeats		
		☑	Quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP. Location Section 7.2	
		Quantification of available supplies is provided in this table as either volume only, percent only, or both.		
		Volume Available		% of Average Supply
Average Year				
Single-Dry Year				
Consecutive Dry Years 1st Year				
Consecutive Dry Years 2nd Year				
Consecutive Dry Years 3rd Year				
Consecutive Dry Years 4th Year				
Consecutive Dry Years 5th Year				

DWR NOTES: Supplier may use multiple versions of Submittal Table 7-1 R if different water sources have different base years and the supplier chooses to report the base years for each water source separately. If a Supplier uses multiple versions of Submittal Table 7-1 R, in the "Note" section of each submittal table, state that multiple versions of Submittal Table 7-1 R are being used and identify the particular water source that is being reported in each submittal table.
Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.

NOTES:

Submittal Table 7-2 Retail: Normal Year Supply and Demand Use Comparison | Water Code

	2030	2035	2040	2045	2050 (Opt)
Supply totals (autofill from Submittal Table 6-9 R)	302,290	306,030	308,120	308,520	308,620
Use totals (autofill from Submittal Table 4-2 R)	209,782	220,160	228,899	235,944	242,900
Surplus/(shortfall)	92,508	85,870	79,221	72,576	65,720
OPTIONAL Planned WSCP Actions					
WSCP - supply augmentation benefit					
WSCP - use reduction savings benefit					
Revised Surplus/(shortfall)					
NOTES:					

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 long-term total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and a drought lasting five consecutive water years.

Submittal Table 7-3 Retail: Single Dry Year Supply and Demand Comparison | Water Code Section 10635(a)

	2030	2035	2040	2045	2050 (Opt)
Supply Totals:	177,982	186,746	195,073	203,407	211,754
Use Totals:	148,482	155,860	162,799	169,744	176,700
Surplus/(shortfall)	29,500	30,886	32,274	33,663	35,054
OPTIONAL Planned WSCP Actions					
WSCP - supply augmentation benefit					
WSCP - use reduction savings benefit					
Revised Surplus/(shortfall)					
DWR NOTES : Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.					
NOTES:					

Submittal Table 7-4 Retail: Five Consecutive Dry Years Supply and Demand Comparison | Water Code Section 10635(a)

		2030	2035	2040	2045	2050 (Opt)
First Year	**Supply Totals:**	240,156	243,896	245,986	246,386	246,486
	Use Totals:	210,656	213,010	213,712	212,723	211,432
	Surplus/(shortfall)	29,500	30,886	32,274	33,663	35,054
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Second Year	**Supply Totals:**	212,018	215,758	217,848	218,248	218,348
	Use Totals:	182,518	184,872	185,575	184,586	183,294
	Surplus/(shortfall)	29,500	30,886	32,274	33,663	35,054
	OPTIONAL WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Third Year	**Supply Totals:**	197,212	200,952	203,042	203,442	211,754
	Use Totals:	167,711	170,066	170,768	169,779	176,700
	Surplus/(shortfall)	29,500	30,886	32,274	33,663	35,054
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					

Submittal Table 7-4 Retail: Five Consecutive Dry Years Supply and Demand Comparison | Water Code Section 10635(a)

		2030	2035	2040	2045	2050 (Opt)
Fourth Year	**Supply Totals:**	177,982	186,746	195,073	203,407	211,754
	Use Totals:	148,482	155,860	162,799	169,744	176,700
	Surplus/(shortfall)	29,500	30,886	32,274	33,663	35,054
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					
Fifth Year	**Supply Totals:**	284,208	287,948	290,038	290,438	290,538
	Use Totals:	254,708	257,062	257,764	256,775	255,484
	Surplus/(shortfall)	29,500	30,886	32,274	33,663	35,054
	OPTIONAL Planned WSCP Actions					
	WSCP - supply augmentation benefit					
	WSCP - use reduction savings benefit					
	Revised Surplus/(shortfall)					

DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in

NOTES:

Submittal Table 7-5 Retail: Five-Year Drought Risk Assessment | Water Code Section 10635(b)(3)

2026	Total
Total Water Use:	206,568
Total Supplies:	230,812
Surplus/Shortfall w/o WSCP Action	**24,244**
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
2027	**Total**
Total Water Use:	180,137
Total Supplies:	205,695
Surplus/Shortfall w/o WSCP Action	**25,558**
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
2028	**Total**
Total Water Use:	166,906
Total Supplies:	193,778
Surplus/Shortfall w/o WSCP Action	**26,872**
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
2029	**Total**
Total Water Use:	141,657
Total Supplies:	169,843
Surplus/Shortfall w/o WSCP Action	**28,186**
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	

Submittal Table 7-5 Retail: Five-Year Drought Risk Assessment | Water Code Section 10635(b)(3)

2030	Total
Total Water Use:	254,708
Total Supplies:	284,208
Surplus/Shortfall w/o WSCP Action	**29,500**
OPTIONAL Planned WSCP Actions (use reduction and supply augmentation)	
WSCP - supply augmentation benefit	
WSCP - use reduction savings benefit	
Revised Surplus/(shortfall)	
DWR NOTES: Units of measure (AF, CCF, MG) must remain consistent throughout the UWMP as reported in Submittal Table 2-3.	
NOTES:	

Submittal Table 8-1: Cross-reference for Standard vs Supplier Shortage Levels | Water Code Section 10632(a)(3)(B)

☐	Supplier Uses the Standard Six Levels of Water Shortage. The supplier will not complete this table.		
Standard Shortage Levels	**Percent Shortage Range**	**Suppliers Shortage Levels**	**Percent Shortage Range**
1	Up to 10%	1	Up to 10%
2	Up to 20%	2	10-25%
3	Up to 30%	2,3	25-35%
4	Up to 40%	3,4	35-50%
5	Up to 50%	4	35-50%
6	>50%	5	>50%
NOTES:			

Submittal Table 8-2 Retail: Supply Augmentation and Other Actions | Water Code Section 10632(a)(4)(A),(C) and (E)

No	Is the Supplier completing this table using the standard six levels? (yes/no)		
Shortage Level	**Supply Augmentation Methods and Other Actions by Water Supplier Drop down list These are the only categories that will be accepted by the WUEdata online submittal tool**	**How much is this going to reduce the shortage gap? Include units used (volume type or percentage)**	**Additional Explanation or Reference (OPTIONAL)**
1 to 5	Transfers	As needed	Purchase or exchange available USBR or FID surface water
1 to 5	Other Purchases	As needed	Interconnection with City of Clovis for use in emergencies
NOTES:			

Submittal Table 8-3 Retail: Demand Reduction Actions | Water Code Section 10632(a)(4)(B) and (E)

No	Is the Supplier completing this table using the standard six levels? (yes/no)			
Shortage Level	**Demand Reduction Actions Drop down list These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.**	**How much is this going to reduce the shortage gap? Include units used (volume type or percentage)**	**Additional Explanation or Reference (OPTIONAL)**	**Penalty, Charge, or Other Enforcement? For Retail Suppliers Only** Drop Down List
All	Expand Public Information Campaign	Not Applicable	Community outreach includes classroom presentations, outreach educational information, and water tours. Increase communication as drought stages increase.	No
All	Improve Customer Billing	Not Applicable	Water bills show customer usage vs. average usage for the customer category. Increase customer notifications of high water use based on advanced metering infrastructure data as drought stages increase.	No
All	Offer Water Use Surveys	Not Applicable	Use water leak surveys with all community members	No
All	Provide Rebates for Landscape Irrigation Efficiency	Not Applicable	The City offers rebates for micro-irrigation conversions, soil moisture sensors, smart irrigation controller, and rain sensors to improve efficiencies.	No
All	Provide Rebates for Turf Replacement	Not Applicable	The City provides rebates for community members who wish to replace their turf with a drought-resistant garden.	No
All	Provide Rebates on Plumbing Fixtures and Devices	Not Applicable	The City offers rebates on a variety of high-efficiency plumbing fixtures, such as washers, toilets, and urinals.	No
All	Decrease Line Flushing	Not Applicable	The City uses NO-DES for regular pipe flushing to eliminate discharging water.	No
All	Reduce System Water Loss	Not Applicable	The City has a comprehensive system water loss reduction program in place. Increase efforts to correct water system losses as drought stages increase.	No
1	Decrease Line Flushing	0 to 100% of shortage gap	For dead-end flushing where the NO-DES truck cannot be used, reduce normal flushing time.	No
1	Increase Water Waste Patrols	0 to 100% of shortage gap	Increase monitoring of AMI reporting and communication with customers; Conduct patrols based on public input.	No
1	Landscape - Limit landscape irrigation to specific times	0 to 100% of shortage gap	Voluntary limits: Summer: three days/week Winter: one day/week	No
2	Landscape - Limit landscape irrigation to specific times	0 to 100% of shortage gap	Summer: three days/week Winter: one day/week	Yes
3	Landscape - Limit landscape irrigation to specific times	0 to 100% of shortage gap	Summer: two days/week Winter: one day/week	Yes

Submittal Table 8-3 Retail: Demand Reduction Actions | Water Code Section 10632(a)(4)(B) and (E)

No	Is the Supplier completing this table using the standard six levels? (yes/no)			
Shortage Level	**Demand Reduction Actions Drop down list These are the only categories that will be accepted by the WUEdata online submittal tool. Select those that apply.**	**How much is this going to reduce the shortage gap? Include units used (volume type or percentage)**	**Additional Explanation or Reference (OPTIONAL)**	**Penalty, Charge, or Other Enforcement? For Retail Suppliers Only** Drop Down List
4	Landscape - Limit landscape irrigation to specific times	0 to 100% of shortage gap	Summer: one day/week Winter: one day/week	Yes
4	Other - Prohibit use of potable water for construction and dust control	0 to 100% of shortage gap	Prohibit use of potable water for construction, compaction, dust control, street or parking lot sweeping, and building washdowns where non-potable or recycled water is sufficient.	Yes
4	Other - Prohibit vehicle washing except at facilities using recycled or recirculating water	0 to 100% of shortage gap	Prohibit washing cars, boats, trailers, aircraft, or other vehicles, except at commercial or fleet vehicle-washing facilities using water recycling equipment.	Yes
4	Pools and Spas - Require covers for pools and spas	0 to 100% of shortage gap	Require covers for swimming pools when not in use.	No
4	Other	0 to 100% of shortage gap	Prohibit use of potable water for sewer system maintenance or fire protection training without prior approval by the City manager.	No
4	Other	0 to 100% of shortage gap	Prohibit use of outdoor misters.	No
5	Landscape - Prohibit all landscape irrigation	0 to 100% of shortage gap	Prohibit outdoor irrigation year-round.	Yes
5	Moratorium or Net Zero Demand Increase on New Connections	0 to 100% of shortage gap	The City will temporarily limit or ban new water service connections within the service area.	No
NOTES:				

Submittal Table 10-1 Retail: Notification to Cities and Counties | Water Code Section 10621(b) and 10642

City Name	60 Day Notice	Notice of Public Hearing
Add additional rows as needed		
City of Clovis	Yes	Yes
County Name Drop Down List	**60 Day Notice**	**Notice of Public Hearing**
Add additional rows as needed		
Fresno County	Yes	Yes
NOTES:		

Appendix C City of Fresno's Reduce Delta Reliance Reporting

C

Appendix C - Delta Reliance

1. Background

Under the Sacramento-San Joaquin Delta Reform Act of 2009, state and local public agencies proposing a covered action (e.g., a proposed project) in the Sacramento-San Joaquin Delta (Delta), prior to initiating the implementation of that action, must prepare a written certification of consistency with detailed findings as to whether the covered action is consistent with applicable Delta Plan policies and submit that certification to the Delta Stewardship Council.

Anyone may appeal a certification of consistency. If the Delta Stewardship Council grants the appeal, the covered action may not be implemented until the agency proposing the covered action submits a revised certification of consistency. The covered action may be implemented if either: 1) no appeal is filed; or 2) the Delta Stewardship Council denies the appeal to the revised certification of consistency.

The City of Fresno (City) contracts with the United States Bureau of Reclamation (USBR) Central Valley Project (CVP) Friant Division for an annual supply of 60,000 AF of Class 1 water through an agreement originally executed in January 1961. Although the Friant Division of the CVP does not pull water from the Delta, the project was developed through an exchange agreement reached in 1939 with the Delta-Mendota supply that provides water to the Exchange Contractors[1] with historic pre-1914 San Joaquin River water rights. As restrictions on Delta exports have hindered USBR from making deliveries to the Delta-Mendota Canal, the Exchange Contractors can call on their historic rights, which reduces the Friant Division Class 1 allocations. As such, the City is required to demonstrate consistency with the Delta Plan's policy to reduce reliance on the Delta.

An urban water supplier that anticipates participating in or receiving water from a proposed covered action such as a multi-year water transfer, conveyance facility, or new diversion that involves transferring water through, exporting water from, or using water in the Delta should provide information in their Urban Water Management Plans (UWMPs) that can then be used in the covered action process to demonstrate consistency with Delta Plan Policy WR P1, Reduce Reliance on the Delta Through Improved Regional Water Self-Reliance (WR P1).

WR P1 details what is needed for a covered action to demonstrate consistency with reduced reliance on the Delta and improved regional self-reliance. WR P1 subsection (a) states that:

[1] The Exchange Contractors are the benefactors of the historic pre-1914 water rights established by Miller and Lux. These contracts include: Central California Irrigation District; San Luis Canal Company; Firebaugh Canal Water District; and Columbia Canal Company, per http://www.sjrecwa.net/history.html (accessed April 10, 2026).

(a) Water shall not be exported from, transferred through, or used in the Delta if all of the following apply:

(1) One or more water suppliers that would receive water as a result of the export, transfer, or use have failed to adequately contribute to reduced reliance on the Delta and improved regional self-reliance consistent with all of the requirements listed in paragraph (1) of subsection (c);

(2) That failure has significantly caused the need for the export, transfer, or use; and

(3) The export, transfer, or use would have a significant adverse environmental impact in the Delta.

WR P1 subsection (c)(1) further defines what adequately contributing to reduced reliance on the Delta means in terms of (a)(1) above.

(c)(1) Water suppliers that have done all the following are contributing to reduced reliance on the Delta and improved regional self-reliance and are therefore consistent with this policy:

(A) Completed a current Urban or Agricultural Water Management Plan (Plan) which has been reviewed by the California Department of Water Resources for compliance with the applicable requirements of Water Code Division 6, Parts 2.55, 2.6, and 2.8;

(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta; and

(C) Included in the Plan, commencing in 2015, the expected outcome for measurable reduction in Delta reliance and improvement in regional self-reliance. The expected outcome for measurable reduction in Delta reliance and improvement in regional self- reliance shall be reported in the Plan as the reduction in the amount of water used, or in the percentage of water used, from the Delta watershed. For the purposes of reporting, water efficiency is considered a new source of water supply, consistent with Water Code section 1011(a).

The analysis and documentation provided below include all the elements described in WR P1(c)(1) that need to be included in a water supplier's UWMP to support a certification of consistency for a future covered action.

2. Methodology

As stated in WR P1(c)(1)(C), the policy requires that, commencing in 2015, UWMPs include expected outcomes for improved regional self-reliance and measurable reduction in Delta reliance. WR P1 further states that those outcomes shall be reported in the UWMP as the reduction in the amount of water used, or in the percentage of water used, from the Delta. The expected outcomes for the City's regional self-reliance and reduced Delta reliance were developed using the approach and guidance described in Appendix C of DWR's Urban Water Management Plan Guidebook 2025 issued in January 2025 (Guidebook Appendix C), including the use of narrative justifications for the accounting of supplies and the documentation of specific data sources.

All data were obtained from planning documents adopted by the City Council, including the current and previous UWMPs and Metropolitan Water Resource Management Plan (Metro Plan) and represent average or normal water year conditions. Using normal water year demands serves as a proxy for the amount of supplies that would be used in a normal water year, which helps alleviate issues associated with how supply capability is presented to fulfill requirements of the UWMP Act versus how supplies might be accounted for to demonstrate consistency with WR P1.

To calculate the expected outcomes for improved regional self-reliance and reduced Delta reliance, a baseline is needed to compare against. This analysis uses a normal water year representation of 2010 as the baseline, which is consistent with the approach described in the Guidebook Appendix C. Data for the 2010 baseline were taken from the City's 2008 UWMP. Consistent with the 2010 baseline data approach, the expected outcomes for improved regional self-reliance and reduced Delta reliance for 2015, 2020, and 2025 were taken from the City's 2010, 2015, and 2020 UWMPs, respectively. Expected outcomes for 2030-2050 are from the current 2025 UWMP. Documentation of the specific data sources and assumptions are included in the discussions below.

3. Demonstration of Regional Self-Reliance

3.1 Service Area Demands without Water Use Efficiency

Because WR P1 considers water use efficiency savings a source of water supply, water suppliers such as the City that do not explicitly quantify water use efficiency savings in their UWMPs can calculate their embedded water use efficiency savings based on changes in forecasted per capita water use since the baseline.

Agencies that explicitly calculate and report water use efficiency savings in their UWMP will need to make an adjustment to properly reflect normal water year demands in the calculation of reduced reliance. As explained in the Guidebook Appendix C, water use efficiency savings must be added back to the normal year demands to represent demands without water use efficiency savings accounted for; otherwise the effect of water use efficiency savings on regional self-reliance would be overestimated. Table 1 (included at the end of this appendix) shows the results of this adjustment for the City. Supporting narratives and documentation for all the data shown in Table 1 are provided below.

Service Area Demands with Water Use Efficiency

The service area demands shown in Table 1 represent the total water demands for the City's service area. The demand data shown in Table 1 were collected from the following sources:

- Baseline (2010): Fresno 2008 UWMP, Table 6-5
- 2015: Fresno 2010 UWMP, Table 7-2
- 2020: Fresno 2015 UWMP, Table 4-4
- 2025: Fresno 2020 UWMP, Table 4-6
- 2030-2050: Fresno 2025 UWMP, Table 4-6

Non-Potable Water Demands

The non-potable water demands shown in Table 1 represent recycled water use that offsets potable water use in the City's service area. The demand data shown in Table 1 were collected from the following sources:

- Baseline (2010): Fresno 2008 UWMP, Table 10-7
- 2015: Fresno 2010 UWMP, Table 7-1
- 2020: Fresno 2015 UWMP, Table 6-14
- 2025: Fresno 2020 UWMP, Table 4-7
- 2030-2050: Fresno 2025 UWMP, Table 4-6

Potable Service Area Demands with Water Use Efficiency

Subtract "Non-Potable Water Demands" from "Service Area Demands with Water Use Efficiency."

Service Area Population

The population data shown in Table 1 were collected from the following sources:

- Baseline (2010) and 2015: Fresno 2015 UWMP, Table 5-1
- 2020: Fresno 2020 UWMP, Table 3-3
- 2025-2050: Fresno 2025 UWMP, Table 3-3

Estimated Water Use Efficiency Since Baseline

The "Per Capita Water Use" calculated using "Potable Service Area Demands with Water Use Efficiency" divided by "Service Area Population". The "Change in Per Capita Water Use from Baseline" was then calculated by comparing with 2010 Per Capita Water Use. Finally, the "Estimated Water Use Efficiency Since Baseline" was calculated by multiplying the "Change in Per Capita Water Use from Baseline" by the population for one (1) year.

Service Area Water Demands without Water Use Efficiency

Add "Service Area Demands with Water Use Efficiency" to "Estimated Water Use Efficiency Since Baseline."

3.2 Supplies Contributing to Regional Self-Reliance

For a covered action to demonstrate consistency with the Delta Plan, WR P1 subsection (c)(1)(C) states that water suppliers must report the expected outcomes for measurable improvement in regional self-reliance. Table 2 shows expected outcomes for supplies contributing to regional self-reliance both in amount and as a percentage. The numbers shown in Table 2 (included at the end of this appendix) represent efforts to improve regional self-reliance for the City's entire service area and include the total contributions of the City and its customers. Supporting narratives and documentation for all of the data shown in Table 2 are provided below.

Estimated Water Use Efficiency Since Baseline

The water use efficiency information shown in Table 2 is taken directly from Table 1.

Water Recycling

The water recycling information shown in Table 2 is taken from the Non-Potable Water Demands row in Table 1.

Local and Regional Water Supply and Storage Programs

The values shown in Table 2 represent groundwater supplies considering both natural recharge and intentional recharge. The supply data shown in Table 2 were collected from the following sources:

- Baseline (2010): Fresno 2008 UWMP, Table 4-9
- 2015: Fresno 2010 UWMP, Table 7-1

- 2020: Fresno 2015 UWMP, Table 6-14
- 2025: Fresno 2020 UWMP, Table 6-8
- 2030-2050: Fresno 2025 UWMP, Table 6-9

Other Programs and Projects that Contribute to Regional Self-Reliance

The values shown in Table 2 represent Kings River supplies considering both contracted supplies and recycled water exchange supplies. The supply data shown in Table 2 were collected from the following sources:

- Baseline (2010): Fresno 2008 UWMP, Table 4-11
- 2015: Fresno 2010 UWMP, Table 7-1
- 2020: Fresno 2015 UWMP, Table 6-5
- 2025: Fresno 2020 UWMP, Table 6-8
- 2030-2050: Fresno 2025 UWMP, Table 6-9

Water Supplies Contributing to Regional Self Reliance

Sum of:

- Estimated Water Use Efficiency Since Baseline
- Water Recycling
- Local and Regional Water Supply and Storage Programs
- Other Programs and Projects that Contribute to Regional Self-Reliance

Percent of Water Supplies Contributing to Regional Self-Reliance

"Water Supplies Contributing to Regional Self Reliance" divided by "Service Area Water Demands without Water Use Efficiency" (from Section 3.1).

3.3 Conclusions

The results shown in Table 2 demonstrate that the City's service area is measurably improving its regional self-reliance. The following provides a summary of the near-term (2030) and long-term (2050) expected outcomes for the City's regional self-reliance:

- Near-term (2030): The expected outcome for normal water year regional self-reliance is expected to increase by about 81,700 AFY from the 2010 baseline; this represents an increase of about 10 percent of 2030 normal water year demands (Table 2).
- Long-term (2050): The expected outcome for normal water year regional self-reliance is expected to increase by more than 130,400 AFY from the 2010 baseline, this represents an increase of about 9 percent of 2050 normal water year retail demands (Table 2).

The results show that the City is measurably improving regional self-reliance, both as an amount of water used and as a percentage of water used.

4. Demonstration of Reduced Reliance on the Delta

The City's service area reduces reliance on the Delta through investments in non-Delta water supplies, local water supplies, and regional and local demand management measures.

4.1 Calculation of Reliance on Water Supplies from the Delta Watershed

The calculation of reliance on water supplies from the Delta watershed, shown in **Table 3** (included at the end of this appendix), is based on the following assumptions.

Central Valley Project (CVP) / State Water Project (SWP) Contract Supplies

The City water supplies with a connection to the Delta watershed are CVP/SWP Contract Supplies. The supply data shown in Table 3 is for anticipated average yield from the City's USBR contract and were collected from the following sources:

- Baseline (2010): Fresno 2008 UWMP, Table 4-6
- 2015: Fresno 2010 UWMP, Table 7-1
- 2020: Fresno 2015 UWMP, Table 6-14
- 2025: Fresno 2020 UWMP, Table 6-8
- 2030-2050: Fresno 2025 UWMP, Table 6-9

Water Supplies from the Delta Watershed

Equal to "CVP/SWP Contract Supplies."

Percent Change in Supplies from the Delta Watershed

Divides "Water Supplies from the Delta Watershed" by "Service Area Demands without Water Use Efficiency" (from Section 3.1) and calculates changes from the 2010 baseline.

4.2 Conclusions

The following provides a summary of the near-term (2030) and long-term (2050) expected outcomes for the City's reduced reliance on supplies from the Delta watershed:

- Near-term (2030): The expected outcome for normal water year reliance on supplies from the Delta watershed is expected to increase by 1,800 AF from the 2010 baseline. With Delta water representing 28.8% of service area water demand without water use efficiency, this represents a decrease from the 2010 baseline of 6.8% (Table 3).
- Long-term (2050): The expected outcome for normal water year reliance on supplies from the Delta watershed is expected to increase by 1,800 AF from the 2010 baseline. With Delta water representing 21.5% of service area water demand without water use efficiency, this represents a decrease from the 2010 baseline of 14.1% (Table 3).

The results shown in Table 3 demonstrate that City is measurably reducing reliance on the Delta as a percentage of water used.

5. UWMP Implementation

In addition to the analysis and documentation described above, WR P1 subsection (c)(1)(B) requires that all programs and projects included in the UWMP that are locally cost-effective and technically feasible, which reduce reliance on the Delta, are identified, evaluated, and implemented consistent with the implementation schedule. WR P1 (c)(1)(B) states that:

> *(B) Identified, evaluated, and commenced implementation, consistent with the implementation schedule set forth in the Plan, of all programs and projects included in the Plan that are locally cost effective and technically feasible which reduce reliance on the Delta[.]*

In accordance with Water Code Section 10631(f), water suppliers must already include in their UWMP a detailed description of expected future projects and programs that they may implement to increase the amount of water supply available to them in normal and single-dry water years and for a period of drought lasting five consecutive years. The UWMP description must also identify specific projects, include a description of the increase in water supply that is expected to be available from each project, and include an estimate regarding the implementation timeline for each project or program.

Section6 of the City's 2025 UWMP summarizes the implementation of future water projects and continued progress in developing a diversified water portfolio to meet the City's water needs.

Table 1. Calculation of Service Area Water Demands without Water Use Efficiency (UWMP Table C-1 and Table C-2)

Table C-1: Optional Calculation of Water Use Efficiency -To be completed if Water Supplier does not specifically estimate Water Use Efficiency as a supply

Service Area Water Use Efficiency Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For	163,300	172,900	168,200	136,579	147,502	154,430	161,367	168,314	175,270
Non-Potable Water Demands	750	1,000	9,500	14,220	980	1,430	1,430	1,430	1,430
Potable Service Area Demands with Water Use Efficiency Accounted For	162,550	171,900	158,700	122,359	146,522	153,000	159,937	166,884	173,840

Total Service Area Population	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Population	505,315	525,575	550,217	568,964	644,146	719,327	765,278	812,529	861,080

Water Use Efficiency Since Baseline (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Per Capita Water Use (GPCD)	287	292	257	192	203	190	187	183	180
Change in Per Capita Water Use from Baseline (GPCD)		5	(30)	(95)	(84)	(97)	(101)	(104)	(107)
Estimated Water Use Efficiency Since Baseline		(2,833)	18,294	60,666	60,687	78,393	86,238	94,491	103,153

Table C-2: Calculation of Service Area Water Demands Without Water Use Efficiency

Total Service Area Water Demands (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Water Demands with Water Use Efficiency Accounted For	163,300	172,900	168,200	136,579	147,502	154,430	161,367	168,314	175,270
Reported Water Use Efficiency or Estimated Water Use Efficiency Since Bas	-	(2,833)	18,294	60,666	60,687	78,393	86,238	94,491	103,153
Service Area Water Demands without Water Use Efficiency Accounted For	163,300	170,067	186,494	197,245	208,189	232,823	247,605	262,805	278,423

Table 2. Calculation of Supplies Contributing to Regional Self-Reliance (UWMP Table C-3)

Water Supplies Contributing to Regional Self-Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Water Use Efficiency	-	(2,833)	18,294	60,666	60,687	78,393	86,238	94,491	103,153
Water Recycling	750	1,000	9,500	14,220	980	1,430	1,430	1,430	1,430
Stormwater Capture and Use									
Advanced Water Technologies									
Conjunctive Use Projects									
Local and Regional Water Supply and Storage Projects	88,800	76,100	132,480	138,090	109,710	113,000	115,090	115,490	115,590
Other Programs and Projects the Contribute to Regional Self-Reliance	131,750	117,400	116,000	125,030	131,600	131,600	131,600	131,600	131,600
Water Supplies Contributing to Regional Self-Reliance	221,300	191,667	276,274	338,006	302,977	324,423	334,358	343,011	351,773

Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Water Demands without Water Use Efficiency Accounted For	163,300	170,067	186,494	197,245	208,189	232,823	247,605	262,805	278,423

Change in Regional Self Reliance (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Water Supplies Contributing to Regional Self-Reliance	221,300	191,667	276,274	338,006	302,977	324,423	334,358	343,011	351,773
Change in Water Supplies Contributing to Regional Self-Reliance		(29,633)	54,974	116,706	81,677	103,123	113,058	121,711	130,473

Percent Change in Regional Self Reliance (As Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Percent of Water Supplies Contributing to Regional Self-Reliance	135.5%	112.7%	148.1%	171.4%	145.5%	139.3%	135.0%	130.5%	126.3%
Change in Percent of Water Supplies Contributing to Regional Self-Reliance		-22.8%	12.6%	35.8%	10.0%	3.8%	-0.5%	-5.0%	-9.2%

Table 3. Reliance on Water Supplies from the Delta Watershed (UWMP Table C-4)

Water Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
CVP/SWP Contract Supplies	58,200	58,200	52,600	60,000	60,000	60,000	60,000	60,000	60,000
Delta/Delta Tributary Diversions	-	-	-	-	-	-	-	-	-
Transfers and Exchanges of Supplies from the Delta Watershed									
Other Water Supplies from the Delta Watershed	-	-	-	-	-	-	-	-	-
Total Water Supplies from the Delta Watershed	58,200	58,200	52,600	60,000	60,000	60,000	60,000	60,000	60,000

Service Area Water Demands without Water Use Efficiency (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Service Area Water Demands without Water Use Efficiency Accounted For	163,300	170,067	186,494	197,245	208,189	232,823	247,605	262,805	278,423

Change in Supplies from the Delta Watershed (Acre-Feet)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Water Supplies from the Delta Watershed	58,200	58,200	52,600	60,000	60,000	60,000	60,000	60,000	60,000
Change in Water Supplies from the Delta Watershed		-	(5,600)	1,800	1,800	1,800	1,800	1,800	1,800

Percent Change in Supplies from the Delta Watershed (As a Percent of Demand w/out WUE)	Baseline (2010)	2015	2020	2025	2030	2035	2040	2045	2050 (Optional)
Percent of Water Supplies from the Delta Watershed	35.6%	34.2%	28.2%	30.4%	28.8%	25.8%	24.2%	22.8%	21.5%
Change in Percent of Water Supplies from the Delta Watershed		-1.4%	-7.4%	-5.2%	-6.8%	-9.9%	-11.4%	-12.8%	-14.1%

Appendix D AWWA Water Audits

D

AWWA Free Water Audit Software:
Reporting Worksheet

WAS v5.0
American Water Works Association.
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? Click to access definition
+ Click to add a comment

Water Audit Report for: City of Fresno (CA1010007)
Reporting Year: 2021 1/2021 - 12/2021

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

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

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

Master Meter and Supply Error Adjustments

WATER SUPPLIED

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

								Pcnt:	Value:	
Volume from own sources:	+ ?	5	122,832.030	acre-ft/yr	+ ?	8	0.00%			acre-ft/yr
Water imported:	+ ?	n/a	0.000	acre-ft/yr	+ ?					acre-ft/yr
Water exported:	+ ?	n/a	0.000	acre-ft/yr	+ ?					acre-ft/yr

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

WATER SUPPLIED: 122,832.030 acre-ft/yr

AUTHORIZED CONSUMPTION

Click here: ? for help using option buttons below

					Pcnt:	Value:
Billed metered:	+ ?	7	113,868.740	acre-ft/yr		
Billed unmetered:	+ ?	n/a	0.000	acre-ft/yr		
Unbilled metered:	+ ?	9	55.450	acre-ft/yr		
Unbilled unmetered:	+ ?	5	307.080	acre-ft/yr		307.080 acre-ft/yr

Use buttons to select percentage of water supplied **OR** value

AUTHORIZED CONSUMPTION: ? 114,231.270 acre-ft/yr

WATER LOSSES (Water Supplied - Authorized Consumption)

8,600.760 acre-ft/yr

Apparent Losses

					Pcnt:	Value:
Unauthorized consumption:	+ ?		307.080	acre-ft/yr	0.25%	acre-ft/yr

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

Customer metering inaccuracies:	+ ?	5	1,150.749	acre-ft/yr	1.00%	acre-ft/yr
Systematic data handling errors:	+ ?	5	284.672	acre-ft/yr	0.25%	acre-ft/yr

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

Apparent Losses: ? 1,742.501 acre-ft/yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: ? 6,858.259 acre-ft/yr

WATER LOSSES: 8,600.760 acre-ft/yr

NON-REVENUE WATER

NON-REVENUE WATER: ? 8,963.290 acre-ft/yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+ ?	9	1,882.3	miles
Number of active AND inactive service connections:	+ ?	10	149,919	
Service connection density:	?		80	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: + ? (length of service line, beyond the property boundary, that is the responsibility of the utility)

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

Average operating pressure: + ? 10 55.6 psi

COST DATA

Total annual cost of operating water system:	+ ?	10	$86,211,652	$/Year	
Customer retail unit cost (applied to Apparent Losses):	+ ?	10	$2.33	$/1000 gallons (US)	
Variable production cost (applied to Real Losses):	+ ?	5	$128.33	$/acre-ft	☐ Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

***** YOUR SCORE IS: 65 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: Customer metering inaccuracies
3: Variable production cost (applied to Real Losses)

AWWA Free Water Audit Software: Worksheet

FWAS v6.0

American Water Works Association.
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Water Audit Report for: City of Fresno
Audit Year: 2022 | Jan 01 2022 - Dec 31 2022 | Calendar

Click 'n' to add notes
Click 'g' to determine data validity grade

To edit water system info: go to start page

To access definitions, click the input name

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

WATER SUPPLIED

Water Supplied Error Adjustments — choose entry option:

VOS	Volume from Own Sources:	n	g	7	122,239.230	Acre-ft/Yr	n g 8	percent	VOSEA
WI	Water Imported:	n	g	n/a	0.000	Acre-ft/Yr			WIEA
WE	Water Exported:	n	g	n/a	0.000	Acre-ft/Yr			WEEA
	WATER SUPPLIED:				122,239.230	Acre-ft/Yr			

AUTHORIZED CONSUMPTION

choose entry option:

BMAC	Billed Metered:	n	g	8	112,957.017	Acre-ft/Yr		
BUAC	Billed Unmetered:	n	g	n/a	0.000	Acre-ft/Yr		
UMAC	Unbilled Metered:	n	g	4	24.960	Acre-ft/Yr		
UUAC	Unbilled Unmetered:	n	g	3	282.393	Acre-ft/Yr	0.25%	default

Default option selected for Unbilled Unmetered, with automatic data grading of 3

AUTHORIZED CONSUMPTION: 113,264.370 Acre-ft/Yr

WATER LOSSES

8,974.860 Acre-ft/Yr

Apparent Losses

Default option selected for Systematic Data Handling Errors, with automatic data grading of 3

choose entry option:

SDHE	Systematic Data Handling Errors:	n	g	3	282.393	Acre-ft/Yr	0.25%	default	
CMI	Customer Metering Inaccuracies:	n	g	3	1,141.232	Acre-ft/Yr	1.00%	percent	under-registration
UC	Unauthorized Consumption:	n	g	3	282.393	Acre-ft/Yr	0.25%	default	

Default option selected for Unauthorized Consumption, with automatic data grading of 3

Apparent Losses: 1,706.017 Acre-ft/Yr

Real Losses

Real Losses: 7,268.843 Acre-ft/Yr

WATER LOSSES: 8,974.860 Acre-ft/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 9,282.213 Acre-ft/Yr

SYSTEM DATA

Lm	Length of mains:	n	g	10	1,893.0	miles	(including fire hydrant lead lengths)
Nc	Number of service connections:	n	g	10	158,063		(active *and* inactive)
	Service connection density:				83	conn./mile main	

Are customer meters typically located at the curbstop/property line? Yes

Lp — n g 10

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

AOP — Average Operating Pressure: n g 8 56.8 psi

COST DATA

CRUC	Customer Retail Unit Charge:	n	g	9	$2.33	$/1000 gallons (US)	Total Annual Operating Cost	
VPC	Variable Production Cost:	n	g	8	$95.60	$/acre-ft	$101,704,428	$/yr (optional input)

WATER AUDIT DATA VALIDITY TIER:

***** The Water Audit Data Validity Score is in Tier IV (71-90). See Dashboard tab for additional outputs. *****

go to dashboard

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

PRIORITY AREAS FOR ATTENTION TO IMPROVE DATA VALIDITY:

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

1: Volume from Own Sources (VOS)
2: Customer Metering Inaccuracies (CMI)
3: Billed Metered (BMAC)

KEY PERFORMANCE INDICATOR TARGETS:

OPTIONAL: If targets exist for the operational performance indicators, they can be input below:

Unit Total Losses:		gal/conn/day
Unit Apparent Losses:		gal/conn/day
Unit Real Losses[A]:		gal/conn/day
Unit Real Losses[B]:		gal/mile/day

If entered above by user, targets will display on KPI gauges (see Dashboard)

AWWA Free Water Audit Software: Worksheet

FWAS v6.0

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Water Audit Report for: City of Fresno
Audit Year: 2023 | Jan 01 2023 - Dec 31 2023 | Calendar

Click 'n' to add notes
Click 'g' to determine data validity grade

To edit water system info: go to start page

To access definitions, click the input name

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

WATER SUPPLIED

Water Supplied Error Adjustments
choose entry option:

VOS	Volume from Own Sources:	n	g	3	117,082.535	Acre-ft/Yr	n	g	8	percent	VOSEA
WI	Water Imported:	n	g	n/a	0.000	Acre-ft/Yr					WIEA
WE	Water Exported:	n	g	n/a	0.000	Acre-ft/Yr					WEEA
	WATER SUPPLIED:				117,082.535	Acre-ft/Yr					

AUTHORIZED CONSUMPTION

choose entry option:

BMAC	Billed Metered:	n	g	8	107,086.376	Acre-ft/Yr				
BUAC	Billed Unmetered:	n	g	n/a	0.000	Acre-ft/Yr				
UMAC	Unbilled Metered:	n	g	4	59.120	Acre-ft/Yr				
UUAC	Unbilled Unmetered:	n	g	5	413.357	Acre-ft/Yr	custom	413.357	acre-ft/yr	
	AUTHORIZED CONSUMPTION:				107,558.852	Acre-ft/Yr				

WATER LOSSES

9,523.682 Acre-ft/Yr

Apparent Losses

Default option selected for Systematic Data Handling Errors, with automatic data grading of 3

choose entry option:

SDHE	Systematic Data Handling Errors:	n	g	3	267.716	Acre-ft/Yr	0.25%	default	
CMI	Customer Metering Inaccuracies:	n	g	2	3,313.778	Acre-ft/Yr	3.00%	percent	under-registration
UC	Unauthorized Consumption:	n	g	3	267.716	Acre-ft/Yr	0.25%	default	

Default option selected for Unauthorized Consumption, with automatic data grading of 3

Apparent Losses: 3,849.210 Acre-ft/Yr

Real Losses

Real Losses: 5,674.472 Acre-ft/Yr

WATER LOSSES: 9,523.682 Acre-ft/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 9,996.158 Acre-ft/Yr

SYSTEM DATA

Lm	Length of mains:	n	g	10	1,903.1	miles	(including fire hydrant lead lengths)
Nc	Number of service connections:	n	g	10	168,009		(active *and* inactive)
	Service connection density:				88	conn./mile main	

Are customer meters typically located at the curbstop/property line? Yes

Lp: n g 10

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

AOP: Average Operating Pressure: n g 7 57.1 psi

COST DATA

CRUC	Customer Retail Unit Charge:	n	g	9	$2.33	$/1000 gallons (US)	Total Annual Operating Cost	
VPC	Variable Production Cost:	n	g	8	$160.72	$/acre-ft	$64,211,000	$/yr (optional input)

WATER AUDIT DATA VALIDITY TIER:

***** The Water Audit Data Validity Score is in Tier III (51-70). See Dashboard tab for additional outputs. *****

go to dashboard

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

PRIORITY AREAS FOR ATTENTION TO IMPROVE DATA VALIDITY:

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

1: Volume from Own Sources (VOS)
2: Customer Metering Inaccuracies (CMI)
3: Billed Metered (BMAC)

KEY PERFORMANCE INDICATOR TARGETS:

OPTIONAL: If targets exist for the operational performance indicators, they can be input below:

Unit Total Losses:		gal/conn/day
Unit Apparent Losses:		gal/conn/day
Unit Real Losses[A]:		gal/conn/day
Unit Real Losses[D]:		gal/mile/day

If entered above by user, targets will display on KPI gauges (see Dashboard)

AWWA Free Water Audit Software: Worksheet

FWAS v6.1

American Water Works Association.
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Water Audit Report for: City of Fresno
Audit Year: 2024 | Jan 01 2024 - Dec 31 2024 | Calendar

Click 'n' to add notes
Click 'g' to determine data validity grade

To edit water system info: go to start page

To access definitions, click the input name

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

WATER SUPPLIED

Water Supplied Error Adjustments — choose entry option:

VOS	Volume from Own Sources:	n	g	9	116,274.522	Acre-ft/Yr	n g 8		percent	VOSEA
WI	Water Imported:	n	g	n/a	0.000	Acre-ft/Yr				WIEA
WE	Water Exported:	n	g	3	0.000	Acre-ft/Yr				WEEA
	WATER SUPPLIED:				116,274.522	Acre-ft/Yr				

AUTHORIZED CONSUMPTION

BMAC	Billed Metered:	n	g	8	111,660.168	Acre-ft/Yr			
BUAC	Billed Unmetered:	n	g	n/a	0.000	Acre-ft/Yr			
UMAC	Unbilled Metered:	n	g	4	42.898	Acre-ft/Yr	choose entry option:		
UUAC	Unbilled Unmetered:	n	g	5	207.558	Acre-ft/Yr	custom	207.558	acre-ft/yr
	AUTHORIZED CONSUMPTION:				111,910.624	Acre-ft/Yr			

WATER LOSSES

WATER LOSSES: 4,363.898 Acre-ft/Yr

Apparent Losses

Default option selected for Systematic Data Handling Errors, with automatic data grading of 3

SDHE	Systematic Data Handling Errors:	n	g	3	279.150	Acre-ft/Yr	choose entry option:		
CMI	Customer Metering Inaccuracies:	n	g	2	2,279.654	Acre-ft/Yr	0.25%	default	
UC	Unauthorized Consumption:	n	g	3	279.150	Acre-ft/Yr	2.00%	percent	under-registration
	Apparent Losses:				2,837.955	Acre-ft/Yr	0.25%	default	

Default option selected for Unauthorized Consumption, with automatic data grading of 3

Real Losses

Real Losses: 1,525.943 Acre-ft/Yr

WATER LOSSES: 4,363.898 Acre-ft/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 4,614.354 Acre-ft/Yr

SYSTEM DATA

Lm	Length of mains:	n	g	10	1,913.0	miles	(including fire hydrant lead lengths)
Nc	Number of service connections:	n	g	10	141,623		(active *and* inactive)
	Service connection density:				74	conn./mile main	
	Are customer meters typically located at the curbstop/property line?				Yes		
Lp		n	g	10			

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

AOP	Average Operating Pressure:	n	g	7	56.5	psi	

COST DATA

CRUC	Customer Retail Unit Charge:	n	g	7	$2.33	$/1000 gallons (US)	Total Annual Operating Cost	
VPC	Variable Production Cost:	n	g	8	$184.25	$/acre-ft	$131,791,526	$/yr (optional input)

Click here to calculate carbon emissions ---> carbon

WATER AUDIT DATA VALIDITY TIER:

***** The Water Audit Data Validity Score is in Tier IV (71-90). See Dashboard tab for additional outputs. *****

go to dashboard

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

PRIORITY AREAS FOR ATTENTION TO IMPROVE DATA VALIDITY:

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

1: Customer Metering Inaccuracies (CMI)
2: Volume from Own Sources (VOS)
3: Billed Metered (BMAC)

KEY PERFORMANCE INDICATOR TARGETS:

OPTIONAL: If targets exist for the operational performance indicators, they can be input below:

Unit Total Losses:		gal/conn/day
Unit Apparent Losses:		gal/conn/day
Unit Real Losses[c]:		gal/conn/day
Unit Real Losses[p]:		gal/mile/day

If entered above by user, targets will display on KPI gauges (see Dashboard)

Appendix E North Kings Groundwater Sustainability Plan

The 2025 North Kings GSP is available at: https://northkingsgsa.org/groundwater-sustainability-plan/

E

Appendix F 2019 Groundwater Budget

F

MEMO

To: Rob Morrow
From: Ken Schmidt
Topic: City of Fresno
Water Budgets
Date: November 27, 2020

Attached is our revised draft report on urban water budgets for 2019. These are considered completed except for the canal seepage values.

My schedule is in Bakersfield Mon 30-Thurs Dec. 3, then in Fresno Dec. 4-10.

Please call me if you have any questions.

URBAN AREA WATER BUDGETS FOR 2019

A groundwater budget was prepared for each of the four quadrants for the City of Fresno urban area for 2019. Figure 1 shows the locations of the quadrants. The Northeast Quadrant in east of Blackstone Avenue and north of Dakota Avenue. It includes the Fresno North Growth Area, CSUF, and Leaky Acres, and is north of lands in the Bakman Water Co. service area. The Northwest Quadrant includes Highway City and Herndon and is west of Blackstone Avenue and north of Shields Avenue. Lands in the Pinedale PUD service area are included in this quadrant. The Southeast Quadrant includes lands south of Dakota Avenue and east of Elm Avenue, and includes the Sunnyside area and the service area of the Bakman Water Co. The Southwest Quadrant is south of Shields Avenue and west of Elm Avenue, and includes the downtown Fresno area. Basic data were provided by the City of Fresno, WSC, Inc., Provost & Pritchard, and BCF/Carollo.

Sources of input for the water budget include canal water delivered to the City for public supply and for intentional recharge, and to irrigated lands. Additional water input is from canal seepage, recharge of urban storm runoff in basins, and groundwater inflow. Sources of water output include sewage exports, consumptive use, and groundwater outflows. The change in groundwater storage is calculated from the water budget (the

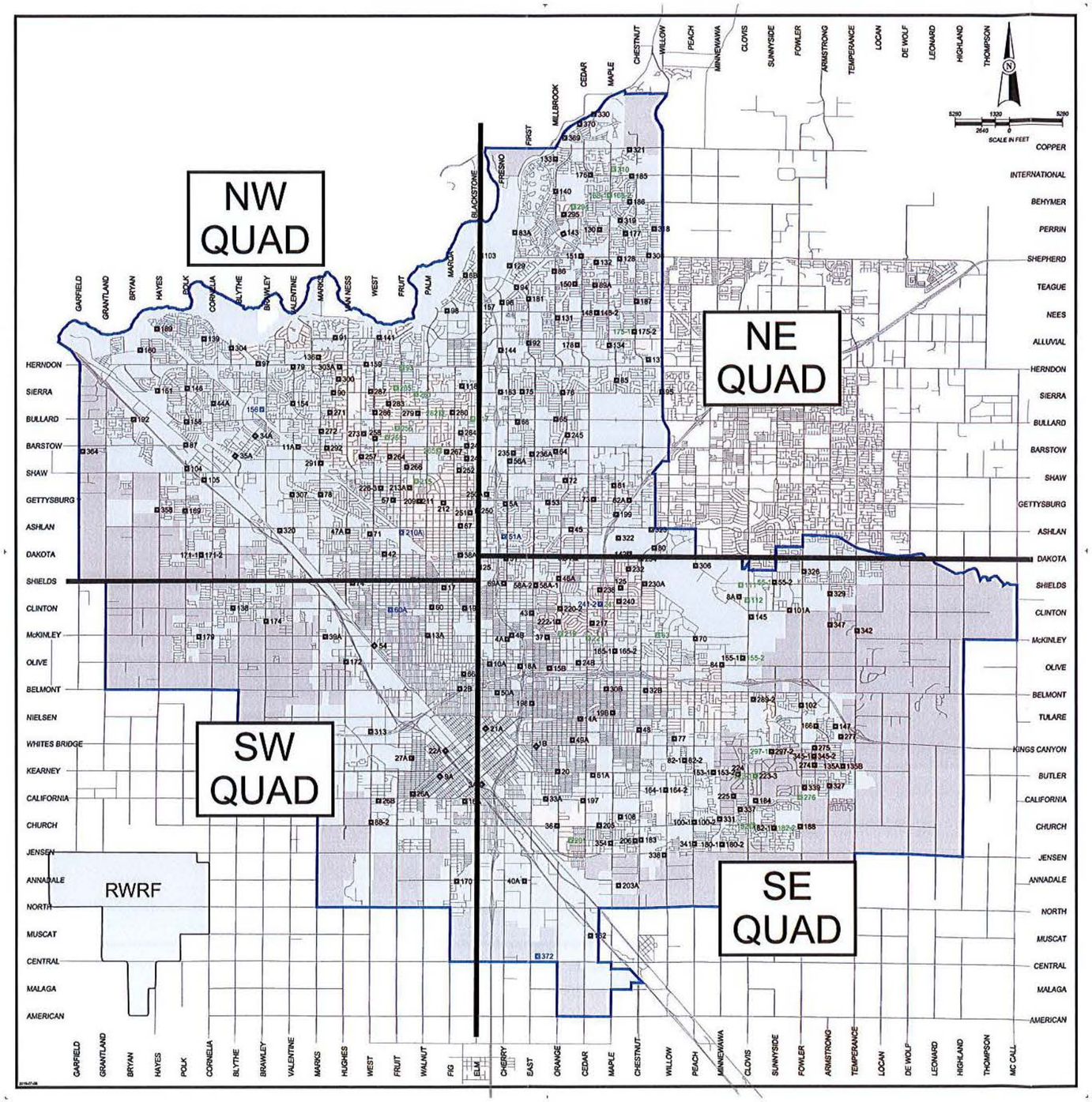

FIGURE 1 - LOCATIONS OF FOUR QUADRANTS FOR GROUNDWATER BUDGETS

difference between inputs and outputs) and from water-level changes between January 2019 and January 2020.

Pumpage for public supply is used in the water budgets in order to determine the residential consumptive use (including domestic use for schools). Pumpage for public supply and water deliveries from the WTPs was summed, and the sewage export was deducted from this, to determine the outside residential water use. An irrigation efficiency of 70 percent was then multiplied by this to estimate the residential consumptive use. There is additional urban consumptive use for golf courses, parks, cemeteries, and some schools that have their own wells for irrigation. Most of this information was obtained from the BCF/Carollo October 2019 report. Recycled water is also used in part of the Southwest Quadrant. For the Northeast Quadrant, CSUF (including its farms) is considered to be part of the urban area. Rural areas are significant in parts of the other three quadrants. The water budgets presented in this section are for the urban parts of the quadrants. Separate water budgets for the rural lands are provided separately.

Groundwater flows are based on the Spring 2020 water-level elevation map, which shows groundwater divides. Essentially, the Northwest Quadrant is in an area of groundwater inflow, except for the rural southwest part, where this is outflow to the

southwest. For the Northeast Quadrant, there is primarily groundwater inflow, except for a short reach between Shepherd and Alluvial Avenues, where there is groundwater outflow to the southeast into the City of Clovis. For the Southeast Quadrant, there is only groundwater inflow. For the Southwest Quadrant, there is only groundwater outflow. Groundwater inflows from the north into the Northwest and Northeast Quadrants were taken from Provost & Pritchard values for river seepage in the reach opposite the City of Fresno and the Pinedale PUD. Half of the groundwater river seepage losses were used for southerly groundwater flow into these two quadrants. For the other groundwater flow estimates, water-level slopes and widths of flow were determined from the January 2020 water-level elevation map (Figure 2). Aquifer transmissivities were primarily taken from the KDSA 2006 hydrogeologic report for the Fresno urban Area.

Northeast Quadrant

Table 1 contains the groundwater budget information for the Northeast Quadrant. Several important features of this quadrant, which is essentially between Blackstone and Willow Avenues and north of Dakota Avenue, are:

1. Substantial canal water has been supplied to this quadrant from the City of Fresno Northeast WTP.

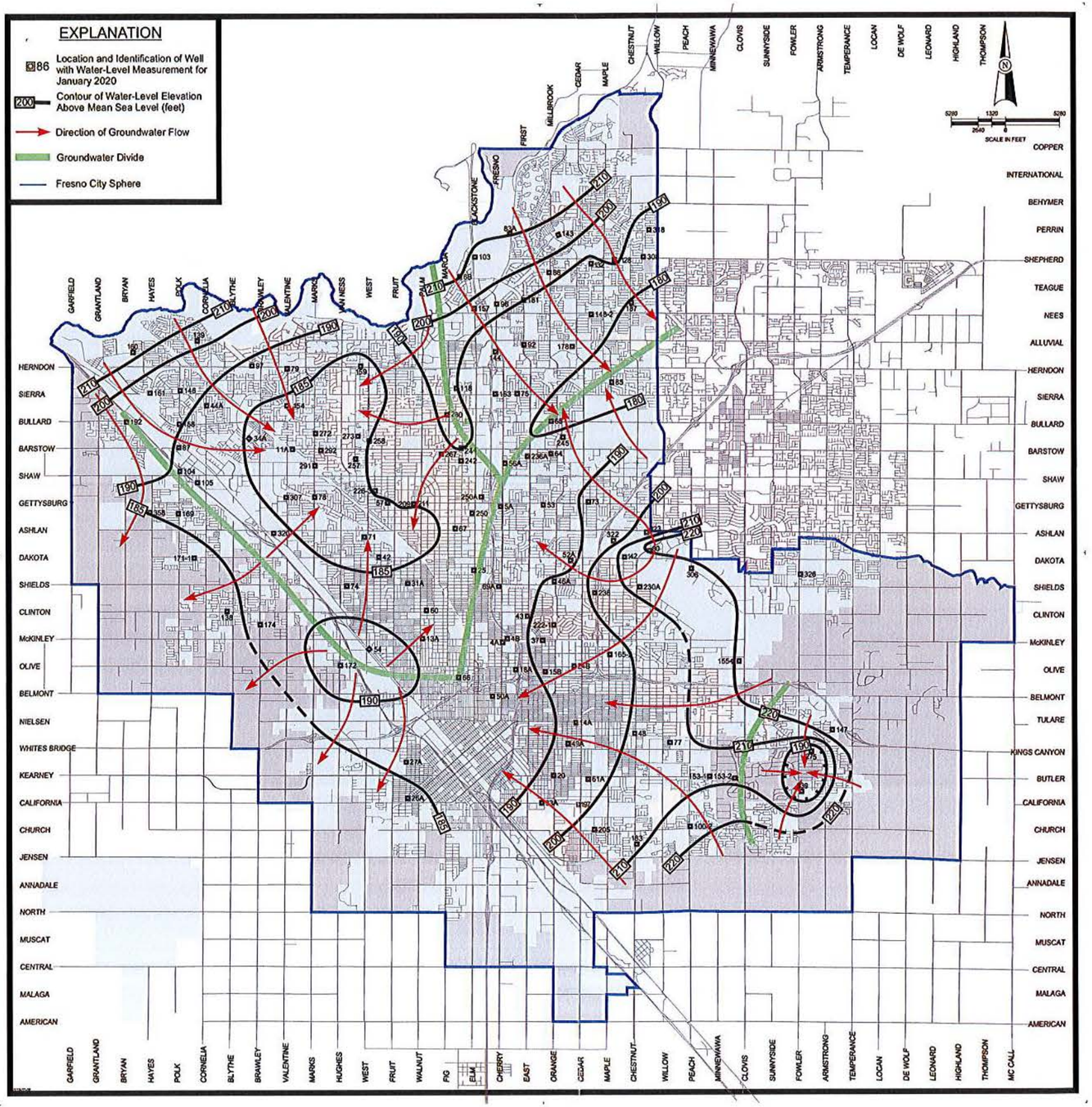

FIGURE 2 - WATER-LEVEL ELEVATIONS AND DIRECTION OF GROUNDWATER FLOW (JANUARY 2020)

TABLE 1-GROUNDWATER BUDGET
FOR NORTHEAST QUADRANT

Input	Acre-Feet
Canal Water for City Public Supply	20,500
Canal Water for Intentional Recharge	23,600
Canal Water to CSUF Farms	1,550
Urban Storm Water Runoff Recharge	2,400
Groundwater Inflow	2,600
Subtotal:	50,650
Deduct half of Leaky Acres Recharge	5,500
Net Input	45,150
Output	
Sewage Export	18,600
Residential Consumptive Use	10,000
Other Consumptive Use	3,550
Groundwater Outflow	1,350
Subtotal:	33,500
Change in Groundwater Storage (from water budget)	+11,650
Change in Groundwater Storage (Water-level change)	+9,000
Average Change in Water Storage	+10,350

2. Almost all of the rural irrigated areas are associated with the CSUF campus farm.

3. Leaky Acres, the largest intentional recharge facility in the urban area, is located near the southeast corner of this quadrant. Based on the January 2020 water-level elevation map, recharge from Leaky Acres contributes to both the Northeast and Southeast Quadrants.

4. Golf courses are present at the Copper River Ranch, where recycled water from the CRR WWTF is used for golf course irrigation, and at Fort the Washington Country Club.

5. Woodward Park and the Clovis West High School have significantly irrigation demands.

The canal water delivered for public supply from the NEWTP to this quadrant was 20,500 acre-feet in 2019. An additional 23,600 acre-feet of canal water were delivered for intentional recharge. Of this, about 11,000 acre-feet were recharged at the Leaky Acres facility. Also, an average of 1,550 acre-feet of canal water was delivered to the CSUF farm. The urban storm runoff recharge was estimated to be 2,400 acre-feet (15,750 acres of urban, commercial, and industrial land times 0.15). The canal seepage in this quadrant is indicated to be insignifi-

cant, as most of all of the FID distribution facilities in this area are pipelines, and an impermeable hardpan is present beneath much of the quadrant. The groundwater inflow from the north was estimated to be 2,600 acre-feet, based on the Provost & Prit-chard estimates of river seepage. The total water input was thus 20,500 + 23,600 + 2,400 + 2,600 + 1,550, or 50,650 acre-feet. Deducting half of the Leaky Acres recharge which flowed into the Southeast Quadrant, the net water input was 50,650 minus 5,500, or 45,150 acre-feet.

Water outputs in 2019 included sewage export of 18,600 acre-feet and a consumptive use of 13,550 acre-feet. The residential consumptive use was determined by deducting the sewage export (18,600 acre-feet) from the water supplied for public supply (12,400 acre-feet) from wells and (20,500 acre-feet) from the WTP. The difference was 14,300 acre-feet. This outside water use was then multiplied by 0.70 to determine the residential consumptive use of 10,000 acre-feet. There was an additional 3,550 acre-feet of consumptive use for CSUF irrigation (1,750 acre-feet), golf course irrigation (900 acre-feet), and park irrigation and irrigation of grass and landscaping for schools (900 acre-feet). At the CSUF Farm, 793 acres were irrigated and the average consumptive use of applied water was 2.2 acre-feet per acre. The combined consumptive use was 13,550 acre-feet.

There was an estimated groundwater outflow of 1,350 acre-feet to the southeast into the City of Clovis between Shepherd and Alluvial Avenues. The width of flow was one mile, the average water-level slope was 8 feet per mile, and the transmissivity was 150,000 gpd per foot. The combined sewage export, consumptive use, and groundwater outflow was 33,500 acre-feet.

The difference between the water input (45,150 acre-feet) and the water output (33,500 acre-feet) was a plus 11,650 acre-feet. Water-level hydrographs were prepared for 10 City of Fresno wells in the Northeast Quadrant. The average water-level rise between January 2019 and January 2020 was 3.4 feet per year. For the 17,566-acre quadrant, using an average specific yield of 15 percent, the calculated increase in storage was 17,566 acres x 0.15 x 3.4 feet per year, or 9,000 acre-feet per year. The best estimate of the increase in storage was the average of these two values, or 10,350 acre-feet.

Northwest Quadrant

Table 2 contains the groundwater budget information for the urban part of the Northwest Quadrant. Several important features of this quadrant are:

TABLE 2-GROUNDWATER BUDGET FOR
URBAN PART OF NORTHWEST QUADRANT

Inputs	Acre-Feet
Canal Water for City Public Supply	7,700
Canal Water for Intentional Recharge	7,200
Urban Storm Water Runoff Recharge	3,200
Groundwater Inflow	21,400
Canal Seepage	1,000
Subtotal:	40,500

Outputs	
Sewage Export	15,400
Residential Consumptive Use	14,700
Other Consumptive Use	1,950
Subtotal:	32,050
Change in Storage (from water budget)	+8,450
Change in Storage (Water-level changes)	0
Average Change in Storage	+4,250

1. Relatively small amounts of canal water have been provided to this area for public supply.
2. Most of the FID conveyance facilities in the northeast two-thirds of the quadrant are pipelines.
3. Irrigated lands in this quadrant are almost entirely southwest of Highway 99.

In 2019, the canal water delivery for public supply was 7,700 acre-feet, and 7,200 acre-feet of canal water were used for intentional recharge. Canal seepage was estimated to be about 1,000 acre-feet. A low permeability hardpan underlines the north part of the quadrant and most of the canals are lined. Urban stormwater runoff recharge was estimated as 21,300 acres x 0.15, or 3,200 acre-feet. Groundwater inflow from the north was estimated as 12,900 acre-feet, from the Provost & Pritchard evaluation of San Joaquin River seepage. Darcy's Law and the January 2020 water-level elevation map was used to calculate the other groundwater inflow. Groundwater inflow from the west was calculated as 2,100 acre-feet, from the east as 3,600 acre-feet, and from the south as 2,800 acre-feet. The flow from the west was through a width of two miles, the average water-level slope was four feet per mile, and an average transmissivity 230,000 gpd per foot. Flow from the east was through a width of 3.5

miles, the average water-level slope was four feet per mile, and the transmissivity was 230,000 gpd per foot. Flow from the south was through a width of flow of 2.6 miles, the water-level slope was six feet per mile, and the transmissivity was 180,000 gpd per foot. The total groundwater inflow was thus 21,400 acre-feet. The total water input to the quadrant was 40,500 acre-feet.

For water outputs in 2019, the sewage export was 15,400 acre-feet. The canal water supplied for public supply was 7,700 acre-feet and pumpage for public supply was 26,400 acre-feet by the City of Fresno and 2,300 acre-feet by Pinedale CWD. The sum of these is 36,400 acre-feet. Minus the sewage export of 15,400 acre-feet, there were 21,000 acre-feet of outdoor residential water use. This was multiplied by 0.7, yielding a residential consumptive use of 14,700 acre-feet. There were 605 acres of golf courses and 80 acres of parks in this quadrant. The consumptive use of applied water for golf courses was 450 irrigated acres x 3.1, or 1,400 acre-feet per year. The consumptive use for parks was 80 x 3.1, or 240 acre-feet. The irrigated area for the larger schools was 100 acres. The consumptive use of applied water was 310 acre-feet. The total other consumptive use was thus about 1,950 acre-feet. The total consumptive use was

16,650. The combination of the sewage export (15,400) and the consumptive use (16,650) was 32,050 acre-feet.

The difference between the water input and output was a plus of about 8,450 acre-feet. Water-level hydrographs were prepared for six City wells in the quadrant. The average water-level change between January 2019 and January 2020 was insignificant. Thus the change in groundwater storage based on water-level changes was zero. The average of these two values was an increase in storage of about 4,250 acre-feet.

Southeast Quadrant

Table 3 contains the groundwater budget information for the urban part of the Southeast Quadrant. Several important features of this quadrant are:

1. Recharge from Leaky Acres in the Northeast Quadrant contributes to groundwater to the Southeast Quadrant.
2. Part of the Sunnyside area remains unsewered, and septic tank effluent is not exported from the quadrant.
3. The east one-third of the quadrant is irrigated cropland.
4. A relatively large amount of canals transect this quadrant, and about eight miles of them are unlined.

In 2019, water input for the urban part of the quadrant included 29,500 acre-feet of canal water for public supply and

TABLE 3-GROUNDWATER BUDGET FOR
URBAN PART OF SOUTHEAST QUADRANT

Inputs	Acre-Feet
Canal Water for City Public Supply	29,500
Canal Water for Intentional Recharge	14,550
Canal Seepage	7,000
Urban Storm Water Runoff Recharge	3,800
Groundwater Inflow	5,100
Leaky Acre Recharge Inflow	5,500
Subtotal:	65,450
Outputs	
Sewage Export	20,500
Urban Consumptive Use	17,600
Other Consumptive Use	1,500
Subtotal:	39,600
Change in Storage (from water budget)	+25,850
Change in Storage (water-level changes)	+23,700
Average Change in Storage	+24,800

14,550 acre-feet for intentional recharge. Recharge of urban storm runoff was estimated to be 25,500 acres x 0.15, or 3,800 acre-feet. Canal seepage in the urban part of the area was estimated to be 7,000 acre-feet. Groundwater inflow was estimated at 2,500 acre-feet from the southeast and northeast and 2,600 acre-feet from the east. The width of inflow from the southeast and northeast was 4.4 miles, the average water-level slope was 15 feet per mile, and the transmissivity was 34,000 gpd per foot. The width of inflow from the east was five miles, the average water-level slope was 11 feet per mile, and the average transmissivity was 42,000 gpd per foot. The total groundwater inflow was 5,100 acre-feet in 2019. Another 5,500 acre-feet was contributed by Leaky Acres recharge that was not accounted for by the previous estimate. The total inflow of water was thus 29,500 + 14,550 + 7,000 + 3,800 + 5,100 + 5,500, or 65,450 acre-feet.

Water output from the Southeast Quadrant included sewage export of 20,500 acre-feet and urban consumptive use of 17,600 acre-feet. The pumpage for public supply included 12,900 acre-feet for the City of Fresno and 3,300 acre-feet for the Bakman Water Co. Combined with the 29,500 acre-feet of water from the WTP, the total was 45,700 acre-feet. Deducting the sewage export of 20,500 acre-feet, leaves an outside residential water

use of 25,200 acre-feet. Multiplying this by 0.7 yields a residential consumptive use of 17,600 acre-feet. There were 380 acres of golf courses and 130 acres of parks in this quadrant. The consumptive use of applied water for golf courses was 285 irrigated acres x 3.1, or 885 acre-feet. The consumptive use by parks was 130 acres x 3.1, or 400 acre-feet. The consumptive use for irrigation of the larger schools was 70 acres x 3.1, or 210 acre-feet. The total other consumptive use was 1,500 acre-feet. The total consumptive use was thus about 19,100 acre-feet. The combination of the sewage export and consumptive use was 39,600 acre-feet.

The difference between the water inputs and water outputs in 2019 was 65,450-39,600, or 25,850 acre-feet. Water-level hydrographs were prepared for nine City wells in the quadrant. The average water-level rise between January 2019 and January 2020 was 6.2 feet per year. Multiplying this times 25,500 acres of urban land times 0.15 equals 23,700 acre-feet. This is in good agreement with the increase in storage from the water budget. The average of the two estimates was an increase in storage of 24,800 acre-feet.

Southwest Quadrant

Table 4 shows the groundwater budget for 2019 for the urban

TABLE 4-GROUNDWATER BUDGET FOR
URBAN PART OF SOUTHWEST QUADRANT

Inputs	Acre-Feet
Canal Water for City Public Supply	16,500
Canal Water for Intentional Recharge	16,600
Canal Seepage	2,000
Urban Storm Water Runoff Recharge	1,800
Recycled Water	340
Subtotal:	37,250
Outputs	
Sewage Export	9,100
Residential Consumptive Use	7,800
Other Urban Consumptive Use	2,200
Groundwater Outflow	6,300
Subtotal:	25,400
Change in Groundwater Storage (water budget)	+11,850
Change in Storage (Water-level changes)	+8,400
Average Change in Storage	+10,150

part of the Southwest Quadrant. Several important features of this quadrant, which is south of Shields Avenue and west of Elm Avenue, are:

1. The urban part of the quadrant is an area of groundwater outflow.
2. The southwest half of this quadrant is rural.
3. Recycled water is used at several places in the quadrant.

For water inputs, there were 16,500 acre-feet of canal water deliveries for public supply and 16,600 acre-feet delivered for intentional recharge in 2019. Recharge of urban storm water runoff was 12,000 acres x 0.15, or 1,800 acre-feet. There were 340 acre-feet of recycled water used in the quadrant in 2019. Canal seepage was estimated to be 2,000 acre-feet per total. Then total water input was thus 37,250 acre-feet.

Water outputs in 2019 from the urban part of the quadrant included a sewage export of 9,100 acre-feet. Urban residential water consumptive use was 7,800 acre-feet for. The City pumpage was 3,700 acre-feet, and water from the WTF was 16,500, or a total public supply of 20,200 acre-feet. Deducting the exported sewage of 9,100 acre-feet, the outside residential water use was 11,100 acre-feet. Multiplying this by 0.7 yields 7,800 acre-feet of residential consumptive use. There were 350 acres of

parks and 260 acres of cemeteries in this quadrant. The consumptive use of parks and cemeteries was 610 acres x 3.1, or 1,890 acre feet. There were about 100 acres of irrigated lands for the larger schools. The consumptive use for school irrigation was 100 acres x 3.1, or 310 acre-feet. The total other consumptive use was 2,200 acre-feet. The total urban consumptive use was 10,000 acre-feet.

The groundwater outflow to the north and northeast was through a segment 2.6 miles wide, the average water-level slope was six feet per mile, and the transmissivity was 180,000 gpd per foot. The outflow to the north and northeast was 2,800 acre-feet. The groundwater outflow to the southwest and south was through a width of 3.3 miles, the average water-level slope was six feet per mile, and the transmissivity was 180,000 gpd per foot. The groundwater outflow was 3,500 acre-feet in 2019. The total groundwater outflow from the urban part of the quadrant was 6,300 acre-feet in 2019. The total water outputs were 25,300 acre-feet.

The difference between the water inputs and outputs for the urban part of the quadrant was 37,250 minus 25,400, or a plus 11,850 acre-feet. Water-levels records for January 2019 and January 2020 were reviewed. There was an average water-level rise of 3.3 feet between January 2019 and January 2020, based on

measurements for five wells. Multiplying 17,000 acres x 3,3 x 0.15 equals 8,400 acre-feet of storage increase. The average of these two values for the change increase is 10,150 acre-feet.

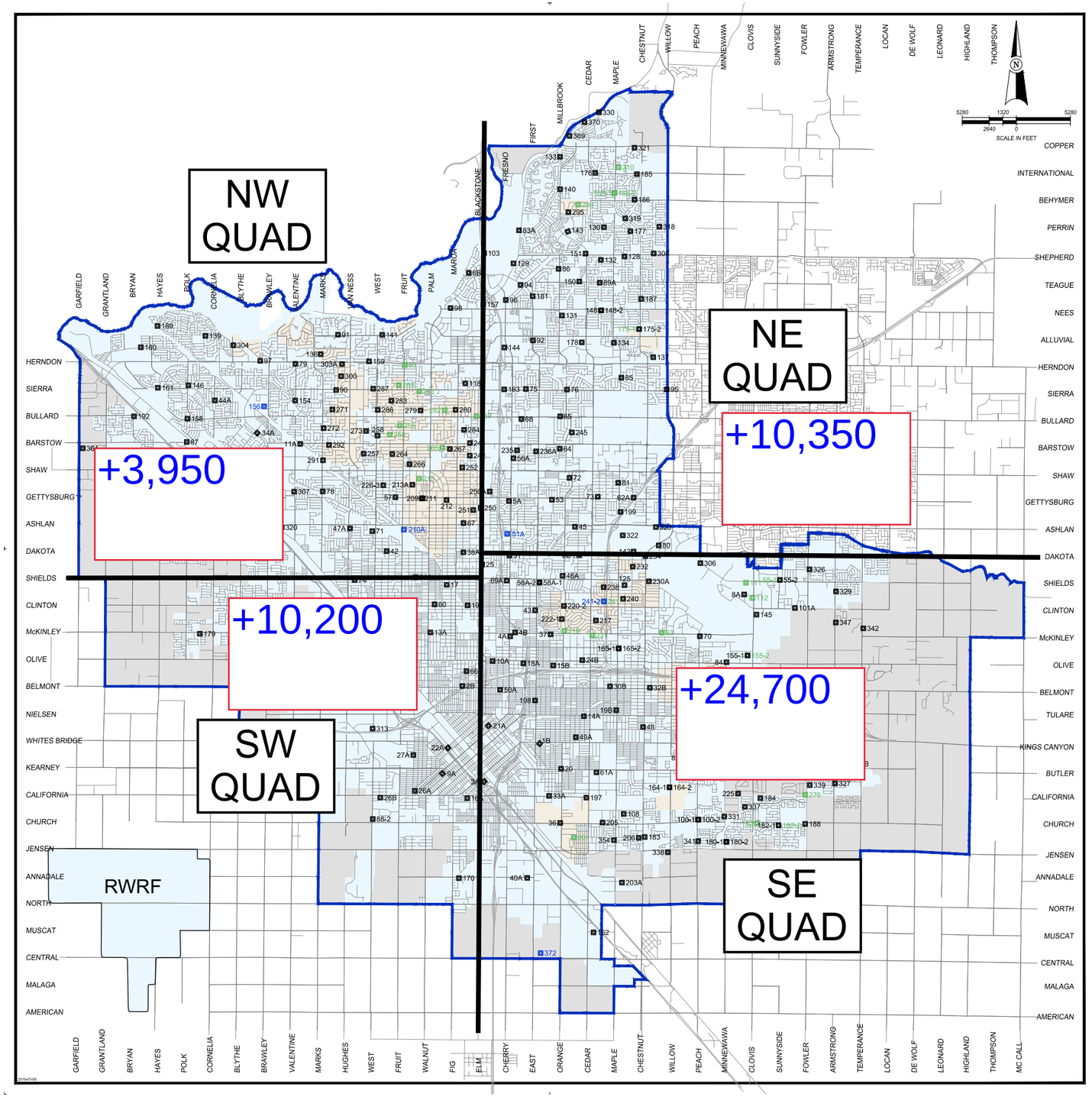

FIGURE 1 - LOCATIONS OF FOUR QUADRANTS FOR GROUNDWATER BUDGETS

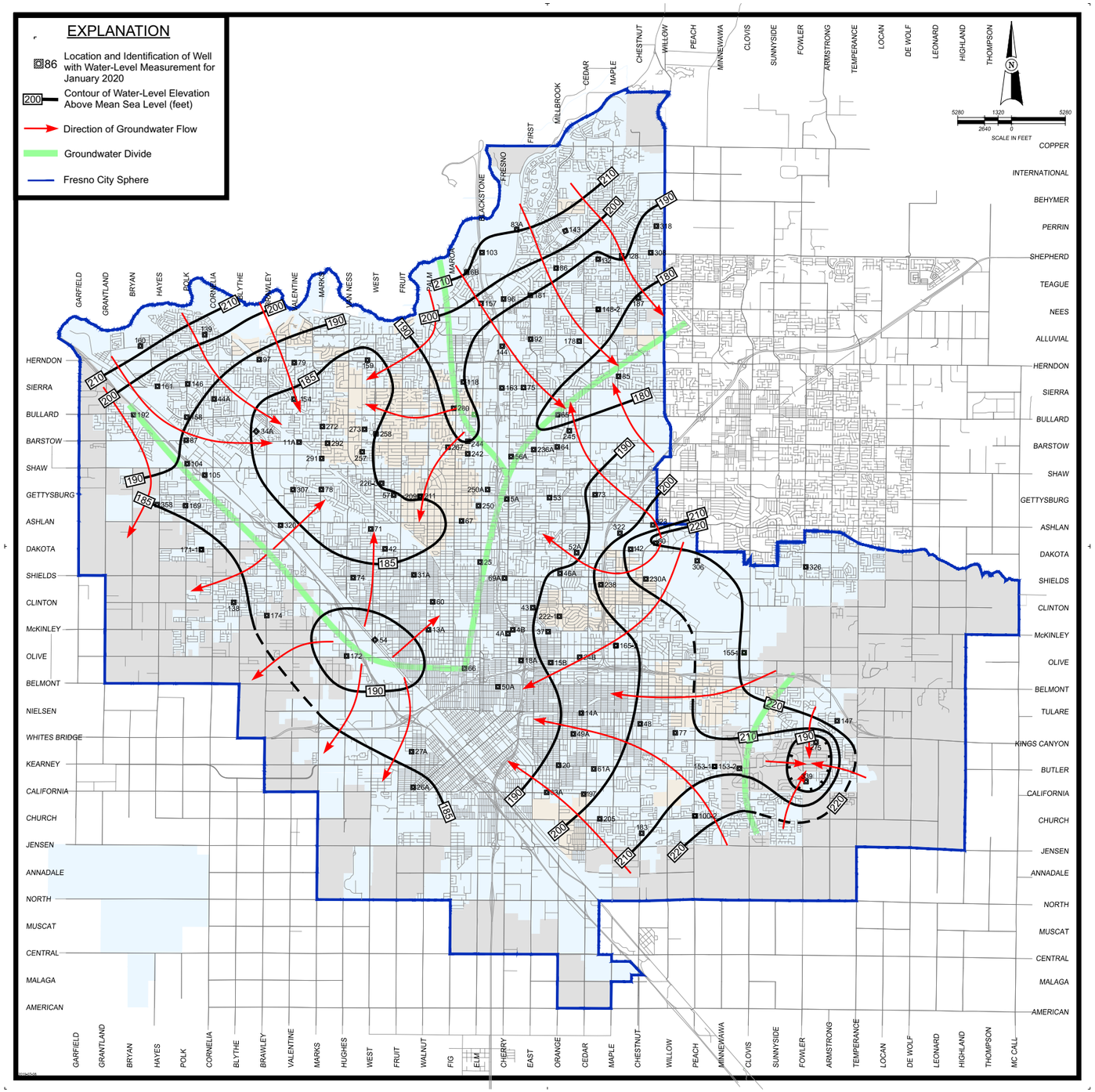

FIGURE 2 - WATER-LEVEL ELEVATIONS AND DIRECTION OF GROUNDWATER FLOW (JANUARY 2020)

2019 WATER BUDGETS FOR RURAL PARTS OF NORTHWEST, SOUTHEAST, & SOUTHWEST QUADRANTS

For the rural parts of the three quadrants, the 2019 water budgets were developed by summing the FID canal water deliveries and the canal seepage, and deducting the crop consumptive use of applied water. No evaluation was done of groundwater flows.

For the Northwest Quadrant, about 415 acres are considered to have used FID canal water in 2019. Multiplying this by an average delivery of 2.0 acre-feet per acre (Ron Samuelian, Provost & Pritchard) yields 830 acre-feet of deliveries. The estimated canal seepage in the rural part of the Northwest Quadrant in 2019 was 200 acre-feet. The nearly impermeable hardpan is present in most of this area and few canals go through the rural part of this quadrant. The combined canal water delivery and canal seepage or input was 1,050 acre-feet (rounded) in 2019. The crop survey indicates 845 acres of irrigated crops. The primary crops were deciduous fruits and nuts; vineyards; pasture; young perennials; and truck, nursery, and berries. The total consumptive use of applied water by these crops was 1,950 acre-feet (rounded), based on DWR Bulletin 113-3 consumptive use values for each crop. The residual between the water input (canal water and canal seepage) and output (consumptive use) was thus minus 900 acre-feet in 2019.

For the rural part of the Southeast Quadrant, the FID canal water deliveries were 4,400 acre-feet in 2019. The canal seepage

was about 3,500 acre-feet in 2019. The rural area comprises about one-third of this quad, and there are numerous canals in the area. Soils are of an intermediate type in terms of hardpan development. The combined FID canal deliveries and canal seepage was 7,900 acre-feet in 2019. There were about 8,500 acres of irrigated crops. The primary crops were vineyards; deciduous fruits and nuts; pasture; citrus; and truck, nurseries, and berries. The crop consumptive use of applied water in the rural area was 19,000 acre-feet in 2019. Deducting the water input (7,900 acre-feet) from the output (19,000 acre-feet) yields a residual of minus 11,100 acre-feet in 2019.

For the rural part of the Southwest Quadrant, the FID canal water deliveries were 1,900 acre-feet. The canal seepage was 700 acre-feet. There were few canals in the rural part of this quadrant. Most of the topsoils are of the intermediate type in terms of hardpan development. There are some sandy topsoils in the area. The combined water input was 1,900 + 700, or 2,600 acre-feet. About 3,850 acres of irrigated crops were present in 2019. The primary crops were truck, nursery, and berries; pasture; deciduous fruits and nuts; and vineyards. The crop consumptive use of applied water was 9,300 acre-feet. Deducting the water input (2,600 acre-feet) from the output (9,300 acre-feet) yields a residual of minus 6,700 acre-feet.

Thus for the rural parts of these quadrants, the deficit between the water input and output was about 18,700 acre-feet in 2019. Combining the deficit with the surplus in the four quadrants of 49,550 acre-feet, leaves a surplus of 30,850 acre-feet for the combined four quadrants in 2019. For the Northeast Quadrant, there was a surplus of 10,350 acre-feet. For the Northwest Quadrant, there was a surplus of 3,350 acre-feet. For the Southeast Quadrant, there was a surplus of 13,700 acre-feet. For the Southwest Quadrant, there was a surplus of 3,450 acre-feet.

MEMO

DRAFT

To: Rob Morrow, WSC
From: Ken Schmidt
Topic: Groundwater Storage Space
Date: November 25, 2020

Pursuant to your request, following are my estimates of the amount of storage space beneath each quadrant. The quadrant acreages were taken from Provost & Pritchard. I reviewed Figure 7 of our updated Hydrogeologic Conditions Report on depth to water in January 2020. Because the storage space is in the recent alluvium, I used a larger storage coefficient than used for the water budgets. The value used was 0.20. I assumed one wouldn't want water levels less than 30 feet deep, because of the depths of storm water basins and other factors.

Quadrant	Acreage (acres)	Avg. Depth to Water (feet)	Space Available (feet) After Deducting 30 feet
Northeast	17,570	155	125
Northwest	25,020	125	95
Southeast	38,890	115	85
Southwest	21,680	105	75

Storage space available:

Northeast: 17,570 x 125 x 0.2 = 439,000
Northwest: 25,020 x 95 x 0.2 = 475,000
Southeast: 38,890 x 85 x 0.2 = 661,000
Southwest: 21,680 x 75 x 0.2 = 325,000.

The total storage space is 1,850,000 acre-feet.

Please call me if you have any questions.

MEMO

DRAFT

To: Rob Morrow, WSC
From: Ken Schmidt
Topic: Urban Water Budgets
Date: November 25, 2020

Attached is an appendix for our report, explaining how different numbers were obtained. First, there is a discussion on items common to all quadrants. Then there is a discussion of consumptive use by quadrant. In preparing for this, I revised the values for other than residential consumptive use. The values in our water budget tables for the northwest, southeast, and southwest quadrants were revised, and these pages are attached. Under separate cover, we are providing the water budgets for the rural parts of three quadrants. We still need the canal seepage in the urban and rural parts of these quadrants to finalize the water budgets.

Please call me if you have any questions.

TABLE 2-GROUNDWATER BUDGET FOR
URBAN PART OF NORTHWEST QUADRANT

Inputs	Acre-Feet
Canal Water for City Public Supply	7,700
Canal Water for Intentional Recharge	7,200
Urban Storm Water Runoff Recharge	3,200
Groundwater Inflow	21,400
Canal Seepage	1,000
Subtotal:	40,500
Outputs	
Sewage Export	15,400
Residential Consumptive Use	14,700
Other Consumptive Use	1,950
Subtotal:	32,050
Change in Storage (from water budget)	+8,450
Change in Storage (Water-level changes)	0
Average Change in Storage	+4,250

TABLE 3-GROUNDWATER BUDGET FOR
URBAN PART OF SOUTHEAST QUADRANT

Inputs	Acre-Feet
Canal Water for City Public Supply	29,500
Canal Water for Intentional Recharge	14,550
Canal Seepage	7,000
Urban Storm Water Runoff Recharge	3,800
Groundwater Inflow	5,100
Leaky Acre Recharge Inflow	5,500
Subtotal:	65,450
Outputs	
Sewage Export	20,500
Urban Consumptive Use	17,600
Other Consumptive Use	1,500
Subtotal:	39,600
Change in Storage (from water budget)	+25,850
Change in Storage (water-level changes)	+23,700
Average Change in Storage	+24,800

TABLE 4-GROUNDWATER BUDGET FOR
URBAN PART OF SOUTHWEST QUADRANT

Inputs	Acre-Feet
Canal Water for City Public Supply	16,500
Canal Water for Intentional Recharge	16,600
Canal Seepage	2,000
Urban Storm Water Runoff Recharge	1,800
Recycled Water	350
Subtotal:	37,250
Outputs	
Sewage Export	9,100
Residential Consumptive Use	7,800
Other Urban Consumptive Use	2,200
Groundwater Outflow	6,300
Subtotal:	25,400
Change in Groundwater Storage (water budget)	+11,850
Change in Storage (Water-level changes)	+8,400
Average Change in Storage	+10,150

SOURCES OF INFORMATION FOR URBAN WATER BUDGETS

DRAFT

Water Deliveries

Water deliveries to water treatment plants was provided by quadrants by Akei Engineering (10/20/20). Water deliveries for intentional recharge by quadrants was provided by Provost & Pritchard (11/5/20). Water deliveries to the CSUF farms were provided by BCF/Carollo (October 2019).

Pumpage

City of Fresno pumpage by well for 2019 was provided by the City of Fresno. KDSA portioned this pumpage by quadrant. KDSA obtained 2019 pumpage from the Pinedale CWD and from the Bakman Water Company. CSUF pumpage for the academic campus and farms was provided by BCF/Carollo (October 2019).

Wastewater Flows

Wastewater flows by quadrant for 2019 were provided by Akei Engineering (10/20/20).

San Joaquin River Seepage

San Joaquin River seepage estimates were provided by Provost & Pritchard (11/5/20).

Urban Storm Runoff

Provost & Pritchard provided the rainfall for 2019 (12 inches). The acreages for residential, commercial, and industrial in each quadrant were provided by Provost & Pritchard. The combined acreage was multiplied by 0.15 to obtain the urban storm runoff.

Land Use

Provost & Pritchard (11/14/20) provided the land use by quadrants including urban, commercial, and industrial, and crop types for 2019.

Canal Seepage

Provost & Pritchard (11/14/20) provided information on the lengths of canal and lining statuses by quadrant within the City of Fresno sphere of influence, along with a map. However, they did not provide the canal seepage for each quadrant.

Schools

Other than CSUF, the City provides drinking water and irrigation water for most schools, except larger ones that normally have their own irrigation wells. Schools with their own irrigation wells include Sunnyside High School, Clovis West High

School, and several Central USD campuses. In this report, city deliveries to schools are combined with residential deliveries.

Consumptive Use

For residential and schools without their own irrigation wells, the combined water deliveries (from City wells and water treatment plants) was determined for each quadrant. The wastewater or sewage flows for each quadrant were then deducted from this to estimate the outside water use. This was multiplied by 0.7 (reflecting an average irrigation efficiency of 70 percent) to obtain the residential consumptive use.

There is additional consumptive use for golf courses, parks, cemeteries, and schools with their own irrigation wells. This is discussed by quadrant. For each quadrant, KDSA printed out a large scale Google Earth map. On each map, schools, cemeteries, and golf courses were identified, and the respective acreages determined. For the larger schools, the approximate irrigated acreage was also determined.

Northeast Quadrant

There were 323 acres of golf courses (Fort Washington CC and Copper River Ranch), 445 acres of parks (330 acres of which was Woodward Park), and 980 acres of schools. The largest schools (excluding CSUF) were Clovis North High School (100

acres), Clovis West High School (60 acres), and Hoover High School (45 acres). Consumptive use of applied water for irrigated areas at schools and golf courses was determined from the DWR Bulletin 113-3 value for pasture (3.1 acre-feet per acre per year). For the golf courses, there were about 300 acres irrigated, and the consumptive use of applied water was 930 acre-feet per year. The consumptive use for the CSUF farm was 2,020 acre-feet per year. This was determined from Table 12 of BCF/Carollo, which provided the following crop acreages: tree crops 198 acres, vineyards 129 acres, corn 171 acres, and pasture 293 acres. The Bulletin 113-3 consumptive use of applied water values for these were 2.6, 3.0, 2.0, and 3.1 acre-feet per acre per year, respectively. From BCF/Carollo, there were 260 acres of irrigated areas at other schools, or a consumptive use of 800 acre-feet per year.

Northwest Quadrant

There were 605 acres of golf courses and 80 acres of parks in this quadrant. The largest schools were Central West High School and Harvest Elementary School (80 acres), Bullard High School and Gibson Elementary School (57 acres), Central High School East (53 acres), Rio Vista Middle School and River Bluff Elementary (41 acres), Teague Elementary School (38 acres), and Cooper Middle School and Wilson Elementary School (27 acres).

The water treatment plant water was 7,100 acre-feet, City pumpage was 26,400 acre-feet, and Pinedale CWD pumpage was 2,300 acre-feet. The total water for public supply was 35,800 acre-feet. The residential consumptive use was 14,700 acre-feet (calculated from the water for public supply minus the sewage export (15,400 acre-feet) x 0.7). The consumptive use of applied water for golf courses was 450 irrigated acres x 3.1, or 1,400 acre-feet per year. The consumptive use for parks was (80 x 3.1), or 240 acre-feet. The irrigated acres for the larger schools was 100 acres and the consumptive use of applied water was 310 acre-feet. The total other consumptive use was 1,950 acre-feet.

Southeast Quadrant

There were 380 acres of golf courses and 130 acres of parks in this quadrant. The largest schools were Sunnyside High School (52 acres), Fresno Adventist (40 acres), Roosevelt High School (37 acres), McLane High School (37 acres), San Joaquin Memorial High School (34 acres), Fresno City College east of Blackstone Avenue (30 acres), and Terrones Middle School (26 acres). There were 12,900 acre-feet of pumpage for the City of Fresno, and 3,200 acre-feet for the Bakman Water Co. The water treatment plant deliveries were 29,500 acre-feet. Thus the total water for public supply was 45,700 acre-feet. The sewage

export was 20,500 acre-feet. The residential consumptive use was 17,600 acre-feet (calculated from the water for public supply minus the sewage export x 0.7).

The consumptive use of applied water for golf courses was 285 irrigated acres x 3.1, or 885 acre-feet, and the consumptive use by parks was 130 acres x 3.1, or 400 acre-feet. The consumptive use for irrigation of the larger schools was 70 acres x 3.1, or 210 acre-feet. The total other consumptive use 1,500 acre-feet. Combined with the residential consumptive use, the total was 19,100 acre-feet.

Southwest Quadrant

The City pumpage was 3,700 acre-feet, and the water treatment plant deliveries were 16,500 acre-feet. The water for public supply was 20,200 acre-feet. Deducting the sewage export of 9,100 acre-feet, the outside water use was 11,100 acre-feet. Multiplying this by 0.7 yields the residential consumptive use of 7,800 acre-feet.

There were 350 acres of parks and 260 acres of cemeteries in this quadrant. The larger schools were Fresno City College west of Blackstone Avenue (87 acres), Edison High School (51 acres), Fresno High School (40 acres), Westside Middle School (28 acres), El Capitan Middle School (27 acres), and Gatson Middle School (23 acres). The consumptive use for parks and ceme-

teries (610 acres) was 610 x 3.1, or 1,890 acre feet. There was about 100 acres of irrigated lands for the larger schools. The consumptive use for school irrigation was 100 acres x 3.1, or 310 acre-feet. The total other consumptive use was 2,200 acre-feet.

MEMO

To: Rob Morrow, WSC
From: Ken Schmidt
Topic: Sustainable Yield
Date: November 27, 2020

Pursuant to your request, following is my estimates of the sustainable yield for the urban part of the quadrants. The 2019 pumpage values were:

City of Fresno	54,500 acre-feet
Bakman W.C.	3,300 acre-feet
Pinedale CWD	2,300 acre-feet
CSUF Campus	900 acre-feet
Total	61,000 acre-feet.

The water surpluses for 2019 by quadrant (from my latest revisions) were:

Northeast Quadrant	10,350 acre-feet
Northwest Quadrant	4,250 acre-feet
Southeast Quadrant	24,800 acre-feet
Southwest Quadrant	10,150 acre-feet
Total	49,550 acre-feet.

The sustainable yield for the City of Fresno, Bakman Water Co., Pinedale CWD, and CSUF Campus would be 61,000 + 49,550, or a total of 110,550 acre-feet (111,000 rounded). The sustainable yield for the City of Fresno alone would be 104,050 acre-feet (104,000 acre-feet rounded).

Please call me if you have any questions.

DRAFT

GROUNDWATER BUDGET FOR RWRF VICINITY

A groundwater budget was prepared for the RWRF vicinity for October 2019. The area selected for this budget includes the effluent affected groundwater that is upgradient of the most downgradient extent of the RWRF percolation ponds and effluent irrigated areas (Figure 1).

The amount of effluent in 2019 was 62,800 acre-feet. A review of previous amounts of effluent between 2005 and 2019 indicated a peak value of about 81,000 acre-feet in 2006. The amount of effluent then decreased to a low value of 62,600 acre-feet in 2015. The reduction in effluent flow were due to several factors. One was the development of the City of Clovis recycled water plant, and another was water conservation measures undertaken during the drought. Also, the Copper River WWTF became operational. In 2019, about 58,500 acre-feet of effluent were delivered to an average of 1,435 acres of percolation ponds. In 2019, 3,650 acre-feet of effluent were used directly for irrigation of crops in the vicinity of the RWRF. About 600 acre-feet of tertiary treated effluent were reused at Roeding Park, Fresno Memorial Cemetery, and for crop irrigation.

Other sources of water input to the water budget area are FID canal water deliveries, canal seepage, and rainfall on the

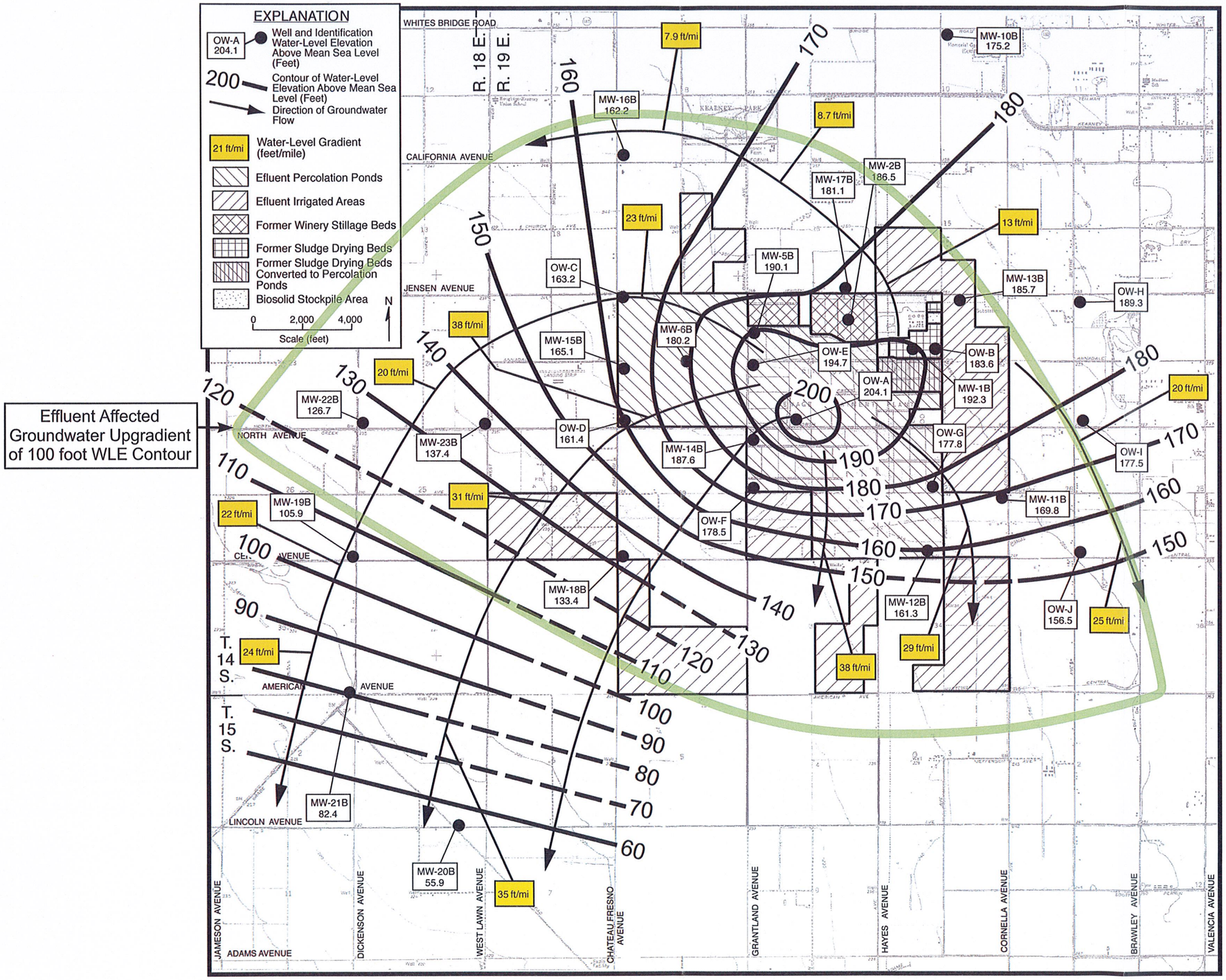

FIGURE 1 - WATER-LEVEL ELEVATIONS AND DIRECTION OF GROUNDWATER FLOW (OCTOBER 2019)

percolation ponds. FID canal deliveries were provided by Provost & Pritchard and were 8,000 acre-feet in 2019. Canal seepage was estimated to be 1,000 acre-feet in 2019. Rainfall entering the ponds was 1,400 acre-feet. The total water input was 58,500 + 3,650 + 1,400 + 600 + 8,000 + 1,000, or 73,150 acre-feet.

Water outputs from the water budget area include consumptive use of water by crops, evaporation from the percolation ponds, recovery well pumpage, and groundwater outflow. In 2019, there was an evaporation from the percolation ponds of about 4,600 acre-feet per year. Consumptive use by crops in the water budget area was estimated to be 10,200 acres x 2.2 acre-feet per year, or 22,500 acre-feet in 2019. In 2019 about 300 acre-feet of water were pumped from the recovery wells. The recovery well pumpage records for 2000-2019 were reviewed. Years of relatively high annual pumpage (about 23,000 to 28,000 acre-feet) included 2000-09 and 2012-15. Years of low pumpage (less than about 500 acre-feet) included 2011, 2016-17, and 2019 (300 acre-feet). A review of historical water-level maps for the RWRF vicinity indicates that the influence of recovery well pumpage was primarily within the mound beneath the percolation ponds.

Darcy's Law was used to estimate the groundwater outflow from the percolation ponds and effluent irrigated areas. Water-level elevation maps have been prepared at least twice a year (January and July) for a number of years for the RWRF vicinity. More recently, quarterly maps are available. These maps are

based on water-level measurements for a series of monitor wells that tap two depth zones. The shallow zone generally corresponds to strata about 100 feet deep, whereas the deep zone generally corresponds to strata about 200 feet deep. For this evaluation, the maps for the deep zone are applicable, as they best represent the strata influenced by effluent recharge and the zone tapped by recovery wells at the RWRF. The map used for this evaluation was for October 2019 (Figure 1). This map is representative of the fall when recovery well pumpage was minimal. This map shows the recharge mound beneath the plant percolation ponds, and the direction of groundwater flow. Representative water-level slopes are also shown. The downgradient edge of the percolation ponds and effluent irrigated areas coincided with the water-level elevation contour of 110 feet above mean sea level. Groundwater upgradient of this contour and downgradient of the percolation ponds and effluent irrigated areas is considered effluent influenced.

Information on transmissivity of the deposits influenced by effluent recharge (above a depth of 250 feet) is available from some historical evaluations and more recent aquifer tests. An aquifer test as part of installation of the initial recovery wells at the plant was conducted in the 1920's. For strata above a depth of 200 feet, a transmissivity of 120,000 gpd per foot was determined. At that time, the WWTF was only in the northeast part of where the present RWRF and associated ponds

are now located. The configuration of the groundwater mound and the associated effluent recharge amount in 1986 was used to determine a transmissivity 0f 140,000 gpd per foot for these strata. Since 2000, a number of recovery wells have been installed (flo-path wells) to intentionally tap most of the vertical interval of the recharged effluent. Previous recovery wells were not above a depth of 150 feet. Aquifer tests on these newer wells have produced an average transmissivity of 217,000 gpd per foot. This value was used for the Darcy's Law calculation.

$$Q = TIL,$$

where Q = groundwater outflow (gpd)
T = transmissivity (gpd per foot)
I = water-level slope (feet per mile)
L = width of flow (miles).

The average water-level slope near the 110-foot water-level elevation contour was about 23 feet per mile. In 2019, the width of the flow was 7.58 miles.

$$Q = 217{,}000 \text{ gpd/ft} \times 23 \text{ ft/mile} \times 7.58 \text{ miles}$$

$$Q = 378.4 \times 10^6 \text{ gpd or } 42{,}000 \text{ acre-feet per year.}$$

The total water output from the water budget area was 22,500 + 4,600 + 300 + 42,000, or 69,400 acre-feet.

The change in groundwater storage based on the water budget was a plus 3,750 acre-feet. The water-level maps for January

2020 and January 2019 were examined to evaluate the change in groundwater storage during 2019. Water levels beneath the percolation ponds were from 2 to 16 feet higher in January 2020 than in January 2019. The greatest rise was in the middle of the ponds and the smallest rises were near the edges of the ponds. Using an average water-level rise of about 7 feet, a specific yield of 15 percent, and a total area of 1,750 acres of percolation ponds, the change in storage was about 1,800 acre-feet. It is estimated that an additional 700 acre-feet of water-level rise occurred beyond the percolation ponds. Thus the total increase in storage in 2019 was about 2,500 acre-feet. The average of the two values, or 3,100 acre-feet is the best value for the increase in groundwater storage in 2019. Table 1 summarizes the values for the water budget.

Effluent Water Budget

There were 62,800 acre-feet of effluent in 2019. Of the 58,500 acre-feet sent to percolation ponds, 3,200 acre-feet was lost to evaporation. The total pond evaporation was 4,600 acre-feet, but this was offset by 1,400 acre-feet of rainfall. Of the 3,650 acre-feet of effluent used directly for crop irrigation, an estimated 2,750 acre feet were consumptively used. The effluent recharge was thus 62,800 acre-feet minus 5,950 acre-feet, or 56,850 acre-feet. In 2019 the recovery well pumpage

was 300 acre-feet. Deducting this from the 56,850 acre-feet, the net effluent recharge was 56,550 acre-feet in 2019.

WATER BUDGET FOR CITY OF
FRESNO RWRF VICINITY FOR 2019

Water Input	Acre-Feet
Effluent Delivered to Percolation Ponds	58,500
Effluent Delivered to Irrigated Areas	3,650
Rainfall Entering Percolation Ponds	1,400
Tertiary Effluent Deliveries	600
FID Canal Deliveries	8,000
Canal Seepage	1,000
Subtotal:	73,150

Water Output	
Consumptive Use of Water by Crops	22,500
Evaporation from Percolation Ponds	4,600
Recovery Well Pumpage	300
Groundwater Outflow	42,000
Subtotal:	69,400

Change in Groundwater Storage (from water budget)	+3,750
Change in Groundwater Storage (Water-level change)	+2,500
Average Change in Water Storage	+3,100

MEMO

To: Rob Morrow
From: Ken Schmidt
Topic: City of Fresno Changes in Storage by Changes in Water Levels
Date: April 12, 2021

Pursuant to your request, we have evaluated the annual change in groundwater storage by quadrant for 2015, 2016, 2017, and 2018. We have prepared water-level hydrographs that cover this period for six City wells in the Northwest Quadrant, nine City wells in the Northeast Quadrant, eleven City wells in the Southeast Quadrant, and eleven City wells in the Southwest Quadrant. The measurements used were quarterly (four times a year). The goal is to utilize differences in the shallowest water levels, from year to year, to estimate changes in groundwater storage. A careful review of the water-level measurements for January indicates that in some cases these levels were lower than for the previous October or the subsequent April measurements. This was probably due to significant pumping of the well or nearby wells prior to the measurement. Thus for this evaluation, I used January measurements when they were the seasonably shallowest, otherwise I used measurements for the shallowest level for the earlier or later quarter. An example is Well PS 20 for January 2018. The water-level elevation (WLE) in January 2018 was about 178 feet above mean sea level, whereas in October 2017 the WLE was about 183 feet and in April 2018 the WLE was 184 feet. In this case, I used the shallowest level (for April 2018).

Table 1 shows the difference in water levels for early 2015 to early 2020 for each quadrant. Table 2 shows the estimated storage changes for 2015, 2016, 2017, 2018, and 2019.

The urban area acreages used were 17,570 acres for the Northeast Quadrant, 21,300 acres for the Northwest Quadrant, 25,500 acres for the Southeast Quadrant, and 17,000 acres for the Southwest Quadrant. A storage coefficient of 0.15 was used in each case.

The changes in groundwater storage for the combined quadrants was -6,400 acre-feet for 2015, +5,900 acre-feet for 2016, +9,150 acre-feet for 2017, +29,150 acre-feet for 2018, and +37,800 acre feet for 2019.

TABLE 1-ANNUAL WATER LEVEL CHANGES (2015-2019)

	Water-Level Change (feet/year)				
Quadrant	2015	2016	2017	2018	2019
Northeast	-0.2	+0.3	+1.3	+0.4	+3.4
Northwest	+1.3	-0.8	-0.6	+1.4	0
Southeast	-1.3	+0.4	+0.8	+5.1	+6.2
Southwest	-2.0	+2.4	+1.8	+2.8	+3.3

TABLE 2-ANNUAL CHANGE IN GROUNDWATER STORAGE (2015-2019)

Quadrant	Storage Change (acre-feet per year)				
	2015	2016	2017	2018	2019
Northwest	-500	+800	+3,400	+1,050	+5,700
Northeast	+4,150	-2,550	-1,900	+4,450	0
Southeast	-4,950	-1,550	+3,050	+19,500	+23,700
Southwest	-5,100	+6,100	+4,600	+7,150	+8,400
Summary	-6,400	+5,900	+9,150	+29,150	+37,800

Appendix G Central Valley Project Contract

G

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 B Rates and Charges
Exhibit C-1 Repayment Schedule - Lump Sum Option
Exhibit C-2 Omitted
Exhibit D Computation of the Friant Surcharge
Exhibit E Restated Contract
Exhibit F Metering Plan

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;

(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) "Municipal & Industrial (M&I) Full Cost Water Rate" shall mean the Full Cost Rate applicable to the delivery of M&I Water;

(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;

(z) "Project" shall mean the Central Valley Project owned by the United States and managed by the Department of the Interior, Bureau of Reclamation;

(aa) "Project Contractors" shall mean all parties who have a long-term water service contract or repayment contract for Project Water from the Project with the United States pursuant to Federal Reclamation law;

(bb) "Project Water" shall mean all water that is developed, diverted, stored, or delivered by the Secretary in accordance with the statutes authorizing the Project and in accordance with the terms and conditions of water rights acquired pursuant to California law;

(cc) "Rates" shall mean the payments for O&M costs as determined annually by the Contracting Officer in accordance with the then-existing applicable water ratesetting policies for the Project, as described in subdivision (a) of Article 7 of this Contract and illustrated in Exhibit "B", attached hereto;

(dd) "Recovered Water Account" shall mean the program, as defined in the Settlement, to make water available to all of the Friant Division Project Contractors who provide water to meet interim flows or restoration flows for the purpose of reducing or avoiding the impact of the interim flows and restoration flows on such contractors;

(ee) "Repayment Obligation", as provided in subdivision (a)(2)(A) of Article 7 of this Contract, shall be the Existing Capital Obligation, as defined herein, discounted by one-half of the Treasury rate and computed consistent with the provisions of Section 10010(a)(3)(A) of the SJRRSA to be paid by January 31, 2014;

(ff) "Secretary" shall mean the Secretary of the Interior, a duly appointed successor, or an authorized representative acting pursuant to any authority of the Secretary and through any agency of the Department of the Interior;

(gg) "Settlement" shall mean the Stipulation of Settlement dated September 13, 2006, the Order Approving Stipulation of Settlement, and the Judgment and further orders issued by the Court pursuant to the terms and conditions of the Settlement in Natural Resources 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.

(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 utilizing Project Water or other water furnished pursuant to this Contract conducted outside the Contractor's Service Area may be permitted upon written approval of the Contracting Officer, which approval will be based upon environmental documentation, Project Water rights, and Project operational concerns. The Contracting Officer will address such concerns in regulations, policies, or guidelines.

(e) The Contractor, through this Contract, shall comply with requirements applicable to the Contractor in biological opinion(s) prepared as a result of the consultation regarding the execution of the Existing Contract undertaken pursuant to Section 7 of the Endangered Species Act of 1973, as amended, as well as the requirements of any other biological 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

determine the most equitable and efficient allocation of such water. If the Contractor requests the delivery of any quantity of such water, the Contracting Officer shall make such water available to the Contractor in accordance with applicable statutes, regulations, guidelines, and policies.

(g) The Contractor may request permission to reschedule for use during the subsequent Year some or all of the Water Made Available to the Contractor during the current Year referred to as "carryover." The Contractor may request permission to use during the current Year a quantity of Project Water which may be made available by the United States to the Contractor during the subsequent Year referred to as "pre-use." The Contracting Officer's written approval may permit such uses in accordance with applicable statutes, regulations, guidelines, and policies.

(h) The Contractor's right pursuant to Federal Reclamation law and applicable State law to the reasonable and beneficial use of the Water Delivered pursuant to this Contract shall not be disturbed so long as the Contractor shall fulfill all of its obligations under this Contract. Nothing in the preceding sentence shall affect the Contracting Officer's ability to impose shortages under Article 12 or subdivision (b) of Article 13 of this Contract.

(i) Project Water furnished to the Contractor pursuant to this Contract may be delivered for purposes other than those described in subdivisions (r) and (u) of Article 1 of this Contract upon written approval by the Contracting Officer in accordance with the terms and conditions of such approval.

(j) The Contracting Officer shall make reasonable efforts to protect the water 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 (20^{th}) 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

SJRRSA, and such ratesetting policies shall be amended, modified, or superseded only through a public notice and comment procedure; (ii) applicable Federal Reclamation law and associated rules and regulations, or policies; and (iii) other applicable provisions of this Contract.

(1) The Contractor shall pay the United States as provided for in this Article of this Contract for the Delivered Water at Rates and Charges determined in accordance with policies for Irrigation Water and M&I Water. The Contractor's Rates shall be established to recover its estimated reimbursable costs included in the O&M component of the Rate and amounts established to recover other charges and deficits, other than the construction costs. The Rates for O&M costs and Charges shall be adjusted, as appropriate, in accordance with the provisions of the SJRRSA.

(2) In accordance with the SJRRSA, the Contractor's allocable share of Project construction costs will be repaid pursuant to the provisions of this Contract.

(A) The amount due and payable to the United States, pursuant to the SJRRSA, shall be the Repayment Obligation. The Repayment Obligation has been computed by the Contracting Officer in a manner consistent with the SJRRSA and is set forth as a lump sum payment which amounts together with the manner in which such amounts were calculated are set forth in Exhibit "C-1". The Repayment Obligation is due in lump sum by January 31, 2014 as provided by the SJRRSA. Notwithstanding any Additional Capital Obligation that may later be established, receipt of the Contractor's payment of the Repayment Obligation by the United States shall fully and permanently satisfy the Existing Capital Obligation.

(B) Project construction costs or other capitalized costs attributable to capital additions to the Project incurred after the effective date of this Contract or that are not reflected in the schedule referenced in Exhibit "C-1" and properly assignable to the Contractor, shall be repaid as prescribed by the SJRRSA without interest except as required by law. Consistent with Federal Reclamation law, interest shall continue to accrue on the M&I portion of unpaid Project construction costs or other capitalized cost assigned to the Contractor until such costs are paid. Increases or decreases in Project construction costs or other capitalized costs assigned to the Contractor caused solely by annual adjustment of Project construction costs or other capitalized costs assigned to each Central Valley Project contractor by the Secretary shall not be considered in determining the amounts to be paid pursuant to this subdivision (a)(2)(B), but will be considered under subdivision (b) of this Article. A separate repayment agreement shall be established by the Contractor and the Contracting Officer to accomplish repayment of all additional Project construction costs or other capitalized costs assigned to the Contractor within the timeframe prescribed by the SJRRSA subject to the following:

(1) If the collective annual Project construction costs or other capitalized costs that are incurred after the effective date of this Contract and properly assignable to the contractors are less than $5,000,000, then the portion of such costs properly assignable to the Contractor shall be repaid in not more than five (5) years after notification of the allocation. This amount is the result of a collective annual allocation of Project construction costs to the contractors exercising contract conversions; Provided, That the reference to the amount of $5,000,000 shall not be a precedent in any other context.

(2) If the collective annual Project construction costs or other capitalized costs that are incurred after the effective date of this Contract and properly assignable to the contractors are $5,000,000 or greater, then the portion of such costs properly assignable to the Contractor shall be repaid as provided by applicable Federal Reclamation law. This amount is the result of a collective annual allocation of Project construction costs to the contractors exercising contract conversions; Provided, That the reference to the amount of $5,000,000 shall not be a precedent in any other context.

(b) Consistent with Section 10010(b) of the SJRRSA, following a final cost allocation by the Secretary upon completion of the construction of the Central Valley Project, the amounts paid by the Contractor shall be subject to adjustment to reflect the effect of any reallocation of Project construction costs or other capitalized costs assigned to the Contractor that may have occurred between the determination of Contractor's Existing Capital Obligation and the final cost allocation. In the event that the final cost allocation, as determined by the Secretary, indicates that the costs properly assignable to the Contractor, as determined by the Contracting Officer, are greater than the Existing Capital Obligation and other amounts of Project construction costs or other capitalized costs paid by the Contractor, then the Contractor shall be obligated to pay the remaining allocated costs. The term of such additional repayment contract shall be no less than one (1) year and no more than ten (10) years, however, mutually agreeable provisions regarding the rate of repayment of such amount may be developed by the parties. In the event that the final cost allocation, as determined by the Secretary, indicates that the costs properly assignable to the Contractor, as determined by the Contracting Officer, are less than the Existing Capital Obligation and other amounts of Project construction costs or other

capitalized costs paid by the Contractor, then the Contracting Officer shall credit such overpayment as an offset against any outstanding or future obligation of the Contractor, consistent with the SJRRSA. This Contract shall be implemented in a manner consistent with Section 10010(f) of the SJRRSA.

(c) Prior to July 1 of each Calendar Year, the Contracting Officer shall provide the Contractor an estimate of the Charges for Project Water that will be applied to the period October 1, of the current Calendar Year, through September 30, of the following Calendar Year, and the basis for such estimate. The Contractor shall be allowed not less than two (2) months to review and comment on such estimates. On or before September 15 of each Calendar Year, the Contracting Officer shall notify the Contractor in writing of the Charges to be in effect during the period October 1 of the current Calendar Year, through September 30 of the following Calendar Year, and such notification shall revise Exhibit "B". Charges shall be subject to reduction consistent with the SJRRSA based upon the average annual delivery amount agreed to by the Contracting Officer and the Contractor.

(1) Upon complete payment of the Repayment Obligation by the Contractor, and notwithstanding any Additional Capital Obligation that may later be established, for the years 2020 through 2039 inclusive, Charges shall reflect the reduction on a per acre-foot basis consistent with Section 10010(d)(1) of the SJRRSA. Exhibit "D" sets forth the reduction in Charges to offset the Financing Costs as prescribed in Section 10010(d)(1) of the SJRRSA; Provided, That if the Secretary determines such Charges are otherwise needed, an equivalent reduction will be made to O&M costs consistent with such provisions of the SJRRSA. Consistent with Section 10010(d)(1) of the SJRRSA and as shown in Exhibit "D", the Friant

Surcharge reduction has been calculated based upon the anticipated 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 and Tiered Pricing Component 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 and Tiered Pricing Component 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 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

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 the United States any right as seepage or return flow to water being used pursuant to this Contract for surface irrigation or underground storage either being put to reasonable and beneficial use pursuant to this Contract within the Contractor's Service Area by the Contractor or those claiming by, through, or under the Contractor. For purposes of this subdivision, groundwater recharge, groundwater banking and all similar groundwater activities will be deemed to be underground storage.

CONSTRAINTS ON THE AVAILABILITY OF WATER

13. (a) In its operation of the Project, the Contracting Officer will use all reasonable means to guard against a Condition of Shortage in the quantity of water to be made 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

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) 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.

(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 introduced into or after it is delivered from the Project facilities. The Contractor hereby releases

and agrees to defend and indemnify the United States and the Operating Non-Federal Entity, and their respective officers, agents, and employees, from any claim for damage to persons or property, direct or indirect, resulting from Contractor's diversion or extraction of non-project water from any source.

(4) Diversion of such non-project water into Project facilities shall be consistent with all applicable laws, and if involving groundwater, consistent with any groundwater management plan for the area from which it was extracted.

(5) After Project purposes are met, as determined by the Contracting Officer, the United States and the Contractor shall share priority to utilize the remaining capacity of the facilities declared to be available by the Contracting Officer for conveyance and transportation of non-project water prior to any such remaining capacity being made available to non-project contractors.

(d) Non-project water may be stored, conveyed and/or diverted through Friant Division Facilities, subject to the prior completion of appropriate environmental documentation and approval of the Contracting Officer without execution of a separate contract, consistent with subdivisions (c)(1) through (c)(5) of this Article and any other condition determined to be appropriate by the Contracting Officer.

OPINIONS AND DETERMINATIONS

19. Where the terms of this Contract provide for actions to be based upon the opinion or determination of either party to this Contract, said terms shall not be construed as permitting such action to be predicated upon arbitrary, capricious, or unreasonable opinions or determinations. Both parties, notwithstanding any other provisions of this Contract, expressly

reserve the right to seek relief from and appropriate adjustment for any such arbitrary, capricious, or unreasonable opinion or determination. Each opinion or determination by either party shall be provided in a timely manner. Nothing in this Article of this Contract is intended to or shall affect or alter the standard of judicial review applicable under Federal law to any opinion or determination implementing a specific provision of Federal law embodied in statute or regulation.

COORDINATION AND COOPERATION

20. (a) In order to further their mutual goals and objectives, the Contracting Officer and the Contractor shall communicate, coordinate, and cooperate with each other, and with other affected Project Contractors, in order to improve the operation and management of the Project. The communication, coordination, and cooperation regarding operations and management shall include, but not limited to, any action which will or may materially affect the quantity or quality of Project Water supply, the allocation of Project Water supply, and Project financial matters including, but not limited to, budget issues. The communication, coordination, and cooperation provided for hereunder shall extend to all provisions of this Contract. Each party shall retain exclusive decision making authority for all actions, opinions, and determinations to be made by the respective party.

(b) It is the intent of the Secretary to improve water supply reliability. To carry out this intent:

(1) The Contracting Officer will, at the request of the Contractor, assist in the development of integrated resource management plans for the Contractor. Further,

the Contracting Officer will, as appropriate, seek authorizations for implementation of 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, or the interest rate of one-half of one (0.5) percent per month prescribed by Section 6 of the Reclamation Project Act of 1939 (Public Law 76-260). The interest charge rate shall be determined as of the due date and remain fixed for the duration of the delinquent period.

(c) When a partial payment on a delinquent account is received, the amount received shall be applied, first to the penalty, second to the administrative charges, third to the accrued interest, and finally to the overdue payment.

EQUAL EMPLOYMENT OPPORTUNITY

22. During the performance of this Contract, the Contractor agrees as follows:

(a) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, disability, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, disability, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Contracting Officer setting forth the provisions of this nondiscrimination clause.

(b) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, disability, or national origin.

(c) The Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the Contracting Officer, advising the labor union or workers' representative of the Contractor's commitments under Section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(d) The Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(e) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the Contracting Agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(f) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965 or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(g) The Contractor will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by the rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions, including sanctions for noncompliance: *Provided, however,* that in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

GENERAL OBLIGATION—BENEFITS CONDITIONED UPON PAYMENT

23. (a) The obligation of the Contractor to pay the United States as provided in this Contract is a general obligation of the Contractor notwithstanding the manner in which the obligation may be distributed among the Contractor's water users and notwithstanding the default of individual water users in their obligations to the Contractor.

(b) The payment of charges becoming due hereunder is a condition precedent to receiving benefits under this Contract. The United States shall not make water available to the Contractor through Project facilities during any period in which the Contractor may be in arrears in the advance payment of water rates due the United States. The Contractor shall not furnish water made available pursuant to this Contract for lands or parties which are in arrears in the advance payment of water rates levied or established by the Contractor.

(c) With respect to subdivision (b) of this Article of this Contract, the Contractor shall have no obligation to require advance payment for water rates which it levies.

COMPLIANCE WITH CIVIL RIGHTS LAWS AND REGULATIONS

24. (a) The Contractor shall comply with Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d), Section 504 of the Rehabilitation Act of 1975 (P.L. 93-112, as amended), the Age Discrimination Act of 1975 (42 U.S.C. 6101, et seq.) and any other applicable civil rights laws, as well as with their respective implementing regulations and guidelines imposed by the U.S. Department of the Interior and/or Bureau of Reclamation.

(b) These statutes require that no person in the United States shall, on the grounds of race, color, national origin, handicap, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving financial assistance from the Bureau of Reclamation. By executing this Contract, the Contractor agrees to immediately take any measures necessary to implement this obligation, including permitting officials of the United States to inspect premises, programs, and documents.

(c) The Contractor makes this agreement in consideration of and for the purpose of obtaining any and all Federal grants, loans, contracts, property discounts, or other Federal financial assistance extended after the date hereof to the Contractor by the Bureau of Reclamation, including installment payments after such date on account of arrangements for Federal financial assistance which were approved before such date. The Contractor recognizes and agrees that such Federal assistance will be extended in reliance on the representations and agreements made in this Article, and that the United States reserves the right to seek judicial enforcement thereof.

PRIVACY ACT COMPLIANCE

25. Omitted.

CONTRACTOR TO PAY CERTAIN MISCELLANEOUS COSTS

26. In addition to all other payments to be made by the Contractor pursuant to this Contract, the Contractor shall pay to the United States, within sixty (60) days after receipt of a bill and detailed statement submitted by the Contracting Officer to the Contractor for such specific items of direct cost incurred by the United States for work requested by the Contractor associated with this Contract plus indirect costs in accordance with applicable Bureau of Reclamation policies and procedures. All such amounts referred to in this Article of this

Contract shall not exceed the amount agreed to in writing in advance by the Contractor. This Article of this Contract shall not apply to costs for routine contract administration.

WATER CONSERVATION

27. (a) Prior to the delivery of water provided from or conveyed through Federally constructed or Federally financed facilities pursuant to this Contract, the Contractor shall be implementing an effective water conservation and efficiency program based on the Contractor's water conservation plan that has been determined by the Contracting Officer to meet the conservation and efficiency criteria for evaluating water conservation plans established under Federal law. The water conservation and efficiency program shall contain definite water conservation objectives, appropriate economically feasible water conservation measures, and time schedules for meeting those objectives. Continued Project Water delivery pursuant to this Contract shall be contingent upon the Contractor's continued implementation of such water conservation program. In the event the Contractor's water conservation plan or any revised water conservation plan completed pursuant to subdivision (d) of this Article of this Contract have not yet been determined by the Contracting Officer to meet such criteria, due to circumstances which the Contracting Officer determines are beyond the control of the Contractor, water deliveries shall be made under this Contract so long as the Contractor diligently works with the Contracting Officer to obtain such determination at the earliest practicable date, and thereafter the Contractor immediately begins implementing its water conservation and efficiency program in accordance with the time schedules therein.

(b) Should the amount of M&I Water Delivered pursuant to subdivision (a) of Article 3 of this Contract equal or exceed two thousand (2,000) acre-feet per Year, the

Contractor shall implement the Best Management Practices identified by the time frames issued by the California Urban Water Conservation Council for such M&I Water unless any such practice is determined by the Contracting Officer to be inappropriate for the Contractor.

(c) The Contractor shall submit to the Contracting Officer a report on the status of its implementation of the water conservation plan on the reporting dates specified in the then-existing conservation and efficiency criteria established under Federal law.

(d) At five (5) -year intervals, the Contractor shall revise its water conservation plan to reflect the then-existing conservation and efficiency criteria for evaluating water conservation plans established under Federal law and submit such revised water management plan to the Contracting Officer for review and evaluation. The Contracting Officer will then determine if the water conservation plan meets Reclamation's then-existing conservation and efficiency criteria for evaluating water conservation plans established under Federal law.

(e) If the Contractor is engaged in direct groundwater recharge, such activity shall be described in the Contractor's water conservation plan.

EXISTING OR ACQUIRED WATER OR WATER RIGHTS

28. Except as specifically provided in Article 18 of this Contract, the provisions of this Contract shall not be applicable to or affect non-project water or water rights now owned or hereafter acquired by the Contractor or any user of such water within the Contractor's Service Area. Any such water shall not be considered Project Water under this Contract. In addition, 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

or such successor shall not relieve the Contractor of its obligation to pay directly to the United States the Contractor's share of the Project Rates, Charges, and Tiered Pricing Components except to the extent the Operating Non-Federal Entity collects payments on behalf of the United States in accordance with the separate agreement identified in subdivision (a) of this Article of this Contract.

(c) For so long as the O&M of any portion of the Project facilities serving the Contractor is performed by the Operating Non-Federal Entity, or any successor thereto, the Contracting Officer shall adjust those components of the Rates for Water Delivered under this Contract representing the cost associated with the activity being performed by the Operating Non-Federal Entity or its successor.

(d) In the event the O&M of the Project facilities operated and maintained by the Operating Non-Federal Entity is re-assumed by the United States during the term of this Contract, the Contracting Officer shall so notify the Contractor, in writing, and present to the Contractor a revised Exhibit "B" which shall include the portion of the Rates to be paid by the Contractor for Project Water under this Contract representing the O&M costs of the portion of such Project facilities which have been re-assumed. The Contractor shall, thereafter, in the absence of written notification from the Contracting Officer to the contrary, pay the Rates, Charges, and Tiered Pricing Component(s) specified in the revised Exhibit "B" directly to the United States in compliance with Article 7 of this Contract.

CONTINGENT ON APPROPRIATION OR ALLOTMENT OF FUNDS

30. The expenditure or advance of any money or the performance of any obligation of the United States under this Contract shall be contingent upon appropriation or allotment of funds. Absence of appropriation or allotment of funds shall not relieve the Contractor from any

obligations under this Contract. No liability shall accrue to the United States in case funds are not appropriated or allotted.

BOOKS, RECORDS, AND REPORTS

31. (a) The Contractor shall establish and maintain accounts and other books and records pertaining to administration of the terms and conditions of this Contract, including: the Contractor's financial transactions, water supply data, and Project land and right-of-way agreements; the water users' land-use (crop census), land ownership, land-leasing and water use data; and other matters that the Contracting Officer may require. Reports thereon shall be furnished to the Contracting Officer in such form and on such date or dates as the Contracting Officer may require. Subject to applicable Federal laws and regulations, each party to this Contract shall have the right during office hours to examine and make copies of the other party's books and records relating to matters covered by this Contract.

(b) Notwithstanding the provisions of subdivision (a) of this Article of this Contract, no books, records, or other information shall be requested from the Contractor by the Contracting Officer unless such books, records, or information are reasonably related to the administration or performance of this Contract. Any such request shall allow the Contractor a reasonable period of time within which to provide the requested books, records, or information.

(c) At such time as the Contractor provides information to the Contracting Officer pursuant to subdivision (a) of this Article of this Contract, a copy of such information shall be provided to the Operating Non-Federal Entity.

ASSIGNMENT LIMITED—SUCCESSORS AND ASSIGNS OBLIGATED

32. (a) The provisions of this Contract shall apply to and bind the successors and assigns of the parties hereto, but no assignment or transfer of this Contract or any right or interest therein shall be valid until approved in writing by the Contracting Officer.

(b) The assignment of any right or interest in this Contract by either party shall not interfere with the rights or obligations of the other party to this Contract absent the written concurrence of said other party.

(c) The Contracting Officer shall not unreasonably condition or withhold approval of any proposed assignment.

SEVERABILITY

33. In the event that a person or entity who is neither (i) a party to a Project contract, nor (ii) a person or entity that receives Project Water from a party to a Project contract, nor (iii) an association or other form of organization whose primary function is to represent parties to Project contracts, brings an action in a court of competent jurisdiction challenging the legality or enforceability of a provision included in this Contract and said person, entity, association, or organization obtains a final court decision holding that such provision is legally invalid or unenforceable and the Contractor has not intervened in that lawsuit in support of the plaintiff(s), the parties to this Contract shall use their best efforts to (i) within thirty (30) days of the date of 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.

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

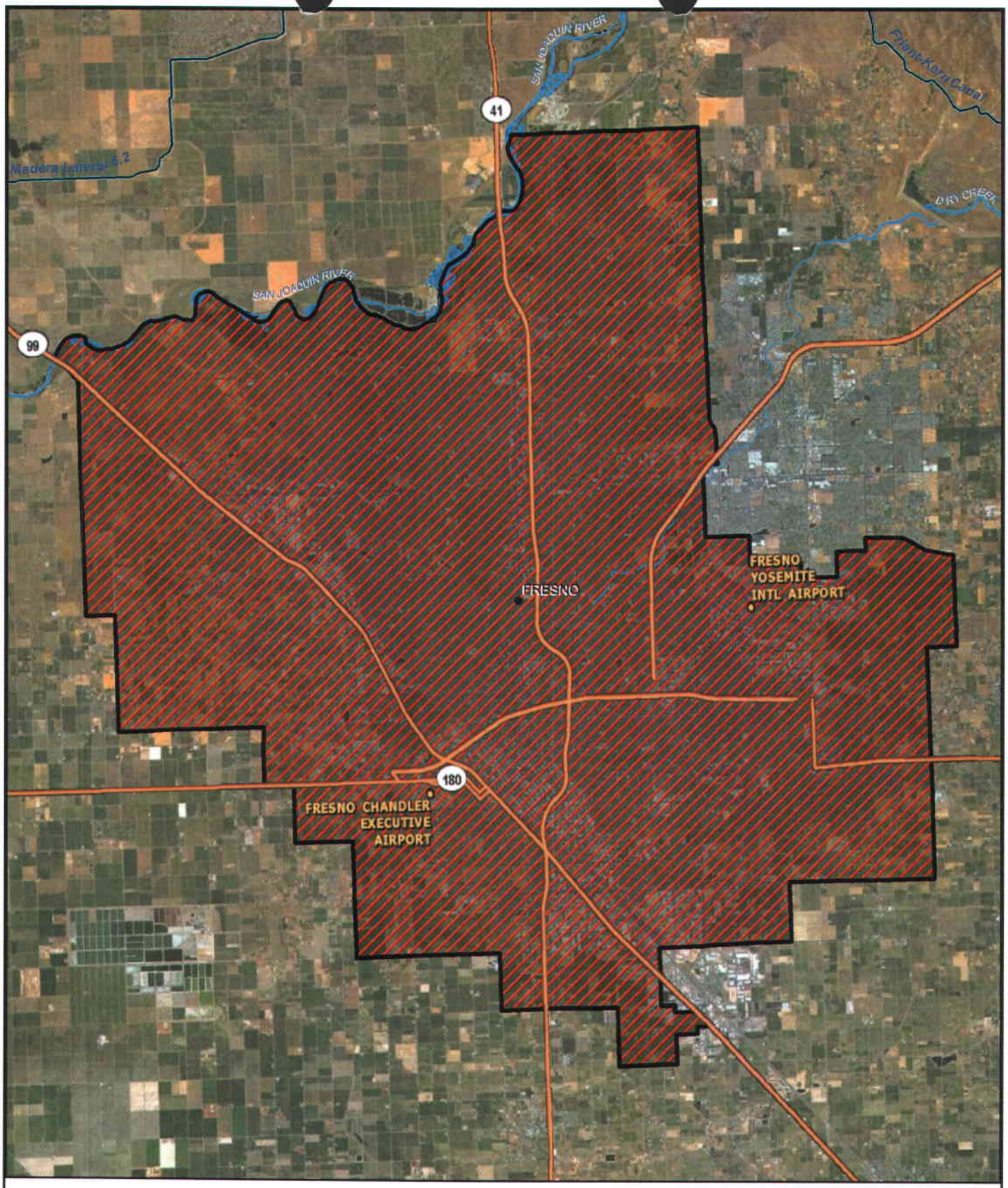
By: _____
Public Utilities Director

Attest:

By: Rebecca E Klisch
City Clerk 12-14-10

Approved as to form:

By: _____
City Attorney



City of Fresno

Contract No. 14-06-200-8901D
Exhibit A
Friant 9 (d) Repayment

District Boundary
Contractor's Service Area (Irrigation Only)
Contractor's Service Area (Irrigation and M&I)

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	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 2nd 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 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;

(z) "Project" shall mean the Central Valley Project owned by the United States and managed by the Department of the Interior, Bureau of Reclamation;

(aa) "Project Contractors" shall mean all parties who have a long-term water service contract or repayment contract for Project Water from the Project with the United States pursuant to Federal Reclamation law;

(bb) "Project Water" shall mean all water that is developed, diverted, stored, or delivered by the Secretary in accordance with the statutes authorizing the Project and in accordance with the terms and conditions of water rights acquired pursuant to California law;

(cc) "Rates" shall mean the payments for O&M costs as determined annually by the Contracting Officer in accordance with the then-existing applicable water ratesetting policies for the Project, as described in subdivision (a) of Article 7 of this Contract and illustrated in Exhibit "B", attached hereto;

(dd) "Recovered Water Account" shall mean the program, as defined in the Settlement, to make water available to all of the Friant Division Project Contractors who provide water to meet interim flows or restoration flows for the purpose of reducing or avoiding the impact of the interim flows and restoration flows on such contractors;

(ee) "Repayment Obligation", as provided in subdivision (a)(2)(A) of Article 7 of this Contract, shall be the Existing Capital Obligation, as defined herein, discounted by one-half of the Treasury rate and computed consistent with the provisions of Section 10010(a)(3)(A) of the SJRRSA to be paid by January 31, 2014;

(ff) "Secretary" shall mean the Secretary of the Interior, a duly appointed successor, or an authorized representative acting pursuant to any authority of the Secretary and through any agency of the Department of the Interior;

(gg) "Settlement" shall mean the Stipulation of Settlement dated September 13, 2006, the Order Approving Stipulation of Settlement, and the Judgment and further orders issued by the Court pursuant to the terms and conditions of the Settlement in Natural Resources Defense Council, et al. v. Rodgers, et al., No. CIV-S-88-1658 LLJ/GGH;

(hh) Omitted;

(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 annual payments 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) The Contractor has paid the Repayment Obligation, and notwithstanding any Additional Capital Obligation that may later be established, the tiered pricing component and Full Cost pricing provisions of Federal Reclamation law shall no longer be applicable to the Contractor.

(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) 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

utilizing Project Water or other water furnished pursuant to this Contract conducted outside the Contractor's Service Area may be permitted upon written approval of the Contracting Officer, which approval will be based upon environmental documentation, Project Water rights, and Project operational concerns. The Contracting Officer will address such concerns in regulations, policies, or guidelines.

(e) The Contractor, through this Contract, shall comply with requirements applicable to the Contractor in biological opinion(s) prepared as a result of the consultation regarding the execution of the Existing Contract undertaken pursuant to Section 7 of the Endangered Species Act of 1973, as amended, as well as the requirements of any other biological 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 determine the most equitable and efficient allocation of such water. If the Contractor requests the delivery of any quantity of such water, the Contracting Officer shall make such water available to the Contractor in accordance with applicable statutes, regulations, guidelines, and policies.

(g) The Contractor may request permission to reschedule for use during the subsequent Year some or all of the Water Made Available to the Contractor during the current Year referred to as "carryover." The Contractor may request permission to use during the current Year a quantity of Project Water which may be made available by the United States to the Contractor during the subsequent Year referred to as "pre-use." The Contracting Officer's written approval may permit such uses in accordance with applicable statutes, regulations, guidelines, and policies.

(h) The Contractor's right pursuant to Federal Reclamation law and applicable State law to the reasonable and beneficial use of the Water Delivered pursuant to this Contract shall not be disturbed so long as the Contractor shall fulfill all of its obligations under this

Contract. Nothing in the preceding sentence shall affect the Contracting Officer's ability to impose shortages under Article 12 or subdivision (b) of Article 13 of this Contract.

(i) Project Water furnished to the Contractor pursuant to this Contract may be delivered for purposes other than those described in subdivisions (r) and (u) of Article 1 of this Contract upon written approval by the Contracting Officer in accordance with the terms and conditions of such approval.

(j) The Contracting Officer shall make reasonable efforts to protect the water 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. 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,

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 (20^{th}) calendar day of each month of the quantity of M&I Water taken during the preceding month.

(f) Omitted.

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 SJRRSA, and such ratesetting policies shall be amended, modified, or superseded only through a public notice and comment procedure; (ii) applicable Federal Reclamation law and associated rules and regulations, or policies; and (iii) other applicable provisions of this Contract.

(1) The Contractor shall pay the United States as provided for in this Article of this Contract for the Delivered Water at Rates and Charges determined in accordance with policies for Irrigation Water and M&I Water. The Contractor's Rates shall be established to recover its estimated reimbursable costs included in the O&M component of the Rate and amounts established to recover other charges and deficits, other than the construction costs. The

Rates for O&M costs and Charges shall be adjusted, as appropriate, in accordance with the provisions of the SJRRSA.

(2) Omitted.

(A) Omitted.

(B) Project construction costs or other capitalized costs attributable to capital additions to the Project incurred after the effective date of this Contract or that are not reflected in the schedule referenced in Exhibit "C-1" and properly assignable to the Contractor, shall be repaid as prescribed by the SJRRSA without interest except as required by law. Consistent with Federal Reclamation law, interest shall continue to accrue on the M&I portion of unpaid Project construction costs or other capitalized cost assigned to the Contractor until such costs are paid. Increases or decreases in Project construction costs or other capitalized costs assigned to the Contractor caused solely by annual adjustment of Project construction costs or other capitalized costs assigned to each Central Valley Project contractor by the Secretary shall not be considered in determining the amounts to be paid pursuant to this subdivision (a)(2)(B), but will be considered under subdivision (b) of this Article. A separate repayment agreement shall be established by the Contractor and the Contracting Officer to accomplish repayment of all additional Project construction costs or other capitalized costs assigned to the Contractor within the timeframe prescribed by the SJRRSA subject to the following:

(1) If the collective annual Project construction costs or other capitalized costs that are incurred after the effective date of this Contract and properly assignable to the contractors are less than $5,000,000, then the portion of such costs properly assignable to the Contractor shall be repaid in not more than five (5) years after notification of the allocation. This amount is the result of a collective annual allocation of Project construction

costs to the contractors exercising contract conversions; Provided, That the reference to the amount of $5,000,000 shall not be a precedent in any other context.

(2) If the collective annual Project construction costs or other capitalized costs that are incurred after the effective date of this Contract and properly assignable to the contractors are $5,000,000 or greater, then the portion of such costs properly assignable to the Contractor shall be repaid as provided by applicable Federal Reclamation law. This amount is the result of a collective annual allocation of Project construction costs to the contractors exercising contract conversions; Provided, That the reference to the amount of $5,000,000 shall not be a precedent in any other context.

(b) Consistent with Section 10010(b) of the SJRRSA, following a final cost allocation by the Secretary upon completion of the construction of the Central Valley Project, the amounts paid by the Contractor shall be subject to adjustment to reflect the effect of any reallocation of Project construction costs or other capitalized costs assigned to the Contractor that may have occurred between the determination of Contractor's Existing Capital Obligation and the final cost allocation. In the event that the final cost allocation, as determined by the Secretary, indicates that the costs properly assignable to the Contractor, as determined by the Contracting Officer, are greater than the Existing Capital Obligation and other amounts of Project construction costs or other capitalized costs paid by the Contractor, then the Contractor shall be obligated to pay the remaining allocated costs. The term of such additional repayment contract shall be no less than one (1) year and no more than ten (10) years, however, mutually agreeable provisions regarding the rate of repayment of such amount may be developed by the parties. In the event that the final cost allocation, as determined by the Secretary, indicates that the costs properly assignable to the Contractor, as determined by the Contracting Officer, are less

than the Existing Capital Obligation and other amounts of Project construction costs or other capitalized costs paid by the Contractor, then the Contracting Officer shall credit such overpayment as an offset against any outstanding or future obligation of the Contractor, consistent with the SJRRSA. This Contract shall be implemented in a manner consistent with Section 10010(f) of the SJRRSA.

(c) Prior to July 1 of each Calendar Year, the Contracting Officer shall provide the Contractor an estimate of the Charges for Project Water that will be applied to the period October 1, of the current Calendar Year, through September 30, of the following Calendar Year, and the basis for such estimate. The Contractor shall be allowed not less than two (2) months to review and comment on such estimates. On or before September 15 of each Calendar Year, the Contracting Officer shall notify the Contractor in writing of the Charges to be in effect during the period October 1 of the current Calendar Year, through September 30 of the following Calendar Year, and such notification shall revise Exhibit "B". Charges shall be subject to reduction consistent with the SJRRSA based upon the average annual delivery amount agreed to by the Contracting Officer and the Contractor.

(1) For the years 2020 through 2039 inclusive, Charges shall reflect the reduction on a per acre-foot basis consistent with Section 10010(d)(1) of the SJRRSA. Exhibit "D" sets forth the reduction in Charges to offset the Financing Costs as prescribed in Section 10010(d)(1) of the SJRRSA; Provided, That if the Secretary determines such Charges are otherwise needed, an equivalent reduction will be made to O&M costs consistent with such provisions of the SJRRSA. Consistent with Section 10010(d)(1) of the SJRRSA and as shown in Exhibit "D", the Friant Surcharge reduction has been calculated based upon the anticipated 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

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, 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) Omitted.

(2) Omitted.

(3) Omitted.

(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) 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

the United States any right as seepage or return flow to water being used pursuant to this Contract for surface irrigation or underground storage either being put to reasonable and beneficial use pursuant to this Contract within the Contractor's Service Area by the Contractor or those claiming by, through, or under the Contractor. For purposes of this subdivision, groundwater recharge, groundwater banking and all similar groundwater activities will be deemed to be underground storage.

CONSTRAINTS ON THE AVAILABILITY OF WATER

13. (a) In its operation of the Project, the Contracting Officer will use all reasonable means to guard against a Condition of Shortage in the quantity of water to be made available to the Contractor pursuant to this Contract. In the event the Contracting Officer determines that a Condition of Shortage appears probable, the Contracting Officer will notify the Contractor of said determination as soon as practicable.

(b) If there is a Condition of Shortage because of errors in physical operations of the Project, drought, other physical causes beyond the control of the Contracting Officer or actions taken by the Contracting Officer to meet legal obligations, including but not limited to obligations pursuant to the Settlement then, except as provided in Article 19 of this Contract, no liability shall accrue against the United States or any of its officers, agents, or employees for any damage, direct or indirect, arising therefrom.

(c) The United States shall not execute contracts which together with this Contract, shall in the aggregate provide for furnishing Class 1 Water in excess of 800,000 acre-feet per Year or Class 2 Water in excess of 1,401,475 acre-feet per Year; Provided, That, subject to subdivision (l) of Article 3 of this Contract, the limitation placed on Class 2 Water 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

introduced into or after it is delivered from the Project facilities. The Contractor hereby releases and agrees to defend and indemnify the United States and the Operating Non-Federal Entity, and their respective officers, agents, and employees, from any claim for damage to persons or property, direct or indirect, resulting from Contractor's diversion or extraction of non-project water from any source.

(4) Diversion of such non-project water into Project facilities shall be consistent with all applicable laws, and if involving groundwater, consistent with any groundwater management plan for the area from which it was extracted.

(5) After Project purposes are met, as determined by the Contracting Officer, the United States and the Contractor shall share priority to utilize the remaining capacity of the facilities declared to be available by the Contracting Officer for conveyance and transportation of non-project water prior to any such remaining capacity being made available to non-project contractors.

(d) Non-project water may be stored, conveyed and/or diverted through Friant Division Facilities, subject to the prior completion of appropriate environmental documentation and approval of the Contracting Officer without execution of a separate contract, consistent with subdivisions (c)(1) through (c)(5) of this Article and any other condition determined to be appropriate by the Contracting Officer.

OPINIONS AND DETERMINATIONS

19. Where the terms of this Contract provide for actions to be based upon the opinion or determination of either party to this Contract, said terms shall not be construed as permitting such action to be predicated upon arbitrary, capricious, or unreasonable opinions or determinations. Both parties, notwithstanding any other provisions of this Contract, expressly

reserve the right to seek relief from and appropriate adjustment for any such arbitrary, capricious, or unreasonable opinion or determination. Each opinion or determination by either party shall be provided in a timely manner. Nothing in this Article of this Contract is intended to or shall affect or alter the standard of judicial review applicable under Federal law to any opinion or determination implementing a specific provision of Federal law embodied in statute or regulation.

COORDINATION AND COOPERATION

20. (a) In order to further their mutual goals and objectives, the Contracting Officer and the Contractor shall communicate, coordinate, and cooperate with each other, and with other affected Project Contractors, in order to improve the operation and management of the Project. The communication, coordination, and cooperation regarding operations and management shall include, but not limited to, any action which will or may materially affect the quantity or quality of Project Water supply, the allocation of Project Water supply, and Project financial matters including, but not limited to, budget issues. The communication, coordination, and cooperation provided for hereunder shall extend to all provisions of this Contract. Each party shall retain exclusive decision making authority for all actions, opinions, and determinations to be made by the respective party.

(b) It is the intent of the Secretary to improve water supply reliability. To carry out this intent:

(1) The Contracting Officer will, at the request of the Contractor, assist in the development of integrated resource management plans for the Contractor. Further, the Contracting Officer will, as appropriate, seek authorizations for implementation of 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,

or the interest rate of one-half of one (0.5) percent per month prescribed by Section 6 of the Reclamation Project Act of 1939 (Public Law 76-260). The interest charge rate shall be determined as of the due date and remain fixed for the duration of the delinquent period.

(c) When a partial payment on a delinquent account is received, the amount received shall be applied, first to the penalty, second to the administrative charges, third to the accrued interest, and finally to the overdue payment.

EQUAL EMPLOYMENT OPPORTUNITY

22. During the performance of this Contract, the Contractor agrees as follows:

(a) The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, disability, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, disability, or national origin. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the Contracting Officer setting forth the provisions of this nondiscrimination clause.

(b) The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, disability, or national origin.

(c) The Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the Contracting Officer, advising the labor union or workers' representative of the Contractor's commitments under Section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(d) The Contractor will comply with all provisions of Executive Order No. 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(e) The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the Contracting Agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(f) In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965 or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(g) The Contractor will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by the rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions, including sanctions for noncompliance: *Provided, however,* that in the event the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

GENERAL OBLIGATION—BENEFITS CONDITIONED UPON PAYMENT

23. (a) The obligation of the Contractor to pay the United States as provided in this Contract is a general obligation of the Contractor notwithstanding the manner in which the obligation may be distributed among the Contractor's water users and notwithstanding the default of individual water users in their obligations to the Contractor.

(b) The payment of charges becoming due hereunder is a condition precedent to receiving benefits under this Contract. The United States shall not make water available to the Contractor through Project facilities during any period in which the Contractor may be in arrears in the advance payment of water rates due the United States. The Contractor shall not furnish water made available pursuant to this Contract for lands or parties which are in arrears in the advance payment of water rates levied or established by the Contractor.

(c) With respect to subdivision (b) of this Article of this Contract, the Contractor shall have no obligation to require advance payment for water rates which it levies.

COMPLIANCE WITH CIVIL RIGHTS LAWS AND REGULATIONS

24. (a) The Contractor shall comply with Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d), Section 504 of the Rehabilitation Act of 1975 (P.L. 93-112, as amended), the Age Discrimination Act of 1975 (42 U.S.C. 6101, et seq.) and any other applicable civil rights laws, as well as with their respective implementing regulations and guidelines imposed by the U.S. Department of the Interior and/or Bureau of Reclamation.

(b) These statutes require that no person in the United States shall, on the grounds of race, color, national origin, handicap, or age, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity receiving financial assistance from the Bureau of Reclamation. By executing this Contract, the Contractor agrees to immediately take any measures necessary to implement this obligation, including permitting officials of the United States to inspect premises, programs, and documents.

(c) The Contractor makes this agreement in consideration of and for the purpose of obtaining any and all Federal grants, loans, contracts, property discounts, or other Federal financial assistance extended after the date hereof to the Contractor by the Bureau of Reclamation, including installment payments after such date on account of arrangements for Federal financial assistance which were approved before such date. The Contractor recognizes and agrees that such Federal assistance will be extended in reliance on the representations and agreements made in this Article, and that the United States reserves the right to seek judicial enforcement thereof.

PRIVACY ACT COMPLIANCE

25. Omitted.

CONTRACTOR TO PAY CERTAIN MISCELLANEOUS COSTS

26. In addition to all other payments to be made by the Contractor pursuant to this Contract, the Contractor shall pay to the United States, within sixty (60) days after receipt of a bill and detailed statement submitted by the Contracting Officer to the Contractor for such specific items of direct cost incurred by the United States for work requested by the Contractor associated with this Contract plus indirect costs in accordance with applicable Bureau of Reclamation policies and procedures. All such amounts referred to in this Article of this Contract shall not exceed the amount agreed to in writing in advance by the Contractor. This Article of this Contract shall not apply to costs for routine contract administration.

WATER CONSERVATION

27. (a) Prior to the delivery of water provided from or conveyed through Federally constructed or Federally financed facilities pursuant to this Contract, the Contractor shall be implementing an effective water conservation and efficiency program based on the

Contractor's water conservation plan that has been determined by the Contracting Officer to meet the conservation and efficiency criteria for evaluating water conservation plans established under Federal law. The water conservation and efficiency program shall contain definite water conservation objectives, appropriate economically feasible water conservation measures, and time schedules for meeting those objectives. Continued Project Water delivery pursuant to this Contract shall be contingent upon the Contractor's continued implementation of such water conservation program. In the event the Contractor's water conservation plan or any revised water conservation plan completed pursuant to subdivision (d) of this Article of this Contract have not yet been determined by the Contracting Officer to meet such criteria, due to circumstances which the Contracting Officer determines are beyond the control of the Contractor, water deliveries shall be made under this Contract so long as the Contractor diligently works with the Contracting Officer to obtain such determination at the earliest practicable date, and thereafter the Contractor immediately begins implementing its water conservation and efficiency program in accordance with the time schedules therein.

(b) Should the amount of M&I Water Delivered pursuant to subdivision (a) of Article 3 of this Contract equal or exceed two thousand (2,000) acre-feet per Year, the Contractor shall implement the Best Management Practices identified by the time frames issued by the California Urban Water Conservation Council for such M&I Water unless any such practice is determined by the Contracting Officer to be inappropriate for the Contractor.

(c) The Contractor shall submit to the Contracting Officer a report on the status of its implementation of the water conservation plan on the reporting dates specified in the then-existing conservation and efficiency criteria established under Federal law.

(d) At five (5) -year intervals, the Contractor shall revise its water conservation plan to reflect the then-existing conservation and efficiency criteria for evaluating water conservation plans established under Federal law and submit such revised water management plan to the Contracting Officer for review and evaluation. The Contracting Officer will then determine if the water conservation plan meets Reclamation's then-existing conservation and efficiency criteria for evaluating water conservation plans established under Federal law.

(e) If the Contractor is engaged in direct groundwater recharge, such activity shall be described in the Contractor's water conservation plan.

EXISTING OR ACQUIRED WATER OR WATER RIGHTS

28. Except as specifically provided in Article 18 of this Contract, the provisions of this Contract shall not be applicable to or affect non-project water or water rights now owned or hereafter acquired by the Contractor or any user of such water within the Contractor's Service Area. Any such water shall not be considered Project Water under this Contract. In addition, 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 or such successor shall not relieve the Contractor of its obligation to pay directly to the United States the Contractor's share of the Project Rates and Charges, except to the extent the Operating Non-Federal Entity collects payments on behalf of the United States in accordance with the separate agreement identified in subdivision (a) of this Article of this Contract.

(c) For so long as the O&M of any portion of the Project facilities serving the Contractor is performed by the Operating Non-Federal Entity, or any successor thereto, the Contracting Officer shall adjust those components of the Rates for Water Delivered under this Contract representing the cost associated with the activity being performed by the Operating Non-Federal Entity or its successor.

(d) In the event the O&M of the Project facilities operated and maintained by the Operating Non-Federal Entity is re-assumed by the United States during the term of this Contract, the Contracting Officer shall so notify the Contractor, in writing, and present to the Contractor a revised Exhibit "B" which shall include the portion of the Rates to be paid by the Contractor for Project Water under this Contract representing the O&M costs of the portion of such Project facilities which have been re-assumed. The Contractor shall, thereafter, in the absence of written notification from the Contracting Officer to the contrary, pay the Rates and Charges specified in the revised Exhibit "B" directly to the United States in compliance with Article 7 of this Contract.

CONTINGENT ON APPROPRIATION OR ALLOTMENT OF FUNDS

30. The expenditure or advance of any money or the performance of any obligation of the United States under this Contract shall be contingent upon appropriation or allotment of funds. Absence of appropriation or allotment of funds shall not relieve the Contractor from any obligations under this Contract. No liability shall accrue to the United States in case funds are not appropriated or allotted.

BOOKS, RECORDS, AND REPORTS

31. (a) The Contractor shall establish and maintain accounts and other books and records pertaining to administration of the terms and conditions of this Contract, including: the Contractor's financial transactions, water supply data, and Project land and right-of-way agreements; the water users' land-use (crop census), land ownership, land-leasing and water use data; and other matters that the Contracting Officer may require. Reports thereon shall be furnished to the Contracting Officer in such form and on such date or dates as the Contracting Officer may require. Subject to applicable Federal laws and regulations, each party to this Contract shall have the right during office hours to examine and make copies of the other party's books and records relating to matters covered by this Contract.

(b) Notwithstanding the provisions of subdivision (a) of this Article of this Contract, no books, records, or other information shall be requested from the Contractor by the Contracting Officer unless such books, records, or information are reasonably related to the

administration or performance of this Contract. Any such request shall allow the Contractor a reasonable period of time within which to provide the requested books, records, or information.

(c) At such time as the Contractor provides information to the Contracting Officer pursuant to subdivision (a) of this Article of this Contract, a copy of such information shall be provided to the Operating Non-Federal Entity.

ASSIGNMENT LIMITED—SUCCESSORS AND ASSIGNS OBLIGATED

32. (a) The provisions of this Contract shall apply to and bind the successors and assigns of the parties hereto, but no assignment or transfer of this Contract or any right or interest therein shall be valid until approved in writing by the Contracting Officer.

(b) The assignment of any right or interest in this Contract by either party shall not interfere with the rights or obligations of the other party to this Contract absent the written concurrence of said other party.

(c) The Contracting Officer shall not unreasonably condition or withhold approval of any proposed assignment.

SEVERABILITY

33. In the event that a person or entity who is neither (i) a party to a Project contract, nor (ii) a person or entity that receives Project Water from a party to a Project contract, nor (iii) an association or other form of organization whose primary function is to represent parties to Project contracts, brings an action in a court of competent jurisdiction challenging the legality or enforceability of a provision included in this Contract and said person, entity, association, or organization obtains a final court decision holding that such provision is legally invalid or unenforceable and the Contractor has not intervened in that lawsuit in support of the plaintiff(s), the parties to this Contract shall use their best efforts to (i) within thirty (30) days of the date of 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.

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.

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 H Fresno Irrigation District Agreements

H

REVISED, AMENDED AND RESTATED COOPERATIVE AGREEMENT BETWEEN FRESNO IRRIGATION DISTRICT AND CITY OF FRESNO FOR WATER UTILIZATION AND CONVEYANCE

THIS AGREEMENT is entered into as of December 20, 2016 by and between the Fresno Irrigation District, an irrigation district (herein called "District") and City of Fresno, a municipal corporation (herein called "City").

WITNESSETH:

WHEREAS, District is an irrigation district organized and existing under the laws of the State of California and is the owner of certain water supplies, water rights and a water distribution system that can convey water to lands both within and outside District boundaries; and

WHEREAS, City is a municipal corporation with boundaries largely overlapping those of District and is the owner of a water distribution system for the distribution of water to lands both in and outside the exterior boundaries of 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 terminated on May 30, 1976; and

WHEREAS, District and City continued with said cooperative program and entered into a replacement contract for water utilization and conveyance dated May 25, 1976 ("1976 Agreement"); and

WHEREAS, District and City wish to amend and restate the 1976 Agreement in its entirety in order to continue with and expand said cooperative program to recognize changed circumstances affecting them via this Revised, Amended and Restated Cooperative Agreement between Fresno Irrigation District and City of Fresno for Water Utilization and Conveyance ; and

WHEREAS, certain provisions of this Agreement are 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 December 22, 2010 between City and the United States of America identified as Contract No. 14-06-200-8901D (the "City Bureau Contract"), City is entitled to purchase certain water from the United States; and

WHEREAS, by agreement dated December 22, 2010 between District and the United States of America identified as Contract No. 14-06-200-1122D (the "District Bureau Contract"), District is entitled to purchase certain water from the United States; and

WHEREAS, District holds rights to Kings River water and storage in Pine Flat Reservoir on the Kings River, subject to various contracts with the United States of America, water supply schedules and agreements by and among members of the Kings River Water Association and others, judicial and regulatory decrees, and the water rights governing the diversion and use of Kings River water, all as they may be amended or supplemented from time to time (collectively, the "Kings River Agreements"); and

WHEREAS, it is recognized by District and City that District is primarily charged with the distribution and delivery of water within 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 District and City that many inhabitants of District also require water for domestic, industrial or fire protection purposes supplied to them by City; and

WHEREAS, under the 1976 Agreement, Kings River water was available to City once lands within District boundaries with surface water allotments were annexed into City and were covered by the 1976 Agreement's contract rate for surface water delivery to City by District for those lands; and

WHEREAS, City and District now wish to limit the amount of Kings River water available to City to provide more certainty regarding water supply availability and to address City's current and anticipated needs and circumstances; and

WHEREAS, City and District are both committed to working cooperatively under the Sustainable Groundwater Management Act ("SGMA") so that the groundwater basin shared by City and District is sustainable and so that undesirable results (as defined in SGMA) are minimized or avoided; and

WHEREAS, City and District recognize that changes to the operations of the Central Valley Project have impacted the availability of water from said project; and

WHEREAS, City has heretofore used much of the water delivered to it under the 1976 Agreement for groundwater recharge because of City's historical reliance on groundwater, and therefore did not require delivery of water year around; and

WHEREAS, City desires to use more of its surface water for direct delivery to its water users and ratepayers while limiting its reliance on groundwater; and

WHEREAS, with the development of its surface water treatment facilities ("SWTFs") City now requires a long-term, reliable and certain surface water supply, deliverable continuously year around; and

WHEREAS, conveyance of raw surface water to the SWTFs on a continuous year around basis will require, among other things, (i) new conveyance infrastructure built by City to overcome certain operational challenges and/or interruptions to District's infrastructure to accommodate normal and routine maintenance of District's canals and pipelines than have historically delivered surface water to City, (ii) District to alter its operations and incur additional

costs to make Out of Season Deliveries, and (iii) the use of new management techniques by District, with the attendant costs, including without limitation water sales, purchases, transfers and exchanges, to meet the need for a continuous supply of surface water to City's SWTFs, all while addressing SGMA and other legal and regulatory requirements that impact the groundwater basin shared by District and City; and

WHEREAS, providing Out of Season Deliveries by District to City may also require the development of new water supplies and projects to provide the water being sought by City; and

WHEREAS, City acknowledges that District has a great depth of experience, knowledge and expertise in the management of surface water supply resources (including but not limited to water supply sales, purchases, transfers and exchanges); and

WHEREAS, City recognizes that the coordinated management of both District's and City's water supplies by District is desirable to maximize the use of the current water supplies and the future development of water supplies for both parties; and

WHEREAS, City has determined that it is in City's interest, and in the interest of its water users and ratepayers, to engage District to employ District's experience, knowledge and expertise on behalf of City in the management of City's Surface Water pursuant to the terms hereof in order to achieve City's and District's goals described herein and to accommodate City's desire for a continuous year around surface water supply, and District has agreed to be so engaged; and

WHEREAS, the changing conditions and manner of management of water supplies throughout the State of California, and other factors beyond the control of City and District, will require increased vigilance on the part of water purveyors in the Fresno area to cooperate with each other on long-range implementation strategies to improve the availability, reliability, and drought resiliency of water supplies; and

WHEREAS, through this Agreement and additional cooperative efforts, City, District and other entities in the region intend to capture of flood released waters, optimize existing water supply storage assets, develop new water supply storage assets, expand groundwater recharge capacities, engage in strategic water supply sales, transfers and exchanges and enhance the utilization of recycled and/or treated waters; and

WHEREAS, in light of SGMA, environmental regulations, water supply challenges and competition with other users and regions in the State for water supplies, City and District wish to further enhance their cooperative working relationship for the benefit of the water users and ratepayers they serve by entering into this Agreement to provide for strategic, long-range and coordinated water supply planning and management that will optimize water conservation, the efficient uses of water for agricultural and municipal uses, the capture of flood released water, the use of existing water supply storage assets, the development of new water supply storage assets, the expansion of groundwater recharge capacity, the effectiveness of strategic water supply sales, transfers, exchanges and purchases, and the enhancement of recycled water utilization.

NOW, THEREFORE, adopting the foregoing recitals as being applicable to this Agreement, 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 by both District and City and ending at 12:00 o'clock p.m. on the last day of June in the year 2035, 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. Upon the execution of this Agreement the 1976 Agreement and all amendments thereto 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 the 1976 Agreement, if any.

2. Agreement Subject to Other Obligations. This Agreement shall be at all times subject to all of the terms and conditions of the City Bureau Contract, the District Bureau Contract and the Kings River 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, that contrary provision of this Agreement shall be unenforceable. In the event any such agreement contained herein shall become unenforceable, the entire Agreement 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. Definitions. For the purpose of this Agreement, the following terms shall be defined as follows:

(a) "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 conducted by District.

(b) "City's Friant Supply" means all water to which City is entitled under the City Bureau Contract or otherwise as a result of City's status as a long-term repayment contractor for water service from the Friant Division of the Central Valley Project (CVP), including without limitation Class 1 water, Section 215 water, uncontrolled season water, unreleased restoration flows and recirculated water. City's Friant Supply shall not include any water available to District under the District Bureau Contract or as a result of District's status as a long-term repayment contractor in the Friant Division of the CVP, which water is not governed by this Agreement.

(c) "City's Kings River Supply" means the percentage of District's Kings River Supply available to be delivered to City in a Water Year under this Agreement.

(d) "District's Kings River Supply" means the Kings River water District may deliver to its water users under the Kings River Agreements and applicable judicial and regulatory decrees in a Water Year as the result of the calculated natural flow of the Kings River during that Water Year.

(e) "City's Surface Water" means all water available to City in a Water Year by means other than pumping from the underground water supply, including without limitation

City's Kings River Supply and City's Friant Supply and any surface water supply acquired or developed after the date of this Agreement.

(f) "City's Water Service Area" means all lands within the exterior boundaries of City, and also all lands outside such boundaries that are within the exterior boundaries of District, to which City now delivers water or hereafter consents to deliver water by means of the City Water System and that are not hereafter designated or assessed by District as lands receiving or to receive District Water Service.

(g) "City Water System" means the conduits, pipes and other facilities (including without limitation the SWTFs) owned by City and used by City to convey water to lands whether in or outside City.

(h) "District Water Service" means the furnishing of water by District directly to lands within District by means of the District Water System other than pumping conducted by a landowner or water user directly from the underground water supply upon the lands receiving such water.

(i) "District Water System" means the conduits, pipes, canals, pumping stations and other facilities owned and/or used by District to convey water to lands or facilities whether in or outside of District.

(j) "Excluded Areas" means those acres within the City's Water Service Area that are outside of the District's boundaries.

(k) "Included Acres" means those acres within the City's Water Service Area that are within the District's boundaries.

(l) "Municipal, Industrial and Domestic Uses" means the use of water other than for Agricultural Use, and underground water replenishment conducted by City.

(m) "Out of Season Deliveries" means deliveries of City's Surface Water via the District Water System during periods when District is not otherwise delivering irrigation water to its landowners or water users via the portions of the District Water System used to convey City's Surface Water to the points on the District Water System where City will assume physical control of the delivered water.

(n) "Point of Delivery" means, for water delivered to City via the District Water System, the headworks of the Gould Canal and the Fresno Canal as specified in the applicable schedule, for water delivered to City via the Friant-Kern Canal Raw Water Pipeline, the headworks of the Friant-Kern Canal Raw Water Pipeline, for water delivered to City via the South Raw Water Pipeline, the headworks of the Fresno Canal, and such other location(s) as City and District may mutually agree.

(o) "Transfer" means a water sale, transfer or exchange involving any of City's Friant Supply.

(p) "Water Year" means March 1 of one year through the last day of the following February when used in reference to City's Friant Supply and October 1 of one year through September 30 for the following year when used in reference to City's Kings River Supply or District's Kings River Supply.

4. Management of City's Surface Water. To fulfill the purposes of this Agreement, and to facilitate the continuous and year around supply of water to City's Water System and facilities, District shall undertake, and is hereby appointed by City as City's exclusive agent for the management of City's Surface Water pursuant and subject to the terms of this Agreement, including but not limited to subsection 4(f) below. District's management authority and responsibilities shall terminate with respect to any of City's Surface Water upon delivery of that water to City.

(a) The management authority hereby granted to District shall include without limitation the exclusive right to:

i. Direct the storage and release of City's Surface Water;

ii. Schedule, order and provide for the delivery of City's Surface Water to District's points of diversion;

iii. Facilitate the reasonable and beneficial use of City's Surface Water and other water supplies available to City, while also providing for delivery of water to the applicable Point(s) of Delivery as specified in this Agreement;

iv. Pursue and implement Transfers pursuant to this Agreement; and

v. Take all other actions associated with the management and administration of City's Surface Water prior to its delivery to the applicable Point of Delivery in furtherance of the goals provided in subsection 4(f).

(b) District shall not voluntarily take any action that would:

i. Breach City's Bureau Contract or any other agreement governing any of City's Surface Water;

ii. Result in a long-term reduction in amount of City's Surface Water; or

iii. Result in management or use of City Surface Water inconsistent with the goals provided in subsection 4(f) below, unless City provides prior written authorization of such management or use.

(c) Notwithstanding District's management of City's Surface Water, City shall be solely responsible for, and shall timely pay, all charges and other amounts payable in connection with any of City's Surface Water.

(d) Subject to the express rights of City under this Agreement, City shall take no action that interferes with District's management of City's Surface Water as long as District provides the deliveries thereof in accordance with Section 5.

(e) District shall coordinate with City to define and identify uses of City's Surface Water that benefit City's water users and ratepayers. This coordination shall be performed as described in this subsection.

i. As frequently as appropriate and necessary, and at least annually, City and District shall confer to review available water supply information and data, including without limitation: precipitation, snow pack, and runoff conditions; water storage conditions; relevant environmental programs and projects; forecasted Municipal, Industrial and Domestic Uses; surface water delivery priorities for City; forecasted groundwater pumping required to meet City's forecasted Municipal, Industrial and Domestic Uses; and other pertinent information and data related to water supply availability and water demands for the relevant Water Year(s). City and District shall also confer regarding the anticipated availability of City's Friant Supply, if any, for Transfers.

ii. City will be responsible for providing periodic updates to the City Council and City administration. At least annually, City staff shall provide an informational workshop to the City Council, summarizing ongoing water supply conditions, the implementation of this Agreement and fulfillment of the water supply goals as listed in 4(f), as well as any anticipated water supply issues of concern for the relevant Water Year(s). District shall make reasonable efforts to coordinate with City staff to provide any data, information, and materials required for this annual informational workshop to the City Council.

iii. It is understood that during any given Water Year it may be necessary to adjust the water supply planning forecast established pursuant to the above described process as water supply availability and demands change, and additional information and data are obtained, reviewed, and assessed. City and District shall employ reasonable efforts to meet and confer as necessary to keep each party informed to the extent water supply conditions and plans may change through the relevant Water Year. City shall be responsible for providing informational updates to the City administration to the extent there are material changes to the water supply conditions in any given Water Year.

(f) District's management of City's Surface Water shall at all times be in furtherance of one or more of the following water supply goals:

i. Providing continuous year around water supply to City's SWTFs;

ii. Improving the water supply reliability and drought-resiliency for City;

iii. Improving the operation and utilization of City-owned recharge basins;

iv. Implementing conjunctive-use water management strategies to comply with the SGMA that directly benefit City's water users and ratepayers and indirectly benefit groundwater users in the North Kings Subbasin.

(g) Included as a part of the management of City's Surface Water as described above, District shall diligently pursue Transfers of any of City's Friant Supply that City advises District that City will not require during a particular Water Year ("Temporarily Unused Friant Water").

i. Upon identifying a potential Transfer opportunity, and prior to executing the Transfer, District shall notify City of the potential Transfer opportunity, and the water quantity, unit price, delivery dates and terms, and any other material matters associated with the Transfer. This is a notification procedure and not an approval procedure.

ii. All Transfers of Temporarily Unused Friant Water pursued by District shall be in full conformance with City's water supply goals as described in Section 4(f) or otherwise agreed by City and District, and shall be limited to supporting Agricultural Use rather than urban growth or development in other jurisdictions.

iii. City shall not be prohibited from unilaterally pursuing Transfers of Temporarily Unused Friant Water; provided, that any such Transfers shall first be discussed and coordinated with District before they are implemented and shall not be undertaken over District's reasonable objection and the benefits of any such Transfer shall be allocated in accordance with subsections (h), (i) and (j) below.

iv. For avoidance of doubt, District's obligations under this Section 4(g) are limited to making reasonable and diligent efforts to pursue Transfers of Temporarily Unused Friant Water, and City acknowledges that no assurances can be provided by District that such Transfers can be made or arranged.

(h) The benefits resulting from Transfers shall be allocated in accordance with this subsection. For purposes of this Section 4, "benefits" of a Transfer include, without limitation:

i. The difference between all costs incurred in connection with a Transfer and the amount(s) received as a result of the Transfer,

ii. Water returned as a result of a Transfer, and

iii. Water supply storage or conveyance capacities made available as a result of a Transfer.

To the extent benefits include payments, City shall be reimbursed for its actual and reasonable out of pocket expenses incurred for City's Friant Supply involved in the Transfer,

and each of the parties shall next be reimbursed for any actual and reasonable out of pocket expenses incurred in connection with the Transfer. The net revenue associated with a Transfer shall be the revenue remaining after all parties have been reimbursed their actual and reasonable expenses incurred for the Transfer.

(i) To the extent benefits of a Transfer consist of water supplies, water supply storage or conveyance capacities, the allocation of such benefits as between the parties shall be negotiated by the parties before the Transfer is implemented. In the event the parties cannot negotiate such allocation, the Transfer shall not be pursued.

(j) For each Transfer that generates net revenue, City and District agree that the net revenue shall be distributed and used as follows:

i. 25-percent of the net revenue shall be deposited with City's water enterprise fund;

ii. 25-percent of the net revenue shall be deposited with District for the inspection, operations, maintenance and repair of the District's Conveyance System, which City acknowledges provides a benefit to City ratepayers;

iii. 50-percent off the net revenue shall be deposited into a Water Supply Development Fund to be used to finance water supply development programs and projects that mutually-benefit City and District.

The Water Supply Development Fund shall be a restricted-use fund to be used exclusively for water supply programs and projects that improve water supply availability, reliability and drought resiliency for both District and City. Programs and projects that may be financed from the Water Supply Development Fund include, but are not limited to, water supply purchases, transfers, and exchanges; groundwater storage; and groundwater recharge. Expenditures for water supply purchases, transfers, and exchanges may include any carryover charges and conveyance charges that may be assessed by the State of California, the United States, or other agency, to store, transport and deliver surface water, for the mutual benefit of City and District, using state or federal storage and conveyance facilities.

The Water Supply Development Fund may receive contributions from City, District, and other public agencies approved by both City and District. The Water Supply Development Fund may not receive contributions from private persons, companies, businesses, or organizations.

Prior to encumbering funds from the Water Supply Development Fund, District and City shall mutually agree in writing on the recommended expenditure and the amount to be financed with the Water Supply Development Fund.

District shall serve as the fiscal agent for the Water Supply Development Fund and implement generally accepted public agency or governmental accounting practices in managing the fund assets. District shall subject the fund to an annual audit by independent auditors during the course of District's annual audit of its financial statements. The audit shall

be conducted in accordance with the generally accepted auditing standards by the independent certified public accountant auditing District's financial statements. Upon presentation of District's comprehensive audit report to the District Board of Directors, District shall provide City with a copy of District's audit report. At any time during the term of this Agreement, City may, at its own cost, request to review and audit the financial and accounting records associated with the Water Supply Development Fund. District shall have 30 working days to submit the requested records to City for review and audit.

In the event this Agreement terminates and uncommitted amounts remain in the Water Supply Development Fund, one half of all such amounts shall be promptly distributed free of any restrictions to each of the parties.

(k) By the 25th day of each month, District shall provide City with a written summary of District's utilization of City's Friant Supply for the previous month in substantially the form attached hereto as **Exhibit A**. The written summary will identify water volumes delivered to recharge basins, surface water treatment facilities, other Points of Delivery designated by City, and Transfers. The written summary may be delivered to City by email, facsimile or U.S. mail. For Transfers, the monthly report shall include information regarding the parties involved in the Transfer, the water quantity, unit price, delivery dates and terms, and any other material matters associated with the Transfer.

5. Water Made Available to City.

(a) Subject to all other provisions of this Agreement, District shall deliver to City during each applicable Water Year, for distribution and use by City within City's Water Service Area, each day of each year on a continuous basis in accordance with Section 8 of this Agreement, the City's Surface Water available during relevant Water Year(s) that can be diverted by District at the headworks of the Gould Canal, the Fresno Canal or the Friant-Kern Canal Raw Water Pipeline. City acknowledges that the water delivered may not be City's Surface Water, but rather other water controlled by District in the District Water System of similar quality and equal quantity, including without limitation water recovered from water banks, other water for which City's Surface Water is exchanged, and/or water purchased by District for delivery to City at District's cost, and that references in this Agreement to deliveries of City's Surface Water shall include deliveries thereof of a substitute supply by means of one or more exchanges, transfers, purchases or combinations thereof. At all times, District shall have the right to exchange and to convey for City in place thereof other water of similar quality and equal quantity (except sewer effluent or industrial wastes) available to District.

(b) City's Surface Water shall be deemed delivered to City when it reaches the Point of Delivery specified in the applicable schedule provided and approved under Section 8 of this Agreement, provided that for deliveries made via the District Water System, District shall thereafter convey such water to the points on the District Water System where City will assume physical control of the delivered water.

(c) The parties acknowledge that there may be times when the City Water System is undergoing routine or emergency repairs and maintenance, or subject to other conditions, that preclude City from accepting deliveries under this Agreement. Similarly, the parties

acknowledge that there may be times when the District Water System is undergoing routine or emergency repairs and maintenance, or subject to other conditions, that preclude District from delivering water to City under this Agreement. The parties shall cooperate with the other to minimize the impacts of such events, but neither shall be in breach of this Agreement as a result thereof.

(d) Water delivered to City under this Agreement shall be used by City within City's Water Service Area only for Municipal, Industrial and Domestic Uses, Agricultural Uses incidental thereto, and within the boundaries of District for recharge of the underground water supply by percolation.

City shall not sell, transfer, deliver or exchange any surface water or groundwater to or with any other person or entity without written consent of District first had and obtained.

However, this provision shall not prevent City from entering into separate agreements with any other entity which may have a similar agreement with District for the distribution and use of water received from District under such agreements, provided such separate agreements are entered into with the written consent of District first had and obtained and are subject to all the terms and conditions of this Agreement and District's agreements with such other entities.

(e) District has entered into this Agreement with the understanding that it is, and will continue to be, City's policy to (i) require urban growth to occur sequentially in designated growth areas around City, (ii) promote infill development with City's existing boundaries and (iii) facilitate the successful implementation of SGMA within the groundwater basin shared by City and District by conditioning land use and annexation decisions on the existence of an available water supply to support new development in annexed areas. Consistent with that understanding, for the term of this Agreement, as a condition of the provision of City water service, City shall require the proponent of any proposed development project located outside of City's Water Service Area boundary as of the date of this Agreement to:

i. Define the peak water demands, plus fire protection demands, required to meet the total water supply demands of the entire project at build-out conditions;

ii. Obtain a perpetual surface water supply allocation, right, entitlement or similar from District, or other surface water supply agency, to meet the peak water demands, plus fire protection demands, at build out conditions; and

iii. Dedicate, transfer or assign the perpetual surface water supply allocation, right, entitlement or similar to City.

Once the perpetual water supply has been dedicated, transferred, or assigned to City, the water supply shall be incorporated into City's Surface Water managed by District for City under this Agreement.

In addition, to improve, restore, and maintain the availability, reliability, and drought resiliency of the groundwater and surface water resources in the North Kings Subbasin,

City and District shall jointly advocate that all public water supply systems in the North Kings Subbasin should require the proponents of new development projects to obtain perpetual surface water supply rights, allocations, entitlements, and similar, in sufficient quantity, to meet the all demands at full build out.

(f) In furtherance of the parties' goals under this Agreement, City shall utilize City's Friant Supply to provide water to the City's SWTF served by the South Raw Water Pipeline (as defined below) for the purpose of serving the Excluded Area.

6. Raw Water Pipelines. As soon as reasonably practicable, City shall construct, at its sole cost and expense, two raw water pipelines to serve City's SWTFs (the "Raw Water Pipelines"). One Raw Water Pipeline shall be a direct connection from the Friant-Kern Canal to City's SWTF located at Mile Point 7.58 (the "Friant-Kern Canal Raw Water Pipeline"). The other Raw Water Pipeline shall be a direct connection from the Fresno Canal downstream of the headworks for such canal to City's SWTF located at Trimmer Spring Road (the "South Raw Water Pipeline"). City's T3 SWTF shall continue to be served by the Enterprise and Jefferson Canals that are a part of the District Water System. Once operational, the Raw Water Pipelines shall be used to convey portions of City's Surface Water directly to the SWTFs, and all costs of the operation, maintenance, repair and replacement of the Raw Water Pipelines shall be borne by City; provided, that District shall be entitled to utilize for its own purposes any capacity in the Raw Water Pipelines not required to deliver City's Surface Water, and District shall reimburse City upon demand for any operational costs incurred as a result of District's use of the Raw Water Pipelines. Any third-party property damages resulting from City's efforts and activities related to the operation, maintenance, repair, and replacement of the Raw Water Pipelines shall be received and processed by City in accordance with City's Risk Management policies and procedures.

7. City's Friant Supply. While this Agreement is in effect, City (i) shall not convey any interest in the City Bureau Contract to any party other than District, (ii) shall at all times maintain the City Bureau Contract in effect and (ii) shall not voluntarily decrease the quantity of City's Friant Supply to be made available to City thereunder without the written consent of District. City will use every effort to obtain its maximum entitlement to City's Friant Supply annually as it may become available, and will seek to maximize any other surface water opportunities that may be available to City via the Friant Division of the Central Valley Project. Nothing in this Agreement conveys any ownership interest in the City Bureau Contract to District, which shall at all times remain the sole property of City, nor does this Agreement convey any interest in the District Bureau Contract to City, which shall at all times remain the sole property of District.

8. Schedules of Delivery and Conveyance of Water.

(a) District shall deliver City's Surface Water to City in accordance with schedules provided from time to time by City for approval by District, which approval shall not be unreasonably withheld, delayed or conditioned. Such schedules shall set forth the amounts of water desired by City, the desired timing of deliveries, the facilities by which such water is to be delivered, and the point(s) on the District Water System where City will assume physical control of the delivered water. Deliveries of water by District will take into consideration all relevant

factors, including without limitation (i) the capacity and condition the applicable portions of the District Water System, (ii) City's Bureau Contract, (iii) the District Bureau Contract, (iv) the Kings River Agreements, (v) actual and anticipated water supply conditions, (vi) the requirements of other contracts between the District and third parties (including without limitation the City of Clovis and Fresno County Waterworks District No. 19) and (vii) all other factors pertaining to the distribution, apportionment and use of water available to District.

(b) All schedules submitted by City during each Water Year shall provide for the delivery during that Water Year of all of City's Surface Water that becomes available to City during that Water Year. Notwithstanding the foregoing, City may schedule up to 10,000 acre feet of City's Surface Water that becomes available to City during one Water Year for delivery in the succeeding Water Year ("Rescheduled Water"). City shall timely pay in full all costs imposed by third parties, including without limitation the United States Bureau of Reclamation, as the result of any Rescheduled Water requests or deliveries.

9. Conveyance Losses. City shall bear all losses incurred in the District Water System downstream of the applicable Point of Delivery; provided, that no such losses shall be assessed against City when District is delivering irrigation water to its landowners or water users via the portions of the District Water System used to convey City's Surface Water to the points on the District Water System where City will assume physical control of the delivered water. Conveyance losses chargeable to City shall be computed by multiplying the losses in that portion of any canal used for conveyance of City's Surface Water during the period such water is being so conveyed by the total amount of water being conveyed for 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.

10. Use by District of Water Not Used by City.

(a) Except for Rescheduled Water, in the event City is unable to use or does not use any of City's Kings River Supply in any Water Year, City shall lose the right to receive such water, and District shall have the right to take and use such water for Agricultural Use in such manner as it may determine.

(b) Except for Rescheduled Water, in the event City is unable to use or does not use any part of City's Friant Supply and District reasonably concludes that it cannot effect a Transfer for all of such unused water as Temporarily Unused Friant Water as described in Section 4(g), City shall nevertheless take and pay for such unused water and District shall have the right to use such water for Agricultural Use, but City may require District to so use such water at such locations as City may direct; provided, however, in the event 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 District Water System 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 Section 10(a). Such use of any such water by District shall not relieve 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 District shall not require any payment from District to City.

(c) Except for Rescheduled Water, in the event City is unable to use or does not use any of City's Surface Water that is neither City's Kings River Supply or City's Friant Supply in any Water Year, City shall lose the right to receive such water, and District shall have the right to take and use such water for Agricultural Use in such manner as it may determine. In such event, insofar as the District Water System will permit, and insofar as otherwise may be practicable and equitable as to other landowners, District will use such water for irrigation or percolation in areas in City or east or northeast of City, and will discuss its use with City before it is used elsewhere. However, the ultimate decision concerning such use of such water shall be within the discretion of District.

11. Water Rights Not Transferred. As was the case under the 1976 Agreement, City acknowledges that its rights to City's Kings River Supply under this Agreement are contractual rights and not water rights. 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 and nothing in this Agreement shall constitute the dedication by either party of water or storage to a public use. No right in any water, storage right or water right owned by District or City shall be acquired or lost by virtue of this Agreement or the actions contemplated hereby. At no time shall City make any claim, assert any right or otherwise seek, confirm or perfect in any forum any legal or beneficial interest, right or title to any of District's water supply or storage rights except as expressly set forth herein.

12. City's Sewage Effluent. City shall retain its sewage effluent and recycled water within the boundaries of District for the term of this Agreement, except with the written consent of District first had and obtained. It is the intent of City and District to develop and execute a new agreement addressing such effluent and recycled water use, and this Agreement is to be interpreted so as to be consistent with such new agreement if and when it is executed by the parties.

13. Acreages and City's Kings River Supply.

(a) City's Water Service Area consists of Included Acres and Excluded Acres, and on an annual basis City and District shall prepare a map showing the total number of acres in each area as of the first day of March of each year. When so approved, said map shall be incorporated herein by reference as **Exhibit B** and shall become a part hereof. Said map shall be amended and reapproved by both parties as of the first day of March each year and added to this Agreement as an updated **Exhibit B**. However, City shall keep the District currently advised during the year of any new lands outside of City's Water Service Area to which it commences or consents to deliver water, and District shall keep 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.

(b) City's Kings River Supply shall be the herein-contracted for percentage of District's Kings River Water Supply. Such percentage shall be based on the ratio of Included Acres within City's Water Service Area to the total acres within District's boundaries. In computing the acreage within the Included Acres, 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. As of the execution of Agreement, and based on the land area sizes defined above, City's Kings River Supply is 25.54 percent of the District's Kings River Supply.

(c) Notwithstanding any other provision of this Agreement, and notwithstanding increases in the Included Acres, City's Kings River Supply shall be limited to 29.00 percent of District's Kings River Supply. At such time when the ratio of Included Acres within City's Water Service Area to the total acres within District equals 29.00 percent, City's Kings River Supply shall remain fixed at 29.00 percent. City and District mutually agree that the increase percentages reflected in this Section 13 include allowances for moderate growth in Growth Area 1 of City's Sphere of Influence as shown in **Exhibit C** (as depicted as Figure IM-2 of the Fresno General Plan).

(d) To improve, restore, and maintain the availability, reliability, and drought resiliency of the groundwater and surface water resources in the North Kings Subbasin, District shall support, and to the extent it has the legal authority to do so shall require, the establishment of water supply limits on all municipal water systems in the North Kings Subbasin.

District acknowledges that it may enter into surface water utilization and conveyance agreements similar to this one with other municipalities in the Kings Subbasin that provide for the delivery of portions of District's Kings River Supply. Subject to the following paragraph of this Agreement, all such agreements entered into after the date of this Agreement shall provide that the percentage of District's Kings River Supply made available to the municipality entering into such agreement shall be determined in a manner similar and comparable to that applied to City in this Agreement.

Should the District enter into such a water utilization and conveyance agreement with another municipality in the Kings River Subbasin after the date of this Agreement that makes available a percentage of District's Kings River Supply to such municipality determined in a manner that is not similar and comparable to that applied to City in this Agreement, at City's request the parties shall negotiate in good faith an adjustment in City's Kings River Supply to apply the same methodology used, and provide the same percentage increase, as granted to the other municipality; provided, that to the extent such other municipality provides additional consideration to District for such different methodology, City shall provide comparable consideration if it requests that such different methodology be used for this Agreement. Any disputes arising as a result of such negotiation shall be resolved pursuant to Section 19.

14. Payment by City to District. In consideration of the water supplies and services provided by District to City under this Agreement, City shall pay to District each Water Year in which this Agreement is effective the following:

(a) The sum calculated by multiplying the number of Included Acres by the per acre assessment imposed as of March 1 of that Water Year on lands in District receiving District Water Service, plus the sum calculated by multiplying the number of Excluded Acres by the per acre assessment imposed as of March 1 of that Water Year on lands in District not receiving District Water Service. Amounts payable to District pursuant to this Section 14(a) shall be paid by City 60% on or before the 20th day of December preceding the Water Year for which such

amounts are due, and the remaining 40% shall be paid on or before the 20th day of June of the following Water Year. City and District acknowledge that during the term of this Agreement, District may convert its rate structure to include a volumetric charge. Concurrently with such a rate structure modification, the parties shall negotiate modifications to this Section 14 so that charges imposed on City under the revised District rate structure are equitable and comparable in proportion and magnitude to the charges imposed on other District customers receiving water for Agricultural Use. Without limiting the foregoing, any volumetric charges imposed on City shall be determined in the same manner as volumetric charges imposed on other District customers receiving water for Agricultural Use.

(b) An out of season water delivery fee determined in accordance with the procedure described in the attached **Exhibit D** for each acre foot of water delivered to City under this Agreement as an Out of Season Delivery (the "Water Delivery Fee"). The Water Delivery Fee shall be payable within 30 days after District delivers City an invoice for such fee indicating the amount of water delivered during the invoice period and the total Water Delivery Fee due. City acknowledges that such fee is in part to compensate District for additional costs and risks incurred for operating its system to make Out of Season Deliveries. No such fee shall be due for water deliveries to City under this Agreement that are not Out of Season Deliveries.

(c) A rescheduling fee for each acre foot of Rescheduled Water determined in accordance with the procedure described in the attached **Exhibit E** (the "Rescheduling Fee"). The Rescheduling Fee shall be payable annually after March 1 of each Water Year within 30 days after District delivers City an invoice for such fee indicating the amount of Rescheduled Water for the applicable Water Year and the total Rescheduling Fee due. City acknowledges that the Rescheduling Fee is necessary to compensate District for additional costs and risks incurred to reschedule water for City from one Water Year to the succeeding Water Year. The Rescheduled Water Fee shall not be applied to any of City's Friant Supply carried over in Millerton Lake, as the Bureau has established a separate fee schedule for City to reschedule City's Friant Water Supply from one Water Year to the succeeding Water Year.

(d) While this Agreement is in effect, District shall not impose District assessments or other charges on landowners within City's Water Service Area or adopt special "municipal and industrial" assessments, rates or charges that would be imposed on or as a result of water deliveries to City under this Agreement. Only the amounts described in this Agreement shall be imposed on any party as a result of deliveries of City's Surface Water by District to City.

(e) Time shall be of the essence for the making of the payments described in this Section 14. If any such payment is not made on the date provided, City shall pay to District in addition to said payment costs, penalties and interest equal to those provided by law to be paid by landowners within District for the late payment of assessments. Such costs, penalties and interest are in addition to any other remedy which District may have against City because of City's failure to pay said payment as above provided.

(f) City acknowledges and agrees that the amounts payable by City pursuant to this Section 14 will vary from year to year and may increase over time. City further acknowledges that, while some of such amounts will be determined with reference to District assessments on its landowners, no amounts payable by City under this Agreement are assessments on City's

landowners. City further agrees that, as they relate to City, such amounts will be imposed as a matter of contract and are not assessments, fees or charges to which Article XIIID of the California Constitution applies. City shall be permitted to participate in public hearings and meetings held in connection with rate-setting, but City shall not assert that Article XIIID of the California Constitution applies to payments required under this Agreement. If City makes such an assertion, this Agreement may be terminated by District in its entirety as of the last day of February of the next succeeding year by written notice served upon City. City shall be responsible to set its rates to its utility users in accordance with applicable law, and shall indemnify and defend District against any claims or legal actions commenced by City's water users or ratepayers to challenge the amounts payable by or to City.

15. Re-negotiations. City and District acknowledge that changed circumstances in the future may:

i. Result in material changes in the size of City's Water Service Area, the number of Excluded Acres and/or the number of Included Acres, and/or

ii. Render the amount of City's Kings River Supply as an increasing percentage of District's Kings River Water Supply inequitable.

Such changed circumstances could result from, among other causes:

i. Annexations or detachments from City and/or District;

ii. Updates in City's Urban Water Management Plan or the Fresno General Plan;

iii. Significant regional economic development projects that require the extension of the City Water System outside of City's Water Service Area. Significant regional economic development projects shall be those that qualify for federal, state, county, or local economic development incentives; or

iv. New legal, regulatory, or environmental requirements placed on water supply agencies by a state or federal government agency.

Should either party to this Agreement determine after January 1, 2036 that such changed circumstances have arisen, it may notify the other of such determination and request that the parties meet to discuss mutually acceptable changes in the number of Excluded Acres, the number of Included Acres and/or the percentage used to determine City's Kings River Supply. Neither party shall be required to engage in such discussions prior to January 1, 2036.

The parties shall thereupon meet in good faith in an attempt to reach agreement on such changes; provided, that if no such agreement is reached within 180 days of the initial meeting, neither party shall be obligated to continue such meetings.

The number of Excluded Acres, the number of Included Acres and City's Kings River Supply shall remain unchanged pending agreement on the changes, and therein documented by a written amendment to this Agreement and executed by both parties.

16. Protection of District Facilities. City shall not permit the development of any parcel of land or the use of any public utility or other easements affecting land within its boundaries if any of the District Water System is located on, under or adjacent to such parcel until City, the landowner and/or the developer enters into an agreement acceptable to District for the repair, rehabilitation, relocation, replacement, reconfiguration or pipelining of the facilities on the parcel, and on any adjacent parcels, all as District determines is necessary or appropriate in order to (i) avoid disruption of District operations or maintenance activities as a result of the development, (ii) make District facilities suitable for operation within a developed area, or (iii) address public safety concerns.

17. No Warranty of Quality. City recognizes that City's Surface Water will be "raw," non-potable and untreated, and that the amount of water included in City's Surface Water will vary from year to year due to a variety of factors beyond the control of District. City further recognizes that wastewater (both treated and untreated) and drainage water are sometimes discharged into the District's canals, and that such discharges from a number or sources will occur and/or continue during the term of this Agreement. Accordingly, except as expressly set forth in this Agreement, District makes no representations or warranties regarding the quality of the water or the amount of water to be delivered to City each Water Year. City recognizes that the treatment of City's Surface Water to make it potable shall be the sole responsibility of City, and City shall assume all risk and responsibility therefor. 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 District of chemicals to control aquatic and ditch bank weeds, and the open canals of District are always subject to possible pollution from outside sources. District does not guarantee in any respect or assume any responsibility for the chemical, bacterial or other quality of the water made available to City through the District Water System.

18. Indemnity. City and 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.

19. Dispute Resolution.

(a) District and City staff shall exercise every effort to resolve disputes through the development of a consensus.

(b) To the extent District and City staff cannot promptly resolve an issue in dispute; the parties shall promptly convene a meeting of senior party representatives to attempt to resolve the dispute. Either party may request a dispute resolution meeting pursuant to this section by providing written notice to the other party, including a summary of the issue in dispute. District representatives shall be its Board chair or president and another Board member. City representatives shall be the Mayor and City Council President. These senior party representatives shall make reasonable efforts to meet as frequently and as promptly as possible to negotiate the terms and conditions of a resolution. If these party representatives are unable to resolve the dispute through this informal process within a reasonable period, either party may pursue any remedy it may have under law or equity.

(c) The dispute resolution process described above shall be limited to material disputes regarding matters related to Transfers, expenditures from the Water Supply Development Fund, changes in City's Kings River Supply, revisions of this Agreement pursuant to Section 13(d), City's Friant Supply, changes proposed for **Exhibits B or C**, calculation procedures for fees for Out Of Season Deliveries and Rescheduling Fees, and similar matters.

(d) In cases where a dispute arises between the parties that, if unresolved, may result in imminent danger to the public, health, safety or welfare, the parties shall not be obligated to engage in dispute resolution pursuant to this Section 19.

20. Defense of Agreement. In the event of litigation this Agreement, the parties shall cooperate to provide a joint defense of the litigation. Each party shall bear its own costs of such litigation, including attorneys' fees and expert witness fees.

21. No New Agency. This Agreement is not intended to create a new joint powers authority or other entity. Each party shall conduct itself under this Agreement in good faith, using its diligent best efforts to comply with this Agreement and to achieve the objectives of the parties set forth herein. Each party shall make its personnel and resources reasonably available as required to achieve the purposes of this Agreement.

22. Approvals. Except as expressly provided in this Agreement, compliance with all legal/regulatory requirements and governmental or other third party restrictions on the use or delivery of City's Surface Water to it City water users shall be the responsibility of City. District shall be excused from delivering any water supply under this Agreement if, by so doing, District would become subject to additional legal requirements or third party restrictions imposed on deliveries of water to City's water users.

23. Entire Agreement. This Agreement and each of the exhibits referred to herein, which are incorporated by this reference, constitute the entire agreement between the parties pertaining to the subject matter hereof and supersede all prior and contemporaneous agreements and/or obligations concerning these obligations which are merged into this Agreement. Each party has made its own independent investigation of the matters settled and is not relying upon any representation not specified herein.

24. Applicable Law. This Agreement shall be construed under and shall be governed by the laws of the State of California. Any action to interpret or enforce any aspect of this Agreement shall be brought in the California Superior Court of Fresno County, California. City and District hereby expressly waive any right to remove any action to a county other than Fresno County as permitted pursuant to California Code of Civil Procedure Section 394.

25. Construction of Agreement. This Agreement is the product of negotiation and preparation by and among each party hereto and its attorneys, and the parties agree that this Agreement shall not be deemed to have been prepared or drafted by any one party. Accordingly, the normal rule of construction to the effect that any ambiguities are to be resolved against the drafting party shall not be employed in the interpretation of this Agreement.

26. Modification of Agreement. No supplement, modification, waiver, or amendment with respect to this Agreement shall be binding unless executed in writing by the party against whom enforcement of such supplement, modification, waiver or amendment is sought.

27. Counterparts. This Agreement may be signed in any number of counterparts by the parties, each of which shall be deemed to be an original, and all of which together shall be deemed one and the same instrument. Facsimile or other electronic signatures shall be binding.

28. Further Acts. The parties shall reasonably cooperate with each and take such further actions as may be necessary, including the execution of all necessary further documents, to carry out the purpose and intent of this Agreement. Each of the parties shall diligently and in good faith proceed to negotiate such other agreements as may be necessary to implement this Agreement.

29. Binding Effect. This Agreement shall be of binding legal effect only when it has been executed by all of the parties. No rights or duties under this Agreement may be assigned or delegated by a party without the express written consent of the other party, which may be withheld in the sole and absolute discretion of such other party. Subject to the foregoing, this Agreement shall be binding upon and inure to the benefit of the successors and assigns of the parties.

30. Notice to Parties. Any notice or other communication given under the terms of this Agreement shall be in writing and shall be given personally, by facsimile or by certified mail, postage prepaid and return receipt requested. Any notice shall be delivered or addressed to the parties at the addresses or facsimile numbers set forth below or at such other address or facsimile numbers as shall be designated by notice in writing in accordance with the terms of this Agreement. The date of receipt of the notice shall be the date of actual personal service or facsimile transmission with written confirmation of successful transmission, or three days after the postmark on certified mail. All notices required under or regarding this Agreement shall be made in writing addressed as follows:

Fresno Irrigation District 2907 S Maple Avenue Fresno, CA 93725 Attn: General Manager Facsimile No.: 559-233-8227	City of Fresno 2600 Fresno Street Fresno, CA, 93721 Attn: Director of Public Utilities Facsimile No.: 559-498-1304

31. Attorneys' Fees. In the event of any action or arbitration between the parties seeking enforcement or interpretation of any of the terms and conditions of this Agreement, the prevailing party in such action shall be awarded, in addition to damages, injunctive or other relief, its reasonable costs and expenses, including, but not limited to, taxable costs and reasonable attorneys' fees.

32. Cumulative Rights; Waiver. No failure by any party to exercise, and no delay in exercising any rights, shall be construed or deemed to be a waiver thereof, nor shall any single or partial exercise by any party preclude any other or future exercise thereof or the exercise of any other right. Any waiver of any provision or of any breach of any provision of this Agreement

must be in writing, and any waiver by a party of any breach of any provision of this Agreement shall not operate as or be construed to be a waiver of any other breach of that provision or of any breach of any other provision of this Agreement.

33. Severability. Subject to the parties' rights under Section 2 of this Agreement, if any provision of this Agreement is determined by a court of competent jurisdiction to be invalid, illegal or unenforceable, such provision shall be automatically reformed so as to be valid, legal and enforceable to the maximum extent permitted and the balance of this Agreement shall remain in full force and effect notwithstanding such invalidity, illegality or unenforceability.

34. No Third Party Beneficiaries. This Agreement does not create, and shall not be construed to create, any rights enforceable by any person, partnership, corporation, joint venture, limited liability company, district or other form of organization or association of any kind that is not a party. Without limiting the generality of the foregoing, landowners, residents, water users and ratepayers of the parties are not intended to be third party beneficiaries of this Agreement.

35. Force Majeure. Notwithstanding any other provision of this Agreement, neither party shall be liable for any failure to perform resulting from any cause outside the reasonable control of that party. For purposes of this Agreement, routine and emergency repairs and maintenance of the District Water System shall be deemed causes outside of the reasonable control of District (including without limitation the annual shut down of the Enterprise Canal for maintenance), provided that District shall use reasonable efforts to schedule routine maintenance so as to avoid interference with deliveries of City's Surface Water.

//

IN WITNESS WHEREOF, the parties have executed this Agreement to be effective as of the date first above written.

"District"

The Fresno Irrigation District, a California irrigation district

By _____
Ryan Jacobsen, President

By _____
Gary R. Serrato, General Manager

ATTEST:

_____
Secretary

"City"

The City of Fresno, a municipal corporation

By: _____
Ashley Swearengin, Mayor

By _____
Bruce Rudd, City Manager

ATTEST:
Yvonne Spence, CMC
City Clerk

By: _____ 1/11/17
Deputy

APPROVED AS TO FORM:
City Attorney, Douglas Sloan

By: _____ 12/22/16
AMANDA FREEMAN, DEPUTY

ATTACHMENTS:

EXHIBITS

Exhibit A – Monthly Water Supply Utilization Report
Exhibit B – City Water Service Area Map
Exhibit C – Fresno General Plan Map
Exhibit D – Out of Season Delivery Cost Methodology
Exhibit E – Rescheduled Water Cost Methodology

EXHIBIT A

EXHIBIT A

CITY OF FRESNO FMFCD BASINS
MONTHLY REPORT (AC.FT.)
2015-2016

FMFCD BASINS IN FRESNO	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	YEAR TO DATE
Basin A													
Basin AB													
Basin AC													
Basin AD													
Basin AE													
Basin AF													
Basin AG													
Basin AH													
Basin AJ													
Basin AL													
Basin AO													
Basin AW2													
Basin AZ													
Basin BE													
Basin BF													
Basin BH													
Basin BM													
Basin BO													
Basin BQ													
Basin BU													
Basin BV													
Basin BW													
Basin BZ													
Basin CC													
Basin CL													
Basin CM													
Basin CN													
Basin CO2													
Basin CS													
Basin CW													
Basin CX													
Basin CY													
Basin CZ													
Basin DD													
Basin DH													
Basin EE													
Basin EF													
Basin EG													

CITY OF FRESNO FMFCD BASINS
MONTHLY REPORT (AC.FT.)
2015-2016

FMFCD BASINS IN FRESNO	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	YEAR TO DATE
Basin EL													
Basin EM													
Basin FF													
Basin GG													
Basin HH													
Basin II1													
Basin II2													
Basin J													
Basin JJ													
Basin K													
Basin KK													
Basin L													
Basin LL													
Basin MM													
Basin N													
Basin O													
Basin OO													
Basin P													
Basin R													
Basin RR1													
Basin RR2													
Basin RR3													
Basin S													
Basin T													
Basin TT													
Basin U													
Basin UU2													
Basin UU3													
Basin Y													
Basin Z													
Basin ZZ													
Fresno's FMFCD Total													

CITY OF FRESNO RECHARGE
MONTHLY REPORT (AC.FT.)
2015-2016

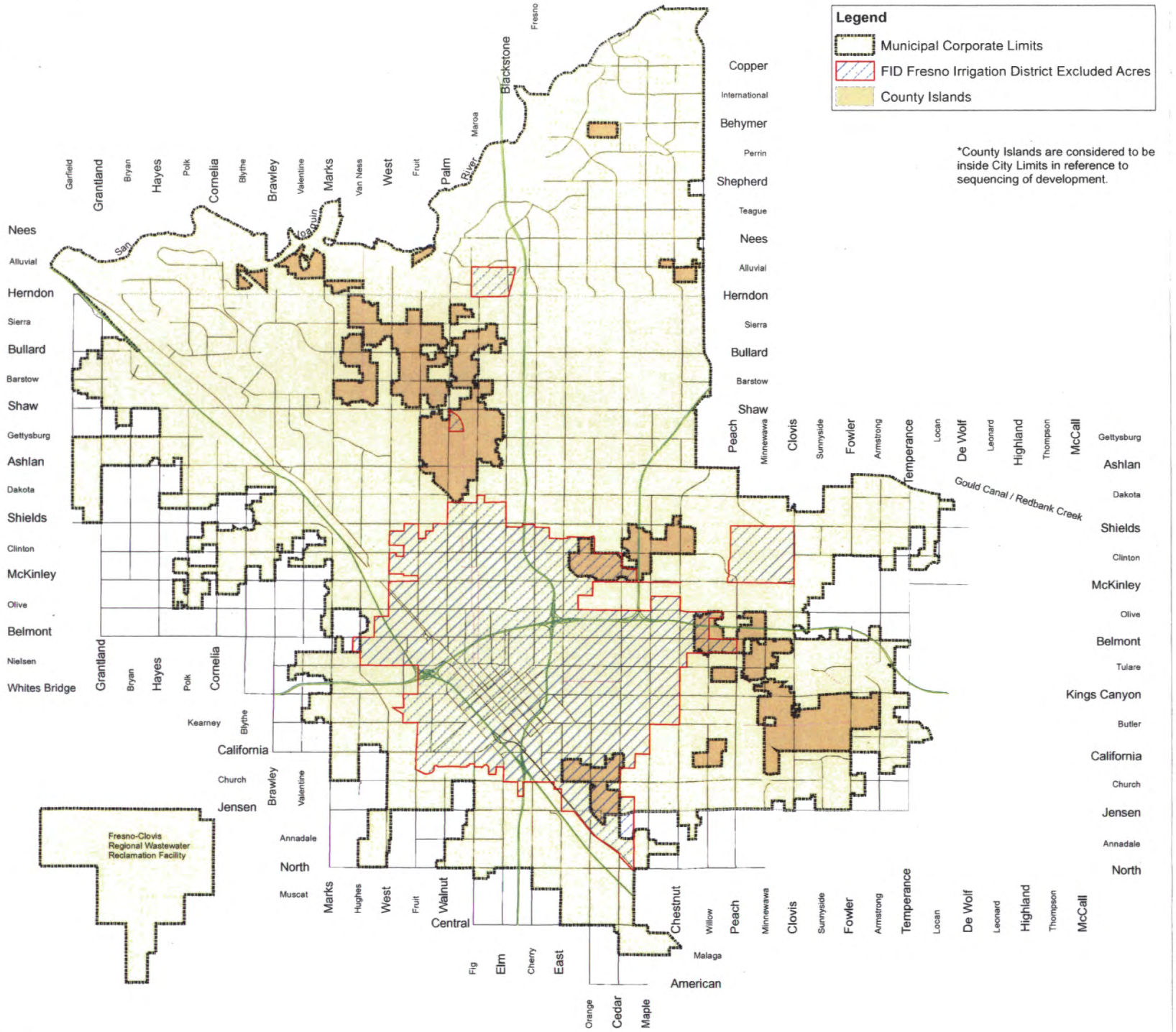
OTHER FRESNO RECHARGE	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	YEAR TO DATE
Leaky Acres													
Woodward Park													
Copper River Country Club													
Big Dry Detention													
Fancher Basin (South)													
Chestnut Ave. Basin													
North Central Basin													
Kearney Basin													
Big Dry Creek West of Winery Ave.													
Delivery System Recharge Fresno													
Copper River Country Club total is the amount exceeding the Phillips Ditch entitlement of 77 ac ft per month (during FID's irrigation season).													
Basin BF Water comes from Chestnut Ave. Basin													
Fresno's Total Recharge													
Fresno's SWTP N/E & T-3													
Fresno's Total Usage													

EXHIBIT B

City of Fresno
Water Service Area Boundary
Exhibit "B"
December 13, 2016

"The City's Water Service Area consists of Included Acres and Excluded Acres, and on an annual basis City and District shall revised this Exhibit B map to show the total number of acres in each area as of the first day of March of each year."

Miles
0 0.5 1 2 3



S:\USERS\PET\2016\Thomas Esqueda\Water Service Areas Map\Water Service Area Boundary Ex B Map.mxd

EXHIBIT C

EXHIBIT C

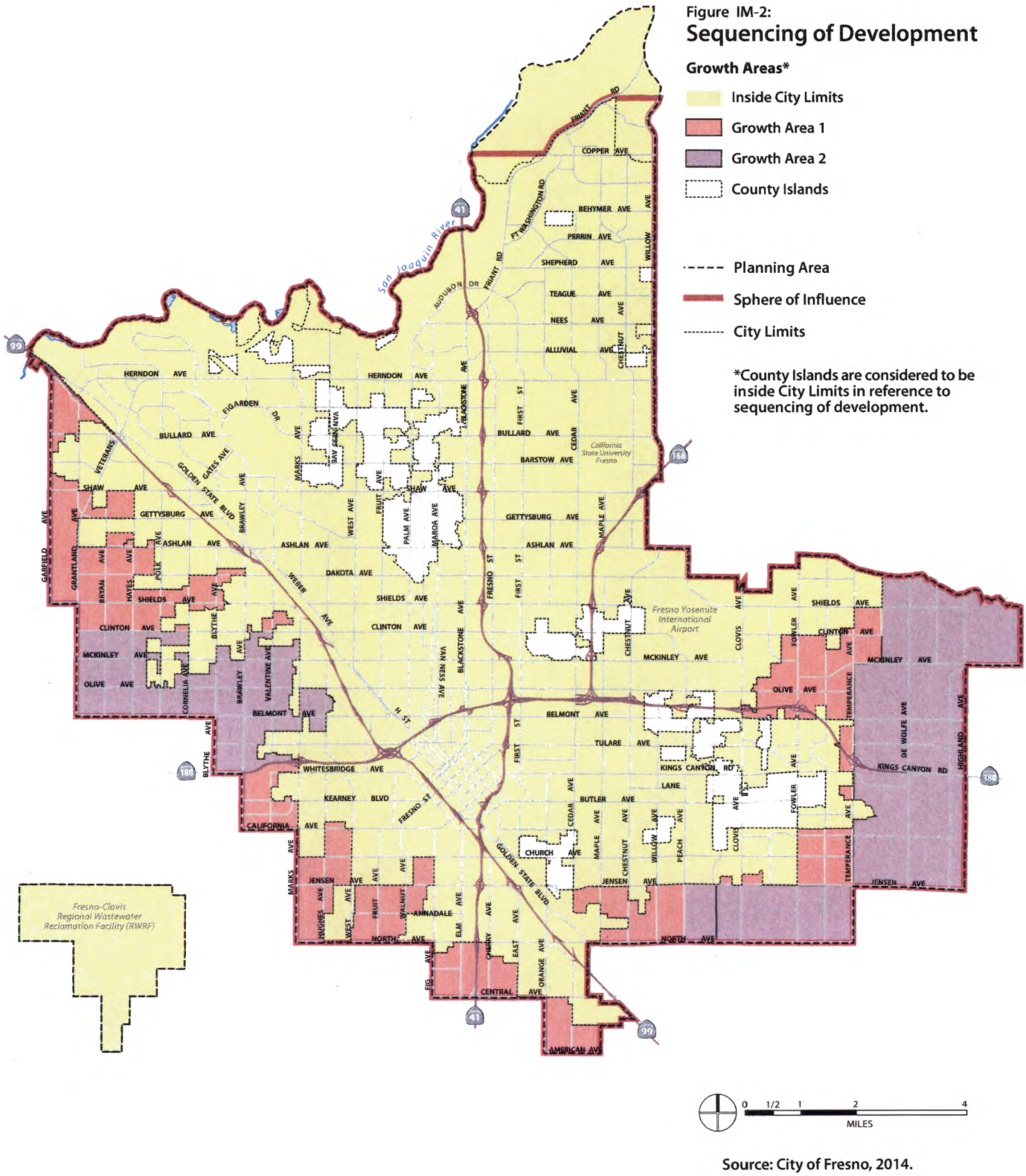


Figure IM-2:
Sequencing of Development
Growth Areas*
Inside City Limits
Growth Area 1
Growth Area 2
County Islands
Planning Area
Sphere of Influence
City Limits
*County Islands are considered to be inside City Limits in reference to sequencing of development.
San Joaquin River
Fresno-Clovis Regional Wastewater Reclamation Facility (RWRF)
California State University Fresno
Fresno Yosemite International Airport
0 1/2 1 2 4
MILES
Source: City of Fresno, 2014.

EXHIBIT D

EXHIBIT D

The City will be responsible for paying the District for all costs associated with delivering water Out of Season Deliveries which will include but not limited to:

i. Staff time to deliver water (includes salary wage, labor burden and overhead.
ii. Cost to operate vehicles to operate and inspect the canal system.
iii. Power costs associated with running District's SCADA/Telemetry system, automated gate valves, flow meters, automated trash screens, etc.
iv. Repairs to the canals system which are caused by water running outside the normal irrigation season. Repairs may include but not limited to canal lining, gate replacement, structure replacement, earthwork (grading, dredging, etc.) weed treatment (aquatic or terrestrial), all-weather road maintenance, trash/debris removal, etc.

EXHIBIT E

EXHIBIT E

The Rescheduling Fee for each rescheduling request here under shall be equal to the last Friant carry over charge assessed for a water year prior to the date to the request.

47087

RECORDED IN OFFICIAL RECORDS OF FRESNO COUNTY, CALIFORNIA
AT 41 MIN. PAST 3 P.M.
JUN 24 1974
H. L. MASINI, County Recorder
FEE $

BOOK 6316 PAGE 31

AGREEMENT BETWEEN FRESNO IRRIGATION DISTRICT AND CITY OF FRESNO FOR EXCHANGE OF RECYCLED WATER

This agreement entered into this 20th day of June 1974, by and between FRESNO IRRIGATION DISTRICT, a public corporation (herein called "District"), and the CITY OF FRESNO, a municipal corporation (herein called "City");

WITNESSETH:

WHEREAS, Fresno Irrigation District is the owner of water rights on the Kings River and a water distribution system for the distribution of irrigation waters for agricultural use within the District and has entered into contracts with the United States for an additional supply of water from the Friant-Kern Canal and for storage in Pine Flat Reservoir on the Kings River for the purpose of supplementing the water available for such use within the District; and

WHEREAS, the City of Fresno is located entirely within the exterior boundaries of the District and is the owner of a water distribution system used by City for delivering water to persons and lands both within and outside its City limits for municipal, industrial and domestic uses and is also the owner of a liquid waste treatment plant located within the District southwest of the city limits which is used for the treatment, percolation, purification, recycling and other disposition of liquid effluent from the City and intends to enlarge and improve said facilities and to produce by such treatment, percolation, purification and recycling, water which is of a quality suitable for agricultural use; and

WHEREAS, the entire area represented by the District and by the City is a water deficient area and the District is in need of additional waters for agricultural use and the City is in need of additional water for municipal, industrial and domestic uses; and

To be recorded without fee on behalf of Fresno Irrigation District

WHEREAS, the amount of water available to the District for agricultural use may be increased by the use of water recycled by the City as above described and the amount of water available to the City for use in its water distribution system for municipal, industrial and domestic uses may be increased by the exchange of such recycled water for the use by District of additional Kings River and/or Friant-Kern Canal water in that portion of the District northeast of the City; and

WHEREAS, City is desirous of maintaining a water level under its liquid waste treatment plant that will provide for maximum efficiency in the operation of its said plant; and

WHEREAS, a greater beneficial use and more economical utilization of all of the waters available to both the District and to the City can be obtained by the use of such waters as herein provided and both parties believe it is in the best interests of all the landowners and inhabitants within the District and within the City to enter into such an agreement;

NOW, THEREFORE, it is mutually agreed as follows:

1. Approval by United States and State Water Quality Board. Immediately upon the approval of this contract by the parties hereto, it shall be presented to the United States, and also to the California Regional Water Quality Control Board, or its successor agency, for their approval and shall not become effective 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 Kings River 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 the performance of any agreement contained herein shall become unenforceable or shall be in violation of any Federal,

State or local statute or ordinance or of any decision of any court of competent jurisdiction, the entire contract may be terminated by either party upon written notice mailed to the other party.

2. Definitions. For purposes of this agreement the following words and phrases shall be defined as follows:

(a) "Agricultural use" means the use of water primarily in the production of agricultural crops, including the irrigation of lands and underground water replenishment.

(b) "Recycled water" means water which has been treated and percolated into the underground water supply under the City's liquid waste treatment plant in the southwest portion of the District which is thereafter pumped from said underground water supply.

(c) "City Bureau Contract" means that certain contract between the United States and the City of Fresno providing for water service dated January 12, 1961.

(d) "District Bureau Contracts" means those certain contracts between the United States and Fresno Irrigation District 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.

Conveyance and Covenants in Compromise and Settlement of Fresno Slough Claims, dated April 23, 1965.

Contract between the United States and Fresno Irrigation District Providing for Water Service, dated July 20, 1964.

(e) "District Kings River Intra-Association Agreements" means those certain contracts relating to Kings River and storage in Pine Flat Reservoir 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.

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 Association, dated September 10, 1963.

3. Agreement to Deliver and Accept Recycled Water. During the term of this agreement City agrees to deliver and District agrees to accept from City recycled water pumped by City from the area under its liquid waste treatment plant in amounts and under the terms and conditions hereinafter provided. When so delivered to District said water shall become the property of the District to be used for agricultural purposes and for underground water replenishment in the southwest portion of the District as the District shall see fit.

4. Water Quality. The City shall not deliver to District or discharge into District's canals any such recycled water which is not of a quality suitable for all agricultural use or which shall be deleterious to plant or animal life and all water so delivered shall meet all the quality standards of the California Regional Water Quality Control Board, or its successor agency, for agriculture and irrigation use and any other federal, state or local agency having jurisdiction or control over water quality standards. City agrees at its expense to make such periodical tests to determine the quality of the water discharged into District's canals at the point where said water is so discharged as may be required by any such board or agency or as may be required by the District's manager and to submit the results

of such tests in writing to the District forthwith after such tests are made. City further agrees that any complaint that said recycled water does not meet the above standards, including but not limited to complaints from any such board or agency, the County of Fresno, any mosquito abatement district or any user of such recycled water, must be corrected and resolved to the satisfaction of District before any further discharge of water into said canals shall be made without the express consent of the District.

5. Exhibit A. A map showing the exterior boundaries of the District, the District's canal system, the city limits of the City of Fresno, the location of City's liquid waste treatment plant site, the exact locations at which City may discharge water into the District's canal system, the type and capacity of the discharge facilities by which each such discharge may be made, the location of observation wells as provided in Paragraph 9, and those portions of the District designated by the parties as the "easterly" and "westerly" portions of the District for purposes of this agreement shall be prepared by the District's engineering department and approved in writing upon said map by the authorized representatives of the District and the City. When so approved said maps 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 may be amended in writing upon said map and reapproved in writing as above set forth.

6. Place and Time of Delivery. City will deliver all such water to the District during the District's irrigation season which may at the election of the District be extended to accommodate the recycled water received under this agreement. Said water delivered by the City to the District shall be discharged by the City into the District's Dry Creek Canal No. 77 and/or Houghton-

Canal No. 78 at the locations approved by the District and shown on the map marked Exhibit A and at no other location or locations.

7. Amount to be Delivered. The City shall deliver to the District under this agreement, subject to District's acceptance as provided herein, recycled water pumped by the City, which shall be delivered at a minimum rate of delivery of 100,000 acre feet in each ten-year period of this contract, provided, however, such delivery will not exceed the amount of 30,000 acre feet in any one year except that such maximum may be increased upon agreement between the District's manager and the Director of Public Works of the City. At least 10 days prior to the first day of each calendar month during the term of this agreement City will submit to District in writing a schedule of the daily amount of such water proposed to be delivered to District at each discharge point during that month and the rate of flow indicated in cubic feet per second at which said water will be delivered. Upon receiving said schedule District's manager will approve the amount of such water the District is willing to accept at each said discharge point during each day of that month and thereafter City shall deliver to District the daily amount of such water so approved. Said daily deliveries shall be at a continuous and constant rate of flow during the entire 24 hour period of each said day. In no event shall the discharge into Dry Creek Canal No. 77 in any one month be in excess of one-half of the total amount delivered to District in that month or the discharge into the Houghton Canal No. 78 in any one month be more than two-thirds of the total amount delivered to the District in that month and in no event shall the rate of discharge of water into Dry Creek Canal No. 77 exceed 60 c.f.s. or the rate of discharge into Houghton Canal No. 78 exceed 120 c.f.s. No such discharges shall be made into District's canals until said discharges have been approved

gives immediate notice thereof to the District. In such event City shall use all reasonable effort to immediately restore the delivery of water to the level approved by District's manager as provided in paragraph 7. District's manager may refuse to agree to any such change in schedule or to accept water under such changed schedule if he reasonably determines that such change may result in damage to a District canal or to other property of the District or any other person or will interfere with the operation, alteration, repair or maintenance of the canal into which said discharge is to be made or will interfere with some other operation or function of the District.

9. Ground Water Level. City shall not pump said recycled water from the underground water reservoir in such a manner or to the extent that it will adversely affect the elevation of the water table in the area surrounding its liquid waste treatment plant as determined by the District. Such effect shall not be deemed to be adverse if the ground water level is not lowered below the gradients established by the District as existing on August 1 of the previous year. City agrees to monitor ground water levels in the area from which said recycled water is pumped on a monthly basis by means of observation wells located within an area surrounding its liquid waste treatment plant. The number and location of said wells shall be agreed upon by the City and the District, and when so agreed upon shall be shown on Exhibit A as provided in paragraph 5. Each month at the time City submits its schedule of proposed discharges, City shall supply District with the results of said observations and shall also supply District with a statement of the amounts discharged into District's canals during the previous month. Said schedule and said information shall be given to District upon a standard form approved by District's manager.

10. Construction and Maintenance of Facilities. All

discharge facilities to be used by City in discharging said water into said canals and suitable measuring devices required to measure the amount of water discharged into District's canals shall be constructed by City at its expense according to plans and specifications approved by District and shall thereafter be maintained in good operating and working condition by and at the expense of City. Said discharge facilities shall have a discharge capacity not greater than that shown on said map marked Exhibit A and shall be equipped with positive shut-off controls by which any and all discharges of water into District's canal system may be shut off immediately and at any time. City shall at all times protect said canals and their banks from any damage, injury or erosion at the locations of said facilities into said canals and any such damage or injury at such locations shall be repaired at the expense of City. If City fails to do so District shall be entitled to make said repairs and the expense thereof shall forthwith be reimbursed by City.

11. Use of Water Available to District. In consideration of the agreements of the City herein contained, District agrees that insofar as feasible and practical, it will make available from its Kings River water or from the water received by it under its Bureau Contracts an additional amount of water equivalent to 46% of the water received by it from the City under this agreement for agricultural use and for ground water replenishment in the easterly portion of the District as indicated on Exhibit A. The term "additional amount of water" as above used shall mean water in addition to the amount of water which would have been made available for use in that area if said recycled water had not been received by the District and used in the westerly portion of the District as indicated on Exhibit A. If the District shall determine that the use of said water in said area is not feasible or practicable it may, after discussion with the City, use such

water elsewhere. If in the future it is deemed desirable to do so, City, with the approval of District, may cause the dividing line between the easterly portion of the District and the westerly portion of the District to be moved to the west and the percentage of water to be made available in said easterly portion of the District to be increased in proportion to the increase in the area of land within said easterly portion.

12. District's Representative. Wherever it is provided in this agreement that District's manager shall do and act or exercise his discretion in respect to any particular matter said act and said exercise of discretion may be performed by any other representative of the District to whom such authority shall be delegated either by the District's Board of Directors or by said manager. In exercising his said discretion, the District's manager or his authorized representative shall weigh and balance the equities of the parties in respect to the interests of each and the necessities of District's operations in relation to those of the City. However, in any such case, his decision shall be final.

13. Ownership of District's Water Rights, Canals and Storage. Nothing contained in this agreement shall in any way affect District's ownership of its canal system or of its water right or its right to storage in Pine Flat Reservoir or give City any right or interest therein.

14. Expense of Performance. The performance of all terms and conditions of this agreement to be performed by City shall be at the expense of City and the performance of all terms of this agreement to be performed by District shall be at the expense of District.

15. Indemnity. City agrees to indemnify District and save District harmless of, from and against any loss, cost, expense, liability or attorney's fees incurred by District as the result of

any claim made by any third party because of the City's pumping from the underground water supply as above described or in any way arising out of the execution or performance of this agreement unless such loss, cost, expense or liability is caused by independent negligence on the part of the District in performing the terms and conditions of this agreement on its part to be performed.

16. Successors and Assigns. This agreement shall be binding upon the successors and assigns of the parties hereto provided that City's right to discharge water into District's canal system is not transferable or assignable and shall not pass to any successor in interest without the consent of District. This agreement is not made for the benefit of any person, firm, corporation or public entity not a party hereto and no person, firm, corporation or public entity except a party hereto or its successor or assign shall have any right to enforce said agreement under California Civil Code §1559 or otherwise.

17. Amendments. Except as otherwise provided herein this agreement may not be amended except by the written agreement of the parties hereto.

18. Term, Termination. The term of this contract shall be twenty years from its date, except that it may be cancelled upon mutual agreement between the parties hereto. The contract shall continue in effect after the end of said term except that it may be terminated thereafter by either party upon one year's written notice of such termination. Notwithstanding the foregoing, this contract may be terminated at any time, upon sixty days' written notice by either party, given on and because of substantial breach by the other party, which breach is not repaired or corrected before the end of said sixty-day period.

IN WITNESS WHEREOF, the parties hereto have executed this

agreement the day and year first above written.

FRESNO IRRIGATION DISTRICT

By Winston Strong
President

By Ardys T. Gorder
Secretary

ATTEST:

CITY OF FRESNO

Gladys Douglass
City Clerk Deputy

By F. W. Hanley
Chief Administrative Officer

State of California)
County of Fresno) ss.

On this 20th day of June in the year one thousand nine hundred and seventy-four, before me, Paul H. Willison a Notary Public in and for said County and State, residing therein, duly commissioned and sworn, personally appeared ..... known to me to be the President and Winston Strong known to me to be the Secretary of the Fresno Irrigation District the corporation that executed the within instrument, and known to me to be the person S who executed the within instrument on behalf of the corporation therein named, and acknowledged to me that such corporation executed the same.

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 first above written.

Paul H. Willison
Notary Public in and for said County and State

OFFICIAL SEAL
PAUL H. WILLISON
NOTARY PUBLIC, CALIFORNIA
PRINCIPAL OFFICE IN
FRESNO COUNTY
My Commission Expires November 19, 1977

CORPORATION ACKNOWLEDGMENT
Kilner Stationery Co.
1916 Echo

FORM K108

APPROVED AS TO FORM
SPENCER THOMAS, JR., City Attorney

By Assistant Macomber
Senior Deputy

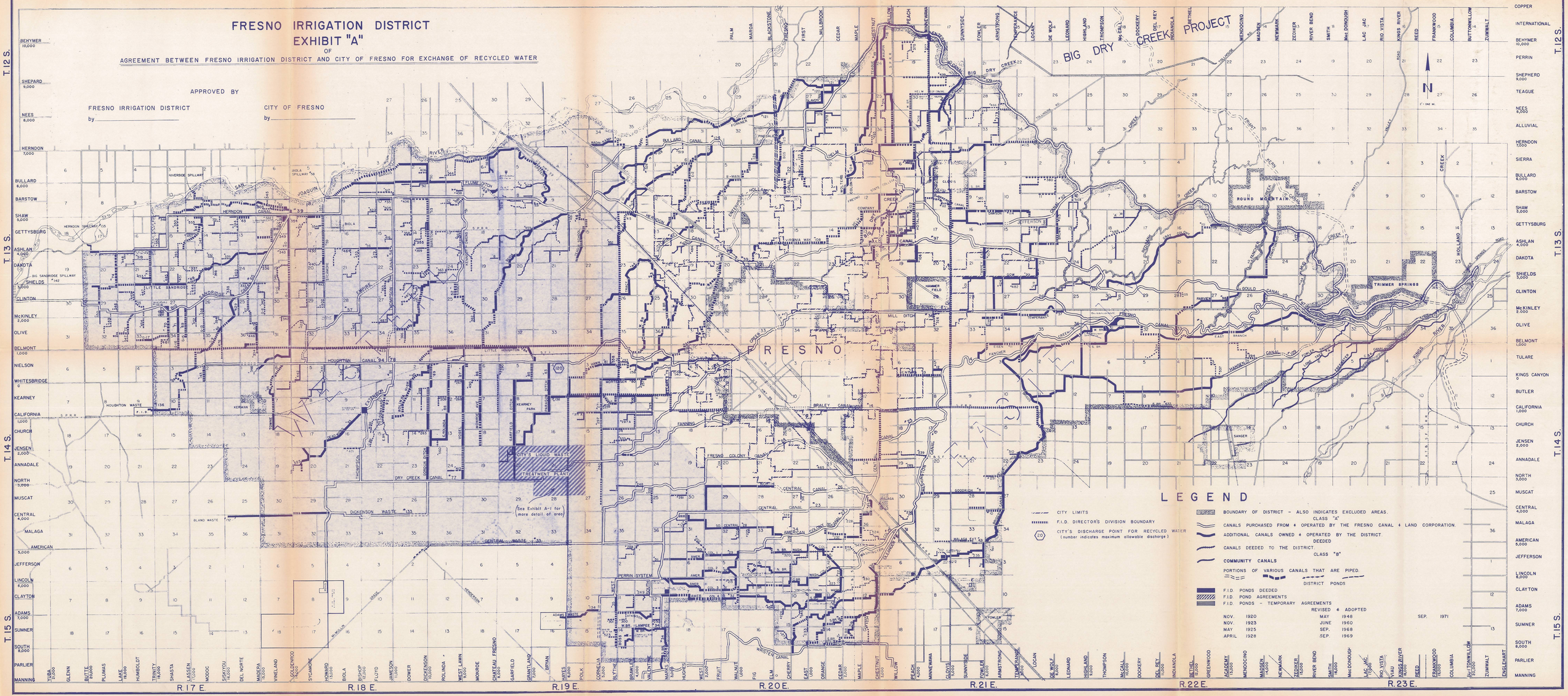
FRESNO IRRIGATION DISTRICT
EXHIBIT "A"
OF

AGREEMENT BETWEEN FRESNO IRRIGATION DISTRICT AND CITY OF FRESNO FOR EXCHANGE OF RECYCLED WATER

APPROVED BY

FRESNO IRRIGATION DISTRICT
by _____

CITY OF FRESNO
by _____



Mail to: City of Fresno Waste Water Treatment Plant
5607 W Jensen Avenue
Fresno, Ca. 93706
Attn: Mr. Joel Dekker

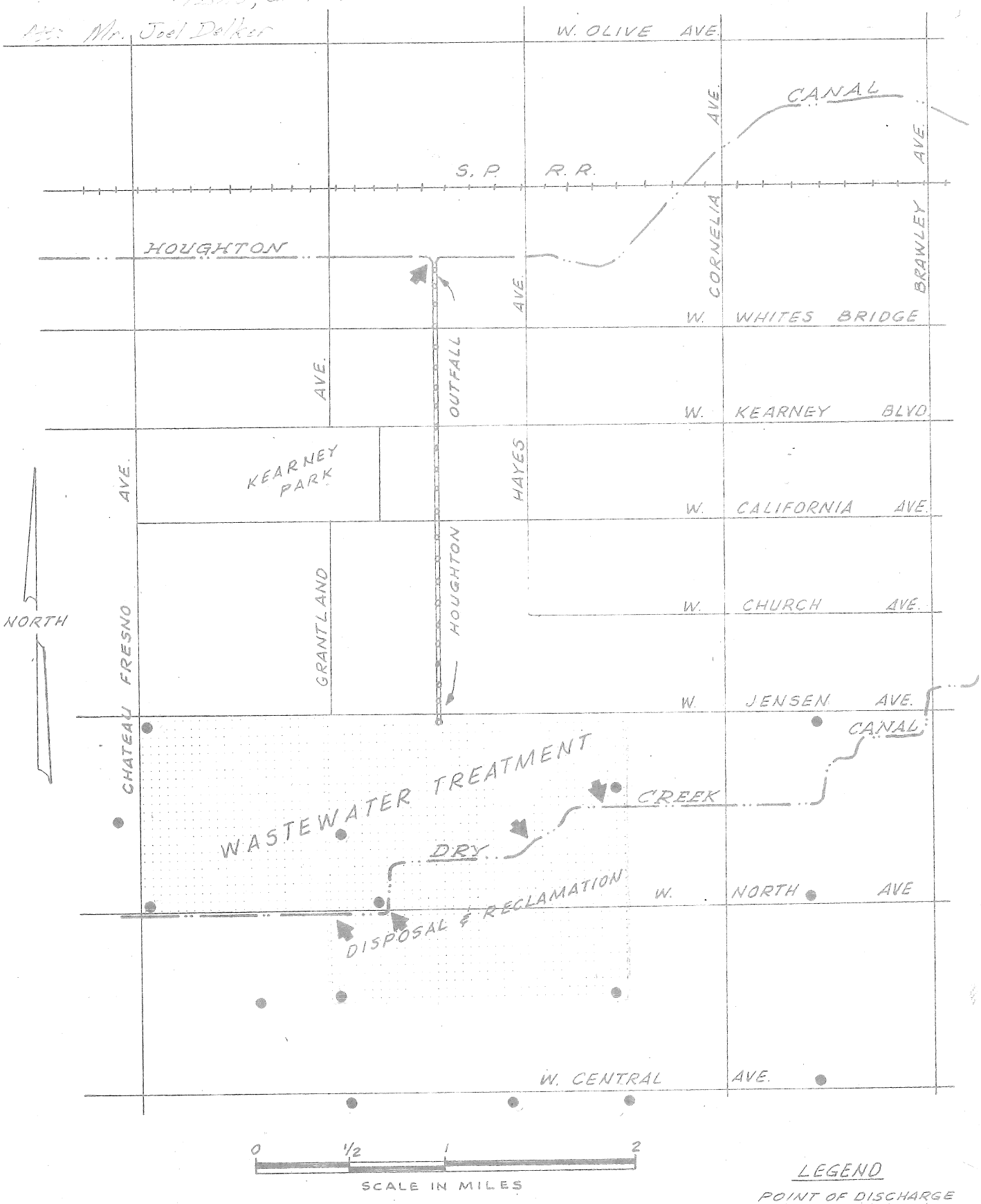


EXHIBIT A-1

Appendix I Water Shortage Contingency Plan

City of FRESNO
Department of Public Utilities

2025 Water Shortage Contingency Plan

Public Draft

JUNE 2026 | CITY OF FRESNO

City of FRESNO
Department of Public Utilities

CITY OF FRESNO

2025 Water Shortage Contingency Plan

JUNE 2026

Public Draft

Prepared by Water Systems Consulting, Inc
WSC

ACKNOWLEDGEMENTS

Water Systems Consulting, Inc. would like to acknowledge the significant contributions of City of Fresno. The primary contributors are listed below.

City of FRESNO PUBLIC UTILITIES

Director of Public Utilities	Paul Amico, PE
Water Resources Manager	Dejan Pavic, PE
Utilities Planning & Engineering Division	
Assistant Director	Ahmed Aly, PE
Project Manager	Debbie Khounsavath
Water Division	
Assistant Director	Paul Amico, PE (Acting)
Water System Manager (Certified)	Cynthia Fischer
Water System Manager (Certified)	Chad Colby
Water System Manager	Russell Guilliams
Business Manager	Juan Rios
Water Conservation Supervisor	Anthony Quinn (Acting)
Wastewater Division	
Assistant Director	Cory Asher
Wastewater Manager	Andrew Heckman
Reclamation Coordinator	Anthony Quinn

The 2025 Water Shortage Contingency Plan was prepared by Water Systems Consulting, Inc. The primary authors are listed below.

WSC

Heather Freed, PE
Rob Morrow, PE

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ACRONYMS & ABBREVIATIONS

AMI	Advanced Metering Infrastructure
Annual Assessment	Annual Water Supply and Demand Assessment
City	City of Fresno
CWC	California Water Code
DPU	Department of Public Utilities
DRA	Drought Risk Assessment
DWR	California Department of Water Resources
FID	Fresno Irrigation District
FMC	Fresno Municipal Code
NO-DES	Neutral Output Discharge Elimination System
SWTF	Surface Water Treatment Facility
USBR	United States Bureau of Reclamation
UWMP	Urban Water Management Plan
WSCP	Water Shortage Contingency Plan

Introduction

This Water Shortage Contingency Plan (WSCP) is a strategic plan on how the City of Fresno (City) intends to respond to foreseeable and unforeseeable water shortages.

A water shortage occurs when the water supply available is insufficient to meet the normally expected customer water use at a given point in time. A shortage may occur due to a number of reasons, including water supply quality changes, climate change, drought, regional power outages, and catastrophic events (e.g., earthquake). Additionally, the State may declare a statewide drought emergency and mandate that water suppliers reduce demands. The WSCP serves as the operating manual that the City will use to prevent catastrophic service disruptions through proactive, rather than reactive, mitigation of water shortages.

This WSCP provides a process for an annual water supply and demand assessment and structured steps designed to respond to actual conditions. This level of detailed planning and preparation provides accountability and predictability to help the City maintain reliable supplies and reduce the impact of any supply shortages and/or interruptions.

This WSCP was prepared in conjunction with City's 2025 Urban Water Management Plan (UWMP) and is a standalone document that can be modified as needed. This document is compliant with the California Water Code (CWC) Section 10632 and incorporates guidance from the State of California Department of Water Resources (DWR) UWMP Guidebook.

Water purveyor planning for possible water supply shortages has become an increasingly important subject considering the drought conditions over the last several years. The City adopted its first WSCP in 1994 in response to the 1991 Assembly Bill 11X, which mandated that all water purveyors with more than 3,000 connections develop a WSCP. The WSCP was revised as part of the 2005 UWMP and adopted by the City in 2008. The WSCP was further refined in 2016 during preparation of the 2015 UWMP and was updated in 2021 as a standalone document, developed in parallel with the 2020 UWMP, and adopted in July 2021. This 2025 WSCP is still based on the original 1994 plan. The revisions are intended to meet the CWC requirements and streamline the plan's usefulness and enable the City to manage the necessary conservation measures to be enacted if a water shortage condition exists. The 2025 WSCP will be reviewed and adopted in conjunction with the 2025 UWMP.

The plan is intended to provide guidance, rather than absolute direction, for City action in response to water shortages and provide the City with options to responsibly manage water shortages.

The WSCP describes the following:

1. **Water Service Reliability Analysis:** Summarizes the City's water supply analysis and reliability and identifies any key issues that may trigger a shortage condition.
2. **Annual Water Supply and Demand Assessment Procedures:** Describes the key data inputs, evaluation criteria, and methodology for assessing the system's reliability for the coming year and the steps to formally declare any water shortage stages and response actions.
3. **Water Shortage Stages:** Establishes water shortage stages to clearly identify and prepare for shortages.
4. **Shortage Response Actions:** Describes the response actions that may be implemented or considered for each stage to reduce gaps between supply and demand.
5. **Communication Protocols:** Describes communication protocols under each stage to ensure customers, the public, and government agencies are informed of shortage conditions and requirements.
6. **Compliance and Enforcement:** Defines compliance and enforcement actions available to administer demand reductions.
7. **Legal Authority:** Lists the legal documents that grant the City the authority to declare a water shortage and implement and enforce response actions.
8. **Financial Consequences of WSCP Implementation:** Describes the anticipated financial impact of implementing water shortage stages and identifies mitigation strategies to offset financial burdens.
9. **Monitoring and Reporting:** Summarizes the monitoring and reporting techniques to evaluate the effectiveness of shortage response actions and overall WSCP implementation. Results are used to determine if shortage response actions should be adjusted or if efforts are successful and response actions should be reduced.
10. **WSCP Refinement Procedures:** Describes the factors that may trigger updates to the WSCP and outlines how to complete an update.
11. **Special Water Features Distinctions:** Identifies exemptions for ponds, lakes, fountains, pools, and spas, etc.
12. **Plan Adoption, Submittal, and Availability:** Describes the process for the WSCP adoption, submittal, and availability after each revision.

1.0 Water Service Reliability Analysis

This section is consistent with CWC Section 10632(a)(1) and describes the key findings of the water supply reliability analysis conducted pursuant to CWC Section 10635, which is presented in Section 7 of the City's 2025 UWMP. As part of the 2025 UWMP, water suppliers must perform long-term (2030-2050) water service reliability assessment to evaluate reliability under normal, single dry year, and five-year consecutive dry year periods and a short-term (2026-2030) Drought Risk Assessment (DRA) to evaluate reliability under a five-year consecutive dry year period. Water supply reliability reflects the City's ability to meet the water needs of its customers with water supplies under varying conditions. The analysis considers plausible hydrological and regulatory variability, infrastructure capacity, climate conditions, and other factors that affect the City's water supply and demand.

The City's current water supply portfolio includes groundwater from the Kings Subbasin, surface water from the Central Valley Project Friant Division through a contract with the United States Bureau of Reclamation (USBR), and surface water from the Kings River through a contract with Fresno Irrigation District (FID), as well as recycled water produced at the Fresno-Clovis Regional Water Reclamation Facility and North Fresno Water Reclamation Facility. The City manages the surface water supplies and groundwater conjunctively such that surface water supplies are used more heavily for direct use and recharge during wet periods and groundwater is used more heavily during dry periods. Over the long term, the City aims to maximize recharge to store water for future use and help groundwater levels recover. Key issues that may create a shortage condition include reduced surface water availability due to dry hydrologic conditions, reduction in groundwater due to contamination issues, or emergency conditions that reduce the City's water supply.

The water supply reliability analysis concluded that the City's supply portfolio is highly reliable and allows the City flexibility to use a majority of surface water when available in normal years and switch to a majority of groundwater in dry years, when surface water supplies are reduced. The City is projected to meet potable demands with its existing supplies in all year types through conjunctive use of its groundwater and the City is projected to recharge water in most years to help store water for dry years.

2.0 Annual Water Supply and Demand Assessment Procedures

As established by CWC Section 10632.1, urban water suppliers must conduct an Annual Water Supply and Demand Assessment (Annual Assessment) and submit an Annual Water Shortage Assessment Report to DWR by July 1 each year[1]. The Annual Assessment is an evaluation of the short-term outlook for supplies and demands for the current year and one projected single dry year conditions to determine whether the potential for a supply shortage exists and whether there is a need to trigger a WSCP shortage stage, appropriate response actions, compliance and enforcement actions, and communication protocols. A single dry year is recommended to be the year that represents the lowest water supply available.

2.1 Key Data Inputs

Key data inputs and their sources for the Annual Assessments are summarized in Table 1, and described below.

Table 1. Key Data Inputs for the Annual Assessment

Key Data Input	Description	Source
Customer demands	Estimates for the current year unconstrained demand plus a modest growth factor.	Customer billing data, most recent UWMP projections, input from City staff.
Recharge demands	Estimates current year recharge demand.	Surface water allocations, historical recharge, groundwater levels.
State mandates	Reflects State orders and mandatory compliance with water use efficiency standards.	Executive orders from the governor, orders and policies from the State Water Resources Control Board, input from City staff, or other sources.
Surface water allocation	Reflects the City's available surface water supplies for treatment, recharge, and	Initial allocations from USBR and FID, typically available in April.

[1] For USBR contractors, the assessment is due by July 1 or within 14 days of receiving final USBR water allocation, whichever is later.

Key Data Input	Description	Source
	potential exchanges and transfers.	
Groundwater conditions	Reflects status of groundwater conditions.	Production data, static water levels, and input from City staff.
Infrastructure capacity	Reflects production and distribution capacity due to a variety of factors, including human-caused or natural catastrophic events.	Production data, well production capacity, wells impacted by contamination, surface water treatment facilities' capacity, distribution system constraints, and input from City staff.

2.1.1 Customer Demands

Upcoming year customer demands will be estimated based on the previous year's demand, with increases to address: (1) near-term projected growth of customers; (2) unconstrained water use if the previous year included any water use restrictions; and (3) potential water losses not accounted for in the previous year's demand.

2.1.2 Recharge Demands

Upcoming year recharge demands will be estimated by (1) availability of surface water not used at the surface water treatment facilities (SWTFs) and (2) projected availability of recharge basins.

2.1.3 State Mandates

The City has historically been required by the State to reduce demand regardless of supply reliability at the given time. As described previously, compliance with State mandates for water use efficiency can be declared during drought or in preparation for future droughts, such as in response to the governor's drought declarations in 2014 and 2022. The City may consider State mandates and mandatory compliance with water use efficiency standards in determining water shortage levels.

2.1.4 Surface Water

The City has contracts for surface water with USBR and FID. The available surface water is dependent on hydrology, and in dry years less surface water is available to the City. Final allocations from both USBR and FID are typically known in April of each year, following the rainy season. In April, the City works with FID to develop a delivery schedule of surface water supplies and submits it to USBR. The surface water allocation and delivery schedule will determine the City's operation of its SWTFs for the year, recharge

operations, and if it will engage in any exchanges or transfers of supplies. In dry years, when less surface water is available, the City will also plan for increased groundwater use to meet its demands.

2.1.5 Groundwater Conditions

Groundwater level and production trends will be compiled and considered by the City staff, or with a hydrogeologist, based on the following actions:

- Plot static groundwater levels on hydrographs to determine trends.
- Plot historic and projected production data to determine trends.
- Compare historic and projected groundwater levels against production data for average and dry years.

2.1.6 Infrastructure Capacity

Infrastructure capabilities and overall production will be analyzed to determine if a possible power outage or deficiency may occur or continue in the coming year due to a variety of factors, potentially including human-caused or natural catastrophic events. This analysis may include well replacement, evaluation of wells for possible contamination or impacts due to new regulations, SWTFs capacities, and other considerations.

2.2 Evaluation Criteria

Staff use the key data inputs to develop and compare supply and demand projections to determine if water shortage actions may be necessary. The supply projections will incorporate infrastructure constraints and an operational buffer factor of 10% will be added to the demand estimate to account for supply and demand projection uncertainties. The estimated amount of supply available versus the estimated demand will be compared with the water shortage condition triggers presented in Table 2**.** Various trigger conditions, which summarize specific evaluation criteria for each shortage level and can be used to determine a water shortage level, are described in the following sections. Triggers are based on current conditions, and the City will evaluate these triggers and modify them as needed.

A shortage emergency may be declared when it is demonstrated that conditions threaten the ability to provide water for public health, safety, and welfare of the community. Furthermore, compliance with State mandates for conservation can be declared during drought or in preparation for future droughts, such as in response to the governor's drought declarations in 2014 and 2022.

Short-term and long-term supply shortages may be caused by constrained production capacity or natural or human-caused catastrophic emergencies, such as power outages,

winter storms, wildfires, earthquakes, structural failures, contamination, and bomb threats. These types of emergencies may limit the City's immediate ability to provide adequate water service to meet the requirements for human consumption, sanitation, and fire protection. Impacts of such emergencies vary in duration. Thus, consumption reduction measures and prohibitions may differ for short-term and long-term conditions or shortages.

2.3 Annual Assessment Procedures

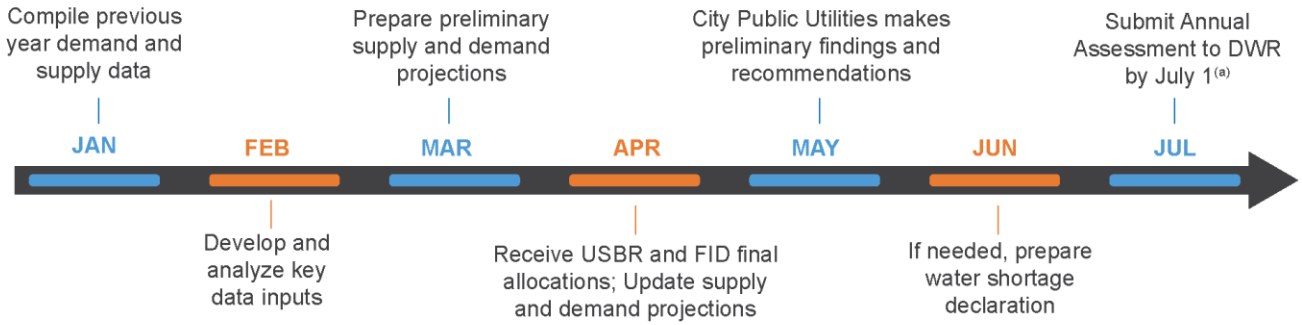
City staff will perform the Annual Assessment following initial allocations from USBR and initial projections for Kings River entitlements by FID, which is typically at the end of rainy season in April. The Annual Assessments are due to DWR by July 1 of each year[2]. A preliminary annual assessment timeline is shown in Figure 1**.** The City may update the assessment after submission if key data inputs substantially change or other new information becomes available.

Steps to conduct the Annual Assessment are as follows:

1. Staff gathers the key inputs, compiles historical data, and analyzes potential supply and demand gaps.
2. Demand trends, water supply conditions, and production capacity are analyzed.
3. A hydrogeologist may be consulted to provide additional groundwater condition information.
4. City Public Utilities staff will review findings and, if necessary, determine a recommended level of conservation required at the implementation or termination of each stage that will then be brought to the City Manager or Mayor for approval.
5. The City Manager, or designee, will declare and implement the level of conservation required at the implementation or termination of each level, and the declaration shall remain in effect until the City Manager, or designee, so otherwise declares. If a conservation level declaration is made, the declaration shall be published at least once in a newspaper of general circulation.
6. The City will develop and/or implement appropriate communication protocols and applicable response actions.

[2] For USBR contractors, the assessment is due by July 1 or within 14 days of receiving final USBR water allocation, whichever is later.

Figure 1. Annual Assessment Approximate Timeline



[a] For USBR contractors, the assessment is due by July 1 or within 14 days of receiving final USBR water allocation, whichever is later.

3.0 Water Shortage Stages

This section is consistent with CWC Section 10632(a)(2) and describes the City's water shortage levels. The City has established five water shortage stages, shown in Figure 2, along with a crosswalk to DWR's standardized six shortage levels. Shortage levels indicate the gap between supply and demand compared to normal-year conditions.

Figure 2. Water Shortage Stages Crosswalk (DWR Table 8-1R)

City of Fresno Shortage Stage	Percent Shortage Range	Standard WSCP Level	Percent Shortage Level
1	10%	1	10%
2	10 - 25%	2	20%
3	25 - 35%	3	30%
4	35 - 50%	4	40%
5	>50%	5	50%
		6	>50%

Table 2 lists the water shortage stages and the conditions that would trigger each stage. Any stage listed within the WSCP may be enacted by the City Manager, or designee, as deemed appropriate based on the water shortage condition.

Table 2. Water Shortage Contingency Plan Levels (DWR Submittal Table 8-1)

Shortage Level	Percent Shortage[a]	Water Shortage Condition
0		No water shortage condition. Corresponds with year-round water use measures listed in Section 4.1 of the City's WSCP and demand reduction measures listed for "All" stages in Table 3.
1	**0-10%**	Stage 1 may be triggered by any of the following conditions: • The available water supplies for the next year are projected to be less than **100%** of projected demand considering infrastructure constraints and an operational buffer. The available water supplies, infrastructure constraints, projected demand, and operational buffer will be estimated at least once per calendar year– and more often as appropriate - as part of the Annual Assessment. Section 2.0 of the City's WSCP describes the key data inputs, evaluation criteria, and procedures for the annual assessment; or • After having been in a Stage 2 classification from drought conditions, the upcoming water year USBR and FID allocations results in normal-dry water year type[b] or higher; or • After having been in a higher classification as a result of emergency, original trigger for a previous higher-stage classification has been rectified to a point that is consistent with the above conditions for this stage.
2	**10-25%**	Stage 2 may be triggered by any of the following conditions: • The available water supplies for the next year are projected to be less than **90%** of projected demand considering infrastructure constraints and an operational buffer. The available water supplies, infrastructure constraints, projected demand, and operational buffer will be estimated at least once per calendar year – and more often as appropriate - as part of the Annual Assessment. Section 2.0 of the City's WSCP describes the key data inputs, evaluation criteria, and procedures for the annual assessment; or • After having been in a Stage 3 classification from drought conditions, the upcoming water year USBR and FID allocations results in normal-dry water year type[b] or higher; or • After having been in a higher classification as a result of emergency, original trigger for a previous higher-stage classification has been rectified to a point that is consistent with the above conditions for this stage.
3	**25-35%**	Stage 3 may be triggered by any of the following conditions: • The available water supplies for the next year are projected to be less than **75%** of projected demand considering infrastructure constraints and an operational buffer. The available water supplies, infrastructure constraints, projected demand, and operational buffer will be estimated at least once per calendar year – and more often as appropriate - as part of the Annual Assessment. Section 2.0 of the City's WSCP describes the key data inputs, evaluation criteria, and procedures for the annual assessment; or • After having been in a Stage 4 classification from drought conditions, the upcoming water year USBR and FID allocations results in normal-dry water year type[b] or higher; or • After having been in a higher classification as a result of emergency, original trigger for a previous higher-stage classification has been rectified to a point that is consistent with the above conditions for this stage.
4	**35-50%**	Stage 4 may be triggered by any of the following conditions: • The available water supplies for the next year are projected to be less than **65%** of projected demand considering infrastructure constraints and an operational buffer. The available water supplies, infrastructure constraints, projected demand, and operational buffer will be estimated at least once per calendar year – and more often as appropriate - as part of the Annual Assessment. Section 2.0 of the City's WSCP describes the key data inputs, evaluation criteria, and procedures for the annual assessment; or • After having been in a Stage 5 classification from drought conditions, the upcoming water year USBR and FID allocations results in normal-dry water year type[b] or higher; or • After having been in a higher classification as a result of emergency, original trigger for a previous higher-stage classification has been rectified to a point that is consistent with the above conditions for this stage.
5	**>50%**	Stage 5 may be triggered by any of the following conditions: • The available water supplies for the next year are projected to be less than **50%** of projected demand considering infrastructure constraints and an operational buffer. The available water supplies, infrastructure constraints, projected demand, and operational buffer will be estimated at least once per calendar year – and more often as appropriate - as part of the Annual Assessment. Section 2.0 of the City's WSCP describes the key data inputs, evaluation criteria, and procedures for the annual assessment.

[a] Shortage levels indicate the gap between supply and demand compared to normal-year conditions. The Annual Assessment incorporates a 10% buffer on top of projected demands for conservative planning.

[b] Water year types are defined in the 2006 San Joaquin River Restoration Settlement Agreement for USBR allocations and are characterized in Section 6.3 of the City's 2025 UWMP.

4.0 Shortage Response Actions

The Fresno Municipal Code (FMC) contains sections on water conservation that are to take place under normal water supply conditions. Regulations in place under normal water supply conditions encourage smart water use and help the City manage its water supply. Some of those regulations include year-round outdoor water schedules; turf type restrictions; turf irrigation methods; and prohibition of willful or negligent water wasting, flood irrigating, washing hardscape with potable water, and frequent draining of pools. Additional details of these regulations can be found in FMC Section 6-520(a) (Attachment 1). These restrictions are mandated year-round by the City and must be observed. In addition to the normal restrictions on water usage, the City developed shortage response actions to implement during a water shortage at the City level and consumer level in order to reduce demands. The restrictions during a shortage are described in Section 4.2 and detailed in Table 3.

In the event of a potential water shortage, the City will evaluate the cause of the shortage to help inform which response actions should be implemented. Depending on the nature of the water shortage, the City can elect to implement one or several response actions to mitigate the shortage and reduce gaps between supply and demand. The City has identified actions that fall within the demand reduction, supply augmentation, operational changes, and additional mandatory restrictions, as stated by DWR. It should be noted that all prohibitions listed for Stage 1 will apply to Stage 2 and, likewise, all restrictions that apply to Stage 2 will apply to Stage 3 and so on, until Stage 5 is reached. Also, due to the City's diverse supply portfolio, Stage 1 imposes only voluntary consumer reductions, while Stages 2–5 all include mandatory reduction actions. If necessary, the City may adopt additional actions not listed here in extreme circumstances.

4.1 Year-Round Measures

FMC Section 6-520(a) lists actions that are prohibited at all times, whether or not there is a shortage condition and include:

- Use of potable water to irrigate or water outdoor landscaping in a manner that causes runoff.
- Keep, maintain, operate, or use any water connection, hose, faucet, hydrant, pipe, outlet, or plumbing fixture which is not tight and free from leakage.
- Willfully or negligently waste water as defined in FMC Section 6-501.
- Sprinkle or irrigate any yard, ground, premise, or vegetation except as set forth in the City's Outdoor Water Use Schedule.

- Sprinkle or irrigate any yard, ground, premise, or vegetation, unless the watering device used is controlled by a shutoff device or a person is in immediate attendance of the hose or watering device.
- Use of potable water to wash sidewalks, walkways, driveways, parking lots, or other hard-surfaced areas, except where necessary for public health or safety.
- Use potable water in a fountain or other decorative water feature, except where the water is part of a recirculating system.
- Irrigate ornamental turf on public street medians with potable water, except where the turf serves a community or neighborhood function, there is incidental irrigation by an irrigation system designed to irrigate trees, or the turf is irrigated with recycled water.
- Irrigate outdoor landscapes with potable water during and within 48 hours after measurable rain.
- Serve drinking water other than upon request in eating or drinking establishments, including but not limited to, restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served or purchased.
- Irrigate landscapes outside of newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development.
- Automatically change towels and linens in hotels and motels daily. Operators of hotels and motels shall provide guests the option of choosing not to have towels and linens laundered daily.
- Drain swimming pools more than once every three years, except as necessary to complete structural repairs or to comply with public health standards, as determined by the County Health Officer.
- Fill new or refurbished swimming pools without obtaining a pool fill permit from the City.
- Refill (top off) established swimming pools except during times when outdoor water use is allowed at the property address pursuant to the Outdoor Water Use Schedule.
- Use potable water in a manner that is prohibited by or inconsistent with applicable federal or state regulations or other requirements not specifically identified in FMC Section 6-520(a).

The City may update these year-round restrictions in the future as needed. For the latest permanent restrictions refer to FMC Section 6-520(a) (Attachment 1).

4.2 Demand Reduction

The City has identified a variety of demand reduction actions to offset supply shortages. Demand reduction measures are strategies intended to decrease water demand to close the gap between supply and demand. Demand reduction actions available to the City that may be considered during water shortage conditions are summarized in Table 3. Although

it is difficult to estimate the volume of savings for each action, the City expects to meet required reductions through a combination of response actions in conjunction with outreach and communication efforts to the extent necessary to mitigate any impacts from a water shortage.

Table 3. Demand Reduction Actions by City (DWR Submittal Table 8-3)

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?[a]	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement[b]
All	Expand Public Information Campaign	Not Applicable	Community outreach includes classroom presentations, outreach educational information, and water tours. Increase communication as drought stages increase.	Not Applicable
All	Improve Customer Billing	Not Applicable	Water bills show customer usage vs. average usage for the customer category. Increase customer notifications of high water use based on advanced metering infrastructure data as drought stages increase.	Not Applicable
All	Offer Water Use Surveys	Not Applicable	Use water leak surveys with all community members.	Not Applicable
All	Provide Rebates for Landscape Irrigation Efficiency	Not Applicable	The City offers rebates for micro-irrigation conversions, soil moisture sensors, smart irrigation controller, and rain sensors to improve efficiencies.	Not Applicable
All	Provide Rebates for Turf Replacement	Not Applicable	The City provides rebates for community members who wish to replace their turf with a drought-resistant garden.	Not Applicable
All	Provide Rebates on Plumbing Fixtures and Devices	Not Applicable	The City offers rebates on a variety of high-efficiency plumbing fixtures, such as washers, toilets, and urinals.	Not Applicable
All	Decrease Line Flushing	Not Applicable	The City uses NO-DES for regular pipe flushing to eliminate discharging water.	Not Applicable
All	Reduce System Water Loss	Not Applicable	The City has a comprehensive system water loss reduction program in place. Increase efforts to correct water system losses as drought stages increase.	Not Applicable
1	Decrease Line Flushing	0 to 100% of shortage gap	For dead-end flushing where the NO-DES truck cannot be used, reduce normal flushing time.	Not Applicable
1	Increase Water Waste Patrols	0 to 100% of shortage gap	Increase monitoring of AMI reporting and communication with customers; Conduct patrols based on public input.	Not Applicable
1	Landscape — Limit landscape irrigation to specific times	0 to 100% of shortage gap	Voluntary limits: Summer: three days/week Winter: one day/week	No
2	Landscape — Limit landscape irrigation to specific times	0 to 100% of shortage gap	Summer: three days/week Winter: one day/week	Yes
3	Landscape — Limit landscape irrigation to specific times	0 to 100% of shortage gap	Summer: two days/week Winter: one day/week	Yes
4	Landscape — Limit landscape irrigation to specific times	0 to 100% of shortage gap	Summer: one day/week Winter: one day/week	Yes
4	Other — Prohibit use of potable water for construction and dust control	0 to 100% of shortage gap	Prohibit use of potable water for construction, compaction, dust control, street or parking lot sweeping, and building washdowns where non-potable or recycled water is sufficient.	Yes
4	Other — Prohibit vehicle washing except at facilities using recycled or recirculating water	0 to 100% of shortage gap	Prohibit washing cars, boats, trailers, aircraft, or other vehicles, except at commercial or fleet vehicle-washing facilities using water recycling equipment.	Yes

Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?[a]	Additional Explanation or Reference	Penalty, Charge, or Other Enforcement[b]
4	Pools and Spas - Require covers for pools and spas	0 to 100% of shortage gap	Require covers for swimming pools when not in use.	No
4	Other	0 to 100% of shortage gap	Prohibit use of potable water for sewer system maintenance or fire protection training without prior approval by the City manager.	Not Applicable
4	Other	0 to 100% of shortage gap	Prohibit use of outdoor misters.	No
5	Landscape — Prohibit all landscape irrigation	0 to 100% of shortage gap	Prohibit outdoor irrigation year-round.	Yes
5	Moratorium or Net Zero Demand Increase on New Connections	0 to 100% of shortage gap	The City will temporarily limit or ban new water service connections within the service area.	Not Applicable

[a] Reduction in the shortage gap is estimated and can vary significantly.
[b] Refer to Section 6.0 for Penalties for Water Wastage.

4.3 Supply Augmentation

Given the consistent supply of groundwater through pumping, the City has no immediate plan to augment supply. However, the City could purchase additional USBR or FID surface water, if available. Also, the Cities of Fresno and Clovis have an agreement for interconnection of their potable water systems to provide service during emergencies and other times of hardship in either community. Although these options are discretionary and quantifying their ability to reduce the shortage gap can vary significantly, they are readily available if needed, as indicated in Table 4.

Table 4. Supply Augmentation & Other Actions (DWR Table 8-2R)

Shortage Level	Supply Augmentation Methods and Other Actions by Water Supplier	How much is this going to reduce the shortage gap?	Additional Explanation or Reference
1 to 5	Transfers	As Available	Purchase or exchange available USBR or FID surface water
1 to 5	Other Purchases	As Available	Interconnection with City of Clovis for use in emergencies

4.4 Operational Changes

Operational changes to address a short-term water shortage may be implemented based on the severity of the reduction goal. The City can maximize its supply by implementing operational strategies and demand reduction measures. As part of the Annual Assessment process, the City will consider their operational procedures at the time of a shortage to identify changes that can be implemented to address water shortage on a short-term basis, including but not limited to:

- Utilization of a SWTF to treat pumped groundwater to offset lack of surface water supply.
- Expansion of public information campaign to educate and inform customers of the water shortage emergency and required water savings.
- Decrease line flushing to only on a compliant basis strictly using the currently operational NO DES truck.
- Use water patrols and increase frequency of meter reading by recruiting staff from other departments if necessary.
- Offer water use surveys.
- Prohibit any new permits for hydrant construction or temporary construction meters.

- Monitoring construction meters and fire hydrant meters for efficient water use in the event that a meter identified wastes water.
- Moratorium on issuing any new building permit unless the: (a) Project is found by the City Manager, or designee, to be necessary for public health and safety. (b) Project will use recycled water for construction. (c) Project will not result in a net increase in non-recycled water use. (d) Project has adequate Conservation Offsets.
- Suspending the consideration of annexation to its service area unless the annexation increases the water supply available more than the anticipated demands of the property to be annexed.
- Reducing overhead in the short-term and mid-term by deferring non-critical Capital Improvement Plan projects and major maintenance expenditures, and in the long-term by adjusting operational and staffing levels and retail water rate structures to incorporate the reality of lower retail water sales than previously anticipated.
- Decrease in the level or, if need be, even a total interruption in the expenditures for the agency's facility replacement program. Non-critical replacement projects will have little or no impact on the agency or its customers and would only extend the master planned replacement schedule.

4.5 Emergency Response Plan

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

- Loss of surface water supply
- Loss of groundwater supply
- Area-wide electrical power failure
- Natural disaster — earthquake or flood

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

The City has an agreement with the City of Clovis that discusses an intertie system between the two cities that could provide service during emergencies and other times of hardship in either community. The agreement covers interconnections, including apportionment of capital costs, at two locations: Leonard Avenue at the Gould Canal alignment and Behymer Avenue at Willow Avenue. The Leonard interconnection was constructed and remains in place for emergency uses through manual operation. The agreement also provided for temporary deliveries from Fresno to northern Clovis through the Behymer connection through 2015. However, the Behymer interconnection has yet to be constructed.

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

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

If a regional power outage were to occur, the City could use backup power generators to operate wells. This measure, in conjunction with demand reduction, could supply sufficient water for health and safety purposes. The City has a number of backup power generators installed at wells, SWTFs, and tank sites, and is taking efforts to add additional backup generators.

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

For more information on actions during an emergency, refer to the City of Fresno's Risk and Resilience Assessment Report finalized in September 2020 (AARC Consultants, LLC, 2020) and the City of Fresno Emergency Response Plan finalized in March 2020 (AARC Consultants, LLC, 2020).

4.6 Seismic Risk Assessment and Mitigation Plan

Refer to the Fresno County Multi-Jurisdictional Hazard Mitigation Plan implemented in May 2024, Annex E: City of Fresno included as Attachment 2, for appropriate Seismic Risk Assessment and Mitigation Plan procedures.

4.7 Shortage Response Action Effectiveness

The City of Fresno has assessed its overall water reduction by evaluating historic water usage trends with measures implemented to meet the SBX7-7 2020 target in conjunction with the American Water Works Association water loss calculator. See Chapter 4 of the 2025 UWMP, respectively, for additional information.

The overall decrease of water use per capita and compliance with the 2020 per capita water use target indicate that the reduction measures have been effective in the community. All the City's customers are metered using advanced metering infrastructure (AMI) and the City will monitor actual water use and reductions in water during enacted shortage levels compared to normal year conditions. This data allows the City to

determine the effectiveness of the implemented shortage response actions. If reduction goals are not met, the City Manager, or designee, can make the necessary decisions for corrective action to be taken.

5.0 Communication Protocols

The City's Department of Public Utilities (DPU) currently has a contract with Bodewell Group, formerly known as Southwest Strategies Group, to manage stakeholder engagement and public education for its customers. Bodewell Group's services include strategic communications and integrated planning, messaging frameworks and narrative development, community outreach, multicultural and multilingual engagement, traditional and public relations and media relations, and crisis communications and rapid response. The City also has a communications office, whose purpose is to communicate water shortage procedures or general utility information effectively and efficiently to customers.

During normal supply conditions, the Water Division implements informational campaigns to customers that emphasize user-level changes in water use and overall mindfulness of water waste while promoting voluntary conservation. Over the past few years, DPU has increased use of social media to communicate with customers quickly and organically. The City uses Facebook, X, and Instagram to promote water saving tips, notify of shortage conditions, and spotlight DPU employees to foster a sense of community centered around the water supply. The City strives to be proactive in communicating work strategy and conservation efforts with customers.

This WSCP includes a staged plan to communicate the declaration of a shortage stage, inform restrictions, and provide updates during a water shortage emergency. A summary of actions the City could potentially take during a specific shortage stage is outlined in Table 5.

Table 5. Communication Protocol During Water Shortage Conditions

Shortage Stage	Action
1	Information posted on the City's website
1	Social media posts (Facebook, X, Instagram, and Nextdoor)
2	Information included in utility bill inserts on a regular basis
2	Promotion of rebates and water conservation services
2	Letters, postcards, and flyers mailed to customers impacted by water use regulations
2	Targeted outreach and technical assistance to highest water users in each use class
2	Engage City council members with resources to share with constituents
3	Increased paid advertising — print, online, radio, TV, streaming, social media, etc.
3	Messaging printed directly on utility bills
3	Press releases to local media (online and print newspapers, TV, radio, etc.)
3	Assembly and promotion of the speaker's bureau for water shortage presentations for neighborhood groups, gardening clubs, homeowners' associations, churches, senior centers, neighborhood associations, business associations, community groups, property management companies, etc.
4	Increased coordination with the local landscaping industry, including water shortage information in their newsletters, publications, and facilities; local wholesale and retail nurseries; and irrigation supply stores
4	Signage posted at nurseries and irrigation supply stores
4	Outreach materials and drought notices mailed to the hospitality industry, including restaurants and lodging

Note: If a water shortage progresses through multiple stages all measures in the previous stage(s) are implemented in addition to current stage actions.

6.0 Compliance and Enforcement

The City has penalties for violation of the water use restrictions in Table 3. The City tracks customer usage through AMI in order to enforce water wastage during shortage conditions as detailed in Section 9.0. However, it should be noted that currently, fines cannot be imposed on AMI meter data alone. The fines are noted in Table 6. Penalties for water waste are based on FMC, Section 6-520(e), Section 6-522(g), and the City's Master Fee Schedule.

Table 6. Penalties for Water Wastage

Incident Month[(a)]	Penalty and Fine
1	$0 – Issued a Notice of Water Waste
2	$25
3	$50
4-12	$100
6	If a customer has more than six incident months of water wastage within a one-year period, the City may implement any or all of the following measures: • Require the customer to get a landscape evaluation, lawn water audit, and water budget, as appropriate, in order to learn efficient water use. This work shall be completed at the customer's expense by landscape irrigation auditors certified by the Irrigation Association. • Installation by the City of flow restrictors or termination of water service. • Require a customer to repair any defects in their watering system within 14 days of notice by the City.

Note:
[a] Number of incident months are based on a calendar year.

7.0 Legal Authority

CWC Section 375 provides the City with the statutory authority to adopt and enforce water conservation restrictions, and CWC Sections 350 et seq. authorize the City to declare a water shortage emergency and impose water conservation measures when it is

determined that the City may not be able to satisfy ordinary demands without depleting supplies to an insufficient level.

If necessary, the City will declare a water shortage emergency in accordance with CWC Chapter 3 (commencing with Section 350) of Division 1. Once having declared a water shortage, the City is provided with broad powers to implement and enforce regulations and restrictions for managing a water shortage. For example, CWC section 375(a) provides the following:

> *"Notwithstanding any other provision of the law, any public entity which supplies water at retail or wholesale for the benefit of persons within the service area or area of jurisdiction of the public entity may, by ordinance or resolution adopted by a majority of the members of the governing body after holding a public hearing upon notice and making appropriate findings of necessity for the adoption of a water conservation program, adopt and enforce a water conservation program to reduce the quantity of water used by those persons for the purpose of conserving the water supplies of the public entity."*

Water Code Section 375(a). CWC Section 375(b) grants the City with the authority to set prices to encourage water conservation.

Under California law, including CWC Chapter 3.3 and Chapter 3.5 of Division 1, Parts 2.55 and 2.6 of Division 6, Division 13, and Article X, Section 2 of the California Constitution, the City is authorized to implement the water shortage actions outlined in this WSCP. Prior to enacting a shortage level, the resolution providing the Council with authority to enact each level of the WSCP will be adopted. Resolutions to enact the WSCP can be adopted at any meeting of the City Council. The resolution providing the City Manager, or designee, with authority to enact each stage of the WSCP is included in Attachment 3.

The City shall also coordinate with any city or county within which it provides water supply services, as listed below, for the possible proclamation of a local emergency under California Government Code, California Emergency Services Act (Article 2, Section 8558).

8.0 Financial Consequences of WSCP Implementation

This section is in accordance with CWC Section 10632(a)(8) and describes the financial consequences of implementing the WSCP and potential mitigation strategies. The City anticipates reduced revenue while implementing the WSCP because of decreased water use by its customers and additional costs associated with implementing water use restrictions and associated reduction actions. The incurred cost may vary depending on the shortage stage and duration of the water shortage emergency. The cost of compliance may be tracked when a shortage is declared. The City may track the staff time and resources used to implement the WSCP, including reduced revenue, implementation and enforcement of shortage response actions, and communication and outreach efforts. Impacts of implementing the WSCP include:

- Impact of quantity of water sales on revenue.
- Increased staff, salaries, and overtime required for implementing and enforcing restrictions.
- Increased costs of new supplies, transfers, or other exchanges.

The City's mandatory conservation targets can result in reductions in water sales; however, associated revenue reductions may be proportionally lower due to the City's two-component water rate structure, which includes a fixed water meter service charge for all service connections and a volumetric water quantity charge. Because a portion of revenues is fixed, overall revenue impacts are typically less than the total reduction in water use. In general, revenue impacts identified in the WSCP would be offset through a combination of the following:

- An increase in water commodity and service charges.
- A reduction in annual operating expenses due to decreased demands.
- Reserves currently earmarked for long range capital.
- General tax fund revenues currently earmarked for future capital improvements.

Methods to mitigate revenue/expenditure impacts are discussed in detail below.

8.1 Drought Rate Structures and Surcharges

At present, the City does not have in place a drought rate structure. The City has contracted with a rate consultant to review existing water rates and, if appropriate, develop new future water rates. The City's is not currently considering a drought rate structure.

8.2 Use of Financial Reserves

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

- **Water Operating Reserves** – This is cash set aside in the Water Enterprise Fund that provides a "rainy day savings account" for unexpected cash flow shortages and large, unexpected expenses or losses. Normally, these reserves are not intended to be used to make up income shortfalls. However, in an emergency situation, they can be transferred to the Water Rate Stabilization Fund (see below) for transfer back to the Water Enterprise Fund to meet revenue requirements, including debt coverage ratios.
- **Water Rate Stabilization Fund** – Indentures from previous bond issuances required the establishment of the Water Rate Stabilization Fund. The purpose of the Rate Stabilization Reserve is to maintain a prescribed stable balance in reserve as a means to mitigate future rate increases to customers and to be consistent with bond covenants. These funds can be drawn on to meet a portion of the utility's revenue requirements through unexpected low-revenue periods and may be applied to debt coverage ratio calculations to help avoid technical default of bond covenants and loan agreements. The following restrictions shall apply to this reserve account: 1) only current system excess revenues may be deposited into these accounts; and 2) use of these funds is limited to only operations and maintenance related expenses and not capital improvements

In addition, the City maintains funding in the Emergency Reserve Fund for the purpose of meeting unforeseen emergencies (see Section 1212 of the City's Charter for more information). This funding may be used by an affirmative vote of at least five members of the City Council upon presentation of a statement declaring the reason for use of the funding. This funding would be used only if the Water System reserves were insufficient to meet revenue requirements.

8.3 Other Measures

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

9.0 Monitoring and Reporting

As described in Section 2.0, the City will track its supplies and project demands annually as part of the Annual Assessment, and, if conditions described in Table 2 are projected,

the City will enact its WSCP. Monitoring demands is essential to ensure the WSCP response actions are adequately meeting reductions and decreasing the supply/demand gap. This will help to analyze the effectiveness of the WSCP or identify the need to activate additional response actions.

The City currently has AMI technology to monitor customer water usage, which the City can use to enforce demand reduction measures and restrictions. The AMI system is currently set up to monitor and enforce outdoor watering restrictions. The program monitors customer meter flows against an “excessive use” flowrate, which will vary based on the WSCP stage. The system flags customer meters exceeding the excessive use flowrate during a day/time outside of permitted outdoor watering hours as excessive use and an incident of water waste. If a customer has one or more incidents of water waste during a month, the customer shall be issued a Notice of Water Waste and, if applicable, be charged fines and penalties. The City may expand this monitoring program in the future to monitor other uses beyond outdoor watering restrictions.

The City can also use the detailed water usage data to monitor customers’ response and demand reduction due to restrictions for each stage in the WSCP. The many restrictions and prohibitions assigned to each stage in Table 3 are inherently flexible so the City can implement certain the restrictions, monitor customer usage, and implement additional restrictions if the demand reductions are not sufficient to close the supply and demand gap. The City also intends to provide reporting to the State based on forthcoming regulations for monthly reporting of water production and other water uses, along with associated enforcement metrics.

10.0 WSCP Refinement Procedures

The City intends to use this WSCP as an adaptive management plan to respond to foreseeable and unforeseeable water shortages. The WSCP is used to provide guidance to the City’s governing body and staff and the public by identifying response actions to allow for efficient management of any water shortage with predictability and accountability. To maintain a useful and efficient standard of practice in water shortage conditions, the requirements, criteria, and response actions need to be continually evaluated and improved on to make sure the WSCP provides the tools to maintain reliable supplies and reduce the impacts of supply shortages.

This 2025 WSCP reflects the latest analysis of the City’s water supply portfolio in relation to demand and updates the percentage reduction stages to better align with the supply shortages that trigger each stage. This is a process that should be reevaluated annually

and updated as necessary. Potential changes to the WSCP that would warrant an update include any changes to shortage level triggers, changes to the shortage level structure, and changes to the response actions. Any prospective changes to the WSCP would need to be presented at a public hearing; staff would obtain any comments and adopt the updated WSCP. The steps to formally amend the WSCP are discussed in Section 12.0.

Potential refinements will be documented and integrated into the next WSCP update. If new response actions are identified by staff or the public, these could be advertised as voluntary actions until they are formally adopted as mandatory.

11.0 Special Water Feature Distinction

CWC Section 10632 (b) requires that suppliers analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code. As listed in Table 3 and Section 4.1, there are separate requirements for decorative water features — including decorative fountains, lakes, or ponds — and for pools and spas. The City has separate response actions, enforcement actions, and monitoring programs for both decorative water features and pools and spas. Non-pool or non-spa water features may use or be able to use recycled water, whereas pools and spas must use potable water for health and safety considerations. Limitations to pools and spas may require different considerations compared to non-pool or non-spa water features.

12.0 Plan Adoption, Submittal, and Availability

This WSCP update was prepared in tandem with the 2025 UWMP. The 2025 UWMP and WSCP were made available for public review in June 2026, and the City held a public hearing and adopted the 2025 WSCP on June 25, 2026. A copy of the published Notice of Public Hearing is included as Appendix J of the 2025 UWMP and a copy of the WSCP adopting resolution is included in Attachment 3. Before the public hearing, notices were published notifying the public of the date and time of the hearing.

Once the 2025 WSCP has been adopted, a copy will be submitted to DWR, the State Library, and the County of Fresno. Also, a hard copy will be made available for public reference at the City of Fresno Department of Public Utilities office at City Hall (located at

2600 Fresno Street) and the Water Division office (located at 1910 E. University Avenue). Additionally, an electronic copy will be uploaded to the City of Fresno website and made available for public reference.

Based on DWR's review of the WSCP, the City will make any amendments to its adopted WSCP, as required and directed by DWR. If the City revises its WSCP after the UWMP is approved by DWR, then an electronic copy of the revised WSCP will be submitted to DWR within 30 days of its adoption.

References

AARC Consultants, LLC. (2020). *City of Fresno Department of Public Utilites Risk and Resilience Assessment for the America's Water Infrastructure Act 2018.* Fresno, California.

AARC Consultants, LLC. (2020). *City of Fresno Water Divsion All Hazards Emergency Response Plan.*

Attachment 1 City of Fresno Municipal Code Chapter 6-520

SEC. 6-520. - WATER CONSERVATION.

(a) In the use of potable water supplied by the city, no customer shall do or permit any of the following:

(1) Use potable water to irrigate or water outdoor landscaping in a manner that causes runoff such that water flows onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots or structures,

(2) Keep, maintain, operate, or use any water connection, hose, faucet, hydrant, pipe, outlet, or plumbing fixture which is not tight and free from leakage,

(3) Willfully or negligently waste water,

(4) Flood any part of the premises of another,

(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,

(6) Sprinkle or irrigate any yard, ground, premise, or vegetation except as set forth in the City's Outdoor Water Use Schedule,

(i) Annual Exemptions. The following properties may submit an application for a one-year exemption to the Outdoor Water Use Schedule in effect at the time of the application:

a. Properties with multiple addresses, and

b. School and park facilities, and

c. Properties without street addresses.

The owners of such properties shall submit a proposed modified Outdoor Water Use Schedule in writing to the Director or designee for approval or modification. The Director may approve a modified Outdoor Water Use Schedule for with more frequent watering or different watering days than allowed by the Outdoor Water Use Schedule in effect at the time the application for an exemption is submitted for consideration. If the Director determines the proposed exemption will adversely impact system water pressures in the service area, the proposed exemption will be denied. All Annual Exemptions approved by the Director shall automatically expire on December 31 of each year, and the property owners must re-apply for an exemption to the Outdoor Water Use Schedule.

(ii) Short-term Exemptions. The following properties may submit an application for an exemption from the Outdoor Water Use Schedule for a specific time period not to exceed one month.

a. Properties with new lawns not yet established.

b.

Properties seeking to use water for a bona fide use, such as solar panel cleaning or other use necessary for health or preservation of property.

The owners of such properties shall submit a proposed modified Outdoor Water Use Schedule in writing to the Director or designee for approval or modification no less than 48 hours before the proposed non-compliant water usage. The Director may approve a modified Outdoor Water Use Schedule that may provide for more frequent outdoor water use or different outdoor water use days than allowed by the Outdoor Water Use Schedule in effect at the time the application for an exemption is submitted for consideration. If the Director determines the proposed exemption will adversely impact system water pressures in the service area, the proposed exemption will be denied. All Short-term Exemptions approved by the Director shall automatically expire on the date set forth on the Short-Term Exemption permit.

(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,

(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 without causing water to flow onto adjacent property, non-irrigated areas, private and public walkways, roadways, parking lots, or structures,

(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 for public health and safety reasons at public gathering places, or

(10) Use potable water in a fountain or other decorative water feature, except where the water is part of a recirculating system.

(11) Irrigate ornamental turf on public street medians with potable water, except where:

(i) The turf serves a community or neighborhood function, including but not limited to, recreational uses and civic or community events;

(ii) The turf is irrigated incidentally by an irrigation system primarily intended to irrigate trees;

(iii) The turf is irrigated with recycled water.

This prohibition does not include trees and shrubs on public medians, which may be irrigated.

(12) Irrigate outdoor landscapes with potable water during and within 48 hours after measurable rainfall.

(13) Serve drinking water other than upon request in eating or drinking establishments, including but not limited to, restaurants, hotels, cafes, cafeterias, bars, or other public places where food or drink are served or purchased.

(14) Irrigate landscapes outside of newly constructed homes and buildings in a manner inconsistent with regulations or other requirements established by the California Building Standards Commission and the Department of Housing and Community Development.

(15) Automatically change towels and linens in hotels and motels daily. Operators of hotels and motels shall provide guests the option of choosing not to have towels and linens laundered daily. The hotel or motel shall prominently display notice of this option in each guestroom using clear and easily understood language.

(16) Drain swimming pools more than once every three years, except as necessary to complete structural repairs or to comply with public health standards, as determined by the County Health Officer. Residents with private swimming pools shall file a written application for a permit with the City of Fresno Water Division at least 48 hours prior to draining the pool. Any customer whose swimming pool is drained by order of the Department of Health for failure to maintain it properly will also be issued a notice of violation of the City of Fresno Municipal Code. The draining of pools for reasons of health and safety hazards as determined by the City of Fresno Water Division and/or the Department of Health is permitted. 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.

(17) Fill newly constructed or refurbished swimming pools without a pool fill permit from the City of Fresno Water Division.

(18) Refill (top off) established swimming pools except during times when outdoor water use is allowed at the property address pursuant to the Outdoor Water Use Schedule.

(19) Use potable water to irrigate or water outdoor landscaping in a manner that is prohibited by or inconsistent with any Federal or State regulations or other requirements not specifically identified in this section.

(b) Notwithstanding the foregoing, drip irrigation of community and residential fruit and vegetable gardens and fruit trees is permitted any day of the week; for this subsection, "drip irrigation system" means a non-spray, low-pressure, and low volume irrigation system in good working order utilizing emission devices with a flow rate of less than four gallons per hour, designed to slowly apply small volumes of water at or near the root zone of plants, when used primarily for irrigation of fruit and vegetable gardens and fruit trees; should any city water customer be cited for excessive water use, the customer may contact the Water Division and request an exemption from the Outdoor Water Use Schedule for a home or community garden that is irrigated with a drip irrigation system. Upon being contacted, the Water Division will schedule a visit to the

subject property to inspect the garden and the drip irrigation system used to irrigate the garden. The Water Division shall grant an exemption for home or community garden with the following conditions:

(1) The property must limit water use to an amount equal to, or less than, the average monthly water use for the single-family residential customer class. The monthly average water use for the single-family residential customer class is printed on monthly utility bills issued by the City.

(2) The drip irrigation system must be in good working order with no leaks, line breaks, or other deficiencies that will contribute to water waste. Exemptions shall be withheld until corrective action is taken to address system deficiencies.

(3) The drip irrigation system must be used primarily for the home or community garden, and not for other landscape on the property- Exemptions shall be withheld until the drip irrigation system for the home or community garden can be isolated from other landscape on the property.

(4) No flood irrigation will be allowed with the drip irrigation system, and water must remain on the subject property with no runoff to sidewalks, driveways, pavements, or adjacent properties.

(5) The home and community garden exemption is provided exclusively for drip irrigation systems only, and will not be allowed for other types of irrigation systems.

(6) This exemption shall only apply to properties ¼ acre or smaller. For properties greater than ¼ acre, the property owner may apply to the Director or designee for an exemption.

(c) Lawn sprinkling systems shall be properly designed, installed, maintained, and operated to prevent waste of water.

(d) Repealed.

(e) The provisions of this section are conditions of service.

(1) Each incident of Excessive Use as defined in section 6-501, or use of water inconsistent with the provisions of this section, is an incident of water waste.

(2) If a customer has one or more incidents of water waste during a month, as observed by City staff or as recorded by the City's water meter reading system, the customer shall be issued a Notice of Water Waste and, if applicable, charged a fine as set forth in the Master Fee Schedule. Such fines shall be added to the customer's monthly utility bill and shall be due and payable with that utility bill and subject to the FMC 6-106, Late Payment of Municipal Service Bills.

(3) Incident counts for water waste shall be monitored, recorded, documented and enforced on a monthly basis during the calendar year for individual customers, and the incident counts shall be reset January 1 of each year.

(4) If a customer performs or permits incidents of water waste more than six consecutive months, the water service to the customer may be terminated unless in the opinion of the Director such termination would result in an unreasonable risk to the health and safety of persons. If water service is terminated for successive incident of water waste, the water service may only be restored upon execution of an agreement with the customer to adhere to the conditions of service described in this section.

(5) If a customer objects to a fine imposed for an incident of water waste pursuant to this section, the following appeal process may be used.

Step 1.

(a) Within thirty days of issuance of the utility bill including the fine, the customer may contact the Water Conservation Program to appeal an incident of water waste resulting in a fine with the staff person who initiated the enforcement measure. The staff person shall gather the facts about the incident.

(b) The customer may provide staff with evidence there was no incident of water waste, or of a bona fide reason for the incident of water waste, including evidence of a water leak, or another reasonable justification for the water use, within ten business days of the customer's first communication with the Water Conservation Program regarding the alleged incident of water waste.

(c) Within ten business days of the initiation of an appeal, staff shall provide the customer with documentation demonstrating the incident of water waste, if applicable.

(d) The staff will provide the facts and evidence related to the appeal to the Water Conservation Program Supervisor, who will determine whether to rescind the enforcement measure. The Water Conservation Program Supervisor will provide a written decision to the customer within fifteen business days of the customer's appeal, or receiving any applicable evidence from the customer, whichever comes later.

Step 2. If the customer is not satisfied with the decision of the Water Conservation Program Supervisor, they may appeal to the Director or designee within ten business days of the date of the Water Conservation Program Supervisor's decision. The Director or designee shall review the appeal and any evidence the customer previously submitted, and provide a written decision within thirty days of receiving the appeal.

Step 3. If the customer is not satisfied with the decision of the Director of Public Utilities, the customer may appeal to the City's Administrative Hearing Officer in the manner provided in Chapter 1, Article 4 of this code. Such decision shall be final.

(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; Am. Ord. 2015-13, § 1, eff. 5-21-15; Am. Ord. 2015-29, § 1, eff. 8-27-15; Am. Ord. 2017-56, § 3, eff. 11-19-17; Am. Ord. 2018-45, § 1, eff. 8-10-18; Am. Ord. 2019-011, § 3, eff. 5-31-19; Am. Ord. 2022-026, § 1, eff. 10-8-22).

Editor's note— The provisions in subsection 6-520(e) regarding the enforcement program for incidents of water waste are effective January 1, 2018.

Attachment 2 Fresno County Multi-Jurisdictional Hazard Mitigation Plan

Annex E: City of Fresno

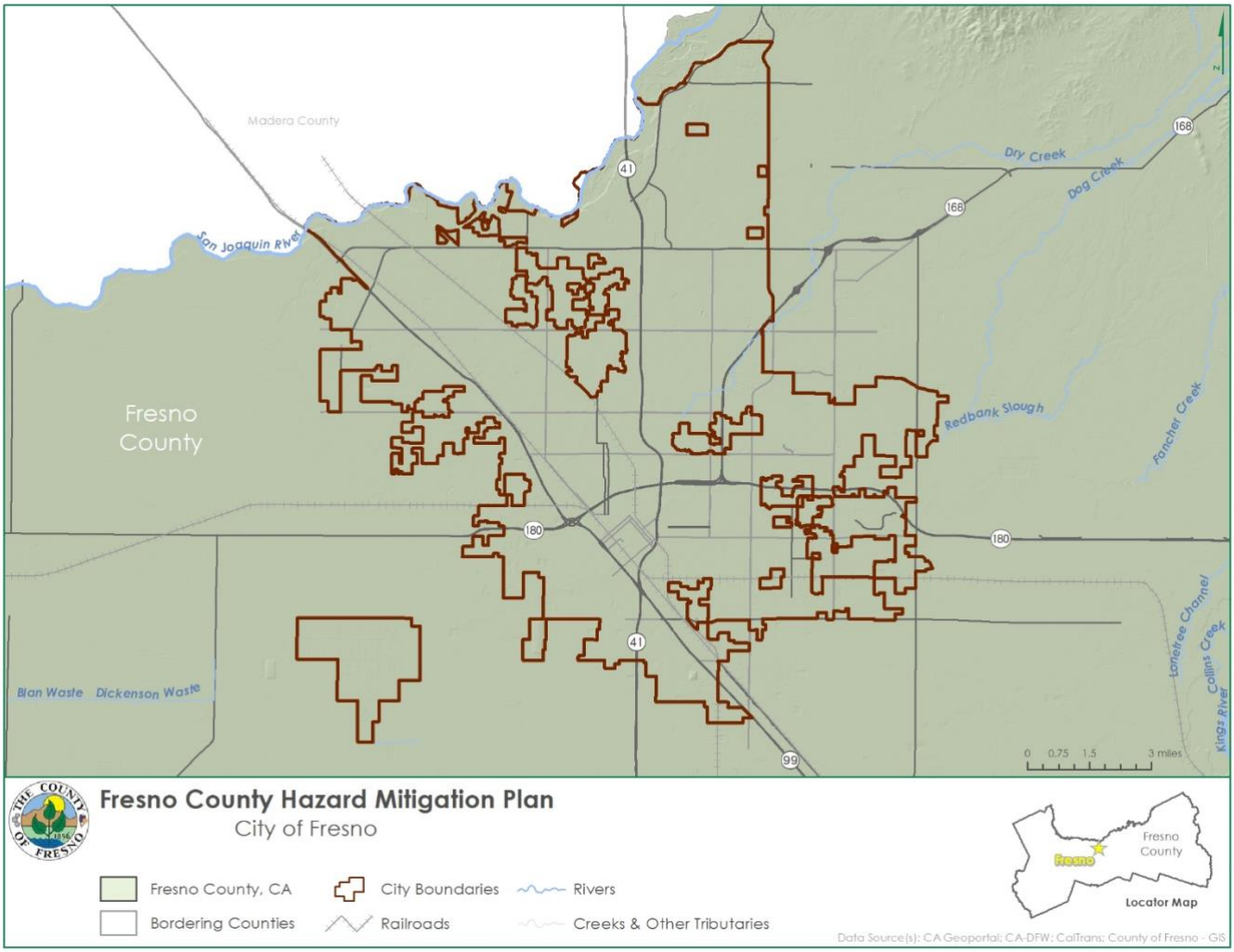
Available online at:
https://www.fresnocountyca.gov/files/sharedassets/county/v/1/county-administrative-office/hazard-mitigation-plan/annex-files/draft-annex-e-city-of-fresno.pdf

Annex E: City of Fresno

COMMUNITY PROFILE

Figure 1. City of Fresno City Boundaries displays a map and the location within Fresno County of the City of Fresno.

Figure 1. City of Fresno City Boundaries

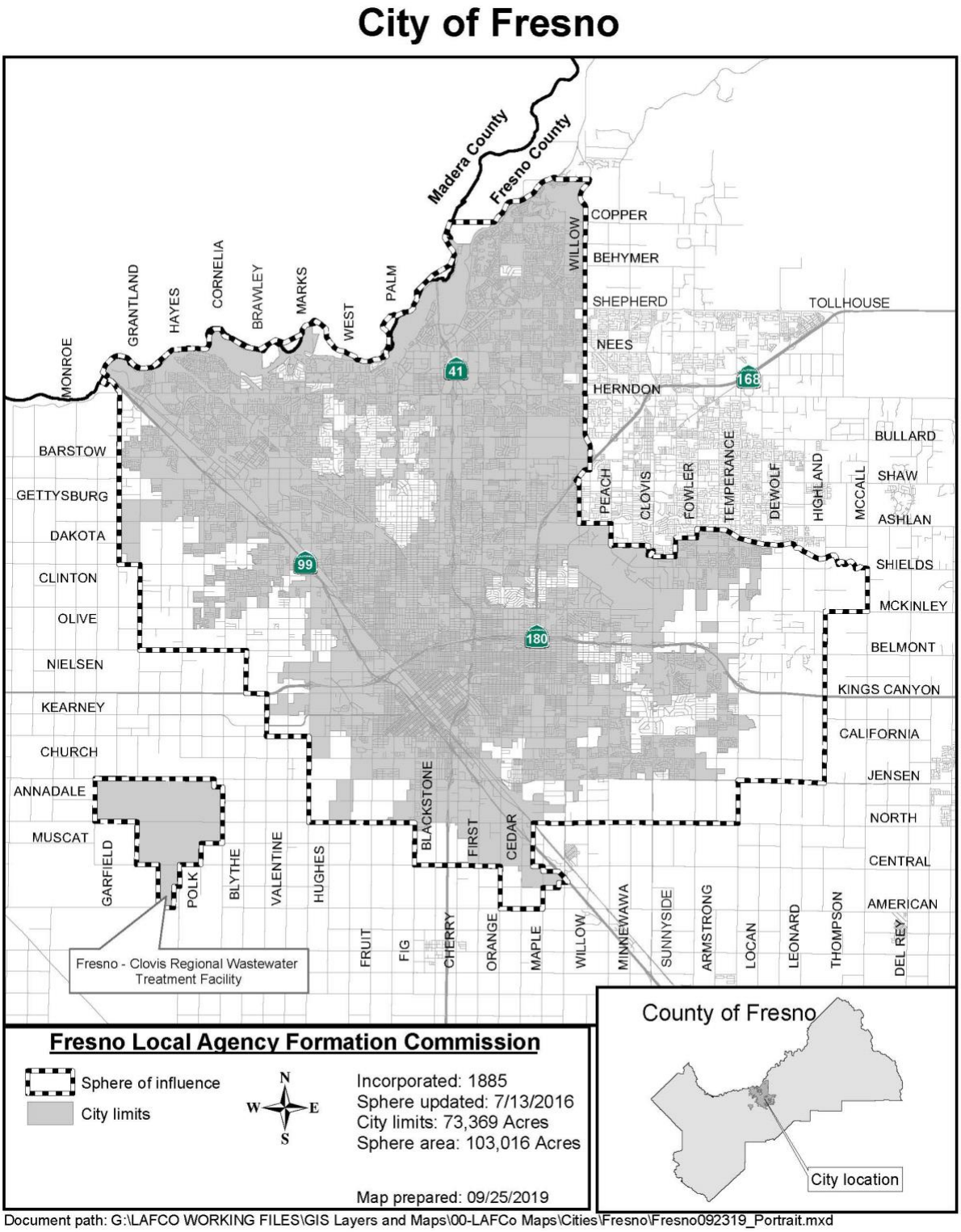


Source: CA Geoportal; CA-DFW; CalTrans; County of Fresno - GIS

GEOGRAPHY AND CLIMATE

The City of Fresno, located in the Central Valley, covers an area of 113 square miles. The Sphere of Influence (SOI) encompasses 157 square miles in total, of which 44 square miles is unincorporated land. **Figure 2. City of Fresno Limits and Sphere of Influence** shows the SOI and City limits. Over the past decade, the City has expanded into the northern, northwestern, and eastern reaches of its Sphere of Influence.

Figure 2. City of Fresno Limits and Sphere of Influence



Source: Fresno Local Agency Formation Commission

Except for the deep channel of the San Joaquin River at the northern boundary of the City, Fresno's topography is generally level and slopes gently to the southwest. The upper San Joaquin River lies at the City's northerly boundary and has carved a deep channel, confining the river between steep bluffs that range from 20 to approximately 100 feet in height. Fresno has a Mediterranean climate, averaging over 300 sunny days per year and little or no measurable precipitation from June through September. Annual rainfall averages 11 inches and the City's prevailing winds are typically light and from the northwest.

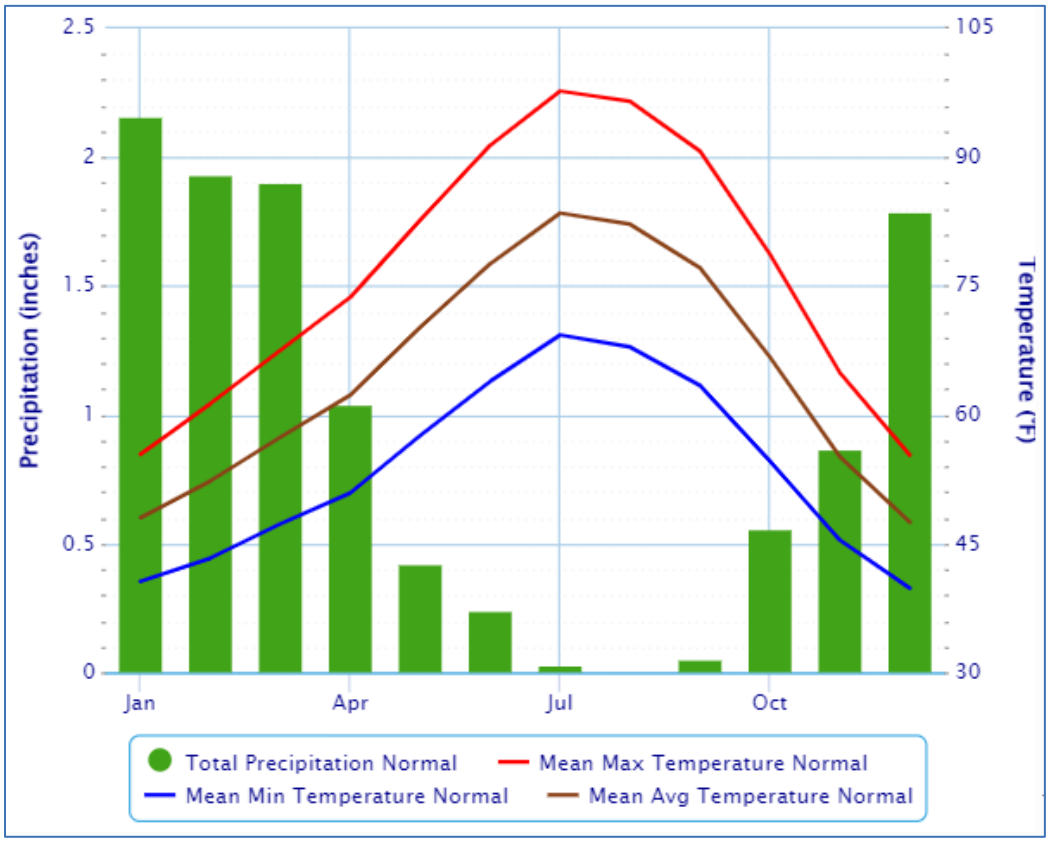
Storms with strong weather disturbances (lightning and very agitated winds) may occur from autumn months through the spring, with the strength of the storm dependent upon temperature gradients between moving weather fronts.

Winter mornings in December and January approach freezing but only rarely reach as low as, or below, 32ºF; winter daytime high temperatures almost always approach or exceed 40ºF. Snowfall is an extremely rare and transient phenomenon; the last recorded snowfall had trace amounts on December 11, 2005. The Tule fog, a thick ground fog that settles in the San Joaquin Valley from late fall through early spring, is the leading cause of weather-related accidents in California. In addition to causing visibility issues, "black ice" from precipitated fog may temporarily affect some roadways and bridges during the winter.

Summer daytime peak temperatures are high in Fresno. Some heat waves last over a week with daytime highs well over 100ºF and issuance of health advisories. Summer evenings provide for some cooling of 10-15ºF with the early morning daybreak hours cooling by 20-30ºF, depending on humidity (low humidity allows for more radiant cooling). In 2021, the Fresno area experienced 69 days over 100 degrees – a record-breaking number of days, according to data from the National Weather Service. [1]The figure below shows the monthly normal for temperature and precipitation at the Fresno Yosemite International Airport NWS weather station.

[1] Extreme heat in Fresno County affects health (fresnoland.org) https://fresnoland.org/2022/08/26/fresno-county-heat-waves-will-last-longer-in-the-future-heres-what-that-means-for-your-health/

Figure 3. Fresno-Yosemite International Airport Monthly Normals for Precipitation and Temperature (1991-2020)



Source: NWS

Geography and climate combine to create a general accumulation of air pollutants in the San Joaquin Valley (and in the City of Fresno) that occasionally result in unhealthy air quality conditions. Air quality problems are exacerbated by dust storms, human activities (e.g., vehicle emissions and fireplace and wood stove use), atmospheric photochemical processes, and forest fires from local and regional fires.

According to a report published by the American Lung Association, Fresno County is the dirtiest place in America for short-term particle pollution. The Fresno metro area saw a greater than 40 percent increase in the Lung Association's statistic for annual short-term exposure to PM2.5 particles. [2]

The City has chronically failed to attain some of the national and state ambient air quality standards, but due to the efforts of the California Air Resources Board and the regional San Joaquin Valley Unified Air Pollution Control District, progress toward attainment of ozone (oxidant) and particulate matter standards is being made. Carbon monoxide standards were deemed to have been attained in the 1990s.

[2] New report says Fresno region has dirtiest air in US. Experts call for critical change - Fresnoland https://fresnoland.org/2022/04/21/new-report-says-fresno-region-has-dirtiest-air-in-us-experts-call-for-critical-change

HISTORY

Development of what today is the City of Fresno began in 1871, when the Central Pacific Railroad chose the Fresno Station for its San Joaquin Valley rail line. The City soon became the County seat and the shipping and distribution hub for the region's agricultural industry. An economic boom across California in the 1880s helped transform Fresno from a village to a city and helped drive its incorporation in 1885. Today, the City of Fresno is the center of trade, commerce, finance, and transportation for the San Joaquin Valley.

ECONOMY

The most comprehensive economic data available for the City of Fresno comes from the U.S. Census Bureau by way of the American Community Survey (ACS). Select estimates of economic characteristics for the City of Fresno are shown in **Table 1. City of Fresno's Economic Characteristics.**

Table 1. City of Fresno's Economic Characteristics

Characteristic	City of Fresno
Families below Poverty Level	15.1%
All People below Poverty Level	20.6%
Median Family Income	$74,085
Median Household Income	$64,196
Per Capita Income	$30,533
Population in Labor Force	263,824
Population Employed	242,002
Unemployment	7.9%

Source: U.S. Census Bureau American Community Survey 2018-2022 5-Year Estimates, www.census.gov/

Table 2. City of Fresno's Employment by Occupation and **Table 3. City of Fresno's Employment by Industry** show how the City of Fresno's labor force breaks down by occupation and industry based on 5-year estimates from the 2018-2022 American Community Survey.

Table 2. City of Fresno's Employment by Occupation

Occupation	# Employed	% Employed
Management, Business, Science and Arts Occupations	80,046	33.08%
Management, Business, and Financial Occupations	(33,682)	(49.37%)
Computer, Engineering, and Science Occupations	(8,280)	(12.64%)

Occupation	# Employed	% Employed
Education, Legal, Community Service, Arts, and Media Occupations	(26,257)	(38.49%)
Sales and Office Occupations	48,846	20.18%
Service Occupations	54,667	22.59%
Production, Transportation, and Material Moving Occupations	36,666	15.15%
Natural Resources, Construction, and Maintenance Operations	21,777	8.99%
Total	**242,002**	**100.00%**

Source: U.S. Census Bureau American Community Survey 2018-2022 5-Year Estimates, www.census.gov/

Table 3. City of Fresno's Employment by Industry

Industry	# Employed	% Employed
Educational Services, and Health Care, and Social Assistance	55,512	22.94%
Retail Trade	25,233	10.43%
Arts, Entertainment, and Recreation, and Accommodation, and Food Services	26,632	11.00%
Professional, Scientific, and Management, and Administrative and Waste Management Services	24,980	10.32%
Manufacturing	16,051	6.63%
Public Administration	16,904	6.99%
Finance and Insurance, and Real Estate and Rental and Leasing	13,334	5.51%
Other Services, Except Public Administration	11,996	4.96%
Construction	14,154	5.85%
Agriculture, Forestry, Fishing, and Hunting, and Mining	8,625	3.56%
Transportation and Warehousing and Utilities	19,686	8.13%
Wholesale Trade	6,119	2.53%
Information	2,776	1.15%
Total	**242,002**	**100.00%**

Source: U.S. Census Bureau American Community Survey 2022 5-Year Estimates, www.census.gov/

With the depressed real estate and construction market and economic recession toward the end of the 2000–2010-decade, unemployment rates increased to a peak of 18.0 percent in 2010. Since then, the unemployment rate has steadily decreased. In recent years, unemployment sharply rose again, 17.4

percent in April 2020, during the COVID-19 as many businesses shut down and employees were laid off. The most recent annual data from the State of California Employment Development Department indicates that in 2022 there were 244,027 people employed in the City of Fresno labor force. The unemployment rate was 8.2 percent as of December 2023.

POPULATION

According to the U.S. Census Bureau 2022 Population Estimate, Fresno's population was estimated to be 545,567. Select demographic and social characteristics for the City from the U.S. Census Bureau's 2015 American Community Survey 5-year estimates are shown in **Table 4. City of Fresno's Demographic and Social Characteristics.**

Table 4. City of Fresno's Demographic and Social Characteristics

Characteristics	City of Fresno
Gender/Age	
Male	49.2%
Female	50.0%
Median Age	30.0
Under 5 Years	8.9%
Under 18 Years	29.5%
65 Years and Over	9.9%
Race/Ethnicity	
White	52.2%
Asian	13.0%
Black or African American	7.9%
American Indian/Alaska Native	1.1%
Hispanic or Latino (of any race)	48.5%
Education	
High school graduate or higher	75.2%
Disability Status	
Population 5 years and over with a disability	11.75%

Source: U.S. Census Bureau American Community Survey 2018-2022 5-Year Estimates, www.census.gov/

For information about how some of these demographics affect social vulnerability and how they compare to other Fresno County jurisdictions, California, and the United States, see "Social Vulnerability" in Section 4.3.1 Fresno County Vulnerability and Assets at Risk of the main plan. A more in-depth look at the population of the City of Fresno, including the City's special needs populations, is available in the City of Fresno General Plan 2015-2023 Housing Element commissioned by the City of Fresno Development and Resource Management Department and prepared by MIG, Inc (available at www.fresno.gov/housingelement).

HAZARD IDENTIFICATION AND SUMMARY

The City of Fresno's planning team identified the hazards that affect the City and summarized their frequency of occurrence, spatial extent, potential magnitude, and significance specific to Firebaugh (see **Table 6. City of Fresno - Hazard Summaries**). **Table 5. Risk Methodology** shows the methodology to how the hazards were ranked. In the context of the plan's planning area, there are no hazards that are unique to Fresno.

Table 5. Risk Methodology

RF Value = {(Probability x .30) + (Impact x .30) + (Spatial Extent x.20) + (Warning Time x .10) + (Duration x .10)}				
Risk Assessment Category	**Degrees of Risk**			**Weight Value**
Probability: What is the likelihood of a hazard event occurring in a given year?	Unlikely	Less than 1% annual probability	1	30%
	Possible	Between 1% and 49.9% annual probability	2	
	Likely	Between 50% and 90% annual probability	3	
	Highly Likely	Greater than 90% annual probability	4	
Impact: In terms of injuries, damage, or death, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?	Minor	Very few injuries, if any. Only minor property damage and minimal disruption on quality of life. Temporary shutdown of critical facilities.	1	30%
	Limited	Minor injuries. More than 10% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than one day.	2	
	Critical	Multiple deaths / injuries possible. More than 25% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for more than a week.	3	
	Catastrophic	High number of deaths / injuries possible. More than 50% of property in affected area damaged or destroyed. Complete shutdown of critical facilities for 30 days or more.	4	
Spatial Extent: How large of an area could be impacted by	Negligible	Less than 1% of area affected	1	20%
	Small	Between 1% and 10.9% of area affected	2	

RF Value = {(Probability x .30) + (Impact x .30) + (Spatial Extent x.20) + (Warning Time x .10) + (Duration x .10)}				
Risk Assessment Category	**Degrees of Risk**			**Weight Value**
a hazard event? Are impacts localized or regional?	Moderate	Between 11% and 25% of area affected	3	
	Large	Greater than 25% of area affected	4	
Warning Time: is there usually some lead time associated with the hazard event? Have warning measures been implemented?	More than 24 hours	Self-Defined	1	10%
	12 to 24 hours	Self-Defined	2	
	6 to 12 hours	Self-Defined	3	
	Less than 6 hours	Self-Defined	4	
Duration: how long does the hazard event usually last?	Less than 6 hours	Self-Defined	1	10%
	Less than 24 hours	Self-Defined	2	
	Less than 1 week	Self-Defined	3	
	More than 1 week	Self-Defined	4	

Table 6. City of Fresno - Hazard Summaries

Hazard	0.3 Probability	0.3 Impact	0.2 Spatial Extent	0.1 Warning Time	0.1 Duration	Overall Risk
Agricultural Hazards	Likely	Minor	Negligible	12 to 24 hours*	Less than 24 hours*	**Low**
Avalanche	Unlikely	Minor	Negligible	N/A	N/A	**Low**
Dam Failure	Unlikely	Catastrophic	Moderate	Less than 6 hours	Less than 24 hours	**High**
Drought	Possible	Limited	Large	More than 24 hours	More than 1 week	**High**
Earthquake	Possible	Limited	Large	Less than 6 hours	Less than 6 hours	**Medium**
Flood/Levee Failure	Possible	Limited	Large	More than 24 hours	Less than 1 week	**High***
Hazardous Materials	Likely	Critical	Significant	Less than 6 hours	Less than 1 week	**High**
Human Health Hazards						
Epidemic/Pandemic	Possible	Catastrophic	Large	More than 24 hours	More than 1 week	**High**
West Nile Virus	Highly Likely	Minor	N/A	N/A	N/A	**Low**
Severe Weather						
Extreme Cold/Freeze/Heat	Highly Likely	Limited	Large	More than 24 hours	Less than 1 week	**High**
Fog	Likely	Limited	Large	More than 24 hours	Less than 24 hours	**Medium***
Heavy Rain/Thunderstorm/ Hail/Lightning/Wind	Highly Likely	Minor	Large	More than 24 hours	Less than 24 hours	**Medium***
Tornado	Possible	Minor	Large	Less than 6 hours	Less than 6 hours	**Low***
Winter Storm	Highly Likely	Minor	Large	More than 24 hours	Less than 1 week	**Medium***
Soil Hazards						
Erosion	Highly Likely	Minor	Moderate	N/A	N/A	**Medium**
Expansive Soils	Unlikely	Minor	Negligible	N/A	N/A	**Medium**
Land Subsidence	Possible	No Data	Limited	N/A	N/A	**Medium**
Landslide	Likely	Limited	Small	12 to 24 hours*	Less than 24 hours*	**Medium**
Volcano	Unlikely	Minor	Negligible	Less than 6 hours	More than 1 week	**Low**
Wildfire	Highly Likely	Critical	Small	12 to 24 hours*	More than 1 week*	**High**

**Rated on an average basis. For example, warning time for agricultural hazards by vary by the type of hazard*

**Hazard "Overall Risk" differs from the risk factor methodology used based on the jurisdiction's Hazard Risk Assessment Worksheet. For example, the "Overall Risk" for a hazard may be High but the jurisdiction assessed the hazard to be a Low risk based on other factors.*

***Note**: N/A was identified for hazard characteristics when the information was not available or relevant to the hazard/jurisdiction.*

VULNERABILITY ASSESSMENT

The intent of this section is to assess Fresno's vulnerability separate from that of the planning area as a whole, which has already been assessed in the Vulnerability Assessment section in the main plan. This vulnerability assessment analyzes the population, property, and other assets at risk to hazards ranked of medium or high significance that may vary from other parts of the planning area.

The information to support the hazard identification and risk assessment for this Annex was collected through a worksheet, which was distributed to each participating municipality or special district to complete during the 2024 plan update. Information collected was analyzed and summarized in order to identify and rank all the hazards that could impact anywhere within the County, as well as to rank the hazards and to identify the related vulnerabilities unique to each jurisdiction.

Each participating jurisdiction was in support of the main hazard summary identified in the base plan. However, the hazard summary rankings for each jurisdictional annex may vary slightly due to specific hazard risk and vulnerabilities unique to that jurisdiction (See Figure 6. City of Fresno—Hazard Summaries). Identifying these differences helps the reader to differentiate the jurisdiction's risk and vulnerabilities from that of the overall County.

The hazard risk reflects overall ranking for each hazard and is based on the City of Fresno's HMPC member input from the Risk Assessment Worksheet and the risk assessment developed during the planning process (see Chapter 4 of the base plan), which included a more detailed qualitative analysis with best available data.

The hazard summaries in Figure 6 reflect the hazards that could potentially affect the City. The discussion of vulnerability for each of the following hazards is located in the Estimating Potential Losses section. Those hazards that are not profiled in the vulnerability assessment were identified as consistent with the County's overall vulnerability assessment. See Chapter 4 Risk Assessment for details on vulnerability to these hazards.

ASSETS AT RISK

This section considers Fresno's assets at risk, including values at risk; critical facilities and infrastructure; historic, cultural, and natural resources; economic assets; and growth and development trends.

Since the 2009 Plan, the City of Fresno has experienced notable increases in agricultural, commercial, and residential properties and property values at risk. Compared to improved values from the Fresno County Assessor's Office's 2007 Certified Roll Values, agricultural improved value has increased by 254.2 percent, commercial improved value has increased by 299.8 percent and total residential improved value has increased by 265.8 percent. Part of this dramatic increase in exposure of commercial and residential properties can be attributed to annexations of previously unincorporated County land that have occurred within the last decade.

CRITICAL FACILITIES AND INFRASTRUCTURE

A critical facility may be defined as one that is essential in providing utility or direction either during the response to an emergency or during the recovery operation. An inventory of critical facilities in the City

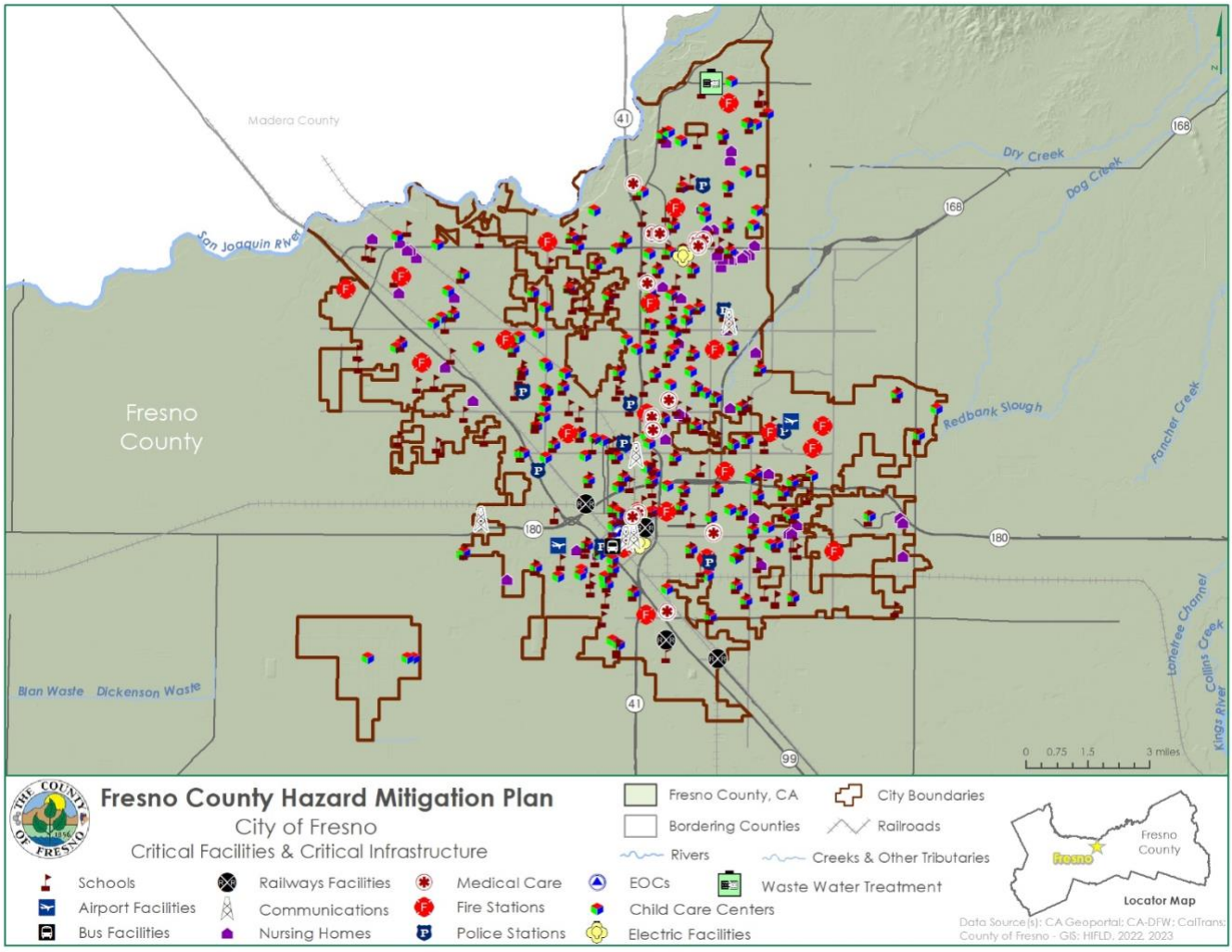
of Fresno from Fresno County GIS is provided in **Table 7. City of Fresno's Critical Facilities** and mapped in **Figure 4. City of Fresno Critical Facilities.**

Table 7. City of Fresno's Critical Facilities

Critical Facility Type	Count
Airport	2
Bus	1
CalARP	28
Colleges & Universities	8
Communications	29
Electric	5
EOC	1
Fire Station	27
Health Care	13
Police	11
Railway	7
School	190
Supplemental College	7
Wastewater	2
Total	**331**

Source: Fresno County

Figure 4. City of Fresno Critical Facilities



Source: CA Geoportal; CA-DFW; CalTrans; County of Fresno – GIS, 2022, 2023

The list of specific critical facilities and community assets is maintained by the City of Fresno Police Department. The Fresno Urban Area Critical Infrastructure List is considered confidential and may be accessed through the Fresno Police Department Homeland Security Division.

HISTORIC, CULTURAL, AND NATURAL RESOURCES

HISTORIC AND CULTURAL SITES

The Cultural Resource Facility located on the California State University, Bakersfield campus maintains a database, maps, and descriptive surveys of prehistoric sites in the Fresno area. Details of the locations are kept confidential due to the risk of theft or vandalism of artifacts. The general location of these sites is along the San Joaquin River and its bluffs, where permanent Native American settlements were established near a permanent water supply and seasonal salmon fishery.

The City of Fresno maintains a local official register of historic resources (available from the historic preservation officer in the City's Planning and Development Department). There are approximately 284 properties on the register. Twenty-one of the properties were demolished or destroyed by fire after being placed on the list, and three other properties have been relocated to sites outside the City of Fresno. The local register includes 31 properties that are on the National Register of Historic Places (see **Table 8. City of Fresno's Properties on the National Register of Historic Places**).

Table 8. City of Fresno's Properties on the National Register of Historic Places

Property Name	Address	Date-Listed
Azteca Theater	836-840 F Street	4/05/2017
Bank of Italy	1015 Fulton Mall	10/29/1982
Ben Gefvert Rank Historic District	4770 W Whites Bridge Road	1/01/2011
Brix, H.H, Mansion	2844 Fresno Street	9/15/1983
Einstein House	1600 M Street	1/31/1978
Fig Garden Woman's Club	4550 N. Van Ness Blvd	7/18/1994
Forestiere Underground Gardens	5021 W. Shaw Avenue	10/28/1977
Fresno Bee Building	1555 Van Ness Avenue	11/1/1982
Fresno Brewing Company Office and Warehouse	100 M Street	1/5/1984
Fresno County Hall of Records	2281 Tulare Street	12/22/2011
Fresno Memorial Auditorium	2425 Fresno Street	5/10/1994
Fresno Republican Printery Building	2130 Kern Street	1/2/1979
Fresno Sanitary Landfill	West and Jensen Avenues	8/7/2010
Holy Trinity Armenian Apostolic Church	2226 Ventura Street	7/31/1986
Hotel California	851 Van Ness Avenue	4/21/2004
Kearney, M. Theo, Park and Mansion	7160 Kearney Boulevard	3/13/1975
Kindler, Paul, House	1520 E Olive Avenue	10/29/1982
Maulbridge Apartments	2344 Tulare Street	5/6/1982

Property Name	Address	Date-Listed
Meux House	1007 R Street	1/13/1975
Old Administration Building, Fresno City College	1101 University Avenue	5/1/1974
Old Fresno Water Tower	2444 Fresno Street	10/14/1971
Pantages, Alexander, Theater	1400 Fulton Street	2/23/1978
Physicians Building	2607 Fresno Street	11/20/1978
Rehorn House	1050 S Street	1/8/1982
Romain, Frank, House	2055 San Joaquin Street	1/11/1982
San Joaquin Light & Power Corporation Buildings	1401 Fulton Street	1/3/2006
Santa Fe Hotel	935 Santa Fe Avenue	3/14/1991
Santa Fe Passenger Depot	2650 Tulare Street	11/7/1976
Site of First Junior College in California	2500 Stanislaus Street	6/28/1965
Site of the Fresno Free Speech Fight of the Industrial Workers of the World	Mariposa and I Streets	7/19/1974
Southern Pacific Passenger Depot	1033 H Street	3/21/1978
Temporary Detention Camps for Japanese Americans-Fresno Assembly Center	1141 South Chance Avenue	5/13/1980
Tower Theatre	1201 N. Wishon Avenue	9/24/1992
Twining Laboratories	2527 Fresno Street	3/26/1991
Warehouse Row	722, 744, and 764 P Street	3/24/1978
YWCA Building	1660 M Street	9/21/1978

Source: National Register of Historic Places, www.nps.gov/nr/

Other historic resources in the City of Fresno include the following historic districts:

- The Porter Tract Historic District (45 homes)
- The Chandler Field/Fresno Municipal Airport Historic District (four historic structures)
- The Wilson Island Historic District (76 homes)
- The Huntington Boulevard Historic Districts (82 homes)

As comprehensive as the City's register may be, it does not include all properties in the City with potential historic or cultural significance. The list is continually being expanded as sites are discovered through routine analysis of proposed development areas and through proposed new listings of historic districts. The pool of potentially historic properties also changes through time, since federal law provides for a 50-year retrospective review, which now encompasses the post- World War II building boom era. Ten properties that were recommended for the City's register but were denied inclusion by the Fresno City Council are still recognized for their historic/cultural significance (heritage properties),

which is taken into account when any actions are undertaken on them pursuant to provisions of the California Environmental Quality Act. (Three of these properties have been since been demolished.)

While a detailed assessment of seismic and flood risks for the listed properties in Fresno is currently beyond the available staff resources of the City's Historic Preservation Office, it can be generally assumed that most of the structures have not been seismically reinforced and that their masonry is vulnerable to strong ground shaking.

While many of the structures are in Fresno's old downtown and were built when this area was largely within the 100-year floodplain of the Fresno Stream Group, efforts by the Fresno Metropolitan Flood Control District in conjunction with the U.S. Army Corps of Engineers and the City of Fresno have provided for flood detention structures and ponding basins that have greatly reduced the size and extent of the floodplain in the downtown, helping to preserve these historic resources.

NATURAL RESOURCE AREAS

San Joaquin River Corridor

While the City maintains many community and neighborhood parks, its natural resources are primarily along the San Joaquin River. Owing to the year-round presence of water, the river bottom and bluffs host the richest aquatic and riparian forest biota in the City. It is in this area where migratory waterfowl and federally and state-listed endangered wildlife are most likely be encountered. These species include the valley elderberry longhorn beetle, the giant garter snake, and the American bald eagle (recently recommended for delisting from the National Endangered Species list).

Over past decades, land in the river corridor has been purchased and aggregated by state agencies (Department of Fish and Game, San Joaquin River Conservancy), by nonprofit groups (San Joaquin River Parkway Trust, Fresno Sportsmen's Club), and by the City and County (the City's Woodward Park and Milburn Unit, the County's Lost Lake Park). The ultimate goal of the San Joaquin River Conservancy Plan is to fashion a regional parkway with continuity of wildlife corridors and to manage it for joint recreational, habitat conservation, and floodplain protection uses.

Due to its location, this natural resource area is flood-prone. In some areas, this risk has been increased due to removal of massive amounts of sand and gravel (from mining), which lowered the ground surface over past decades. While the native riparian plants and animals have largely evolved with coping mechanisms for periodic severe flooding, any developed recreation facilities would be at risk. The face of the bluff is also very vulnerable to wildfire because of its vegetative overgrowth and nearly vertical slopes. Fire prevention efforts are difficult here because the soils are too unstable for vegetative removal projects or for irrigation that would keep the plants well- watered.

Vernal Pool Areas

In the northerly parts of the City, outside the river corridor, certain clay soils have the capacity to form impermeable hardpans and layers that do not allow rapid percolation of rainwater. During the rainy season, shallow vernal pools form that are populated by a host of specialized plants and animals. Many species associated with vernal pools are federally and state-listed species (e.g., the California tiger salamander, various types of fairy shrimp crustaceans, orcutt grass, button celery species, meadowfoam, and owl clover). Vernal pools are also heavily utilized by nonlisted species, such as migratory waterfowl, rodents, furbearing predators, and raptors that prey on other animals.

Wildfire is not considered a major risk to these natural communities, because they evolved with dry season fires as a common occurrence (the plants have very resistant seeds and the crustaceans and amphibians go into protected parts of their life cycles such as deep dormancy). Human encroachment through agriculture and land development is the greatest risk to vernal pool areas. If the clay layers are disrupted by “deep ripping” plowing, water cannot accumulate on the surface and the pools will not form. If the land is subjected to year-round irrigation, specially adapted vernal pool species will be outcompeted by other species. Conversion of land to urban development with structures, paving, lawns, pets, and people will destroy vernal pool natural communities.

ECONOMIC ASSETS

The City of Fresno’s economic sector includes both private and public entities that have been compiled into clusters in order to identify key economic assets. These ten clusters, known as the Regional Job Initiative (RJI) clusters, are Advanced Manufacturing, Clean Energy, Construction, Food Processing, Healthcare, Info Processing (Call Centers, Logistics, and Distribution), Software Development, Tourism, and Water Technology. Among these clusters are major employers like Saint Agnes, Pelco, Gottschalks, and Ruiz Foods that both boost Fresno’s economic growth and provide employment opportunities.

If a disaster struck the City, it could have a severe impact on Fresno’s economic assets. Sectors of greatest concern include all the RJI clusters, but in particular Food Processing, which includes the agricultural industry, and Healthcare.

GROWTH AND DEVELOPMENT TRENDS

The City of Fresno is growing at a rapid pace. Its expansion from incorporation in 1885 to the present day (August 2017) is illustrated in **Figure 5. City of Fresno Annexation History**. Even more growth is anticipated in the years to come, based on current trends.

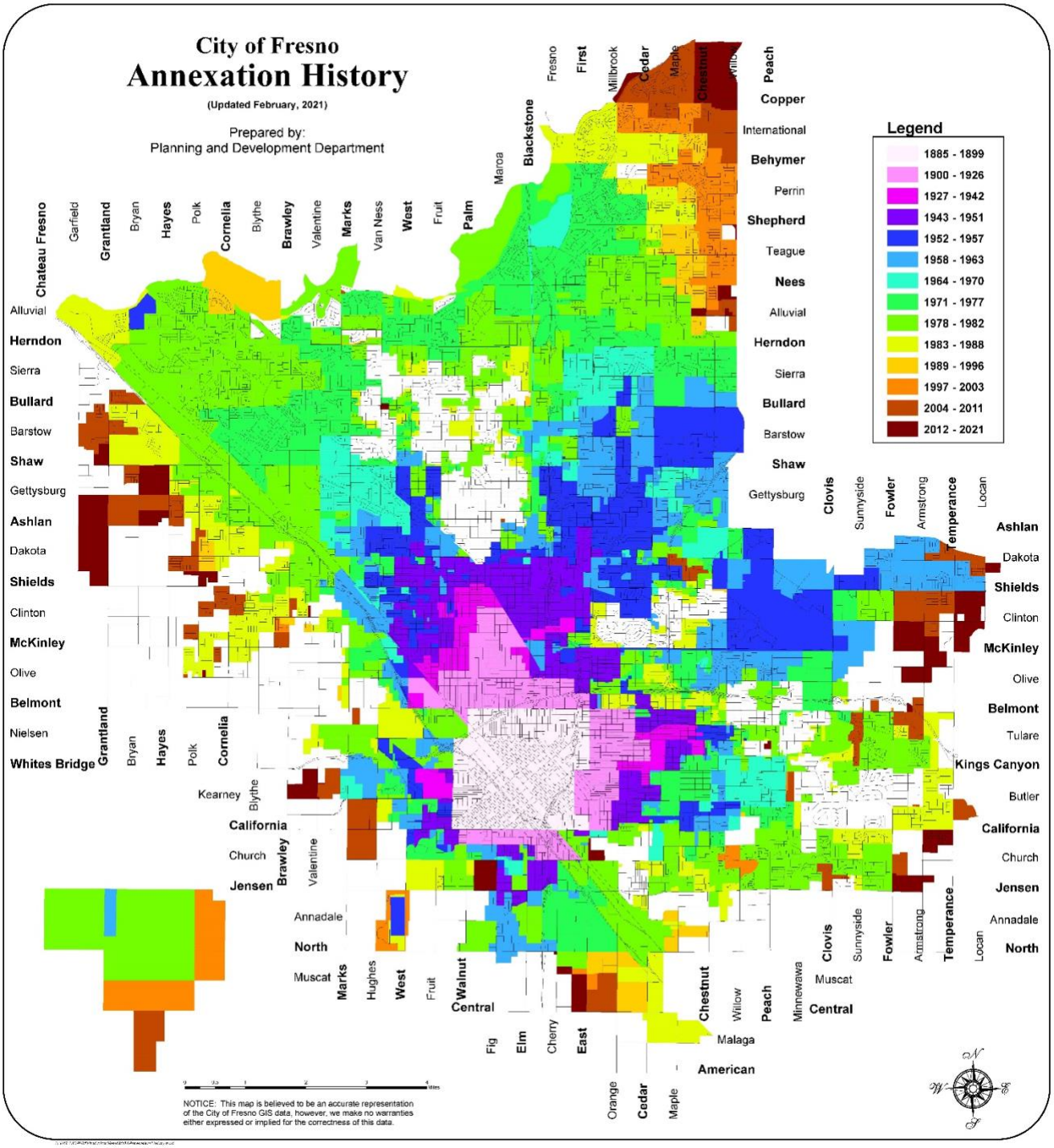
Table 9. City of Fresno's Change in Population and Housing Units, 2017-2022 shows how the City has grown in terms of population and number of housing units between 2017 and 2022 alone.

Table 9. City of Fresno's Change in Population and Housing Units, 2017-2022

2017 Population	2022 Population Estimate	Estimated Percent Change 2017-2022	2017 # of Housing Units	2022 Estimated # of Housing Units	Estimated Percent Change 2017-2022
527,422	545,564	+3.44%	180,495	192,007	+6.38%

Source: American Community Survey 5-Year Estimates 2017 and 2022

Figure 5. City of Fresno Annexation History



Source: City of Fresno Development Department.

By December 31, 2035 (the "Horizon" year of the most recent Fresno General Plan), it is estimated that 771,000 people will reside in the Fresno Metropolitan Area (which would include County islands and areas inside the City's Sphere of Influence but not yet annexed). This figure of 771,000 would be 64 percent of the projected 2035 Fresno County population of 1,201,416 (State of California Department of Finance population projections).

Development had reached the natural and political northerly boundary of the City, the San Joaquin River, and began expanding to the west and southeast through conversion of rural residential and agricultural land. Within the Sphere of Influence, there continued to be "County islands" and partially urbanized fringe areas. An urban unification annexation program may reduce the numbers and sizes of these enclaves in the coming decade.

The Fresno General Plan made a concerted effort to revitalize the City's downtown by balancing new growth areas to geographically recenter the downtown. With construction of a major sewer trunk along the Grantland Avenue alignment and proposed construction of new wastewater and water treatment plants in the southeastern area, the City's future growth is expected to concentrate primarily to the west and southeast.

The Fresno Metropolitan Flood Control District (FMFCD) has commenced major flood control facility construction on Fancher Creek in the eastern portion of the City's Sphere of Influence. Since the Fresno General Plan was completed in December 2014, the FMFCD will compile technical studies and update its master service plan in conjunction with the City's land use plan for this new growth area.

The Fresno General Plan also directed that new development be more compact and that single- family residential densities be higher than the City's traditional 4± dwelling units/acre pattern for subdivisions. The recently adopted Fulton Corridor Specific Plan and Downtown Neighborhoods Community Plan and other plan amendments and projects in process (and proposed in the future) feature smaller lots, multi-story housing, multi-family units, and reduced setbacks.

Unless the cost of manufactured housing units provides a substantial savings over site-built homes, it is not expected that the proportion of manufactured housing in the City of Fresno will greatly increase. It is possible that there will be some increase as producers of these units create models with appropriate roof pitches and other features to meet the City's design review standards.

More information about the City of Fresno's growth and current housing stock is available in the City of Fresno General Plan 2015-2023 Housing Element commissioned by the City of Fresno Development and Resource Management Department and prepared by MIG, Inc (available at www.fresno.gov/housingelement). More general information on growth and development in Fresno County as a whole can be found in "Growth and Development Trends" in Section 4.3.1 Fresno County Vulnerability and Assets at Risk of the main plan.

ESTIMATING POTENTIAL LOSSES

Note: This section details vulnerability to specific hazards, where quantifiable, and/or where (through HMPC member input) it differs from that of the overall County.

Figure 12 above shows Fresno's exposure to hazards in terms of number and value of structures. Fresno County's parcel and assessor data was used to calculate the improved value of parcels. The most vulnerable structures are those in the floodplain (especially those that have been flooded in the past), unreinforced masonry buildings, and buildings built prior to the introduction of modern day building codes. No further information on vulnerable structures is available. Impacts of past events and

vulnerability to specific hazards are further discussed below (see Section 4.1 Hazard Identification for more detailed information about these hazards and their impacts on Fresno County).

AGRICULTURAL HAZARDS (LOW)

Agricultural hazards are ranked with a Low significance in the City of Fresno; lower than for the County overall (ranked High) because very little land in the City is used for agricultural purposes. Agricultural losses due to hazard events have greater economic impact on the small communities and rural areas of the County than on the City of Fresno. However, ornamental and garden plants in the City, and pets and incidental livestock kept within City limits, may become involved in any countywide responses to crop pests or infectious agents, because these urban plants and animals provide reservoirs for the diseases and crop pests that threaten the County's agriculture.

DAM FAILURE (HIGH)

The National Inventory of Dams lists five dams located in the City of Fresno, including the Redbank Creek Detention basin, Fancher Creek Detention, Friant Millerton Road Embankment A, Redbank, and Friant Dike 3.

DROUGHT (HIGH)

Annual rainfall in the City of Fresno is typically 12-14 inches. This makes the region vulnerable to episodic drought and to chronic drawdown of aquifer levels (the U.S. Environmental Protection Agency has designated the groundwater below Fresno as a sole source aquifer). Water in this aquifer has historically flowed through permeable strata from north and northeast toward the south and west, but the aquifer has been so affected by drawdown that a "cone of depression" has been created, reversing the historic flow directions (the "groundwater gradient") in portions of west and south Fresno.

In the last 10 years the City of Fresno has made strides to reduce dependence on groundwater by setting a course to implement water plans, which include the Urban Water Management Plan, Recycled Water Waster Plan, and the recently adopted Water Capital Program. A surface water treatment plant is currently under construction in Southeast Fresno and should be completed by 2018. When operational, the plant will maximize use of Fresno's surface water allocations during normal years and allow the City to reduce overuse of groundwater. Recycled water use will also grow in Fresno with the new recycled water mains now being constructed. The City has plans to use 25,000 acre-feet per year of recycled water for irrigating open spaces, parks, street medians and golf courses.

EARTHQUAKE (MEDIUM)

The seismic hazard in the City of Fresno is low relative to California coastal and mountain communities and is lower than in the Sierra and western areas of Fresno County. There are no known earthquake faults underlying Fresno, and the City has never been the epicenter of a known seismic event. However, Fresno is considered to have a moderate risk of earthquake damage due to the presence of major fault systems to the west, south, and east and due to Fresno's large population and number of buildings, critical facilities, and infrastructure and other development that could be vulnerable to more severe ground shaking.

Historically, Fresno has sustained very little damage from major earthquakes occurring on California's major faults: the Owens Valley earthquake of 1872 toppled an unreinforced masonry (brick) church steeple. More recent major earthquakes in the past four decades (with epicenters near Coalinga and the Bay Area) have resulted in perceptible tall building swaying in Fresno, minor injuries (attributable to shelved items falling), and slight damage (e.g., minor cracked plaster, etc.). To date, no soil liquefaction has been observed in Fresno from any seismic event.

The most serious impacts of an earthquake in Fresno would probably arise from damage to large dams in the Sierra Nevada on the upper reaches of the San Joaquin River very close to active Long Valley Caldera-related faults. Should either of the two most easterly (and largest) dams in this area be severely damaged or breached, the resulting sequential dam failures could cause floodwaters to overtop Friant Dam northeast of the City. While the dam failure inundation map for Friant shows that most of the flooded area would be expected in the northwest part of town (where the confining river bluffs are not as high), there are some residences and important infrastructure in the river channel itself that would be inundated and gravely damaged (or destroyed), including highway bridges and the inlet of the Friant-Kern Canal, which supplies Bureau of Reclamation surface water to the Fresno area and to other communities in the southern San Joaquin Valley.

EPIDEMIC/PANDEMIC (HIGH)

Fresno's population includes many residents who have limited access to health care, with causes related to low household income levels, lack of insurance coverage, a limited number of primary health care facilities and acute care beds, a low ratio of public health and medical professionals to population, and language barriers. Highly communicable diseases tend to affect a large percentage of the City, perhaps due to large household size and the mobility of the population. If a highly communicable disease outbreak occurred that caused serious or life-threatening illness for most infected persons, health care and other public service systems would experience disruption or breakdown and would require outside intervention with resources from other communities, the state, or the federal government. The recent COVID-19 pandemic caused high mortality and illness across the State of California and within Fresno. The Hazard Profile section in Chapter 4: Risk Assessment, details this event further.

EXTREME COLD/FREEZE (HIGH)

Freeze events occur occasionally in Fresno, but impacts are greater to the agriculture industry in the County than to the City. In January 2007, overnight minimum temperatures fell below freezing between January 6 and 10. The event led to a presidential disaster declaration due to the estimated $710 million in agricultural damage in the Central and South Valley. The 2007 event occurred in another eight-year interval after the devastating citrus freezes of 1998 and 1990. The event caused frozen pipes in Fresno but little other property damage. The City also has a plan for freezing temperature events and opens warming centers. These centers are primarily geared toward the homeless population.

EXTREME HEAT (HIGH)

Fresno uses a local version of the California State Plan for Extreme Heat. This plan was used during the extreme heat event during the summer of 2006 and worked well. The City operates cooling centers,

which are primarily geared toward the homeless. Public notification for extreme heat events is conducted through the Public Affairs office in coordination with Fresno County.

EXPANSIVE SOILS (MEDIUM)

These types of soils occur in northern Fresno in the far northeastern portions of its Sphere of Influence (in the "Copper River" area). Expansive clay soils can cause cavitation over time and require special construction standards for foundations.

FLOOD/LEVEE FAILURE (HIGH)

As noted in the preceding section, there is some flood risk to the City from San Joaquin River major dam failure inundation, but the more common flood risk, repetitively experienced in Fresno, is that of shallow "sheet" flooding from major precipitation events. Except for the San Joaquin River, streams in the Fresno-Clovis Metropolitan Area originate in the Sierra foothills to the east and extend into the valley floor west of State Route 99 by way of dual-use irrigation and storm runoff channels and disperse into numerous smaller irrigation canals. Overflow from these canals and urban stormwater from intense precipitation events is sent back to the San Joaquin River or to farmland southwest of Fresno via spillway channels.

In the City of Fresno, these canals and channels are under control of the Fresno Irrigation District, an independent public agency, but their use during storm events is shared by another independent district, the Fresno Metropolitan Flood Control District (FMFCD). The FMFCD was created to develop flood control facilities to prevent further repetitive losses created by the Fresno Stream Group and to provide an urban drainage network. This District is responsible for administering a Storm Drainage and Flood Control Master Plan. The City's municipal code supports these efforts by including a Drainage Fee Ordinance to ensure that grading and development comply with the FMFCD's Master Plan and standards and provide proportionate shares of storm drain and ponding basin infrastructure.

The City of Fresno's Floodplain Ordinance further coordinates and supports FMFCD efforts. This ordinance and the Fresno General Plan Safety Element policies require conformance to FEMA floodplain management policies and to those of California's Central Valley Flood Prevention Board (which regulates the designated floodway along the San Joaquin River channel). Still, in areas not completely developed to urban standards, areas where the urban drainage network is not yet completed, and in some County "island" areas (land within the City that the County has authority over), stormwater drainage facilities may not prevent localized shallow flooding during intense runoff events.

According to FEMA's 2016 Flood Insurance Study (FIS), the following major canals and ditches run through the City:

- Central Canal flows southwest through the southeastern part of the City of Fresno.
- Dry Creek Canal begins at the confluence of Mill Ditch and Herndon Canal, just downstream of North Millbrook Avenue, and flows southwest through the southwestern portion of the City.
- Fancher Creek Canal flows southwest along the eastern corporate limits of the City of Fresno and joins Central Canal at the southeast corner of the City.

- Herndon Canal begins at the confluence of Mill Ditch and Dry Creek Canal. It flows west through the center of the City of Fresno, then flows northwest through the northwestern part of the City.
- Mill Ditch flows west along East McKinley Avenue to its confluence with Herndon and Dry Creek Canals.

The FIS details the City of Fresno's flood history as follows:

In February 1884, flood flows from streams of the Fresno-Clovis group inundated the business section of the City of Fresno. Frequent flooding was a problem in the City throughout 1880. Suburban areas of the City were flooded in spring 1920; the downtown area was inundated in 1923; flooding occurred in the Fig Garden area in 1936; and parts of the City, especially in the northeast section, were flooded in March 1938. Since the 1938 flood, which had an estimated discharge of 2,700 cubic feet per second (cfs) on Dry Creek at the Big Dry Creek Dam site, high flows occurred on that stream in December 1955 (3,800 cfs), January 1969 (5,700 cfs), and February 1969 (4,500 cfs). During December 1955, approximately 500 acres of agricultural and suburban land were flooded by overflow from irrigation canals, and damage, mostly to public facilities, totaled approximately $50,000. The largest and most damaging flood period was January and February 1969, when the combined discharges of Dry, Dog, Redbank, Fancher, and Mud Creeks flooded an estimated 14,500 acres and caused almost $4.7 million in damage. Most of the flooding was in the eastern and northeastern parts of the City. It occurred because many of the streams in the Fresno-Clovis group discharged floodwater into various irrigation canals, causing them to overflow.

Several flood events that have occurred in Fresno are detailed below.

- **1998 (El Niño rain event)**: In 1998, Fresno County was hit by extensive rainfall over 33 days within a six-month period, causing widespread flooding and prompting local, state, and federal emergency declarations. Property and public facility damage totaled nearly half a million dollars, while the farming industry suffered a $17 million loss, primarily impacting tree fruit and row crops. The community faced substantial economic impacts between $38-48 million, and the agricultural workforce experienced significant unemployment and reduced work hours.
- **2005-2006**: Above average rainfall occurred between December 19, 2005, and January 1, 2006. This resulted in flooding of low-lying areas throughout the County. Flood control basins were overflowing in several areas, including the Cities of Fresno and Clovis. Property damage included damage to approximately 180 businesses and homes estimated at $1.4 million within the unincorporated County. Damage to other jurisdictions was estimated at $611,307. Damage to crops was minimal due to the time of year. Flooding further resulted in several road closures, which were one to two weeks in duration.
- **October 29, 2007**: Newspapers and broadcast meteorologists reported several roadways flooded in Northwest Fresno. Numerous vehicles were stranded, and water rescues occurred. Heavy rain caused a roof to collapse at an industrial plant on the northwest side of the city. Damage was estimated at 250,000 to the roof structure alone. Total property damage associated with the event amounted to over $500,000.
- **December 200**7: Heavy rain and snowstorms ravaged central California, including the San Juaquin Valley and Fresno metropolitan area. The combination of locally heavy rains and poor drainage

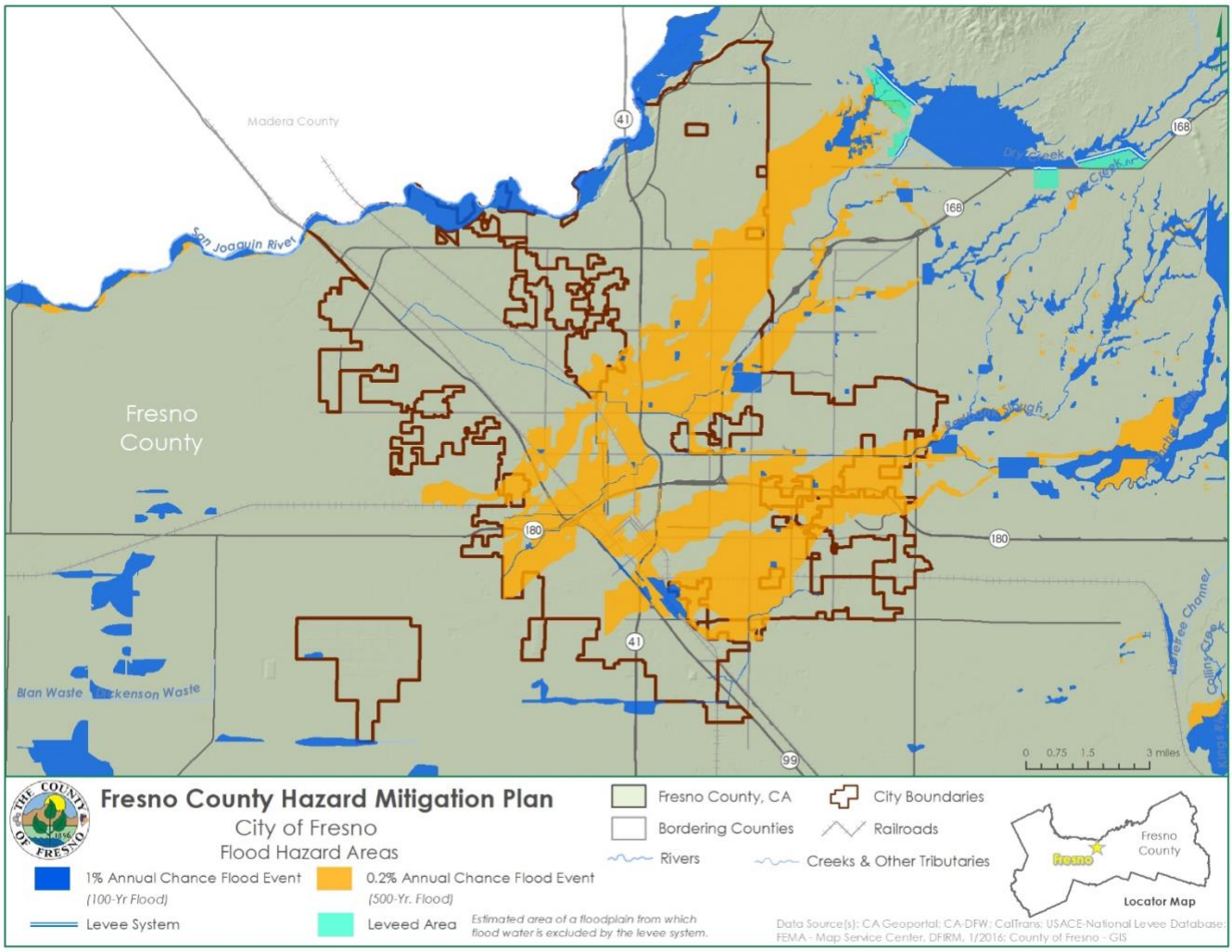
areas within the urban and suburban land lead to over $175,000 in property damage between December 18th and 19th.

- **December 29, 2010**: On the morning of the 29th, heavy rain across the San Joaquin Valley caused widespread urban and poor drainage flooding. Especially hard hit were the metro areas of Fresno, Visalia, and Bakersfield, and the adjacent foothills. Fresno had a record rainfall of 0.92 inch on the 28th, breaking the old record of 0.72 inch, set in 2004. The two-day total at Fresno-Yosemite International Airport was 1.54 inch, which pushed the December rainfall to 5.92 inches for the second wettest December on record for Fresno; the wettest December was in 1955, with 6.73 inches. It was also the coldest low of the year for Fresno, with temperatures dropping below 32 degrees. Property damage amounted to $125,000.
- **November 30, 2011**: Fresno set record high minimum temperatures on the last day of the month, establishing the total record for the sixth warmest November. This was also the fourth consecutive month that Fresno ranked in the top 10 warmest months. Fresno had a record rainfall on November 30th of 0.62 inch; the old record was 0.50 inch. As a result of the heavy rainfall, some rock and mud slides occurred as the moisture weakened the soil. Law enforcement reported a rock and mud slide on Highway 168 about 15 miles northeast of Clovis, which closed the road for several hours while authorities cleaned up the debris.
- **December 16, 2018**: A cold front that was associated with a moist upper trough pushed across central California on December 17. This system brought moderate to locally heavy rainfall from Fresno County northward the late evening of December through the morning of December 17 where several stations reported a half inch to an inch and a quarter of rainfall, and there were several reports of mainly nuisance flooding during this time. The precipitation mainly fell as snow above 6500 feet where several stations in the Southern Sierra Nevada north of Fresno County picked up between 3 and 6 inches of new snow. Further south the rainfall was less plentiful with most locations receiving between a few hundredths of an inch to a quarter of an inch of rain by the time the precipitation ended by early afternoon on December 17.

VALUES AT RISK

Following the methodology described in Section 4.3.2 Vulnerability of Fresno County to Specific Hazards, a flood map for the City of Fresno was created (see **Figure 6. City of Fresno Flood Hazard Areas**). **Table 10. City of Fresno's FEMA 1% Annual Chance Flood Hazard Property Type** and **Table 11. City of Fresno's FEMA 0.2% Annual Chance Flood Hazard by Property Type** summarize the values at risk in the City's 100-year and 500-year floodplain, respectively. These tables also detail loss estimates for each flood.

Figure 6. City of Fresno Flood Hazard Areas



Source: CA Geoportal; CA Geoportal; CA-DFW; CalTrans; USACE-National Levee Database; FEMA – Map Service Center, DFIRM, 1/2016; County of Fresno - GIS

Table 10. City of Fresno's FEMA 1% Annual Chance Flood Hazard Property Type

Property Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate
Agriculture	7	$2,946,135	$5,728,367	$8,674,502	$2,168,625.50
Apartments	105	$164,861,445	$31,921,659	$196,783,104	$49,195,776.00
Commercial	17	$2,728,412	$1,698,214	$4,701,726	$1,175,431.50
Condominium	9	$2,946,834	$1,001,664	$3,948,498	$987,124.50
Industrial	74	$253,466,476	$91,341,641	$347,777,017	$86,944,254.25
Mobile/Manufactured Home	1	$2,562,515	$2,959,024	$5,521,539	$1,380,384.75
Office/Professional Space	1	$300,900	$81,600	$382,500	$95,625.00
Primary Use Not Designated	80	$0	$0	$0	$0.00
Recreation	1	$164,951	$176,735	$341,686	$85,421.50
Single-Family Residence	187	$30,890,879	$12,724,102	$43,624,981	$10,906,245.25
Vacant	34	$1,040	$6,284,806	$6,285,846	$1,571,461.50
Unknown	1,004				
Total	**1,520**	**$460,869,587**	**$153,917,812**	**$618,041,399**	**$154,510,349.75**

Source: Fresno County Parcel and Assessor Data; 2009 FIRM

Table 11. City of Fresno's FEMA 0.2% Annual Chance Flood Hazard by Property Type

Property Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate
Agriculture	32	$5,495,613	$10,676,537	$16,172,150	$4,043,037.50
Apartments	3,113	$11,491,883,444	$2,307,538,758	$13,799,422,202	$3,449,855,550
Church	36	$26,935,989	$3,602,572	$30,755,561	$7,688,890.25
Commercial	1,003	$4,370,582,940	$958,255,679	$5,361,476,269	$1,340,369,067
Communications	1	$0	$3,458	$3,458	$864.50
Condominium	14	$34,466,814	$6,779,664	$41,246,478	$10,311,619.50
Group Housing/Lodging	25	$71,850,485	$15,170,699	$87,700,784	$21,925,196.00
Hospital	16	$341,363,536	$17,708,710	$359,072,246	$89,768,061.50
Industrial	159	$152,095,940	$35,261,197	$190,612,677	$47,653,169.25
Mobile/Manufactured Home	2	$2,701,780	$4,529,389	$7,231,169	$1,807,792.25
Office/Professional Space	361	$795,090,433	$241,409,256	$1,039,367,489	$259,841,872.25
Outlot & Common Area	1	$9	$14	$23	$5.75

Property Type	Parcel Count	Improved Value	Content Value	Total Value	Loss Estimate
Primary Use Not Designated	164	$0	$0	$0	$0.00
Recreation	1	$2,147,372	$418,318	$2,565,690	$641,422.50
School	8	$9,884,350	$2,386,174	$12,309,124	$3,077,281.00
Single-Family Residence	5,390	$673,165,551	$240,945,384	$914,127,235	$228,531,808.75
Vacant	359	$949,614	$45,393,715	$46,471,529	$11,617,882.25
Total	**10,685**	**$17,978,613,870**	**$3,890,079,524**	**$21,908,534,084**	**$5,477,133,521**

Source: Fresno County Parcel and Assessor data; FEMA 2009 FIRM

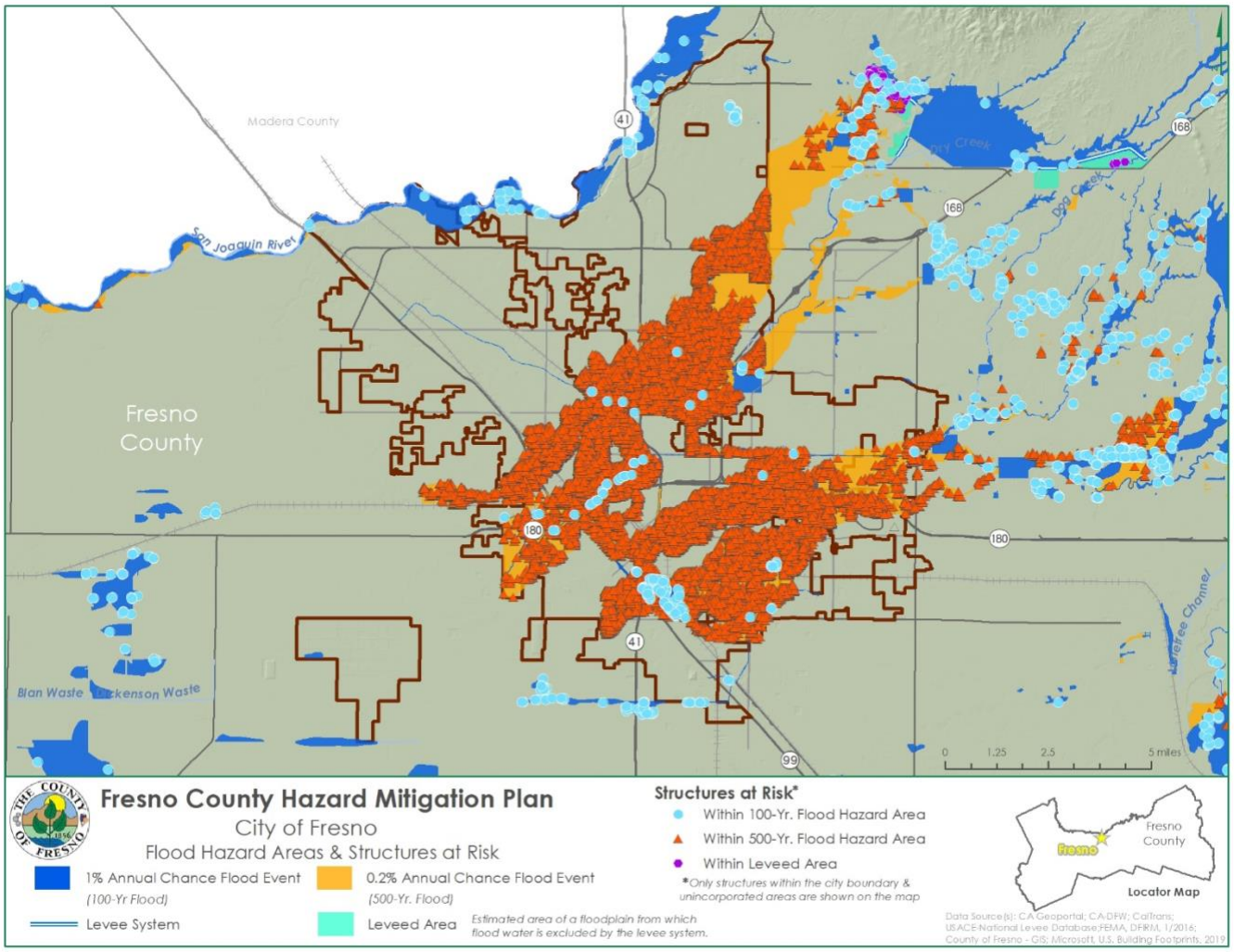
Based on this analysis, the City of Fresno has significant assets at risk to the 100-year and greater floods. There are 1,520 parcels within the 100-year floodplain for a total value of roughly $618 million, including building and content value. An additional 10,685 parcels valued at roughly $21.9 billion fall within the 500-year floodplain.

Applying the 25 percent damage factor as described in Section 4.3.2, there is a 1 percent chance in any given year of a 100-year flood causing roughly $$154 million in damage in the City of Fresno and a 0.2 percent chance in any given year of a 500-year flood causing roughly $5.48 billion in damage (combined damage from both floods).

Properties at risk to flooding are shown in relation to the mapped floodplains in Figure 16. City of Fresno's Properties at Risk in the 100- and 500-Year Floodplains.

Limitations: This model may include structures in the floodplains that are elevated at or above the level of the base-flood elevation, which will likely mitigate flood damage. Also, the assessed values are well below the actual market values. Thus, the actual value of assets at risk may be significantly higher than those included herein.

Figure 7. City of Fresno Flood Hazard Area Buildings at Risk



Source: CA Geoportal; CA-DFW; CalTrans; USACE National Levee Database, FEMA, DFIRM, 1/2016; County of Fresno – GIS, Microsoft, U.S. Building Footprints, 2019

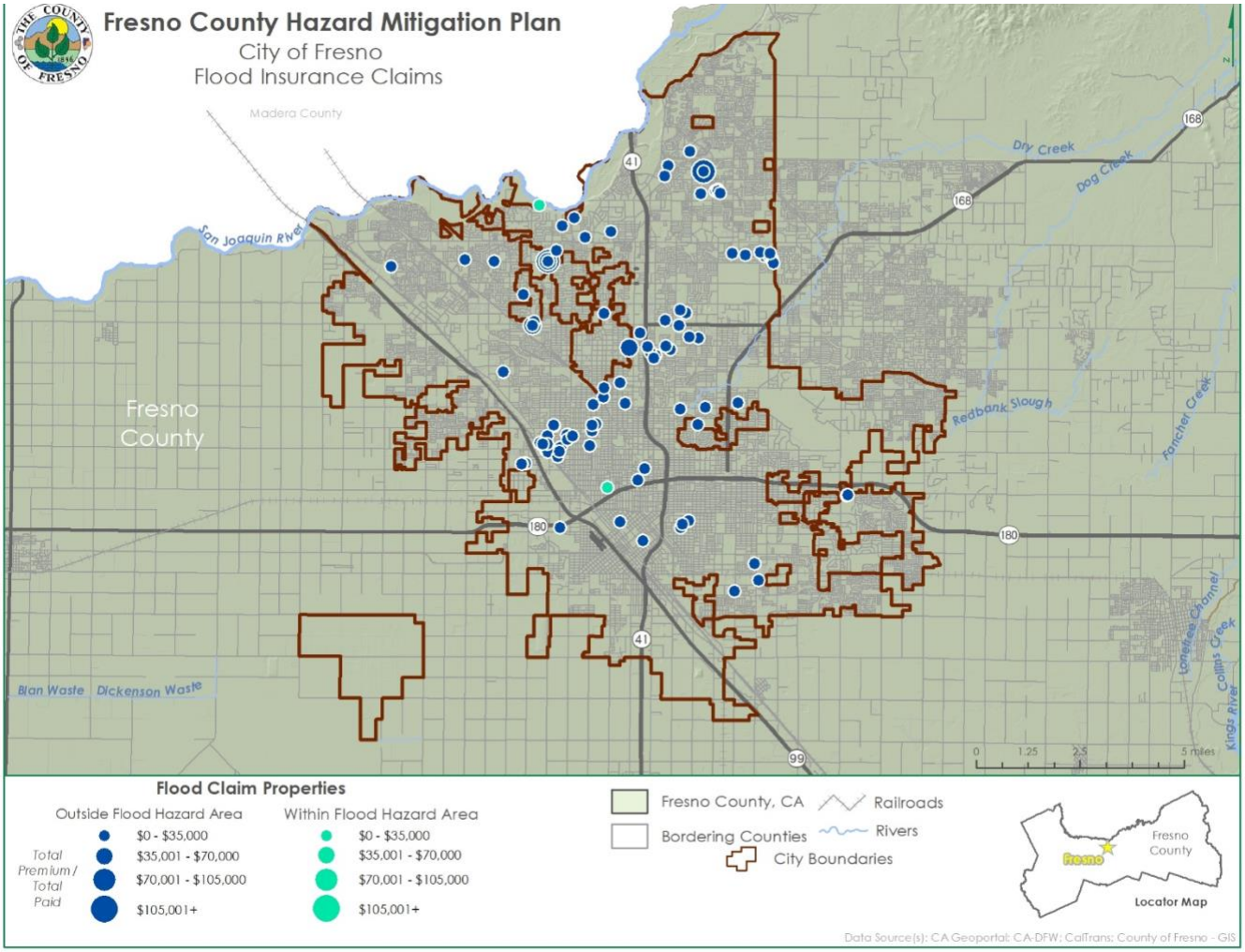
In addition to the 100-year and 500-year floodplains mapped by FEMA, the California Department of Water Resources maintains Best Available Maps (BAM) which include the floodplains in the Sacramento and San Joaquin River Basins, based on a study performed in 2002 by the U.S. Army Corps of Engineers (USACE). Though limited to the San Joaquin River as a flood source and thus not as comprehensive as the FEMA FIRM, the USACE study shows additional differentiation in flood risk by modeling the 200-year floodplain (the flood with a 0.5 percent annual chance of occurring).

INSURANCE COVERAGE, CLAIMS PAID, AND REPETITIVE LOSSES

The City of Fresno joined the National Flood Insurance Program (NFIP) on December 1, 1982. In addition to providing insurance for properties at risk of flooding, the program collects and publishes statistics on flood-related losses in participating jurisdictions.

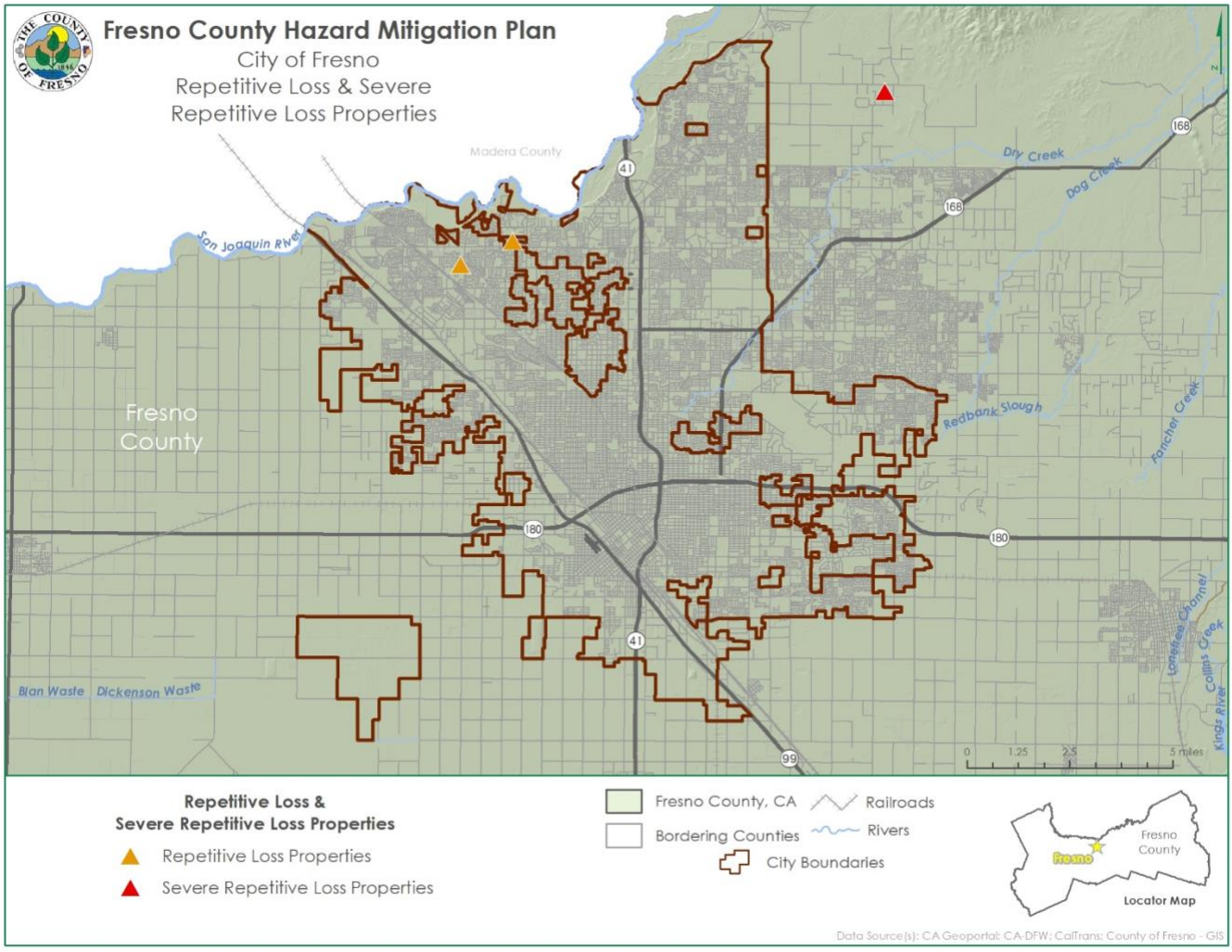
NFIP insurance data for the City of Fresno indicates that as of March 19, 2024, there were 182 flood insurance policies in force in the City with $126,073 in total premium or total paid. This coverage represents a decline of nearly 200 policies over the last decade. **Figure 8. Fresno County Flood Insurance Claims** displays where the flood claims were submitted across the City of Fresno.

Figure 8. Fresno County Flood Insurance Claims



There have been 148 historical claims for flood losses totaling $931,867.10; According to the FEMA Community Information System accessed March 19, 2024, there are two repetitive loss properties within the City of Fresno, shown in **Figure 9. City of Fresno Repetitive Loss and Severe Repetitive Loss Properties.**

Figure 9. City of Fresno Repetitive Loss and Severe Repetitive Loss Properties



Source: CA Geoportal; CA-DFW; CalTrans; County of Fresno - GIS

POPULATION AT RISK

Using census tract population values from the 2020 US Census, the planning team estimates that the following are at risk to flooding in the City of Fresno:

- 100-year flood—114,159 people
- 500-year flood— 79,527 people
- Total flood—193,686 people

CRITICAL FACILITIES AT RISK

Critical facilities are those community components that are most needed to withstand the impacts of disaster as previously described. **Table 12. Critical Facilities in the 100- and 500-Year Floodplains: City of Fresno** lists the critical facilities in the City's 100- and 500-year floodplains.

Table 12. Critical Facilities in the 100- and 500-Year Floodplains: City of Fresno

Critical Facility Type	100-Year Floodplain	500-Year Floodplain
Airport Facilities	-	1
Bus Facilities	-	1
Communications	-	4
Electric Power Facilities	-	1
EOC	-	1
Fire Stations		6
Medical Care Facilities	-	4
Police Stations	-	5
Railway Facilities	-	1
Schools	-	66
Total	**0**	**90**

Source: Fresno County, HIFLD 2017

HAZARDOUS MATERIALS INCIDENT (HIGH)

The following are the primary concerns for the City of Fresno related to hazardous materials release:

- Train derailments
- Kinder-Morgan pipeline
- Chevron petroleum pipelines
- Storage facilities

There have been 141 hazardous materials incidents from 2017-2022 that have occurred in the City of Fresno. Of the 141 incidents, there were 77 railroad non-release, 1 aircraft, 38 fixed, 8 mobile, 3 pipeline, 3 railroad, 10 storage tank, and 1 unknown sheen incident. There were 34 injuries, 24 hospitalizations, $350,000 in damages, 31 fatalities, and 395 evacuees during the time period. [3] There are 28 CalARP hazardous materials facilities located in the City of Fresno.

SEVERE WEATHER: WINDSTORM (MEDIUM)

Fresno's prevailing winds are typically light and from the northwest. High wind conditions are occasionally created by strong weather fronts. Occasionally, there are funnel clouds of low intensity. Past structural damage has been light, infrequent, and very limited in geographic extent. Injuries have been extremely rare. Most of this damage has occurred secondary to large trees being blown over. The City's design wind load, the level of wind force that new structures are required to be engineered to withstand, is 70 mph.

SOIL HAZARDS: LAND SUBSIDENCE (LOW)

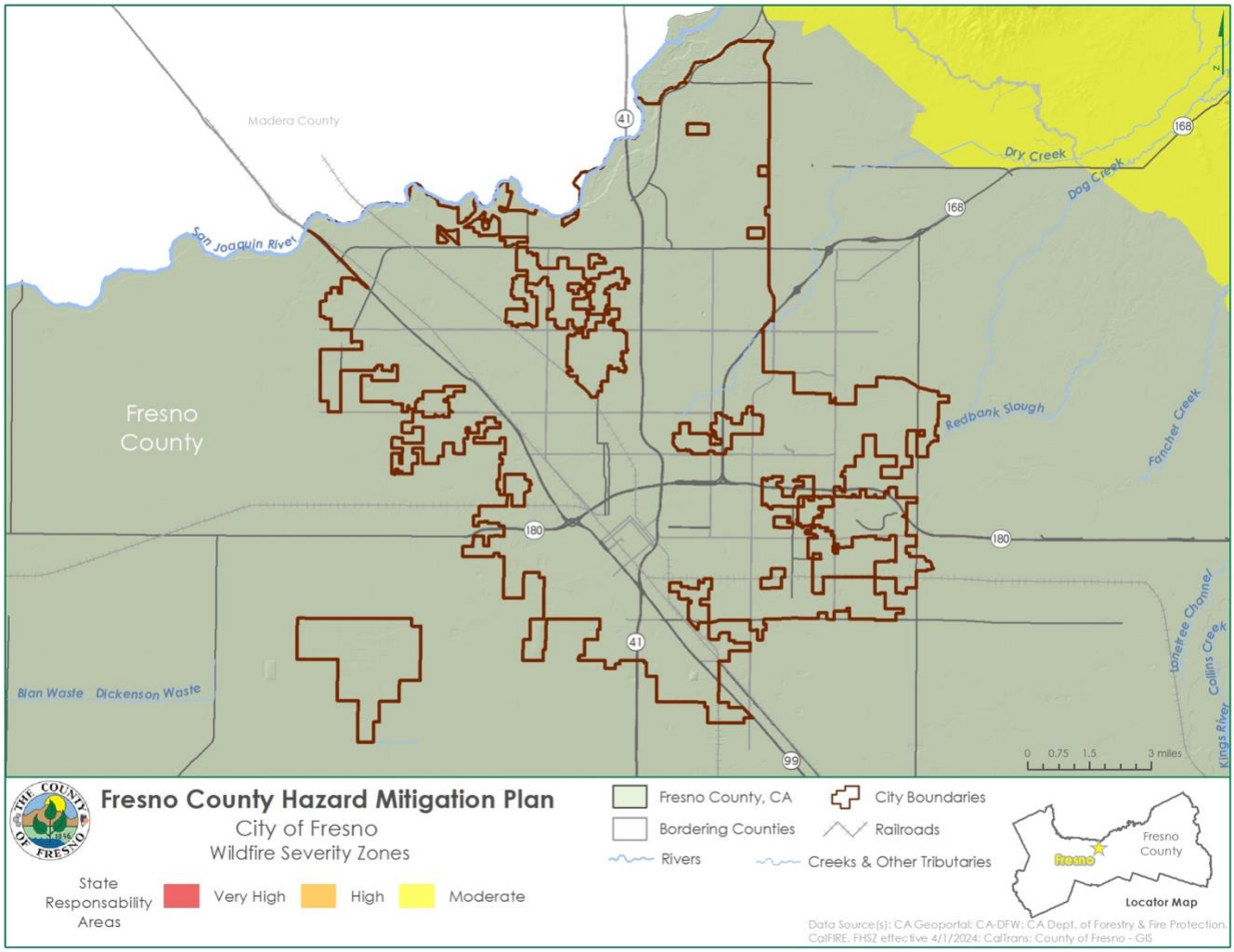
Despite long-term over-drafting of groundwater that has lowered the static water table under Fresno by as much as 100 feet over the past century, ground level subsidence has not been noted in the vicinity of the City (this is probably due to the geologic strata underlying the City, which features layers of clay and hardpan interleaved with sand and gravel layers).

WILDFIRE (HIGH)

Similar to many areas of the County, Fresno has high temperatures in the summer with low rainfall creating fire hazard conditions. There is some wildfire risk in the San Joaquin River Bluff area North of Fresno due to vegetation and steep slopes. However, the Wildfire Hazard Severity Zone outside of jurisdictional boundaries, shown in the figure below. In this recent 2024 update, the City noted during the planning process that wildfires pose a higher risk which is why the risk has increased from medium to high. There have been no known significant fires that have occurred in the past several years. Additionally, there are not any critical facilities in wildfire threat zones in the City of Fresno.

[3] California Environmental Protection Agency, California Accidental Release Prevention Program, 2017-2022

Figure 10. City of Fresno Wildfire Hazard Severity Zone



Source: CA Geoportal; CA-DFW; CA Department of Forestry and Fire Protection, CalFIRE ArcGIS Online Portal; CalTrans; County of Fresno - GIS

CAPABILITY ASSESSMENT

Capabilities are the programs and policies currently in use to reduce hazard impacts or that could be used to implement hazard mitigation activities. This capabilities assessment is divided into five sections: regulatory mitigation capabilities, administrative and technical mitigation capabilities, fiscal mitigation capabilities, mitigation outreach and partnerships, and other mitigation efforts.

To develop this capability assessment, the jurisdictional planning representatives used a matrix of common mitigation activities to inventory which of these policies or programs were in place. The team then supplemented this inventory by reviewing additional existing policies, regulations, plans, and programs to determine if they contributed to reducing hazard-related losses.

During the plan update process, this inventory was reviewed by the jurisdictional planning representatives and Witt O'Brien's consultant team to update information where applicable and note ways in which these capabilities have improved or expanded. Additionally, in summarizing current capabilities and identifying gaps, the jurisdictional planning representatives also considered their ability to expand or improve upon existing policies and programs as potential new mitigation strategies. The City of Fresno's updated capabilities are summarized below. A summary of the mitigation capabilities is summarized in the following table.

Table 13. City of Fresno Mitigation Capability Summary

Area	Degree of Capability		
	Limited	Moderate	High
Planning and Regulatory Capability			X
Administrative and Technical Capability			X
Fiscal Capability			X
Available Staff			X
Political Support/Interest			X
Community Support			X

REGULATORY MITIGATION CAPABILITIES

Table 14. City of Fresno's Regulatory Mitigation Capabilities lists regulatory mitigation capabilities, including planning and land management tools, typically used by local jurisdictions to implement hazard mitigation activities and indicates those that are in place in Fresno.

Table 14. City of Fresno's Regulatory Mitigation Capabilities

Tool/Program	In Place		Adopted/Updated	Under Development		Expect to Implement
	Yes	No		Yes	NO	
Building Codes (please indicate UCC or IBC + year)	X					
Community Emergency Response Team (CERT)		X				
Community Rating System (CRS Program of the NFIP)		X				
Emergency Management Accreditation Program (EMAP)		X				
Fire Code	X					
Firewise Community		X				
Floodplain Management/Flood Damage Prevention Ordinance		X				
Land Use/Development Planning	X					
National Flood Insurance Program (NFIP)	X					
Post Disaster Redevelopment/Reconstruction Plan/Ordinance		X				
Storm Ready	X					
Stormwater Management Plan/Ordinance	X					
Subdivision Regulations/Ordinance	X					
Two Weeks Ready						
Unified Development Ordinance		X				
Zoning Ordinance	X					

FRESNO GENERAL PLAN (ADOPTED DECEMBER 18, 2014)

The Fresno General Plan is forward-looking, comprehensive, and long-range. It supports the community's vision to preserve the desirable qualities that make the city of Fresno an ideal place to live, work, and play. The Plan recommends strategies to address prevalent existing conditions and

trends that impede achieving and maintaining greater human, community, environmental, and economic health and prosperity. The Plan envisions Fresno as a vibrant, growing city, infused with a sense of heritage and community. The primary purpose of a general plan is to outline a long-range vision for the physical development of the city that reflects the aspirations of the community. Since economic, social, transportation, environmental, public facilities and services, and other outcomes are interrelated with land use and development and are important to the community, the Plan includes applicable policies related to these complementary areas as well. The Plan presents a blueprint to guide economic development initiatives, as well as needed investments in improvements to increase competitiveness and promote economic growth. The general plan includes nine state mandated elements including land use, circulation, housing, conservation, noise, open space, safety, air quality and environmental justice. Relevant elements and information to the hazard mitigation plan are outlined below.

- **Goal 9**: Promote a city of healthy communities and improve quality of life in established neighborhoods.
  - Emphasize supporting established neighborhoods in Fresno with safe, well maintained, and accessible streets, public utilities, education and job training, proximity to jobs, retail services, health care, affordable housing, youth development opportunities, open space and parks, transportation options, and opportunities for home grown businesses.
- **Goal 12**: Resolve existing public infrastructure and service deficiencies, make full use of existing infrastructure, and invest in improvements to increase competitiveness and promote economic growth.
  - Emphasize the fair and necessary costs of maintaining sustainable water, sewer, streets, and other public infrastructure and service systems in rates, fees, financing and public investments to implement the General Plan. Adequately address accumulated deferred maintenance, aging infrastructure, risks to service continuity, desired standards of service to meet quality-of-life goals, and required infrastructure to support growth, economic competitiveness and business development.
- **Goal 16**: Protect and improve public health and safety.

Some of the elements of the General Plan also contain objectives and policies relevant to protecting human health and safety (e.g., supporting objectives and policies in the Public Utilities and Services Element direct that amendments to construction and fire codes to reduce the level of risk to life and property from fire commensurate with the City's fire suppression capabilities and that fire and police services be provided). Because the Noise and Safety Element is the portion of the General Plan most relevant to hazard mitigation, select objectives and policies are extracted and included below.

THE NOISE AND SAFETY ELEMENT

The Noise and Safety Element seeks to reduce deaths, injuries, illnesses, damage to property, and economic and social dislocation that could result from hazards. Of specific relevance to this plan, it addresses seismic and geologic conditions, flooding, hazardous materials, and emergency response.

Seismic and Geologic Hazards

Policy Number	Policy Description
NS-2	Objective: Minimize risks of property damage and personal injury posed by geologic and seismic risks.
NS-2a	Seismic Protection. Ensure seismic protection is incorporated into new and existing construction, consistent with the Fresno Municipal Code.
NS-2b	Soil Analysis Requirement. Identify areas with potential geologic and/or soils hazards, and require development in these areas to conduct a soil analysis and mitigation plan by a registered civil engineer (or engineering geologist specializing in soil geology) prior to allowing on-site drainage or disposal for wastewater, stormwater runoff, or swimming pool/spa water.
NS-2c	Landfill Areas. Require proposed land uses on or near landfill areas to be designed and maintained to comply with California Code of Regulations, Title 27, Section 21190, Post Closure Land Use.
NS-2d	Bluff Preservation Overlay Zone. Per the requirements of the Bluff Preservation Overlay Zone District and Policy POSS-7-f (Chapter 5, Parks and Open Space), the following standards shall be applicable for property located within the Bluff Preservation zone: • Require proposed development within 300 feet of the toe of the San Joaquin River bluffs to undertake an engineering soils investigation and evaluation report that demonstrates that the site is sufficiently stable to support the proposed development, or provide mitigations to provide sufficient stability; and • Establish a minimum setback of 30 feet from the San Joaquin River bluff edge for all buildings, structures, decks, pools and spas (which may be above or below grade), fencing, lighting, steps, etc. o An applicant may request to reduce the minimum setback to 20 feet from the bluff edge if it can be demonstrated, to the satisfaction of the City's Building Official and the Planning Director, that the proposed building, structure, deck, pool and/or spas (which may be above or below grade), fencing, steps, etc., will meet the objectives of the Bluff Preservation Overlay Ordinance. In no case shall the setback be reduced to less than 20 feet.

Flooding Hazards

Policy Number	Policy Description
NS-3	Objective: Minimize the risks to property, life, and the environment due to flooding and stormwater runoff hazards.
NS-3a	Stormwater Drainage and Flood Control Master Plan. Support the full implementation of the FMFCD Storm Drainage and Flood Control Master Plan, the completion of planned flood control and drainage system facilities, and the continued maintenance of stormwater and flood water retention and conveyance facilities and capacities. Work with the FMFCD to make sure that its Storm Drainage and Flood Control Master Plan is consistent with the General Plan.
NS-3b	Curb and Gutter Installation. Coordinate with Fresno Metropolitan Flood Control District (FMFCD) to install curbing, gutters, and other drainage facilities with priority to existing neighborhoods with the greatest deficiencies and consistent with the Storm Drainage and Flood Control Master Plan.
NS-3c	Dual Use Facilities. Support multiple uses of flood control and drainage facilities as follows: • Use, wherever practical, FMFCD facilities for groundwater management and recharge; and • Promote recreational development of ponding basin facilities located within or near residential areas, compatible with the stormwater and groundwater recharge functions.

Policy Number	Policy Description
NS-3d	Landscaped Buffer. City will support the development of FMFCD ponding basins including the landscaping and irrigation for the top one third of the side sloped areas consistent with the FMFCD Basin Design Criteria.
NS-3e	Pollutants. Work with FMFCD to prevent and reduce the existence of urban stormwater pollutants pursuant to the requirements of the National Pollution Discharge Elimination Systems Act.
NS-3f	Flooding Emergency Response Plans. Work with responsible agencies to update emergency dam failure inundation plans, evacuation plans and other emergency response plans for designated flood-prone areas, including the San Joaquin river bottom.
NS-3g	Essential Facilities Siting Outside of Floodplains. Avoid siting emergency response and essential public facilities, such as fire and police stations, within a 100-year floodplain, unless it can be demonstrated that the facility can be safely operated and accessed during flood events.
NS-3h	Runoff Controls. Implement grading regulations and related development policies that protect area residents from flooding caused by urban runoff produced from events that exceed the capacity of the Storm Drainage and Flood Control Master Plan system of facilities. Place all structures and/or flood-proofing in a manner that does not cause floodwaters to be diverted onto adjacent property, increase flood hazards to other property, or otherwise adversely affect other property.
NS-3i	New Development Must Mitigate Impact. Require new development to not significantly impact the existing storm drainage and flood control system by imposing conditions of approval as project mitigation, as authorized by law. As part of this process, closely coordinate and consult with the FMFCD to identify appropriate conditions that will result in mitigation acceptable and preferred by FMFCD for each project. Commentary: The City recognizes the expertise and significant role of the FMFCD, and will give the highest deference to its recommendations for mitigation measures, consistent with applicable law.
NS-3j	National Flood Insurance Program. Continue to participate in the National Flood Insurance Program (NFIP) by ensuring compliance with applicable requirements. Review NFIP maps periodically to determine if areas subject to flooding have been added or removed and make adjustments to the Land Use Diagram Figure LU-1.
NS-3k	100-Year Floodplain Policy. Require developers of residential subdivisions to preserve those portions of development sites as open space that may be subject to 100-year flood events, unless the flood hazard can be substantially mitigated by development project design.
NS-3l	200-Year Floodplain Protection. Promote flood control measures that maintain natural conditions within the 200-year floodplain of rivers and streams and, to the extent possible, combine flood control, recreation, water quality, and open space functions. Discourage construction of permanent improvements that would be adversely affected by periodic floods within the 200-year floodplain, particularly in the San Joaquin river bottom.
NS-3m	Flood Risk Public Awareness. Continue public awareness programs to inform the general public and potentially affected property owners of flood hazards and potential dam failure inundation. Remind households and businesses located in flood-prone areas of opportunities to purchase flood insurance.
NS-3n	Precipitation Changes. Work with FMFCD to evaluate the planned and existing stormwater conveyance system in light of possible changes to precipitation patterns in the future.

Hazardous Materials

Policy Number	Policy Description

NS-4	Minimize the risk of loss of life, injury, serious illness, and damage to property resulting from the use, transport, treatment, and disposal of hazardous materials and hazardous wastes.
NS-4a	Processing and Storage. Require safe processing and storage of hazardous materials, consistent with the California Building Code and the Uniform Fire Code, as adopted by the City.
NS-4b	Coordination. Maintain a close liaison with the Fresno County Environmental Health Department, Cal-EPA Division of Toxics, and the State Office of Emergency Services to assist in developing and maintaining hazardous material business plans, inventory statements, risk management prevention plans, and contingency/emergency response action plans.
NS-4c	Soil and Groundwater Contamination Reports. Require an investigation of potential soil or groundwater contamination whenever justified by past site uses. Require appropriate mitigation as a condition of project approval in the event soil or groundwater contamination is identified or could be encountered during site development.
NS-4d	Site Identification. Continue to aid federal, State, and County agencies in the identification and mapping of waste disposal sites (including abandoned waste sites), and to assist in the survey of the kinds, amounts, and locations of hazardous wastes.
NS-4e	Compliance with County Program. Require that the production, use, storage, disposal, and transport of hazardous materials conform to the standards and procedures established by the County Division of Environmental Health. Require compliance with the County's Hazardous Waste Generator Program, including the submittal and implementation of a Hazardous Materials Business Plan, when applicable.
NS-4f	Hazardous Materials Facilities. Require facilities that handle hazardous materials or hazardous wastes to be designed, constructed, and operated in accordance with applicable hazardous materials and waste management laws and regulations.
NS-4g	Hazmat Response. Include policies and procedures appropriate to hazardous materials in the City's disaster and emergency response preparedness and planning, coordinating with implementation of Fresno County's Hazardous Materials Incident Response Plan.
NS-4g	Hazmat Response. Include policies and procedures appropriate to hazardous materials in the City's disaster and emergency response preparedness and planning, coordinating with implementation of Fresno County's Hazardous Materials Incident Response Plan.
NS-4h	Household Collection. Continue to support and assist with Fresno County's special household hazardous waste collection activities, to reduce the amount of this material being improperly discarded.
NS-4i	Public Information. Continue to assist in providing information to the public on hazardous materials.

Emergency Response

Policy Number	Policy Description
NS-6	Objective: Foster an efficient and coordinated response to emergencies and natural disasters.
NS-6a	County Multi-Jurisdiction Hazard Mitigation Plan. Adopt and implement the Fresno County Multi-Jurisdiction Hazard Mitigation Plan and City of Fresno Local Hazard Mitigation Plan Annex. Commentary: The federal Disaster Mitigation Act of 2000 requires that cities, counties, and special districts have a Local Hazard Mitigation Plan to be eligible to receive FEMA hazard mitigation funds. Cities and counties can adopt and use all or part of a regional multi-jurisdictional plan, such as the one prepared by Fresno County, in lieu of preparing all or part of a Local Hazard Mitigation Plan.
NS-6b	Disaster Response Coordination. Maintain coordination with other local, State, and Federal agencies to provide coordinated disaster response.

NS-6c	Emergency Operations Plan. Update the City's Emergency Operations Plan periodically, using a whole community approach which integrates considerations for People with access and functional needs in all aspects of planning.
NS-6d	Evacuation Planning. Maintain an emergency evacuation plan in consultation with the Police and Fire Departments and other emergency service providers, which shows potential evacuation routes and a list of emergency shelters to be used in case of catastrophic emergencies. Commentary: The evacuation plan will be flexible in order to consider many scenarios and multiple modes of transportation beyond private automobiles. It will provide special provisions for disadvantaged populations, such as those with physical disabilities or those with low or very low incomes, and for areas with fewer resources through neighborhood emergency preparedness programs.
NS-6e	Critical Use Facilities. Ensure critical use facilities (e.g. City Hall, police and fire stations, schools, hospitals, public assembly facilities, transportation services) and other structures that are important to protecting health and safety in the community remain operational during an emergency. • Site and design these facilities to minimize their exposure and susceptibility to flooding, seismic and geological effects, fire, and explosions. • Work with the owners and operators of critical use facilities to ensure they can provide alternate sources of electricity, water, and sewerage in the event that regular utilities are interrupted in a disaster.
NS-6f	Emergency Vehicle Access. Require adequate access for emergency vehicles in all new development, including adequate widths, turning radii, hard standing areas, and vertical clearance.
NS-6g	Emergency Preparedness Public Awareness Programs. Continue to conduct programs to inform the general public, including people with access and functional needs, of the City's emergency preparedness and disaster response procedures.

FRESNO FLOODPLAIN ORDINANCE

The City of Fresno's Flood Plain Ordinance was revised in the late 1990s and formally adopted by the Fresno City Council on September 20, 2005. (In late 2007, the Fresno Municipal Code was republished with its chapters somewhat reorganized. There was no change in the text of the Flood Plain Ordinance at that time, but due to the reorganization of its content, its most recent adoption effective date is January 17, 2008.) The Fresno Flood Plain Ordinance is Article 6 of Chapter 11 of the Fresno Municipal Code.

The purpose of this ordinance is to promote the public health, safety, and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

- Protect human life and health;
- Minimize expenditure of public money for costly flood control projects;
- Minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- Minimize prolonged business interruptions;
- Minimize damage to public facilities and utilities such as water and gas mains; electric, telephone, and sewer lines; and streets and bridges located in areas of special flood hazard;
- Help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future blighted areas caused by flood damage;

- Ensure that potential buyers are notified that property is in an area of flood hazard; and
- Ensure that those who occupy the areas of special flood hazard assume responsibility for their actions.

In order to accomplish its purposes, the ordinance includes the following methods and provisions:

- Restrict or prohibit uses which are dangerous to health, safety, and property due to water or erosion hazards, or which result in damaging increases in erosion or flood heights or velocities
- Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction
- Control filling, grading, dredging, and other development which may increase flood damage
- Prevent or regulate the construction of flood barriers which will unnaturally divert flood water or which may increase flood hazards in other areas
- Control the alteration of natural flood plains, stream channels, and natural protective barriers, which help accommodate or channel floodwaters

This ordinance applies to all areas of special flood hazards within the jurisdiction of the City as identified by FEMA's Flood Insurance Study for Fresno County, California and incorporated areas dated September 30, 2005, with accompanying Flood Insurance Rate Maps, and all subsequent amendments and/or revisions. It appoints the building official to administer, implement, and enforce the ordinance by granting or denying development permits in accord with its provisions.

This ordinance includes the following standards of construction related to special flood hazard areas:

- Anchoring
- Construction materials and methods
- Elevation and floodproofing
- Residential construction
- Nonresidential construction
- Flood venting
- Standards for utilities
- Standards for subdivisions
- Standards for manufactured homes
- Standards for recreational vehicles
- Floodways
- Standards for storage of materials and equipment

In conjunction with Fresno's Drainage Fee Ordinance (Fresno Municipal Code Chapter 12, Article 19), which requires local grading and development to conform to the Fresno Metropolitan Flood Control District Master Drainage Plan and to provide proportionate shares of drainage infrastructure, the Fresno Flood Plain Ordinance and its preceding Flood Damage Prevention Ordinance have reduced flood damage losses in the City.

NATIONAL FLOOD INSURANCE PROGRAM/COMMUNITY RATING SYSTEM

The City of Fresno joined the National Flood Insurance Program (NFIP) on December 1, 1982. It has been a member of the Community Rating System (CRS) since October 1, 1992. The City's Floodplain Administrator duties are assigned to the building official. The Building and Safety Division of the Planning and Development Department works to improve the City's CRS rating, which determines the price paid for flood insurance policies issued in the jurisdiction. The rating is based on detailed biannual audits conducted by FEMA and/or a designee agency (currently, the California Department of Water Resources). The primary means of improving and maintaining a good CRS rating is through administration of the Fresno Flood Plain Ordinance. As part of its efforts to improve its community rating, the City of Fresno has hosted periodic FEMA Region IX NFIP/CRS training.

According to the FEMA Community Status Book Report, accessed on March 27, 2024, the City's current CRS rating is Class 8, which includes a 10 percent SFHA discount and 0.05 percent Non-SFHA discount.

SAN JOAQUIN RIVER BLUFF PRESERVATION ORDINANCE, 1980

After an interagency San Joaquin River Reconnaissance Plan was completed in the late 1970s, the City of Fresno adopted the San Joaquin River Bluff Specific Plan to preserve this important open space and habitat feature and to safeguard the bluff face, which is the most unstable geologic feature in the City. The San Joaquin River Bluff Specific Plan was later subsumed by the 1988 Bullard Community Plan, which carried forward protective policies for this area of Fresno.

The regulation of land use, development, and grading in this portion of Fresno is ongoing pursuant to the Bluff Preservation Ordinance. This ordinance, part of the City's zoning regulations, delineates an overlay zone district along the river bluff (the Bluff Preservation Overlay District), established allowable and prohibited land uses, and set forth conditions and requirements for using or modifying property in the district. The regulations of the district are deemed to be necessary for the preservation of the special qualities of the bluffs and for the protection of the health, safety, and general welfare of owners and users of property in the area.

The Bluff Preservation Ordinance is administered by the Fresno Development and Resource Management Department through its special permit process and grading plan checks. Anyone applying for a building permit is required to submit a site plan review with accompanying soil investigation and evaluation report (prepared by an appropriately licensed professional engineer or registered geologist). The Department's Code Enforcement Division also conducts periodic surveillance of bluff properties for grading and construction done without permits and institutes abatement actions when these conditions are discovered.

HAZARDOUS MATERIAL INCIDENT SAFEGUARDS

The Fresno Fire Department works with Fresno County Environmental Health to review hazardous material business plans that detail flammable, explosive, toxic, and otherwise hazardous materials used by businesses in the City. The Fire Department has its own permitting requirement for liquid and gaseous fuel tanks to ensure that they are installed and maintained safely. The City's Hazardous Materials Response Unit (housed in a City fire station) maintains the capability to quickly characterize material releases and spills, to evaluate risks to life and property, and to implement appropriate controls and evacuation measures.

FIRE PREVENTION POLICY

The City of Fresno has some of the most progressive and effective fire prevention policies and regulations in the nation relating to water supply (fire flow) required for development, ingress and egress from developed buildings and subdivisions, on-site automatic fire suppression systems (sprinkler and on-site private hydrants), building addressing to facilitate rapid emergency response, marking of unsafe buildings (those older structures with hazardous conditions or a lack of water supply), and instant aid/mutual aid with adjacent fire departments belonging to Fresno County special districts and the City of Clovis.

In addition to its extensive network of well-trained and well-equipped firefighting stations, the Fresno Fire Department has a Fire Prevention Bureau, under supervision of the City's fire marshal, to administer regulations adopted and referenced by the Fresno Municipal Code Chapter 6, Article 5 relating to fire prevention. The Fire Prevention Bureau carries out these responsibilities by conducting routine inspections of all public and commercial buildings, performing detailed development permit and construction plan checks, and investigating arson.

Another component of the City's overall fire protection program is the administration of its public nuisance ordinances to require properties to be kept clean and free of flammable debris and to annually abate weeds and overgrown vegetation before these materials can dry out in the spring to pose a wildfire hazard (Fresno Municipal Code Chapter 10, Article 6 relating to public nuisance abatement). The Planning and Development Department Code Enforcement Division and Department of Public Utilities Community Sanitation Division coordinate their efforts to enforce the nuisance abatement regulations and provide cleanup services when property owners do not take care of matters themselves.

PLANNING MITIGATION CAPABILITIES

Figure X identifies the plans related to mitigation and loss prevention in Fresno.

Table 15. City of Fresno Planning Capabilities

Regulatory Tool	In Place Yes/No	Under Development Yes/No	Comments
Capital Improvement Plan (CIP)	Yes		
Climate Resiliency or Adaptation Plan	No		

Regulatory Tool	In Place Yes/No	Under Development Yes/No	Comments
Community Wildfire Protection Plan (CWPP)	No		
Comprehensive Emergency Management Plan	No		
Comprehensive Land Use Plan (or General, Master, or Growth Management Plan)	Yes	Yes	Expected completion 12/2024
Continuity of Operations Plan (COOP)	No		
Disaster Recovery Plan	No		
Economic Development Plan	No		
Emergency Operations Plan (EOP)	No		
Evacuation Plan	No		
Flood Response Plan	No		
Floodplain Management Plan/Flood Mitigation Plan	No		
Hazard Mitigation Plan	No		
Historic Preservation Plan	No		
Natural Resources Protection Plan (NRPP)	No		
Open Space Management Plan (Parks and Rec/Greenway Plan)	No		
Threat Hazard Identification and Risk Assessment	No		

CITY OF FRESNO EMERGENCY OPERATIONS PLAN, 2015, UPDATED 2015

The City of Fresno Emergency Operations Plan (EOP) addresses the planned response to extraordinary emergency situations associated with natural disasters, technological incidents, excessive heat/cold, power outages, and national security emergencies in or affecting the City of Fresno. The Plan, which was updated in 2015, does the following:

- Establishes the emergency management organization required to mitigate any significant emergency or disaster affecting the City of Fresno.
- Identifies the policies, responsibilities, and procedures required to protect the health and safety of City communities, public and private property, and the environment from natural or technological disasters.
- Establishes the operational concepts and procedures associated with initial response operations to emergencies, the extended response operations, and the recovery process.

The EOP is designed to establish the framework for implementation of the California Standardized Emergency Management System/National Incident Management System for the City of Fresno, which is located within the California Governor's Office of Emergency Services' Mutual Aid Region V. It is intended to facilitate multi-agency and multi-jurisdictional coordination, particularly between the City of Fresno and the Fresno County Operational Area, including special districts and state agencies, in emergency operations. This plan will be used in conjunction with the Fresno County EOP and the State of California Emergency Plan. The plan is designed to guide the reader or user through each phase of an emergency: preparedness, response, recovery, and mitigation.

OTHER PLANS AND POLICIES

Other hazard mitigation-related policies and plans in place in and observed by the City of Fresno include the following:

- California Code of Regulations Title 23 administrative law for development and use of land in designated floodway areas along the San Joaquin River administered by the Central Valley Flood Protection Board, staffed by the California Department of Water Resources.
- Standards for constructing and maintaining drainage basins and ponds to prevent mosquito breeding and to provide for mosquito control district access for inspection and abatement activities (jointly promulgated by the Planning and Development Department and Public Works Department in fall of 2005).
- Dam failure inundation plans prepared and administered by the U.S. Bureau of Reclamation, the U.S. Army Corps of Engineers, Fresno Metropolitan Flood Control District, Southern California Edison, and Pacific Gas and Electric Company.
- The California Environmental Quality Act, overseen by the Fresno City Attorney's Office and administered by several City departments, requires consideration of health and safety impacts as they may relate to projects, which are defined as any action that may result in a change in the physical environment and that would include public facilities, and private development, and even adoption/amendment of land use plans and ordinances. An analysis of every project is conducted by the appropriate City department (the Development and Resource Management Department does the bulk of these analyses). Inquiries regarding project sites and features are distributed to departments and outside agencies that may have knowledge of, or which may regulate, aspects of the proposed project. The information obtained from these requests for comment and from other staff research is compiled into an informational document for decision-makers and the public. The information is also used to develop a list of mitigation actions to reduce or abate potential adverse impacts of the project. For those projects which may involve federal funds or require federal approvals, a parallel National Environmental Policy Act assessment is also prepared by the City.
- The Development and Resource Management Department administers regulations in the California Building Code and in Uniform Electrical, Plumbing, and Mechanical Codes as those codes are modified through adoption by the state and City. Plan check and inspection activities of the Department ensure structural soundness and compliance with seismic and other regulations.

ADMINISTRATIVE/TECHNICAL MITIGATION CAPABILITIES

Table 16. City of Fresno's Administrative and Technical Mitigation identifies the personnel responsible for activities related to mitigation and loss prevention in Fresno.

Table 16. City of Fresno's Administrative and Technical Mitigation

Staff and Personnel Resources	Yes	No	Department or Single Staff Member	Comments
Emergency Manager	X		City Manager	
Engineers or professionals trained in construction practices related to buildings and/or infrastructure	X		Public Works Director/City Engineering Firm	Engineers are contracted
Fiscal Management or Procurement Specialists	X		Finance Department	
Floodplain Manager		X		
Land Surveyors		X		
Land Use/Management/Development Planning	X		City Planning Firm	Planning firm contracted
Planners or engineers with an understanding of natural and/or human-caused hazards		X		
Resource Development Staff or Grant-writing		X		
Scientists familiar with the hazards of the community		X		
Staff experienced with Geographic Information Systems (GIS)		X		
Staff with education or expertise to assess the community's vulnerability to hazards		X		

FISCAL MITIGATION CAPABILITIES

Table 17. City of Fresno's Fiscal Mitigation Capabilities identifies financial tools or resources that the City could potentially use to help fund mitigation activities.

Table 17. City of Fresno's Fiscal Mitigation Capabilities

Staff or Personnel Resource	Never Used	Previously Used	Currently Used	Comments

Capital Improvement Programming	X			
Community Development Block Grants (CDBG)			X	
Special Purpose Taxes (or taxing districts)	X			
Gas/Electric Utility Fee	X			
Water/Sewer Fees			X	
Stormwater Utility Fees	X			
Development Impact Fees			X	
General Obligation, revenue, and/or Special Tax Bonds	X			
Partnering Agreements or Intergovernmental Agreements	X			
FEMA Hazard Mitigation Assistance Grants (HMGP, FMA, PDM)	X			
Homeland Security Grants (HSGP)		X		
USDA Rural Development Agency Grants		X		
US Economic Development Administration Grants	X			
Infrastructure Investment and Jobs Act (IIJA)	X			

MITIGATION OUTREACH AND PARTNERSHIPS

The Fresno Department of Public Utilities, in conjunction with other agencies, provides water conservation and stormwater quality protection public information programs. The Fire Department provides personal preparedness outreach for heat and freeze emergencies and shelter-in-place information for hazardous materials emergencies. Additionally, the City has developed public service announcements for smoke detector battery life, canal safety, and fireworks safety.

The City's Joint Information System disseminates information in Spanish, and the City can obtain translation services for other languages when necessary. A Joint Information Center plan is an annex to

the City of Fresno Emergency Operations Plan and provides comprehensive guidance for early warning notification in all languages and specifically the Americans with Disabilities Act (ADA) community.

Preparedness Exercises afford the opportunity to include the City of Fresno ADA Committee. Members of the committee and volunteers from the ADA community role play for realistic first responder training.

OTHER MITIGATION EFFORTS

- The City is a certified StormReady community through the National Weather Service.
- The Fire Department, Police Department, and Solid Waste Division are nationally accredited.
- The City has installed security systems for the wastewater treatment facility and for its surface water treatment plant. Generators are installed in critical groundwater pumping stations and these facilities are secured.

OPPORTUNITIES FOR ENHANCEMENT

Based on the capabilities assessment, the City of Fresno has several existing mechanisms in place that already help to mitigate hazards. In addition to these existing capabilities, there are also opportunities for the City to expand or improve on these policies and programs to further protect the community. Future improvements may include providing training for staff members related to hazards or hazard mitigation grant funding in partnership with the County and Cal OES. Additional training opportunities will help to inform City staff members on how best to integrate hazard information and mitigation projects into their departments. Continuing to train City staff on mitigation and the hazards that pose a risk to the City of Fresno will lead to more informed staff members who can better communicate this information to the public. In addition, the City could work to improve the CRS rating through additional floodplain management program enhancements. This could further lower the cost of flood insurance for residents.

MITIGATION STRATEGY

MITIGATION GOALS AND OBJECTIVES

The City of Fresno adopts the hazard mitigation goals and objectives developed by the HMPC and described in Chapter 5 Mitigation Strategy.

INCORPORATION INTO EXISTING PLANNING MECHANISMS

The information contained within this plan, including results from the Vulnerability Assessment, and the Mitigation Strategy will be used by the City to help inform updates and the development of local plans, programs and policies. The Public Works Department may utilize the hazard information when implementing Capital Improvement projects and the Planning and Development Department may utilize the hazard information when reviewing a site plan or other type of development applications. The City will also incorporate this LHMP into the Safety Element of their General Plan, as recommended by Assembly Bill (AB) 2140.

As noted in Chapter 7 Plan Implementation, the HMPC representatives from Fresno will report on efforts to integrate the hazard mitigation plan into local plans, programs and policies and will report on these efforts at the annual HMPC plan review meeting.

CONTINUED COMPLIANCE WITH THE NATIONAL FLOOD INSURANCE PROGRAM

In addition to the mitigation actions identified herein the City will continue to comply with the National Flood Insurance Program as specified in General Plan Policy NS-3-j:

“National Flood Insurance Program. Continue to participate in the National Flood Insurance Program (NFIP) by ensuring compliance with applicable requirements.”

MITIGATION ACTIONS

The planning team for the City of Fresno identified and prioritized the following mitigation actions based on the risk assessment. Background information as well as information on how each action will be implemented and administered, such as ideas for implementation, responsible office, partners, potential funding, estimated cost, and schedule are also included.

In addition to implementing the mitigation actions below the City of Fresno will be participating in the county-wide, multi-jurisdictional action of developing and conducting a multi-hazard seasonal public awareness program. The county-wide project will be led by the County in partnership with all municipalities and special districts. The City agrees to help disseminate information on hazards provided by the County. More information on the action can be found in the base plan Chapter 5 Mitigation Strategy (see Section 5.3.3 Multi-Jurisdictional Mitigation Actions, Action #1. Develop and Conduct a Multi-Hazard Seasonal Public Awareness Program).

1. ESTABLISH POST-DISASTER ACTION PLAN FOR CITY CONTINUITY OF OPERATIONS PLAN

Hazard(s) Addressed: Multi-Hazard: dam failure, earthquake, flood, severe weather, wildfire, hazardous materials

Issue/Background: Establish a post-disaster action plan to be part of the City of Fresno Continuity of Operations Plan (COOP) that will include the following elements:

- Procedures for public information
- Post-disaster damage assessment
- Grant writing
- Code enforcement
- Redundant operations

The plan will also include annexes from local businesses and large employers to improve economic and employment recovery. The plan will also identify a mechanism for the City to help businesses without COOPs develop a COOP to be incorporated, as an annex, into the City's Emergency Operations Plan.

Other Alternatives: No action

Responsible Office: City of Fresno Emergency Preparedness Officer

Priority (High, Medium, Low): High

Cost Estimate: $150,000

Potential Funding: Local funds, grants

Benefits (Avoided Losses): This will improve response/recovery during an event through pre-planning. A City COOP and local business COOPs will reduce the impact of a disaster to the local economy and employment.

Schedule: Long term

Status: 2009 project, implementation in progress

2. IMPROVE THE CITY'S CAPABILITIES FOR SHELTERING ANIMALS IN A DISASTER

Hazard(s) Addressed: Multi-Hazard: dam failure, earthquake, flood, severe weather, wildfire, hazardous materials

Issue/Background: During a disaster, not only do people need to be rescued, but their pets do also. Hurricane Katrina showed the nation that shelters do not typically allow pets, so pets may be left behind when their owners evacuate. The care of the animals left behind falls to local animal shelters. Currently, the SPCA Animal Shelter does not have the supplies to handle a large scale animal emergency. The

City has approximately 18,000 licensed dogs. If a disaster occurred, they would only be able to house a small percentage of them. Overcrowding of animals usually causes diseases and loss of animal life. Purchasing new cages would alleviate some of the overcrowding created by a disaster.

Other Alternatives: Ask other agencies for supplies, if they have them available.

Responsible Office: City of Fresno Emergency Preparedness Officer

Priority (High, Medium, Low): High

Cost Estimate: $50,000

Potential Funding: General fund

Benefits (Avoided Losses): This will cut down on the spread of disease and animal loss during an emergency or disaster.

Schedule: Short term

Status: 2009 project, implementation in progress

3. TRAIN AND CERTIFY CITY INSPECTORS TO CONDUCT POST-DISASTER DAMAGE ASSESSMENT

Hazard(s) Addressed: Multi-Hazard: dam failure, earthquake, flood, severe weather, wildfire, hazardous materials

Issue/Background: City inspectors play a vital role in post-disaster building assessment and damage assessment. Pre-training and certification is vital in response and recovery to reduce loss of life, relocate populations, and ensure the rebuilding of local economies.

Other Alternatives: No action

Responsible Office: City of Fresno Emergency Preparedness Officer and Planning and Development Department

Priority (High, Medium, Low): High

Cost Estimate: $250,000

Potential Funding: Grants

Benefits (Avoided Losses): This will improve response/recovery during an event through pre- training and certification of individuals responsible for performing assessment of structures and facilities impacted by disasters. Certification will also allow qualified staff to mobilize with the State of California Office of Emergency Services (Region 5) Urban Search and Rescue Task Force.

Schedule: Long term

Status: 2009 project, implementation not yet started

4. IMPLEMENT A FLOOD AWARENESS PROGRAM FOR THE PUBLIC

Hazard(s) Addressed: Flood

Issue/Background: The City needs a program to educate flood-prone property owners along the San Joaquin River and in frequent annual flooding areas about the flood threat and how best to prepare, mitigate, and insure their properties.

Other Alternatives: No action

Responsible Office: City of Fresno Emergency Preparedness Officer and Planning and Development Department

Priority (High, Medium, Low): Medium

Cost Estimate: $15,000/year

Potential Funding: General fund, grants

Benefits (Avoided Losses): This will prevent the loss of human life and economic and property losses.

Schedule: Long term

Status: 2009 project, implementation not yet started

5. SOUTHWEST FRESNO – RECYCLED WATER DISTRIBUTION SYSTEM CONSTRUCTION

Hazard(s) Addressed: Drought

Issue/Background: In 2009, the State of California adopted a recycled water policy establishing a mandate to increase the use of recycled water in California by 200,000 acre-feet per year by 2020 and an additional 300,000 acre-feet per year by 2030. The Recycled Water Master Plan prepared by the City of Fresno, Department of Public Utilities (DPU), identifies opportunities to assist with compliance of this law by reducing groundwater pumping and replacing groundwater with recycled water for non-potable purposes (i.e. outdoor irrigation, dust control, fountains, etc.). On April 11, 2013, the Council adopted the Recycled Water Master Plan and associated environmental documents.

In 2017, the DPU commissioned a 5 MGD Tertiary Treatment Facility at the Fresno-Clovis Regional Wastewater Treatment Facility. DPU is currently constructing a Recycled Water Distribution System in Southwest Fresno to deliver recycled water to parks, cemeteries, schools, agricultural uses, etc., to offset potable water irrigation demands. This will help mitigate drought by enabling the use of recycled water for certain uses instead of tapping potable water supplies.

Other Alternatives: DPU has a Water Shortage Contingency Plan (WSCP) which was updated in the City of Fresno's 2015 Urban Water Management Plan to manage water shortages including drought conditions. The WSCP consists of four stages allowing the City to ultimately reduce its water demand to a level commensurate with the water supplies available to a maximum reduction of 50 percent.

Responsible Office: City of Fresno Department of Public Utilities

Priority (High, Medium, Low): High

Cost Estimate: $75,000,000

Potential Funding: California State Water Resources Control Board – Clean Water State Revolving Fund

Benefits (Avoided Losses): Reduced ground water pumping by using recycled water for non- potable purposes.

Schedule: Ongoing

Status: 2018 project

6. SUSTAINABLE GROUNDWATER MANAGEMENT ACT COMPLIANCE INCLUDING GROUNDWATER SUSTAINABILITY PLANNING AND IMPLEMENTATION

Hazard(s) Addressed: Drought

I**ssue/Background**: The Kings subbasin underlays the City of Fresno and like many groundwater basins throughout the State, this subbasin is in overdraft condition with underground aquifers adversely impacted by overuse. Such impacts include significant decline in water storage and water levels, degradation of water quality, and land subsidence resulting in the permanent loss of storage capacity. The Sustainable Groundwater Management Act (SGMA) provides for the establishment of local Groundwater Sustainability Agencies (GSAs) to manage groundwater sustainability within groundwater subbasins defined by the California Department of Water Resources (DWR). The City of Fresno has become a joint power authority of the North Kings Groundwater Sustainability Agency, other members of the Agency include the County of Fresno, City of Kerman, City of Clovis, Biola Community Services District, Garfield Water District and International Water District. As a member of the North Kings GSA, the City of Fresno is required to participate in the development and implementation, no later than January 31, 2020, of a Groundwater Sustainability Plan (GSP) to ensure a sustainable yield of groundwater, without causing undesirable results. Failure to comply with that requirement could result in the State asserting its power to manage local groundwater resources. Participation in the North Kings GSA and the implementation of a GSP will allow the City to maintain sustainable groundwater supplies while providing insurance against periods of long-term drought, a high significance hazard for the City of Fresno.

Other Alternatives: None, compliance required by law, failure to meet requirements will result in State intervention and oversight.

Responsible Office: City Engineer and North Kings GSA

Priority (High, Medium, Low): High

Cost Estimate: Varies by GSA for preparation of the required GSP. Further expenses are anticipated to be accrued for the planning and construction of groundwater recharge projects.

Potential Funding: Property owner assessments along with grant funding opportunities from the State.

Benefits (Avoided Losses): Preparation and implementation of the GSP by the respective GSAs will result in the management of groundwater in a manner that is sustainable and avoids undesirable results as defined by the California State Department of Water Resources.

Schedule: GSAs must complete and submit the required GSP to DWR by January 31, 2020, which is to be fully implemented and result in sustainability of the groundwater basin, with no undesirable effects, by the year 2040.

Status: 2018 project

Attachment 3 Resolution Approving the WSCP

Resolution to be included following adoption.

Appendix J Notification Letters

J

City of
FRESNO
Department of Public Utilities

Administration
747 R. Street, 2nd Floor
Fresno, California 93721
559-621-8600
www.fresno.gov

March 30, 2026

ELECTRONIC MAIL and sent USPS

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

SUBJECT: NOTICE OF PREPARATION FOR CITY OF FRESNO 2025 URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN

Dear Mr. Bakman:

In accordance with the Urban Water Management Planning Act (California Water Code Section 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) to meet the California Department of Water Resources (DWR) requirements for a 2025 UWMP and WSCP.

Water Code section 10621(b) requires an urban water supplier updating its UWMP and WSCP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing, thereby encouraging public involvement and agency coordination. This letter serves as the City's notice that it is preparing and updating its 2025 UWMP and WSCP.

We invite your agency's participation in the City's preparation of the 2025 UWMP and WSCP. A draft of the updated 2025 UWMP and WSCP will be made available for public review in spring 2026 and a public hearing will be scheduled in June 2026 to hear public comments and consider adoption of the 2025 UWMP and WSCP. The City will notify you when the draft documents are released and of the date, time, and location of the subsequent public hearing.

Until that time, if you would like more input regarding the City's 2025 UWMP and WSCP, please contact Dejan Pavic, via email at Dejan.Pavic@fresno.gov or by phone at 559-621-1620.

Sincerely,

Dejan Pavic, PE
Water Resources Manager

City of
FRESNO
Department of Public Utilities

Administration
747 R. Street, 2nd Floor
Fresno, California 93721
559-621-8600
www.fresno.gov

March 30, 2026

ELECTRONIC MAIL and sent USPS

Scott Redelfs
City of Clovis Public Utilities
155 N. Sunnyside Ave
Clovis, CA 93611

SUBJECT: NOTICE OF PREPARATION FOR CITY OF FRESNO 2025 URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN

Dear Mr. Redelfs:

In accordance with the Urban Water Management Planning Act (California Water Code Section 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) to meet the California Department of Water Resources (DWR) requirements for a 2025 UWMP and WSCP.

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We invite your agency's participation in the City's preparation of the 2025 UWMP and WSCP. A draft of the updated 2025 UWMP and WSCP will be made available for public review in spring 2026 and a public hearing will be scheduled in June 2026 to hear public comments and consider adoption of the 2025 UWMP and WSCP. The City will notify you when the draft documents are released and of the date, time, and location of the subsequent public hearing.

Until that time, if you would like more input regarding the City's 2025 UWMP and WSCP, please contact Dejan Pavic, via email at Dejan.Pavic@fresno.gov or by phone at 559-621-1620.

Sincerely,

Dejan Pavic, PE
Water Resources Manager

City of
FRESNO
Department of Public Utilities

Administration
747 R. Street, 2nd Floor
Fresno, California 93721
559-621-8600
www.fresno.gov

March 30, 2026

ELECTRONIC MAIL and sent USPS

Felix Vaguilar
Fresno Irrigation District
2907 South Maple Ave
Fresno, CA 93725

SUBJECT: NOTICE OF PREPARATION FOR CITY OF FRESNO 2025 URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN

Dear Mr. Vaguilar:

In accordance with the Urban Water Management Planning Act (California Water Code Section 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) to meet the California Department of Water Resources (DWR) requirements for a 2025 UWMP and WSCP.

Water Code section 10621(b) requires an urban water supplier updating its UWMP and WSCP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing, thereby encouraging public involvement and agency coordination. This letter serves as the City's notice that it is preparing and updating its 2025 UWMP and WSCP.

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Until that time, if you would like more input regarding the City's 2025 UWMP and WSCP, please contact Dejan Pavic, via email at Dejan.Pavic@fresno.gov or by phone at 559-621-1620.

Sincerely,

Dejan Pavic, PE
Water Resources Manager

City of FRESNO
Department of Public Utilities

Administration
747 R. Street, 2nd Floor
Fresno, California 93721
559-621-8600
www.fresno.gov

March 30, 2026

ELECTRONIC MAIL and sent USPS

Peter Sanchez
Fresno Metropolitan Flood Control District
5469 East Olive Ave
Fresno, CA 93727

SUBJECT: NOTICE OF PREPARATION FOR CITY OF FRESNO 2025 URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN

Dear Mr. Sanchez:

In accordance with the Urban Water Management Planning Act (California Water Code Section 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) to meet the California Department of Water Resources (DWR) requirements for a 2025 UWMP and WSCP.

Water Code section 10621(b) requires an urban water supplier updating its UWMP and WSCP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing, thereby encouraging public involvement and agency coordination. This letter serves as the City's notice that it is preparing and updating its 2025 UWMP and WSCP.

We invite your agency's participation in the City's preparation of the 2025 UWMP and WSCP. A draft of the updated 2025 UWMP and WSCP will be made available for public review in spring 2026 and a public hearing will be scheduled in June 2026 to hear public comments and consider adoption of the 2025 UWMP and WSCP. The City will notify you when the draft documents are released and of the date, time, and location of the subsequent public hearing.

Until that time, if you would like more input regarding the City's 2025 UWMP and WSCP, please contact Dejan Pavic, via email at Dejan.Pavic@fresno.gov or by phone at 559-621-1620.

Sincerely,

Dejan Pavic, PE
Water Resources Manager

City of FRESNO
Department of Public Utilities

Administration
747 R. Street, 2nd Floor
Fresno, California 93721
559-621-8600
www.fresno.gov

March 30, 2026

ELECTRONIC MAIL and sent USPS

Steven White
Fresno County Public Works
2220 Tulare St, 6th Floor
Fresno, CA 93721

SUBJECT: NOTICE OF PREPARATION FOR CITY OF FRESNO 2025 URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN

Dear Mr. White:

In accordance with the Urban Water Management Planning Act (California Water Code Section 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) to meet the California Department of Water Resources (DWR) requirements for a 2025 UWMP and WSCP.

Water Code section 10621(b) requires an urban water supplier updating its UWMP and WSCP to notify cities and counties within its service area of the update at least sixty (60) days prior to holding a public hearing, thereby encouraging public involvement and agency coordination. This letter serves as the City's notice that it is preparing and updating its 2025 UWMP and WSCP.

We invite your agency's participation in the City's preparation of the 2025 UWMP and WSCP. A draft of the updated 2025 UWMP and WSCP will be made available for public review in spring 2026 and a public hearing will be scheduled in June 2026 to hear public comments and consider adoption of the 2025 UWMP and WSCP. The City will notify you when the draft documents are released and of the date, time, and location of the subsequent public hearing.

Until that time, if you would like more input regarding the City's 2025 UWMP and WSCP, please contact Dejan Pavic, via email at Dejan.Pavic@fresno.gov or by phone at 559-621-1620.

Sincerely,

Dejan Pavic, PE
Water Resources Manager

City of
FRESNO
Department of Public Utilities

Administration
747 R. Street, 2nd Floor
Fresno, California 93721
559-621-8600
www.fresno.gov

March 30, 2026

ELECTRONIC MAIL and sent USPS

Jason Phillips
Friant Water Authority
4969 E. McKinley Ave, Suite 201
Fresno, CA 93727

SUBJECT: NOTICE OF PREPARATION FOR CITY OF FRESNO 2025 URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN

Dear Mr. Phillips:

In accordance with the Urban Water Management Planning Act (California Water Code Section 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) to meet the California Department of Water Resources (DWR) requirements for a 2025 UWMP and WSCP.

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Sincerely,

Dejan Pavic, PE
Water Resources Manager

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559-621-8600
www.fresno.gov

March 30, 2026

ELECTRONIC MAIL and sent USPS

Nick Keller
Garfield Water District
PO Box 337
Clovis, CA 93613

SUBJECT: NOTICE OF PREPARATION FOR CITY OF FRESNO 2025 URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN

Dear Mr. Keller:

In accordance with the Urban Water Management Planning Act (California Water Code Section 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) to meet the California Department of Water Resources (DWR) requirements for a 2025 UWMP and WSCP.

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Sincerely,

Dejan Pavic, PE
Water Resources Manager

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www.fresno.gov

March 30, 2026

ELECTRONIC MAIL and sent USPS

Moises Ortiz
Malaga County Water District
3580 South Frank Street
Fresno, CA 93725-2511

SUBJECT: NOTICE OF PREPARATION FOR CITY OF FRESNO 2025 URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN

Dear Mr. Ortiz:

In accordance with the Urban Water Management Planning Act (California Water Code Section 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) to meet the California Department of Water Resources (DWR) requirements for a 2025 UWMP and WSCP.

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Sincerely,

Dejan Pavic, PE
Water Resources Manager

City of
FRESNO
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Administration
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www.fresno.gov

March 30, 2026

ELECTRONIC MAIL and sent USPS

Kassy D. Chauhan, PE
North Kings Groundwater Sustainability Agency
2907 S. Maple Avenue
Fresno, CA 93725

SUBJECT: NOTICE OF PREPARATION FOR CITY OF FRESNO 2025 URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN

Dear Mrs. Chauhan:

In accordance with the Urban Water Management Planning Act (California Water Code Section 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) to meet the California Department of Water Resources (DWR) requirements for a 2025 UWMP and WSCP.

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Sincerely,

Dejan Pavic, PE
Water Resources Manager

City of
FRESNO
Department of Public Utilities

Administration
747 R. Street, 2nd Floor
Fresno, California 93721
559-621-8600
www.fresno.gov

March 30, 2026

ELECTRONIC MAIL and sent USPS

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

SUBJECT: NOTICE OF PREPARATION FOR CITY OF FRESNO 2025 URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN

Dear Mr. Franklin:

In accordance with the Urban Water Management Planning Act (California Water Code Section 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) to meet the California Department of Water Resources (DWR) requirements for a 2025 UWMP and WSCP.

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Sincerely,

Dejan Pavic, PE
Water Resources Manager

City of
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Administration
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Fresno, California 93721
559-621-8600
www.fresno.gov

March 30, 2026

ELECTRONIC MAIL and sent USPS

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

SUBJECT: NOTICE OF PREPARATION FOR CITY OF FRESNO 2025 URBAN WATER MANAGEMENT PLAN AND WATER SHORTAGE CONTINGENCY PLAN

Dear Mr.Jackson:

In accordance with the Urban Water Management Planning Act (California Water Code Section 10610 to 10656), the City of Fresno (City) is required to update its Urban Water Management Plan (UWMP) and Water Shortage Contingency Plan (WSCP) to meet the California Department of Water Resources (DWR) requirements for a 2025 UWMP and WSCP.

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Until that time, if you would like more input regarding the City's 2025 UWMP and WSCP, please contact Dejan Pavic, via email at Dejan.Pavic@fresno.gov or by phone at 559-621-1620.

Sincerely,

Dejan Pavic, PE
Water Resources Manager

Appendix K Adopting Resolutions

K

Resolution to be included following adoption.