CITY OF COALINGA
The Sunny Side of the Valley

AMENDED
CITY COUNCIL/SUCCESSOR AGENCY/PUBLIC FINANCE AUTHORITY MEETING AGENDA

September 3, 2026
6:00 PM

The Mission of the City of Coalinga is to provide for the preservation of the community character by delivering quality, responsive City services, in an efficient and cost-effective manner, and to develop, encourage, and promote a diversified economic base in order to ensure the future financial stability of the City for its citizens.

Notice is hereby given that the City Council will hold a Meeting, on September 3, 2026 in the City Council Chambers located at 155 West Durian, Coalinga, CA. Persons with disabilities who may need assistance should contact the City Clerk at least 24 hours prior to this meeting at 935-1533 x113. Anyone interested in translation services should contact the City Clerk at least 24 hours prior to the meeting at 935-1533 x113. The Meeting will begin at 6:00 p.m. and the agenda will be as follows:

ZOOM WEBINAR INFORMATION

Join Zoom Meeting
https://us02web.zoom.us/j/9597261479?pwd=TkhDMkFWTnpraWkvbG84N3I4THVhQT09&omn=83467081371

Meeting chat link
https://us02web.zoom.us/launch/jc/83467081371

Meeting ID: 959 726 1479
Passcode: 3DCGUK

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Join by SIP
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1. CALL TO ORDER

1. Pledge of Allegiance
2. Changes to the Agenda
3. Council's Approval of Agenda

2. AWARDS, PRESENTATIONS, APPOINTMENTS AND PROCLAMATIONS (NONE)

3. CITIZEN COMMENTS

This section of the agenda allows members of the public to address the City Council on any item within the jurisdiction of the Council. Members of the public, when recognized by the Mayor, should come forward to the lectern, identify themselves and use the microphone. Comments are normally limited to three (3) minutes. In accordance with State Open Meeting Laws, no action will be taken by the City Council this evening and all items will be referred to staff for follow up and a report.

Citizen Comments submitted in writing to the City Clerk by 5:00pm on the day of the City Council meeting shall be distributed to the City Council and included in the record, however they will not be read.

4. PUBLIC HEARINGS

1. Public Hearing and Adoption of the City of Coalinga's 2025 Urban Water Management Plan and 2025 Water Shortage Contingency Plan

   Alfonso Manrique, AM Consulting Engineers
2. Public Hearing and Adoption of the City of Coalinga's Mitigated Negative Declaration Prepared for the Sanitary Sewer Collection System and WWTP Improvements Project

   Alfonso Manrique, AM Consulting Engineers & Travis Crawford, Crawford & Bowen Planning, Inc.

5. CONSENT CALENDAR

1. Check Register: 7/01/2026-7/31/2026
2. City Hiring and Recruitment Process – Informational Report
3. Authorization for the City Manager to Execute an Agreement with the California Department of Water Resources for the Construction, Operation, and Maintenance of a GPS Monitoring Station for Land Subsidence Monitoring
4. Adopt Resolution Nos. 4349, 4350, 4351, 4352, 4353, 4354, 4355, and 4363 Amending Employee Pay Scales to Reflect Previously Approved Compensation Adjustments for SEIU-Represented Employees, Police Department Non-Safety Employees, Emergency Medical Services Non-Safety Employees, Basic Non-Represented Employees, Department Heads, Assistant City Manager, AFL-CIO Local 2305 Firefighter/Paramedic Employees, and Fire Mid-Management Employees
5. Adopt Resolution No. 4358 Authorizing Investment of Monies in the Local Agency Investment Fund
6. Adopt Resolution No. 4357 Authorizing the City Manager to Sign the Updated Bank form to the City's bank accounts with US Bank
7. Adopt Resolution No. 4359 Authorizing Investment of Monies in the City's Managed

Investments Portfolio and Establishing Custodial and Signatory Authority

8. Authorize Police Recruit Sponsorship Program for Up to Two (2) Local Candidates and Approve the Use of Training Reimbursement Agreements
9. Council Authorizing the City Manager to Execute a Six-Month Extension of a Professional Services Agreement with Blais & Associates for Grant Consulting Services and Authorization to Issue a Request for Proposals for Said Services.
10. Approval of Updated Fire Station Lease with the Fresno County Fire Protection District
11. Authorize the City Manager to Execute a Long-Term Land Lease Agreement with Momentum Tactical, LLC for the Development and Use of Property at the New Coalinga Municipal Airport

6. ORDINANCE PRESENTATION, DISCUSSION AND POTENTIAL ACTION ITEMS

1. Discussion, Direction and Potential Action regarding the League of California Cities 2026 Annual Conference Resolution

   Sean Brewer, City Manager

7. ANNOUNCEMENTS

1. City Manager's Announcements
2. Councilmembers' Announcements/Reports
3. City Treasurer's Announcements
4. Mayor's Announcements

8. FUTURE AGENDA ITEMS

9. CLOSED SESSION

1. City Manager's Performance Evaluation - Government Code 54957(b).
2. CONFERENCE WITH LABOR NEGOTIATORS – Government Code 54957.6. CITY NEGOTIATORS: City Manager, Sean Brewer and City Attorney, Mario Zamora. EMPLOYEE (ORGANIZATIONS): General Employees, Non-Safety Employees, Firefighters Association, Non-Represented Group and Coalinga Police Officers Association
3. REAL PROPERTY NEGOTIATIONS - Government Code Section 54956.8. Conference with Real Property Negotiators. PROPERTY(S): 150 W. Elm Ave, Coalinga, CA and 270 S. 6th Street, Coalinga, CA 93210. CITY NEGOTIATOR: City Manager, Sean Brewer and City Attorney Mario Zamora; NEGOTIATING PARTIES: City of Coalinga, and Gimme Love Animal Shelter. UNDER NEGOTIATION: Price, Terms and Conditions of a Property Lease & Use Agreement

10. CLOSED SESSION REPORT

Closed Session: A "Closed" or "Executive" Session of the City Council, Successor Agency, or Public Finance Authority may be held as required for items as follows: personnel matters; labor negotiations; security matters; providing instructions to real property negotiators; legal counsel regarding pending litigation; and protection of records exempt from public disclosure. Closed session will be held in the Administration Building at 155 W. Durian Avenue and any announcements or discussion will be held at the same location following Closed Session.

11. ADJOURNMENT

STAFF REPORT - CITY COUNCIL/SUCCESSOR AGENCY/PUBLIC FINANCE AUTHORITY

Subject:	Public Hearing and Adoption of the City of Coalinga's 2025 Urban Water Management Plan and 2025 Water Shortage Contingency Plan
Meeting Date:	Thursday, September 3, 2026
From:	Sean Brewer, City Manager
Prepared by:	Jesse Barron, Assistant City Manager

I. RECOMMENDATION:

Staff recommends that the City Council conduct a public hearing to receive and consider public comments regarding the Draft 2025 Urban Water Management Plan (UWMP) and 2025 Water Shortage Contingency Plan (WSCP). Following the public hearing, if no substantive changes are required, adopt the attached Resolutions approving the 2025 UWMP and WSCP.

II. BACKGROUND:

The California Urban Water Management Planning Act requires urban water suppliers that provide water to more than 3,000 service connections or supply more than 3,000 acre-feet of water annually to prepare and adopt an Urban Water Management Plan every five years. The UWMP serves as a long-range water resource planning document and evaluates existing and projected water demands, available water supplies, water supply reliability, water conservation, drought preparedness, and other water management activities.

The City of Coalinga is an urban retail water supplier and previously adopted its 2020 UWMP and WSCP on March 3, 2022. The 2025 UWMP represents the City's required five-year update and has been prepared in accordance with the California Water Code (CWC) and Department of Water Resources' (DWR) 2025 Urban Water Management Plan Guidebook. The current DWR Guidebook establishes updated reporting requirements addressing water use, distribution system water loss, water supply characterization, water service reliability, drought risk, demand management, and the WSCP.

III. DISCUSSION:

The 2025 UWMP provides an updated evaluation of the City's water system, historical and current water use, projected demands, water supply availability and reliability, conservation programs, and drought preparedness through 2050. The City's potable water supply is provided through its Central Valley Project (CVP) water supply contract with the United States Bureau of Reclamation (USBR). Accordingly, the UWMP evaluates the reliability of the City's surface water supply under normal, single-dry, and multiple-dry-year conditions, considering CVP allocations, hydrologic and drought conditions, regulatory constraints, climate change, and the infrastructure used to convey and treat the City's water supply. The reliability assessment indicates that the City is capable of meeting projected water demands under normal conditions; however, reduced CVP allocations during prolonged drought conditions may require implementation of the shortage response actions identified in the City's WSCP.

The 2025 UWMP also evaluates the City's progress toward State water conservation and water-use efficiency requirements and documents the City's ongoing demand management measures. The updated WSCP establishes the framework the City will use to respond to actual or anticipated water shortages and incorporates the six standard water shortage levels required by the California Water Code, ranging from shortages of up to 10 percent to shortages greater than 50 percent. The WSCP identifies corresponding demand reduction measures, operational actions, communication procedures, monitoring, enforcement, and other actions that may be implemented in response to changing water supply conditions.

The Draft 2025 UWMP and WSCP were made available for public review, and required notices were

provided in accordance with the CWC. Following consideration of comments received during the public review period and public hearing, the City Council may adopt the 2025 UWMP and WSCP by resolution. Following adoption, the plans will be submitted to DWR and other required agencies and made available to the public in accordance with State requirements.

IV. ALTERNATIVES:

The City Council may direct staff to make revisions to the Draft 2025 UWMP and/or WSCP prior to adoption. If the requested revisions are substantive, adoption may need to be continued to a subsequent City Council meeting to allow the revisions to be completed and to ensure continued compliance with applicable CWC requirements.

V. FISCAL IMPACT:

There is no direct fiscal impact associated with adoption of the 2025 UWMP or the 2025 WSCP. Maintaining a current UWMP is required by the CWC and is generally a prerequisite for eligibility to receive grants, loans, and other financial assistance administered by DWR and other State funding agencies. Adoption of the 2025 UWMP and WSCP will maintain the City's compliance with State requirements and preserve eligibility for future water infrastructure funding opportunities.

ATTACHMENTS:

File Name	Description
Resolution_No._4361_Adoption_of_the_2025_UWMP.pdf	Resolution No. 4361
Resolution_No._4362_Adoption_of_the_2025_WSCP.pdf	Resolution No. 4362
City_of_Coalinga_DRAFT_2025_UWMP_August_2026.pdf	Draft 2025 UWMP

RESOLUTION NO. 4361

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF COALINGA ADOPTING THE 2025 URBAN WATER MANAGEMENT PLAN

WHEREAS, the Urban Water Management Planning Act (California Water Code Sections 10610 through 10656) requires every urban water supplier providing water for municipal purposes to more than 3,000 service connections or supplying more than 3,000 acre-feet of water annually to prepare and periodically update an Urban Water Management Plan (UWMP); and

WHEREAS, California Water Code Section 10621 requires urban water suppliers to review and update their UWMP every five years and submit the adopted Plan to the California Department of Water Resources (DWR); and

WHEREAS, the City of Coalinga is an urban water supplier as defined by California Water Code Section 10617 and previously adopted its 2020 Urban Water Management Plan on March 3, 2022; and

WHEREAS, the Draft 2025 Urban Water Management Plan has been prepared in accordance with the requirements of the Urban Water Management Planning Act and the California Department of Water Resources 2025 Urban Water Management Plan Guidebook; and

WHEREAS, pursuant to California Water Code Sections 10621 and 10642, the City provided notice of its intent to prepare the 2025 Urban Water Management Plan to the applicable public agencies, made the Draft 2025 Urban Water Management Plan available for public inspection, published notice of the public hearing in accordance with Government Code Section 6066, and provided notice of the hearing to the cities and counties within which the City provides water service; and

WHEREAS, a duly noticed public hearing was held by the City Council on September 3, 2026, during which all interested persons were given an opportunity to be heard and all comments received regarding the Draft 2025 Urban Water Management Plan were considered prior to adoption.

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

1. The foregoing recitals are true and correct and incorporated by reference.
2. The Council adopts the City of Coalinga 2025 Urban Water Management Plan.
3. The Council authorizes and directs the Assistant City Manager, or designee, to submit the adopted 2025 Urban Water Management Plan to the California Department of Water Resources, the California State Library, and all other agencies as required by California Water Code Section 10644, to make the adopted Plan available for public review, and to take all actions necessary to implement the requirements of the Urban Water Management Planning Act.

The foregoing resolution was introduced and adopted at a regular meeting of the City Council of the City of Coalinga held on the **3rd day of September, 2026**, by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

APPROVED:

_____

Nathan Vosburg, Mayor

ATTEST:

_____

Shannon Jensen, City Clerk

RESOLUTION NO. 4362

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF COALINGA ADOPTING THE 2025 WATER SHORTAGE CONTINGENCY PLAN

WHEREAS, the Urban Water Management Planning Act (California Water Code Sections 10610 through 10656) requires every urban water supplier providing water for municipal purposes to more than 3,000 service connections or supplying more than 3,000 acre-feet of water annually to prepare and periodically update an Urban Water Management Plan (UWMP); and

WHEREAS, California Water Code Section 10632 requires each urban water supplier to prepare and adopt a Water Shortage Contingency Plan (WSCP) that establishes the actions the supplier will undertake to respond to water shortages and catastrophic water supply interruptions; and

WHEREAS, the City of Coalinga is an urban water supplier as defined by California Water Code Section 10617 and previously adopted its 2020 Water Shortage Contingency Plan on June 8, 2022; and

WHEREAS, the Draft 2025 Water Shortage Contingency Plan has been prepared in accordance with the requirements of the Urban Water Management Planning Act and the California Department of Water Resources 2025 Urban Water Management Plan Guidebook; and

WHEREAS, the 2025 Water Shortage Contingency Plan establishes six standard water shortage levels, identifies corresponding demand reduction actions, response measures, communication procedures, enforcement provisions, annual water supply assessment procedures, and actions to address catastrophic water supply interruptions in accordance with California Water Code Section 10632; and

WHEREAS, pursuant to California Water Code Sections 10621 and 10642, the City provided notice of its intent to prepare the 2025 Urban Water Management Plan and Water Shortage Contingency Plan to the applicable public agencies, made the Draft Water Shortage Contingency Plan available for public inspection, published notice of the public hearing in accordance with Government Code Section 6066, and provided notice of the hearing to the cities and counties within which the City provides water service; and

WHEREAS, a duly noticed public hearing was held by the City Council on September 3, 2026, during which all interested persons were given an opportunity to be heard and all comments received regarding the Draft 2025 Water Shortage Contingency Plan were considered prior to adoption.

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

1. The foregoing recitals are true and correct and incorporated by reference.
2. The Council adopts the City of Coalinga 2025 Water Shortage Contingency Plan.
3. The Council authorizes and directs the Public Works Director, or designee, to submit the adopted 2025 Water Shortage Contingency Plan to the California Department of Water Resources in accordance with California Water Code Section 10644, make the adopted Plan available for public review, and take all actions necessary to implement the requirements of the Urban Water Management Planning Act and the Water Shortage Contingency Plan.

The foregoing resolution was introduced and adopted at a regular meeting of the City Council of the City of Coalinga held on the **3rd day of September, 2026**, by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

APPROVED:

_____

Nathan Vosburg, Mayor

ATTEST:

_____

Shannon Jensen, City Clerk

CITY OF COALINGA

DRAFT 2025 URBAN WATER MANAGEMENT PLAN

August 2026

Prepared by:

AM Consulting Engineers, Inc – 5150 N Sixth Street, Suite 124 – Fresno CA 93710 – P: 559.473.1371 – F: 559.513.8449

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ABBREVIATIONS

AF	Acre-Feet
AWS	Alternative Water Supply
ACS	American Community Survey
AWSDA	Annual Water Supply and Demand Assessment
AB	Assembly Bill
BMP	Best Management Practice
CIMIS	California Irrigation Management Information System
CWC	California Water Code
City	City of Coalinga
Census	United States Census Bureau
DMM	Demand Management Measure
DWR	Department of Water Resources
DDW	Division of Drinking Water
DRA	Drought Risk Assessment
EAR	Electronic Annual Report
ERP	Emergency Response Plan
ET_o	Evapotranspiration
GAL	Gallons
GPCD	Gallons per Capita Day
GPM	Gallons per Minute
CCF	Hundred Cubic Feet
kWh	Kilowatt-Hour
kWh/MG	Kilowatt-Hours per Million Gallons
MHI	Median Household Income
MG	Million Gallons
MGD	Million Gallons per Day
MG/L	Milligrams per Liter
MF	Microfiltration
ml/l-hr	Milliliter per Liter Hour

PWS	Public Water System
SB	Senate Bill
SWRCB	State Water Resources Control Board
UWMP	Urban Water Management Plan
UWMPA	Urban Water Management Plan Act
UWUO	Urban Water Use Objective
WUEdata	Water Use Efficiency Data
WSCP	Water Shortage Contingency Plan
WWTP	Wastewater Treatment Plant
WRCC	Western Regional Climate Center

EXECUTIVE SUMMARY

The City of Coalinga (City) has prepared this 2025 Urban Water Management Plan (UWMP) in accordance with the requirements of the California Department of Water Resources (DWR) for all urban water suppliers that provide water for municipal purposes to more than 3,000 customers within the State of California. This 2025 UWMP has been prepared to be consistent with the California Water Code (CWC) and the Urban Water Management Plan Guidebook 2025.

The 2025 UWMP will be adopted by the City Council of the City of Coalinga following a duly noticed public hearing and submitted to DWR within 30 days of adoption, in compliance with statutory requirements.

The following sections of this Executive Summary provide an accessible overview of the key components of each chapter of the Plan. Table ES-1 summarizes the content included in each chapter of the 2025 UWMP.

Table ES-1 Overview of the 2020 UWMP

Chapter	Information Within Chapter
Chapter 1 – Introduction and Lay Description	• Overview of UWMP requirements and purpose. • Plan organization and regulatory framework.
Chapter 2 – Plan Preparation	• Basis for plan preparation. • Coordination, outreach, and public participation.
Chapter 3 – System Description	• Description of the City of Coalinga's service area and water system. • Climate and hydrologic characteristics. • Current and projected population. • Socioeconomics and demographics
Chapter 4 – Water Use Characterization	• Historical and projected water use and demand. • Water loss and climate change considerations.
Chapter 5 – SB X7-7 Baselines, Targets, and Compliance	• Baseline and target per capita water use. • Demonstration of compliance with State requirements.
Chapter 6 – Normal-Year Water Supply Characterization	• Description of water supply sources, treatment facilities, and infrastructure. • Description of wastewater treatment and recycled water uses. • Expected future water projects. • Current and projected water supplies and recycled water uses. • Climate change and regulatory condition impacts to supplies.
Chapter 7 – Water Service Reliability and Drought Risk Assessment	• Evaluation of supply reliability under normal, single dry, and multiple dry year conditions. • Updated Drought Risk Assessment (DRA).
Chapter 8 – Water Shortage Contingency Plan	• Annual Water Supply and Demand Assessment procedures. • Water shortage stages and response actions. • Communication, enforcement, and emergency response planning.
Chapter 9 – Demand Management Measures	• Description of implemented and planned Demand Measurement Measures.
Chapter 10 – Plan Adoption, Submittal, and Implementation	• Procedures followed for 2025 UWMP noticing and adoption process. • Plan and amendment submittal process.

The City's 2025 UWMP is based on a calendar year reporting period, with 2025 spanning from January 1, 2025, through December 31, 2025. In accordance with UWMP requirements, the City reports actual water

supply and demand for 2025 and provides projections in five-year increments through 2050. These projections enable the City to evaluate long-term water supply reliability and identify potential impacts associated with population growth, climate variability, and evolving regional water supply conditions.

CHAPTER 1 – INTRODUCTION AND OVERVIEW

Water supply planning is a critical function of urban water suppliers, particularly as California continues to experience hydrologic variability, regulatory changes, and long-term climate change impacts. The UWMPA, enacted in 1983, established the requirement for urban water suppliers to prepare UWMPs and provides the framework for long-term water resources planning.

The UWMP serves as a key planning document that evaluates water supply availability, demand projections, and system reliability, while also informing the public, decision-makers, and regulatory agencies of the City's water management strategies. The 2025 UWMP assesses the City of Coalinga's ability to meet current and future water demands under normal, single dry, and multiple dry year conditions, consistent with CWC requirements.

The 2025 UWMP is intended to serve as a planning-level, adaptable document that can be updated as conditions change or new information becomes available. In coordination with the City's broader planning efforts, the UWMP will serve as a guiding framework for water resource management, conservation initiatives, and infrastructure planning throughout the upcoming planning cycle, with the next update scheduled for 2030.

CHAPTER 2 – PLAN PREPARATION

The City has prepared this 2025 UWMP in accordance with the UWMPA (CWC Sections 10610 through 10656). This Plan summaries the City's projected retail water demands and characterizes the available water supplies to meet those demands through the planning horizon. It also evaluates water supply reliability and describes the City's Water Shortage Contingency Plan (WSCP) for responding to drought conditions and potential catastrophic supply interruptions.

As detailed in Chapter 2, the City has coordinated with surrounding water management agencies, public agencies, and the community during preparation of this 2025 UWMP. Prior to the public hearing and adoption, the draft UWMP was made available for public review at the City of Coalinga City Hall, located at 155 West Durian, Coalinga, CA 93210 and on the City's website (Coalinga CA | Official Website). Following adoption, the final UWMP will continue to be available at City Hall and on the City's website in accordance with statutory requirements.

CHAPTER 3 – SYSTEM DESCRIPTION

Chapter 3 describes the City's potable water service area, which provides the foundation for the water use, supply reliability, and drought planning analyses presented throughout this UWMP. The City provides potable water service to an estimated 17,622 residents in 2025, in addition to commercial, industrial, institutional, and public customers located within the City's service area. Coalinga is situated in the Pleasant Valley at the western edge of California's Central Valley in southwestern Fresno County, adjacent to the Coast Range foothills. The City is located approximately 60 miles southwest of the City of Fresno and approximately 10 miles west of Interstate 5, providing an important regional connection between the

San Joaquin Valley and California's Central Coast. Monterey County borders the region to the west, while Kings County lies to the east

Chapter 3 also summarizes existing and projected population, along with key demographic, socioeconomic, service area's climate, and land use characteristics within the City's planning area. Population projections are based on the California Department of Finance 2025 population estimate and assume an average annual growth rate of approximately 2.77 percent, consistent with historical population trends. The City's population is projected to increase from approximately 17,622 persons in 2025 to 34,921 persons by 2050. These projections support long-term water demand forecasting, infrastructure planning, and evaluation of future water supply reliability throughout the UWMP planning horizon.

Table ES-2 Population - Current and Projected (Submittal Table 3-1)

Population Served	2025	2030	2035	2040	2045	2050
	17,622	20,205	23,167	26,563	30,457	34,921

NOTES:
(1) Population projections are based on the 2025 California Department of Finance population estimate for the City of Coalinga service area and assume an average annual growth rate of approximately 2.77 percent.
(2)Projected population values are rounded to the nearest whole person.

CHAPTER 4 – WATER USE CHARACTERIZATION

Chapter 4 describes historical, current, and projected potable and non-potable water use within the Coalinga service area and provides the basis for evaluating future water demands. The chapter evaluates water use by customer sector, including single-family residential, multi-family residential, commercial, industrial, institutional/governmental, landscape irrigation, and distribution system water loss, while also accounting for the City's non-potable raw water deliveries to agricultural users. Historical and consumption records, combined with projected population growth, provide the foundation for estimating future water requirements. The water use projections presented in this chapter enable the City to effectively evaluate water resource needs, support long-term planning, and ensure continued reliable service to customers.

This chapter also evaluates historical water use trends and current water demand conditions, which are used to develop projected demands throughout the UWMP planning horizon. Demand projections incorporate anticipated population growth, historical usage patterns, and other relevant planning factors. These projected demands allow the City to assess future supply needs, plan capital improvements, and make informed infrastructure investment decisions. Projected water demands developed for the UWMP planning horizon are summarized in Table ES-3 and are used in subsequent chapters to evaluate long-term water supply reliability and drought resilience.

Table ES-3 Total Uses of Potable, and Non-Potable Water - Projected

Use Type	Additional Description	2025	2030	2035	2040	2045	2050
Single Family		440	505	579	664	761	872
Multi-Family		82	93	107	123	141	162

Table ES-3 Total Uses of Potable, and Non-Potable Water - Projected							
Use Type	**Additional Description**	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
Commercial		117	134	154	177	202	232
Industrial		33	37	43	49	57	65
Landscape		64	73	84	96	110	126
Institutional/Governmental	Coalinga State Hospital	78	92	92	92	92	92
Institutional/Governmental	Pleasant Valley State Prison	169	156	156	156	156	156
Distribution System Water Loss		299	247	247	247	247	247
Agricultural	Raw Surface Water Deliveries	1,067	1,067	1,067	1,067	1,067	1,067
	TOTAL	**2,349**	**2,405**	**2,529**	**2,671**	**2,833**	**3,020**

CHAPTER 5 – SB X7-7 BASELINES, TARGETS, AND 2020 COMPLIANCE

Chapter 5 documents the City's compliance with the Water Conservation Act of 2009 (SB X7-7), which established a statewide goal to reduce urban per capita water use by 20 percent by 2020. In accordance with these requirements, the City previously developed baseline water use and corresponding reduction targets, expressed in gallons per capita per day (GPCD), using approved DWR methodologies during previous UWMP cycles.

The City established its 2020 water use target using Method 1, which applies a 20 percent reduction to baseline water use. Based on this approach, the City adopted a 2020 target of 273 GPCD. As documented in this 2025 UWMP, the City achieved this target, with an actual 2020 water use of 214 GPCD.

CHAPTER 6 – NORMAL-YEAR WATER SUPPLY CHARACTERIZATION

Chapter 6 describes the City's existing and projected water supplies and the infrastructure used to reliably deliver potable water throughout the service area under normal-year conditions. The City relies exclusively on imported surface water from the United States Bureau of Reclamation's (USBR) Central Valley Project (CVP) pursuant to its long-term water service contract. Imported raw water is conveyed to the City's Water Treatment Plant (WTP), where it undergoes treatment before being distributed through the City's potable water system to residential, commercial, industrial, institutional, and governmental customers. In addition to its potable water system, the City also delivers untreated raw water to agricultural customers for irrigation purposes through a separate non-potable distribution system.

In addition, Chapter 6 summarizes the City's wastewater collection, treatment, and disposal system. Wastewater generated within the service area is collected and conveyed to the City's wastewater treatment facility, where treated effluent is managed through evaporation and percolation ponds in accordance with applicable regulatory requirements. Although the City does not currently operate a disinfected tertiary recycled water system or provide direct recycled water for beneficial reuse, treated effluent contributes incidental groundwater recharge through percolation, and future opportunities for

recycled water reuse will continue to be evaluated as part of the City's long-term water resource management strategy.

Finally, the chapter identifies planned water supply and system improvement projects intended to maintain long-term water supply reliability, operational resiliency, regulatory compliance, and the capacity necessary to meet projected customer demands through the year 2050. These projected normal-year supplies provide the basis for the water supply reliability analyses presented in Chapter 7 and support the City's long-term planning for continued delivery of safe and reliable water service

CHAPTER 7 – WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT

Water supply reliability describes the City's ability to provide adequate water supplies to meet customer demands under a range of hydrologic conditions. Chapter 7 evaluates the reliability of the City's water supplies to meet current and projected demands under normal-year, single dry-year, and multiple dry-year conditions through 2050, as required by the CWC. The assessment compares projected water supplies and water demands to identify potential supply shortages and evaluate the City's long-term water supply reliability.

The City relies exclusively on imported surface water supplied through its CVP contract with the USBR. Under normal-year and single dry-year conditions, available water supplies are projected to fully meet anticipated water demands throughout the planning horizon. Under extended multiple dry-year conditions, reduced CVP allocations are projected to result in water supply shortages during later years of the drought sequence. These projected shortages are expected to be addressed through implementation of the City's WSCP, including staged demand reduction measures and other drought response actions.

Chapter 7 also includes the City's updated Drought Risk Assessment (DRA), which evaluates the effects of a five-year drought on water supply reliability and identifies the demand reductions necessary to maintain a balanced supply and demand. The chapter further considers factors that may influence long-term water supply reliability, including climate change, regulatory requirements, and operational constraints affecting imported water deliveries. Collectively, these evaluations demonstrate that the City is well positioned to maintain reliable water service through proactive planning, annual water supply assessments, and implementation of the WSCP when drought conditions warrant

CHAPTER 8 – WATER SHORTAGE CONTINGENCY PLAN

Chapter 8 presents the City’s WSCP, which establishes a structured framework for responding to water supply shortages and emergency conditions. The WSCP is prepared in accordance with CWC requirements and identifies procedures and actions the City will implement to manage water supplies during shortages.

The WSCP includes defined water shortage levels, ranging from normal conditions to severe shortages, and identifies corresponding response actions for each level. These actions include demand reduction measures, supply augmentation strategies, operational adjustments, and mandatory water use restrictions, as appropriate to local conditions.

The chapter also describes the City’s Annual Water Supply and Demand Assessment (AWSDA) procedures, which are used to evaluate current supply conditions and determine whether a water shortage stage

should be declared. Communication protocols, compliance and enforcement mechanisms, and procedures for addressing catastrophic supply interruptions are also addressed.

The WSCP provides a proactive and flexible approach to managing water shortages, ensuring that the City can protect public health and safety, maintain essential services, and minimize impacts to customers during droughts and other emergency events.

CHAPTER 9 – DEMAND MANAGEMENT MEASURES

Chapter 9 describes the City's Demand Management Measures (DMMs), which are implemented to promote water use efficiency and support long-term water supply reliability. These measures are consistent with CWC requirements and reflect the City's ongoing commitment to water conservation.

The chapter summarizes the City's Demand Management Measures implemented over the past five years, as well as ongoing and planned conservation programs. These measures include water waste prevention ordinances, universal metering, conservation-oriented water rates, public education and outreach, distribution system water loss management, water conservation program coordination, and additional conservation programs such as the Greywater Rebate Program and Turf Replacement Program. The chapter also describes the City's continued efforts to improve system efficiency through meter replacement, proactive maintenance, and implementation of water-saving practices.

The City's demand management efforts are intended to improve water use efficiency, reduce overall water demand, and support compliance with State water conservation requirements, including California's long-term urban water use efficiency standards. These programs also play an important role in maintaining reliable water supplies during drought conditions, improving system efficiency, and supporting the sustainable management of the City's water resources.

CHAPTER 10 – PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

Chapter 10 describes the procedures followed by the City for the public review, adoption, and submittal of the 2025 UWMP, in accordance with CWC requirements. The City provided notice of UWMP preparation to applicable agencies and made the draft Plan available for public review prior to a duly noticed public hearing. Following the public hearing, the City Council of the City of Coalinga considered all comments received and adopted the UWMP by resolution.

Within 30 days of adoption, the UWMP will be submitted to the DWR, the California State Library, and other required entities. The final adopted UWMP will be made available to the public at City Hall and on the City's website (Coalinga CA | Official Website).

This chapter also outlines the City's approach to implementing the UWMP and maintaining compliance with applicable requirements, including periodic review and updates, as well as coordination with future planning efforts.

CHAPTER 1 - INTRODUCTION AND LAY DESCRIPTION

1.1. Background and Purpose

The CWC requires all urban water suppliers within the State to prepare and adopt Urban Water Management Plans (UWMPs) for submittal to the California Department of Water Resources (DWR). UWMPs must be updated every five years in accordance with the Urban Water Management Planning Act (UWMPA) of 1983, as amended. The UWMPA applies to urban water suppliers that provide water for municipal purposes to more than 3,000 service connections or supply more than 3,000 acre-feet (AF) of water annually.

This UWMP serves as a comprehensive planning document intended to guide long-term water resource management. It supports the efficient use of available water supplies, promotes water conservation, and ensures that adequate and reliable water supplies are available to meet existing and future demands. Additionally, it establishes a framework for responding to drought conditions and other potential water supply shortages.

The City of Coalinga (City) has prepared this 2025 UWMP in compliance with the CWC, Division 6, Part 2.6 (Sections 10610 through 10656), and in accordance with current DWR guidelines and applicable statutory requirements.

The primary objectives of the UWMP are to:

- Support long-term, reliable water supply planning.
- Ensure efficient use of available water resources.
- Assess the adequacy of water supplies under varying hydrologic conditions.
- Identify water supply and demand management strategies.
- Provide a framework for responding to droughts and water shortages.

This 2025 UWMP builds upon the City's previous UWMPs, including the most recent 2020 UWMP, and reflects updated data, regulatory requirements, and planning assumptions. The Plan evaluates water supply reliability over a minimum 20-year planning horizon, through 2050, and incorporates current requirements related to drought planning, water use efficiency, and climate resilience.

1.2. Urban Water Management Planning and the California Water Code

Water planning is a fundamental responsibility of urban water suppliers and is increasingly important as California continues to experience hydrologic variability, prolonged drought conditions, and evolving regulatory requirements. The UWMPA establishes a consistent framework for long-term water supply planning to ensure that water agencies evaluate future demands, available supplies, and system reliability.

The UWMPA, codified in Division 6, Part 2.6 of the CWC Sections 10610 through 10656, requires urban water suppliers to prepare and update UWMPs every five years. UWMPs must assess water supply reliability over a minimum 20-year planning horizon in five-year increments and evaluate conditions under normal, single-dry, and drought scenarios.

Since its adoption, the UWMPA has been amended to expand planning requirements and improve the State's ability to manage water resources. Current UWMP requirements include, but are not limited to:

- Evaluation of current and projected water demands and supplies.
- Quantification of distribution system water loss.
- Consideration of climate change impacts on water supply and demand.
- Reporting of energy use associated with water and wastewater system operations.
- Assessment of water supply reliability under multiple hydrologic conditions.
- Preparation of a Drought Risk Assessment (DRA).
- Development of a Water Shortage Contingency Plan (WSCP) with standardized shortage levels and response actions.
- Implementation and reporting of Demand Management Measures (DMMs).

In addition to the UWMPA, several key pieces of legislation have further refined urban water management planning:

- SB 606 (2018) – Strengthened drought planning requirements, including five consecutive dry-year reliability assessments and Drought Risk Assessments.
- AB 1668 (2018) – Established long-term water use efficiency standards.
- AB 1414 (2019) – Enhanced water loss reporting and groundwater coordination requirements.
- SB 606 (2018) – Required reporting of energy use associated with water systems.
- CWC Section 10632 – Expanded requirements for Water Shortage Contingency Plans.
- CWC Section 10630.5 – Requires inclusion of a lay description summarizing key UWMP findings.

These updates reflect a shift toward more robust drought preparedness, improved water use efficiency, and increased transparency in water management.

A complete copy of the UWMPA is provided in Appendix A.

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

The Water Conservation Act of 2009 (SB X7-7) established a statewide goal to reduce urban per capita water use by 20 percent by the year 2020. To support this goal, urban retail water suppliers were required to develop baseline water use estimates, interim targets, and 2020 compliance targets.

The City of Coalinga previously established its baseline and targets in prior UWMPs and has demonstrated compliance with its 2020 target. While SB X7-7 established the initial framework for urban water conservation, ongoing water use efficiency requirements are now governed by more recent legislation, including SB 606 and AB 1668, which establish long-term water use efficiency standards.

The City continues to monitor and report water use in accordance with State requirements and incorporates water use efficiency into its long-term planning and Demand Management Measures.

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

The 2025 UWMP is one component of the City's broader water resources planning framework and is intended to be consistent with, and supported by, other planning documents, regulatory programs, and capital improvement efforts. The UWMP serves as a planning tool to evaluate long-term water supply reliability, projected demands, infrastructure needs, and drought preparedness in coordination with related City and regional planning initiatives. Key planning efforts related to this UWMP include:

- Water Shortage Contingency Plan (WSCP): Incorporated into this UWMP pursuant to CWC Section 10632, the WSCP establishes procedures for responding to water shortage conditions, including defined shortage stages, demand reduction measures, supply augmentation actions, communication protocols, and enforcement procedures.
- Annual Water Supply and Demand Assessment (AWSAR): Consistent with CWC Section 10632.1, the City conducts an annual assessment of available water supplies and projected demands to evaluate near-term supply reliability and determine whether drought response actions should be implemented. This annual process supports adaptive management of the City's water resources and provides a mechanism for responding to changing hydrologic and operational conditions.
- SB X7-7 and Water Use Efficiency Requirements: The City continues to comply with State water conservation and reporting requirements, including historic SB X7-7 targets and ongoing implementation of urban water use efficiency standards established under SB 606 and AB 1668.
- General Plan: The UWMP is coordinated with the City of Coalinga General Plan, which establishes the community's long-range vision for growth, land use, infrastructure, public services, and economic development. The General Plan provides the basis for population, housing, and land use assumptions utilized in the UWMP and helps ensure that adequate water supplies and infrastructure are available to support planned development within the City and its Sphere of Influence. The General Plan also promotes sustainable growth patterns, infrastructure planning, and resource management objectives that are consistent with the UWMP.
- Housing Element: The City's 2023–2031 Fresno County Multi-Jurisdictional Housing Element identifies housing needs, population and household trends, housing opportunity sites, and programs intended to accommodate future residential growth and meet the City's Regional Housing Needs Allocation (RHNA). The UWMP considers anticipated residential development and population growth identified in the Housing Element when projecting future water demands and evaluating long-term water supply reliability. Coordination between the UWMP and Housing Element helps ensure that adequate water supplies are available to support planned housing development and community growth.

Together, these planning efforts provide a coordinated approach to managing water resources, maintaining critical infrastructure, and ensuring dependable water service for the City under both normal and drought conditions.

1.4. 2025 UWMP Organization

The information contained in this 2025 UWMP corresponds to the requirements of the UWMPA, as codified in the CWC and as amended since the 2020 UWMP. This 2025 UWMP has been organized in accordance with the DWR 2025 UWMP Guidebook and follows the recommended structure for plan preparation and reporting. The following provides a summary of each chapter and a brief description of the content included in this UWMP:

- **Chapter 1 – Introduction and Lay Description:** This chapter provides an overview of the UWMP, including regulatory context, purpose, and key planning requirements. It also includes the required lay description, which presents a clear and accessible summary of the Plan's major findings, water supply reliability, and key challenges.

- **Chapter 2 – Plan Preparation:** This chapter describes the basis for preparing the UWMP, including coordination with other agencies, stakeholder outreach, and compliance with statutory notification and public participation requirements.
- **Chapter 3 – System Description:** This chapter provides a comprehensive overview of the City's water system, including the service area, climate conditions, population and demographic characteristics, and other relevant planning factors.
- **Chapter 4 – Water Use Characteristics:** This chapter describes historical, current, and projected water use within the Coalinga service area. It includes an evaluation of water demands by sector, distribution system water losses, and factors influencing future demand, including climate change considerations.
- **Chapter 5 – SB X7-7 Baselines, Targets, and Compliance:** This chapter documents the City's compliance with the State's water conservation requirements, including baseline water use, established targets, and progress toward achieving those targets.
- **Chapter 6 – Normal Water Year Supply Characteristics:** This chapter identifies and quantifies the existing and projected water supplies available to the City during normal water year conditions, including surface water supplies, recycled water, stormwater recharge and beneficial reuse, and other potential water supply sources. The chapter also evaluates long-term supply reliability, operational considerations, and opportunities to enhance water resource management and system resiliency.
- **Chapter 7 – Water Supply Reliability and Drought Risk Assessment:** This chapter evaluates the reliability of the City's water supplies over a minimum 20-year planning horizon under normal, single dry year, and five consecutive dry year conditions. It also includes the required Drought Risk Assessment (DRA) to assess potential supply shortages and risks.
- **Chapter 8 – Water Shortage Contingency Plan:** This chapter presents the City's WSCP, including standardized shortage levels, response actions, and procedures for addressing both gradual drought conditions and sudden supply interruptions.
- **Chapter 9 – Demand Management Measures:** This chapter describes the City's water conservation programs and demand management measures (DMMs), including past implementation efforts and planned actions to reduce long-term water demand.
- **Chapter 10 – Plan Adoption, Submittal, and Implementation:** This chapter outlines the procedures followed for public review, hearing, and adoption of the UWMP. It also describes the submittal process to DWR and other agencies, and the City's approach to implementing and maintaining the Plan.

1.5. Updates from the 2025 UWMP

This 2025 UWMP builds upon the City's 2020 UWMP and incorporates updated data, revised methodologies, and new regulatory requirements. Key updates include:

- Updated population, demand, and supply projections using current data.
- Updated water loss reporting and demand management measures.
- Inclusion of the Drought Risk Assessment (DRA) updated for the 2025 planning cycle.
- Expanded Water Shortage Contingency Plan consistent with current statutory requirements.

The 2025 UWMP reflects current conditions and provides an updated framework for long-term water supply planning.

CHAPTER 2 - PLAN PREPARATION

This chapter provides the basis for preparation of the 2025 Urban Water Management Plan and describes the regional coordination efforts employed by the City of Coalinga in developing the Plan. This chapter also identifies the reporting period and units of measure used by the City to report water supply, demand, and water use information throughout the 2025 UWMP.

In addition, this chapter summarizes the coordination and public outreach activities undertaken during preparation for the 2025 UWMP. Coordination with neighboring agencies, regional water management entities, and stakeholders, as well as outreach to customers and the public, are essential components of developing a comprehensive, accurate, and transparent UWMP.

2.1. Basis for Preparing a Plan

CWC Section 10617

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

CWC Section 10608.12

(t) "Urban retail water supplier" means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.

(w) "Urban wholesale water supplier" means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.

CWC Section 10620

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

CWC Section 10621

(a) Each urban water supplier shall update its plan at least once every five years on or before July 1, in years ending in six and one, incorporating updated and new information from the five years preceding each update.

The City of Coalinga provides municipal water service to a population of approximately 17,622 through a total of 3,836 service connections. As such, the City meets the definition of an "urban water supplier" pursuant to Section 10617 of the CWC. In accordance with the CWC, urban water suppliers are required to prepare and update a UWMP every five years. The City previously submitted UWMPs to the DWR in 2010, 2015, and 2020. The 2025 UWMP represents City's fourth UWMP submission.

2.1.1. Public Water Systems

California Health and Safety Code 116275 (h)

"Public Water System" means a system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.

23 CCR Section 980(ddd):

(1) If the supplier owns and operates at least one public water system that has provided an average annual total of 3,000 AF of water or more for municipal purposes for the previous two years, or has served an annual average of 3,000 or more municipal service connections (i.e., residential [single or multifamily], commercial, institutional, industrial, or landscape irrigation) for the previous two years.

The City of Coalinga owns and operates a Public Water System (PWS No. 1010004) regulated by the State Water Resources Control Board, Division of Drinking Water (SWRCB-DDW). The SWRCB-DDW requires routine reporting by public water systems to demonstrate compliance with applicable drinking water regulations.

To satisfy these requirements, the City submits Electronic Annual Reports (EARs) under the SWRCB-DDW Drinking Water Program, which includes annual water production, water use, and system information. In addition to the annual EAR submittals, the City also files monthly Water Conservation and Production Reports with the SWRCB. The City further submits validated water audits, annual water supply and demand assessments (AWSDA), and annual Urban Water Use Objective (UWUO) reports to DWR through the Water Use Efficiency Data (WUEdata) Portal. All information presented in this UWMP is consistent with the data reported through the EARs, monthly reports, and DWR WUEdata submittals.

2.1.2. Agencies Serving Multiple Service Areas/Public Water Systems

The City of Coalinga serves its service area through one PWS. Information describing this PWS is presented in Table 2-1.

Public Water Systems (Submittal Table 2-1)			
Has there been a change in the number of affiliated Public Water Systems since the 2020 UWMP?			No
Public Water System Number	**Public Water System Name**	**Number of Municipal Connections 2025**	**Volume of Water Supplied 2025 (MG)**
CA1010004	City of Coalinga	3,836	2,349

2.2. Individual or Regional Plan

The City of Coalinga is the sole urban water supplier within its service area; therefore, preparation of a regional UWMP was not considered feasible for this planning cycle. Although regional reporting opportunities may be considered in future planning cycles, the City has elected to prepare an Individual UWMP for this 2025 cycle.

The City continues to coordinate with the USBR, regional water agencies, neighboring jurisdictions, and other stakeholders on matters related to CVP water supplies, water supply reliability, regional water resource planning, and wastewater management. Through continued participation in regional planning efforts and interagency coordination, the City will continue to strengthen collaboration with neighboring agencies to support long-term water supply reliability, drought preparedness, and sustainable water resource management.

This 2025 UWMP has been prepared to address only the City of Coalinga's service area and satisfies all applicable requirements of the CWC. Plan identification and reporting approach are summarized in Table 2-2, which confirms that the City has prepared an individual UWMP.

Plan Identification (Submittal Table 2-2)			
Select One or Both	**Type of Plan**		**Name of Regional Alliance or RUWMP (Drop Down List)**
☒	Individual UWMP		
	☐	Water Supplier is also a member of a SB X7-7 Regional Alliance	Not Applicable
☐	Regional Urban Water Management Plan (RUWMP)		Not Applicable

2.3. Fiscal or Calendar Year and Units of Measure

CWC Section 10608.20

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

2.3.1. Fiscal or Calendar Year

The City of Coalinga maintains and reports water system information using both calendar year and fiscal year records, depending on the reporting requirement and operational purpose. For consistency with DWR UWMP reporting guidance, the data presented in this UWMP are reported on a calendar year basis unless otherwise noted. Fiscal year information may be referenced where necessary to support financial, budgeting, operational, or regulatory reporting requirements.

This 2025 UWMP is required to include water use and planning data for the entire 2025 calendar year. Accordingly, all information presented in this 2025 UWMP reflects the full 2025 calendar year and is consistent with data submitted to the State.

2.3.2. Units of Measure

Water agencies use various units of measure when reporting water volumes, including acre-feet (AF), million gallons (MG), and hundred cubic feet (CCF). While agencies may report water volumes using any of these units, consistency must be maintained throughout the UWMP. The City typically reports water volumes in million gallons (MG). Table 2-3 summarizes the agency type, reporting year basis, and units of measurement used throughout this 2025 UWMP.

Supplier Identification (Submittal Table 2-3)	
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)	
Not Applicable	
Units of measure used in UWMP	
Unit	MG

2.4. Coordination and Outreach

2.4.1. Wholesale and Retail Coordination

CWC Section 10631

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

(f). An urban water supplier may rely upon water supply information provided by the wholesale agency in fulfilling the plan informational requirements of subdivisions (b) and (f).

When an urban water supplier relies on a wholesale water supplier, both agencies are required to exchange information regarding projected water supplies and demands. These projections must be consistent between the wholesale and retail suppliers to ensure coordinated planning, as required by Section 10631 of the CWC.

The City of Coalinga does not purchase or receive water from a wholesale water agency. Table 2-4 is included below to indicate that this requirement does not apply to the City.

Water Supplier Information Exchange (Submittal Table 2-4)
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
Not Applicable

2.4.2. Coordination with Other Agencies and the Community

CWC Section 10620

(d)(3) Each urban water supplier shall coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.

CWC Section 10642

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

In preparation for this 2025 UWMP, the City coordinated with other appropriate agencies in the region, to the extent practicable, in accordance with CWC Sections 10620(d)(3) and 10621(b). Coordination efforts were undertaken to promote consistency in regional water planning and to provide affected agencies with notice of the UWMP preparation process.

The City provided notification of UWMP preparation to the following agencies:

- U.S. Bureau of Reclamation
- County of Fresno
- Westlands Water District
- Coalinga-Huron School District

These agencies were notified of the City's intent to prepare the 2025 UWMP and were invited to participate in the planning process, as appropriate. Copies of the notification letters sent to each agency are included in Appendix B.

2.4.3. Notice to Cities and Counties

CWC Section 10621(b)

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

CWC Section 10621(b) requires urban water suppliers to notify any city or county within which they provide water service that the UWMP is being reviewed and updated. Such notification must be provided at least 60 days prior to the public hearing of the UWMP. In compliance with this requirement, City notified the County of Fresno of the preparation of the 2025 UWMP and invited the County to participate in the review process.

CHAPTER 3 - SYSTEM DESCRIPTION

This chapter describes the City of Coalinga's potable water service area and water system. Consistent with the requirements of the UWMPA, this chapter provides background information on the City's role as an urban retail water supplier, the geographic extent of the service area, and the general characteristics of the water system that influence water use, demand projections, and long-term planning. The information presented in this chapter establishes the context for subsequent analyses of water use, water supply reliability, and drought risk presented in later chapters of this UWMP.

3.1. General Description

CWC Section 10631.

(a) Describe the service area of the supplier, including current and projected population, climate, and other social, economic, and demographic factors affecting the supplier's water management planning. The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available. The description shall include the current and projected land uses within the existing or anticipated service area affecting the supplier's water management planning. Urban water suppliers shall coordinate with local or regional land use authorities to determine the most appropriate land use information, including, where appropriate, land use information obtained from local or regional land use authorities, as developed pursuant to Article 5 (commencing with Section 65300) of Chapter 3 of Division 1 of Title 7 of the Government Code.

The City of Coalinga is located in the Pleasant Valley at the base of the Diablo Range on the western edge of California's San Joaquin Valley in western Fresno County. The City is situated approximately 60 miles southwest of the City of Fresno and approximately 10 miles west of Interstate 5, providing regional access to the Central Valley and California's major transportation corridors. Monterey County borders the region to the west and Kings County lies immediately to the east. The City's location supports a diverse local economy centered on agriculture, oil production, correctional institutions, healthcare, education, and commercial services.

The City is the sole retail provider of potable water within its municipal service area and owns, operates, and maintains the public water system serving residential, commercial, industrial, institutional, governmental, and agricultural customers throughout the incorporated City limits. The potable water system includes water treatment facilities, storage reservoirs, transmission mains, distribution pipelines, pumping facilities, and related infrastructure necessary to provide reliable drinking water service. In addition to domestic and commercial demands, the City's water system supports municipal operations, public landscaping, park irrigation, fire protection, system maintenance, and other public purposes.

Unlike many communities in the San Joaquin Valley, the City does not utilize groundwater as a municipal water supply source. Instead, the City's potable water supply is derived entirely from surface water delivered by the United States Bureau of Reclamation (USBR) through the Central Valley Project (CVP) under the City's long-term water service contract. Imported CVP surface water is conveyed to the City's Water Treatment Plant (WTP), where it is treated to meet all applicable federal and State drinking water standards prior to distribution to customers. The City's complete reliance on imported surface water

makes long-term supply reliability dependent upon CVP allocations, hydrologic conditions, and regional water management activities.

In addition to treated potable water service, the City also delivers untreated (raw) surface water through a separate non-potable distribution system for agricultural customers and other approved non-potable uses where drinking water quality is not required. This separate raw water system supports agricultural irrigation and other beneficial uses while reducing the need to utilize treated potable water for non-potable demands.

The City adopted the City of Coalinga General Plan 2005–2025 in June 2009, which establishes the long-term framework for land use, growth management, infrastructure planning, and public services. The General Plan evaluates development within the City's Sphere of Influence (SOI), an area extending beyond the current incorporated boundaries that represent the City's ultimate planning and service area. Although portions of the SOI are presently outside the City's jurisdiction, the City may annex these lands as future development occurs.

According to the Fresno Local Agency Formation Commission (LAFCo), the City's SOI encompasses approximately 9.06 square miles (5,799 acres) and includes a range of existing and planned land uses, including single-family and multi-family residential, mixed-use, commercial, manufacturing/business, public facilities, parks and recreation, open space and conservation lands, agricultural lands, and transportation rights-of-way. Consistent with the General Plan, this 2025 UWMP assumes that future water service area expansion will generally occur within the City's adopted SOI. The City's existing potable water service area encompasses approximately 6.78 square miles (4,341 acres) and water service was provided to 3,836 active service connections in 2025.

3.2. Service Area Boundary Map

The City's service area boundaries are shown on the Zoning Map included in Appendix C of this UWMP. The map identifies the City limits, planning boundaries, and areas served by the City's municipal water system. The Map is used to support water demand projections, infrastructure planning, and evaluation of future service needs within the City's water service area.

3.3. Service Area Climate

CWC Section 10631(a)

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

CWC Section 10630

It is the intention of the Legislature, in enacting this part, to permit levels of water management planning… while accounting for impacts from climate change.

The City of Coalinga experiences a semi-arid Mediterranean climate characterized by hot, dry summers and cool, moderately wet winters. Located on the western edge of California's San Joaquin Valley, the City's climate is strongly influenced by its inland location and surrounding Coast Range. Summer temperatures routinely exceed 90°F, with the hottest conditions typically occurring between June and September. Winters are generally mild, with cool nighttime temperatures and occasional frost events. As temperatures increase during late spring and summer, landscape irrigation requirements and overall

potable water demands also increase. Conversely, cooler winter temperatures, shorter daylight hours, and seasonal precipitation contribute to lower water demands during the winter months.

Average annual precipitation in the Coalinga area is approximately 10 inches and occurs predominantly between November and April, with little to no measurable rainfall during the summer irrigation season. Reference evapotranspiration (ET_o) is an important indicator of landscape irrigation demand and is used to estimate the amount of water required to maintain healthy vegetation under prevailing climatic conditions. Elevated ET_o values during the summer months correspond with peak outdoor irrigation demands, while lower winter ET_o values reflect reduced evapotranspiration and correspondingly lower irrigation requirements.

Unlike many communities in the San Joaquin Valley that rely primarily on groundwater, the City of Coalinga obtains its municipal water supply exclusively from imported surface water delivered by the USBR. Consequently, climate conditions influence the City's water supply reliability not only through seasonal changes in customer demand, but also through their effects on snowpack accumulation, reservoir storage, watershed runoff, and annual CVP water allocations. Prolonged drought, increasing temperatures, and changing precipitation patterns associated with climate change may reduce available surface water supplies while simultaneously increasing water demands, making climate variability an important consideration in the City's long-term water resources planning.

Table 3-1 summarizes the average monthly precipitation, temperature, and reference evapotranspiration values applicable to the City of Coalinga service area.

Table 3-1 **Climate Data**

Month	Avg. Precipitation (in)[1]	Avg. Snowfall (in)[1]	Avg. Max Temp (°F)[1]	Avg. Min Temp (°F)[1]	Avg. Et_o (in)[2]
January	1.97	0.0	56.0	36.9	1.32
February	1.83	0.0	62.6	40.8	2.12
March	1.72	0.0	68.0	43.7	3.74
April	0.98	0.0	74.6	47.5	5.13
May	0.36	0.0	82.6	53.1	7.02
June	0.09	0.0	91.1	59.0	7.92
July	0.01	0.0	97.5	63.5	8.13
August	0.01	0.0	96.2	61.6	7.28
September	0.13	0.0	90.1	57.3	5.33
October	0.48	0.0	80.2	50.2	3.47
November	0.98	0.0	67.3	41.6	1.85
December	1.57	0.0	56.8	36.8	1.15
Annual Total/Average	**10.13**	**0**	**76.9**	**49.3**	**54.46**

NOTES:
[1]Data obtained from the WRCC based on records from January 2, 1942 through June 09, 2016 for the Coalinga, CA (041864) Coop Site.
[2]Data obtained from the CIMIS, for the Coalinga Station.

3.4. Service Area Population and Demographics

3.4.1. Service Area Current and Projected Population

CWC Section 10631(a)

Describe the service area of the supplier, including current and projected population …The projected population estimates shall be based upon data from the state, regional, or local service agency population projections within the service area of the urban water supplier and shall be in five-year increments to 20 years or as far as data is available.

Population estimates and projections are a fundamental component of the UWMP and are used to evaluate current and future water demands, assess system capacity, and support long-term supply reliability. In accordance with DWR guidance and UWMP requirements, population data presented in this section is based on the most reliable and current information available and is applied using reasonable and conservative planning assumptions.

The City of Coalinga, like many communities throughout the Central Valley, has experienced sustained population growth over the past several decades, and current trends indicate continued growth through the UWMP planning horizon. This growth reflects broader regional demographic patterns, including demand for more affordable housing, continued economic activity in the San Joaquin Valley, and ongoing residential and commercial development. Planning for increased water demand associated with population growth is an important component of the City's UWMP. Accordingly, the UWMP evaluates and plans for the effects of continued growth on the City's long-term water supply reliability and system capacity.

According to the United States Census Bureau decennial Census, the population of Coalinga was 13,380 in 2010 and 17,590 in 2020. Based on these historic census values, the City experienced an average annual growth rate of approximately 2.77 percent between the 2010 and 2020 Census. The California Department of Finance (DOF) prepares annual population estimates for incorporated cities and counties throughout the State. The most recent DOF estimate indicates the City had an estimated 2025 population of approximately 17,622 residents.

Table 3-2 presents projected population estimates for the UWMP planning horizon in five-year increments through 2050. Projections are based on the DOF 2025 population estimate and assumes a continued annual average growth rate of 2.77 percent. While actual future growth rates may vary due to economic, housing, and regional development conditions, these projections provide a reasonable planning basis for estimating future water demand and evaluating long-term system needs.

Population - Current and Projected (Submittal Table 3-1)						
Population Served	**2025**	**2030**	**2035**	**2040**	**2045**	**2050**
	17,622	20,205	23,167	26,563	30,457	34,921

NOTES:
(1)Population projections are based on the 2025 California Department of Finance population estimate for the City of Coalinga service area and assume an average annual growth rate of approximately 2.77 percent.
(2)Projected population values are rounded to the nearest whole person.

3.4.2. Other Social, Economic and Demographic Factors

CWC Section 10631

(a) Describe the service area of the supplier, including… other social, economic and demographic factors affecting the supplier's water management planning.

Based on recent data available from the U.S. Census Bureau American Community Survey (ACS), the City of Coalinga has a diverse population with Hispanic or Latino residents representing approximately 64 percent of the total population, making this the largest ethnic group within the community. The City's median age is approximately 36.5 years, reflecting a relatively young population. Approximately 21.3 percent of residents are under 18 years of age, while 78.7 percent are 18 years of age or older. Of the adult population, approximately 10.3 percent are 65 years of age or older. Veterans represent approximately 4.9 percent of the City's population, which is generally consistent with statewide demographics.

Educational attainment among Coalinga residents reflects a broad range of education levels that support the City's workforce. Approximately 27.3 percent of residents age 25 years and older have earned at least a high school diploma or equivalent. In addition, approximately 30.5 percent have completed some college coursework or earned an associate degree, while approximately 12.6 percent have obtained a bachelor's degree or graduate/professional degree. These educational characteristics support employment across the City's diverse economic sectors, including public services, education, healthcare, agriculture, manufacturing, energy production, and commercial services.

The estimated median household income is approximately $75,451, while approximately 21.7 percent of the population lives below the federal poverty level. Although household incomes have increased in recent years, a substantial portion of residents continue to experience economic challenges that may affect water affordability and participation in conservation or efficiency improvement programs. These socioeconomic conditions are important considerations for long-term water management planning, including rate-setting, customer assistance programs, water conservation outreach, and prioritization of capital infrastructure investments to maintain reliable and affordable water service.

The City's economy continues to reflect its historic role as a regional center for oil and gas production, agriculture, government services, healthcare, education, and correctional facilities. Major employment sectors include educational services, healthcare and social assistance, agriculture, forestry, fishing, hunting and mining, public administration, retail trade, manufacturing, construction, transportation and warehousing, and accommodation and food services. These industries contribute to seasonal and long-term water demand characteristics that are considered throughout this UWMP. The continued presence of major institutional employers, including state correctional facilities, educational institutions, healthcare services, and energy-related industries, provides a stable employment base while influencing both residential and non-residential water demands

3.5. Land Uses Within Service Area

Land use planning within the City of Coalinga's water service area is guided by the City's General Plan and implemented through the City's Zoning Ordinance and Zoning Map. These planning documents establish the framework for future growth, redevelopment, infrastructure investment, and public services, while

ensuring that land development is coordinated with the City's ability to provide reliable water service. The General Plan identifies a planning area that extends beyond the current city limits to accommodate long-term growth and includes the City's SOI and designated future urbanization areas.

The City's land use pattern consists of a diverse mix of residential, commercial, industrial, public, recreational, agricultural, and open space uses. Residential land use designations include Residential Estate, Residential Ranchette, Residential Single Family, Residential Medium Density, and Residential High Density, providing opportunities for a range of housing types and densities. Commercial areas include General Commercial and Service Commercial designations, with Mixed Use areas supporting integrated residential and commercial development, particularly within and adjacent to the downtown core. Employment-generating land uses include Manufacturing/Business districts, while Public Facilities, Recreation, Agricultural, and Open Space/Conservation designations accommodate governmental facilities, parks, schools, utility infrastructure, natural resource areas, and agricultural uses.

Consistent with the City's General Plan and current zoning, existing development is concentrated within the established urban area and includes residential neighborhoods supported by schools, parks, civic facilities, commercial corridors, healthcare facilities, industrial areas, and public infrastructure. Industrial and business uses are primarily located along major transportation corridors and in designated manufacturing districts, while agricultural and open space lands generally surround the developed portions of the community. The City's land use pattern also recognizes major public facilities such as the municipal airport, wastewater treatment facilities, and the Pleasant Valley State Prison, all of which contribute to the City's water service requirements.

The General Plan and Fresno County Multi-Jurisdictional Housing Element continue to support orderly growth through infill development, redevelopment of underutilized properties, expansion of housing opportunities, and the preservation of adequate land for commercial and industrial development. The Housing Element identifies vacant and underutilized residential sites capable of accommodating the City's Regional Housing Needs Allocation (RHNA) while promoting a diversity of housing types and affordability levels. Future development is expected to occur incrementally within designated growth areas and will be coordinated with planned water, wastewater, transportation, and other public infrastructure improvements.

The City coordinates land use planning with water supply planning to ensure that future development occurs in a manner consistent with available water resources, treatment capacity, and distribution system capabilities. This coordinated planning approach enables the City to evaluate anticipated growth, project future water demands, prioritize capital improvement projects, and maintain long-term water supply reliability throughout the 2025 UWMP planning horizon.

CHAPTER 4 - WATER USE CHARACTERIZATION

This chapter characterizes historical, current, and projected water use within the City's service area through the minimum 20-year planning horizon. In accordance with the CWC and the 2025 UWMP Guidebook, this chapter evaluates water use by customer sector, distinguishes between potable and non-potable demands, and identifies distribution system water losses. Historical water use data, combined with population projections, form the basis for estimating future water demands. The information presented in this chapter supports long-term water supply planning, infrastructure investment decisions, and assessment of water supply reliability under varying hydrologic and climatic conditions. Climate change considerations and water use efficiency trends are also incorporated to ensure that projected demands reflect anticipated changes in customer behavior, regulatory requirements, and environmental conditions.

4.1. Non-Potable Versus Potable Water Use

The City of Coalinga's potable water supply consists entirely of surface water purchased from the USBR through the CVP. Surface water is conveyed to the City's WTP, where it is treated to meet all applicable federal and State drinking water standards before being distributed through the City's potable water distribution system to residential, commercial, industrial, institutional, public, and landscape customers.

In addition to potable water deliveries, the City also delivers untreated (raw) CVP surface water to agricultural users located outside the potable water distribution system. This non-potable supply is used for agricultural irrigation and is conveyed through a separate raw water delivery system. Raw water deliveries are accounted for separately from potable water demands and are discussed further in the water supply characterization sections of this UWMP.

The City currently does not produce or distribute recycled water to meet either potable or non-potable water demands. Wastewater generated within the service area is collected and treated at the City's Wastewater Treatment Plant (WWTP) and is not treated to disinfected tertiary standards necessary for recycled water reuse. Consequently, recycled water is not currently available as a water supply source within the City's service area.

4.2. Past, Current, and Projected Water Use by Sector

CWC Section 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. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

CWC Section 10631(d)

(1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use,

based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following…

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

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

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

This section describes how historical water use data, current demand conditions, and projected future water use are evaluated to support long-term water supply planning for the City of Coalinga. Water use is reported and analyzed in five-year increments, consistent with CWC requirements, to identify trends in demand and to support assessment of water supply reliability over the UWMP planning horizon. The information presented in this section provides the foundation for evaluating the adequacy of existing and planned water supplies under normal, single dry-year, and multiple dry-year conditions, as discussed in subsequent chapters of this 2025 UWMP.

4.2.1. Water Use Sectors Listed in Water Code

CWC Section 10631(d)

(1) For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following:

(A) Single-family residential.

(B) Multifamily.

(C) Commercial.

(D) Industrial.

(E) Institutional and governmental.

(F) Landscape.

(G) Sales to other agencies.

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

(I) Agricultural.

(J) Distribution system water loss.

This 2025 UWMP characterizes water use within the City's service area by customer sector, consistent with the water use categories identified in the CWC. Metered water deliveries are grouped into defined demand sectors to quantify how water is used throughout the service area. Evaluating active service accounts and the volume of water delivered to each sector provides insight into customer demand patterns and supports the development of effective water conservation, supply reliability, and demand management strategies. Tables 4-3 and 4-5 summarize the City's actual water demands and projected water demands through 2045.

The following water use sectors apply to the City's service area:

- Single-Family Residential – A single-family customers generally consist of an individual parcel containing one primary dwelling unit. Water use associated with this sector is reported as retail demand and represents a major portion of total system demand.
- Multi-Family Residential – Multi-family customers include duplexes, apartments, townhomes, mobile home parks, and other developments containing multiple dwelling units served through one or more master meters. Water use associated with this sector is reported as retail demand.
- Commercial – Commercial users include businesses that provide goods or services such as retail stores, offices, restaurants, lodging, and service establishments. Water use associated with this sector is reported as retail demand.
- Industrial – Industrial users include manufacturing, food processing, warehousing, and similar facilities with process water or operational demands. Water use associated with this sector is reported as retail demand.
- Landscape – Landscape demand includes irrigation accounts serving parks, medians, greenbelts, athletic fields, and other dedicated landscaped areas where separately metered.
- Institutional/Governmental – This sector consists exclusively of water delivered to the Coalinga State Hospital and Pleasant Valley State Prison. Water use associated with these two state-operated facilities is reported as retail demand.
- Distribution System Water Losses – Distribution system water losses are reported in accordance with CWC requirements and are discussed further in Section 4.3.4.

The following water use sectors identified in the CWC are not applicable to the City's water service area for this UWMP:

- Sales to Other Agencies
- Conjunctive Use
- Groundwater Recharge
- Saline Water Intrusion Barriers
- Agricultural

4.2.2. Water Use Sectors in Addition to Those Listed in Water Code

To provide clarity, the following water use sectors are also not applicable to the City's UWMP:

- Exchanges
- Surface Water Augmentation
- Transfers

- Wetlands or Wildlife Habitat

4.2.3. Past Water Use

CWC Section 10631(d)(1)

For an urban retail water supplier, quantify, to the extent records are available, past and current water use, over the same five-year increments described in subdivision (a), and projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors, including, but not necessarily limited to, all of the following…

(J) Distribution system water loss….

CWC Section 10631(d)(3)

(A) The distribution system water loss shall be quantified for each of the five years preceding the plan update, in accordance with rules adopted pursuant to Section 10608.34.

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

(C) In the plan due July 1, 2021, and in each update thereafter, data shall be included to show whether the urban retail water supplier met the distribution loss standards enacted by the board pursuant to Section 10608.34.

CWC Section 10631(d) requires urban retail water suppliers to quantify past and current water use, to the extent records are available, and identify uses among water use sectors, including distribution system water loss. Table 4-1 summarizes the City's potable water use by sector for the most recent five-year period, spanning calendar years 2020 through 2024. These historical volumes are consistent with those presented in the 2020 UWMP, EARs, and the annual water audit reports submitted to DWR for the corresponding years.

Historical Water Use by Sector

Use Type	Water Use (MG)				
	2020	2021	2022	2023	2024
Single-Family(1)	522	488	398	393	444
Multi-Family(1)	84	74	79	75	85
Commercial(1)	160	127	110	114	124
Industrial(1)	125	67	57	42	35
Landscape Accounts(1)	62	70	66	40	61
Coalinga State Hospital(1)	84	109	84	77	110
Pleasant Valley State Prison(1)	165	175	151	138	147
Distribution System Loses(1)	133	219	258	240	219
Agricultural(2)	821	10	0	727	2,420
Subtotal Potable	1,336	1,329	1,204	1,119	1,225
Subtotal Non-Potable	821	10	0	727	2,420

Table 4-1

Historical Water Use by Sector					
Use Type	Water Use (MG)				
	2020	2021	2022	2023	2024
TOTAL	2,157	1,339	1,204	1,846	3,645

NOTES:
(1)Potable Water Demand
(2)Non-Potable Water Demand

Distribution system water losses represent the difference between the volume of water entering the distribution system (metered at Water Treatment Plant) and the volume of water metered and billed to customers. These losses include a combination of real losses (such as pipeline leaks), apparent losses (such as meter inaccuracies or data handling errors), and unauthorized consumption (such as water theft).

CWC Section 10631(d)(3) requires urban retail water suppliers to quantify distribution system water losses for the five years preceding the UWMP update using the AWWA water balance methodology. The City evaluates distribution system losses annually using the AWWA methodology and has submitted annual water audit reports to DWR since Fiscal Year 2016-2017.

Table 4-2 summarizes the reported distribution system water losses for the past five years. The most recent reporting period reflects the 12-month period ending December 31, 2024.

Table 4-2

Last Five Years of Water Loss Audit Reporting	
Year	Volume of Water Loss(1)
2020	133
2021	219
2022	258
2023	240
2024	219

NOTES:
(1)Includes a combination of unbilled/unmetered authorized consumption, apparent losses and real losses as reported in the City's water audit reports.

To reduce both real and apparent water losses, the City is modernizing its water distribution system through the implementation of an Advanced Metering Infrastructure (AMI) program. According to the City's FY 2024-25 Utility Certification Report prepared as part of the validated AWWA Water Audit, approximately 2,100 customer meters were replaced with cellular-read meters during FY 2024-25. This system upgrade has improved customer meter accuracy, increased the frequency and reliability of consumption data collection, and enhanced the City's ability to identify potential leaks and abnormal water use within the distribution system. The City also continued to evaluate meter performance and validate customer consumption data to improve the overall accuracy of its annual water audit.

The City will continue replacing the remaining customer meters until full conversion to cellular-read technology is achieved. Upon completion, the City plans to leverage AMI analytics to identify apparent and real water losses, further refine data management practices, and prioritize future water loss control efforts and infrastructure investments.

4.2.4. Current Water Use

CWC Section 10631(d)

(1) For an urban retail water supplier, quantify, to the extent records are available …current water use… based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors…

Table 4-3 summarizes the City's actual potable and non-potable water use for calendar year 2025 by customer sector. Potable water demands include residential, commercial, industrial, landscape, and institutional/governmental uses served through the City's potable water distribution system. Non-potable water use consists of raw surface water delivered to agricultural customers for irrigation purposes.

Distribution system water loss is calculated as the difference between the total volume of treated water produced at the City's WTP and the total volume of authorized potable water consumption. For calendar year 2025, distribution system water loss totaled approximately 299 MG, representing approximately 23 percent of total potable water produced. As discussed in the previous section, the City is actively implementing an AMI program to improve customer meter accuracy, enhance leak detection capabilities, and improve the quality of data used for annual water audit reporting. Continued implementation of the AMI program is expected to improve the accuracy of future water loss accounting and support ongoing water loss control efforts.

In addition to potable water service, the City delivered approximately 1,067 MG of raw surface water obtained through its CVP contract to agricultural customers during 2025. These raw water deliveries are conveyed through a separate non-potable system for agricultural irrigation and are reported separately from the City's potable water demands.

Table 4-3

2025 Actual Total Uses for Potable and Non-Potable Water (Submittal Table 4-1)			
Use Type	Additional Description	2025 Actual Water Use	
		Potable or Non-Potable	Volume (MG)
Single Family		Potable	440
Multi-Family		Potable	82
Commercial		Potable	117
Industrial		Potable	33
Landscape		Potable	64
Institutional/Governmental	Coalinga State Hospital	Potable	78
Institutional/Governmental	Pleasant Valley State Prison	Potable	169
Distribution System Water Loss		Potable	299
Agricultural	Raw Surface Water Deliveries	Non-Potable	1,067

2025 Actual Total Uses for Potable and Non-Potable Water (Submittal Table 4-1)			
Use Type	Additional Description	2025 Actual Water Use	
		Potable or Non-Potable	Volume (MG)
Table 4-3		Subtotal Potable	1,282
		Subtotal Non-Potable	1,067
		TOTAL	**2,349**

4.2.5. Projected Water Use

CWC Section 10631(d)

(1) For an urban retail water supplier, quantify, to the extent records are available, … projected water use, based upon information developed pursuant to subdivision (a), identifying the uses among water use sectors…

CWC Section 10633

The plan shall provide, to the extent available, information on recycled water...and shall include all of the following:...

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

CWC Section 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. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

Table 4-4 presents the projected number of service connections by user type through 2050. Future service connections were projected by applying the City's estimated average annual growth rate of 2.77 percent to the 2025 baseline number of service connections for each customer class. Industrial, landscape, and institutional/governmental connections were assumed to remain constant throughout the planning period due to the absence of anticipated growth in these customer classes. The increase in single-family, multi-family, and commercial connections between each planning horizon was then divided by an average household size of three persons per connection to estimate incremental growth, which was added to the 2025 baseline population to develop future connection projections.

Table 4-4

Projected Number of Total Connections by User Type					
Use Type	2030	2035	2040	2045	2050
Single Family	3,619	3,812	4,034	4,288	4,579

Projected Number of Total Connections by User Type					
Use Type	**2030**	**2035**	**2040**	**2045**	**2050**
Multi-Family	180	190	201	214	228
Commercial	282	297	314	334	357
Industrial	19	19	19	19	19
Landscape	102	102	102	102	102
Coalinga State Hospital	4	4	4	4	4
Pleasant Valley State Prison	2	2	2	2	2
TOTAL	**4,208**	**4,426**	**4,676**	**4,962**	**5,291**

Projected water demands presented in Table 4-5 include single-family and multi-family residential use, commercial use, institutional/governmental use, industrial use, landscape irrigation, distribution system water losses, and non-potable agricultural water deliveries. Projected potable water demands for the residential, commercial, industrial, and landscape sectors were developed by applying the City's average annual growth rate of 2.77 percent to the 2025 baseline water use by customer sector. This methodology assumes that future water demands will increase proportionally with anticipated population and service area growth.

Distribution system water losses are inherently uncertain to forecast over the long term. While losses may increase as portions of the distribution system age, the City is actively implementing an AMI program that is expected to improve customer meter accuracy, enhance leak detection capabilities, and reduce apparent losses. Given these offsetting factors, distribution system water losses are conservatively assumed to remain constant at 247 MG per year, representing the average annual distribution system water loss reported during the 2021 through 2025 period.

Institutional/governmental water demands consist exclusively of the Coalinga State Hospital and Pleasant Valley State Prison. Because these state-operated facilities are primarily influenced by facility operations, occupancy, and State management practices rather than local population growth, their projected water demands were not increased using the City's annual growth rate. Instead, projected demands are based on the average annual water use observed between 2021 and 2025 and are assumed to remain constant throughout the UWMP planning horizon at approximately 92 MG per year for the Coalinga State Hospital and 156 MG per year for Pleasant Valley State Prison, unless significant operational changes or facility expansions occur.

Unlike retail potable water demands, non-potable agricultural water deliveries are not directly correlated with population growth or urban development. These deliveries consist of untreated CVP surface water provided to agricultural customers through the City's raw water delivery system and are influenced by agricultural irrigation requirements, cropping patterns, hydrologic conditions, and annual CVP water allocations. Because these factors are highly variable and cannot be reliably projected over the 25-year planning horizon, non-potable agricultural water deliveries are assumed to remain constant at the 2025 baseline volume of 1,067 MG for planning purposes. This assumption provides a reasonable basis for long-term planning while recognizing that actual annual raw water deliveries may fluctuate considerably in response to water supply availability and agricultural demand.

Total Uses of Potable, and Non-Potable Water - Projected (Submittal Table 4-2)						
Use Type	Additional Description	Projected Water Use (MG)				
		2030	2035	2040	2045	2050
Single Family		505	579	664	761	872
Multi-Family		93	107	123	141	162
Commercial		134	154	177	202	232
Industrial		37	43	49	57	65
Landscape		73	84	96	110	126
Institutional/Governmental	Coalinga State Hospital	92	92	92	92	92
Institutional/Governmental	Pleasant Valley State Prison	156	156	156	156	156
Distribution System Water Loss		247	247	247	247	247
Agricultural	Raw Surface Water Deliveries	1,067	1,067	1,067	1,067	1,067
	Subtotal Potable	1,338	1,462	1,603	1,766	1,952
	Subtotal Non-Potable	1,067	1,067	1,067	1,067	1,067
	TOTAL	**2,405**	**2,529**	**2,671**	**2,833**	**3,020**

4.2.5.1. Standards, Codes, Ordinances, and Plans

CWC Section 10631(d)(4)

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

(B) To the extent that an urban water supplier reports the information described in subparagraph (A), an urban water supplier shall do both of the following:

(i) Provide citations of the various codes, standards, ordinances, or transportation and land use plans utilized in making the projections.

(ii) Indicate the extent that the water use projections consider savings from codes, standards, ordinances, or transportation and land use plans. Water use projections that do not account for these water savings shall be noted of that fact.

Water demand projections presented in this UWMP were developed using historical water use data and projected service area growth. In preparing these projections, the City reviewed applicable federal, state, and local standards, codes, ordinances, and planning documents that influence water use efficiency within the service area.

Existing water conservation regulations and efficiency standards have been incorporated into current water use patterns reflected in the historical baseline used for demand forecasting. These include statewide water efficiency requirements such as the California Plumbing Code fixture efficiency standards, the Model Water Efficient Landscape Ordinance (MWELO), and other applicable water conservation requirements that influence indoor and outdoor water use. Because these requirements are already reflected in existing water use conditions, the demand projections developed for this UWMP assume that current regulatory conditions will continue and therefore do not include additional quantified reductions associated with future water savings beyond those already embedded in historical water use trends.

Consistent with the requirements of CWC Sections 10631(a), 10631(d)(4)(A), and 10631(d)(4)(B), the City evaluated whether future water savings associated with new standards, codes, ordinances, or plans should be incorporated into projected water demands. At the time this UWMP was prepared, no additional adopted local ordinances or regulatory programs were identified that would result in measurable future reductions in water demand beyond those already reflected in existing usage patterns. Therefore, projected water demands presented in this UWMP do not explicitly include additional future water savings.

Lower-income residential water demands are included within the demand projections. Residential demand projections were developed using historical water use data for all residential customers within the City's service area. Because historical consumption data reflect the full range of residential customer types, including lower-income households, these demands are inherently captured in the baseline water use used to develop projected demands. As a result, lower-income residential water demands are represented within the projected demand estimates without the need for separate adjustments.

Table 4-6 presents the City's responses to the CWC Section 10631 requirements regarding the inclusion of future water savings and lower-income residential demands in projected water use.

Table

Inclusion in Water Use Projections (Submittal Table 4-3)	
Are Future Water Savings Included in Projections?	No
If "Yes" to above: State the section or page number, in the cell to the right, where citations of the codes, ordinances, or otherwise are utilized in demand projections are found.	N/A
Are Lower Income Residential Demands Included In Projections?	Yes

4.2.5.2. Water Use for Lower Income Households

CWC Section 10631.1.

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

(b) It is the intent of the Legislature that the identification of projected water use for single-family and multifamily residential housing for lower income households will assist a supplier in complying with the requirement under Section 65589.7 of the Government Code to grant a priority for the provision of service to housing units affordable to lower income households.

California Health and Safety Code Section 50079.5 (a)

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

Section 10631.1 of the CWC requires urban water suppliers to identify projected water use associated with single-family and multifamily residential housing affordable to lower income households, as defined

in Section 50079.5 of the California Health and Safety Code, and as identified in the Housing Element of the applicable jurisdiction within the supplier's service area.

For purposes of this UWMP, the City of Coalinga has incorporated projected water use for lower income households into its overall residential demand projections. The City's projected water demands have not been separately adjusted to account for future water savings associated with new codes, standards, ordinances, or transportation and land use plans beyond those already reflected in historical water use trends. Existing conservation requirements and efficiency measures are considered embedded in the baseline water use data used to prepare demand forecasts.

Residential water demand forecasts were developed using historical consumption data for all residential customer classes within the City's service area together with projected population and service connection growth assumptions previously described. Because the historical and projected residential demand data reflect the full range of household income levels, including lower income households, water demands associated with lower income households are inherently included in the City's total residential demand projections.

Consistent with Appendix K of the 2025 UWMP Guidebook, the City does not estimate lower income household demand as a separate water use category. Rather, projected demand associated with lower income households is embedded within total single-family and multifamily residential demand estimates. This approach is appropriate because residential water use is forecast on a service area basis and is not expected to vary significantly by income category in a manner that would warrant separate quantification for UWMP planning purposes. Based on prior planning estimates, lower income household demand is anticipated to comprise a modest portion of total residential demand and remains fully represented within the City's overall demand projections.

The City has reviewed the applicable Housing Element and recognizes the planned development of housing units affordable to lower income households within the planning horizon. Future construction of such units is accounted for through the population and connection growth projections used to estimate future residential water demands.

Pursuant to Government Code Section 65589.7, it is the City's policy to provide priority for water service to qualifying developments that include housing units affordable to lower income households, consistent with applicable law and subject to the availability of sufficient water supply and distribution system capacity. The City may deny or condition approval of service only where authorized by law, including circumstances involving insufficient supply or capacity, regulatory compliance orders, or failure of an applicant to satisfy generally applicable service requirements, fees, or conditions.

4.2.6. Climate Change Considerations

CWC Section 10630.

It is the intention of the Legislature, in enacting this part, to permit levels of water management planning commensurate with the numbers of customers served and the volume of water supplied, while accounting for impacts from climate change.

CWC Section 10635(b)

Every urban water supplier shall include, as part of its urban water management plan, a drought risk assessment …(and) shall include each of the following …

(4) 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.

California's climate is projected to become warmer and more variable over time, with increasing temperatures, more frequent and intense extreme heat events, changing precipitation patterns, reduced Sierra Nevada snowpack, and an increased likelihood of prolonged drought conditions. These changes have the potential to affect both the reliability of imported water supplies and customer water demands within the City of Coalinga. Consistent with CWC Sections 10630 and 10635(b), the City has considered the potential impacts of climate change in developing this UWMP and evaluating long-term water supply reliability.

For the City, climate change may increase water demands through higher temperatures, longer dry seasons, and increased landscape irrigation requirements. Extended periods of hot weather may increase peak water demands and overall outdoor water use, while evolving conservation practices, land use changes, and population growth may influence long-term demand trends. The demand projections presented in this UWMP incorporate historical water use patterns together with reasonable planning assumptions regarding future growth and water use efficiency.

Because the City relies exclusively on surface water supplies purchased from the USBR through the CVP, climate change has the potential to affect water supply reliability through changes in watershed hydrology, reduced snowpack, altered runoff timing, increased evaporative losses from reservoirs, and more frequent or prolonged drought conditions. These changes could affect annual CVP allocations, operational flexibility within the San Luis Reservoir and Delta conveyance system, and the availability of imported water during critically dry years. Future regulatory actions associated with environmental protection, endangered species requirements, and Delta operations may also influence the quantity and timing of CVP water deliveries.

To improve long-term resilience, the City continues to implement water conservation measures, reduce distribution system water losses through its AMI program, maintain and improve water system infrastructure, and coordinate with the USBR regarding long-term water supply reliability. The Water Shortage Contingency Plan (WSCP) and Drought Risk Assessment (DRA), presented in subsequent chapters of this UWMP, evaluate the potential effects of drought and climate variability on the City's imported water supplies and establish response actions designed to maintain reliable water service during future shortages. Through these efforts, the City seeks to enhance the resiliency of its water system while adapting to the long-term effects of climate change.

4.3. Distribution Water Loss

CWC Section 10631(d)(3)

(A) The distribution system water loss shall be quantified for each of the five years preceding the plan update, in accordance with rules adopted pursuant to Section 10608.34.

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

(C) In the plan due July 1, 2021, and in each update thereafter, data shall be included to show whether the urban retail water supplier met the distribution loss standards enacted by the board pursuant to Section 10608.34.

Pursuant to CWC Section 10631(d), the City is required to quantify and report water distribution system losses for the previous five years and include information demonstrating progress toward meeting the SWRCB's Water Loss Performance Standard. Distribution system water losses represent the physical and apparent losses of potable water from the distribution system, including transmission pipelines, storage facilities, and distribution mains, up to the point of customer delivery. These losses are calculated using the AWWA water balance methodology in accordance with the State's annual water loss audit requirements (23 CCR Section 638.1 et seq.).

Distribution system losses consist of:

- Real losses, such as leakage from mains, service lines, and storage facilities.
- Apparent losses, including customer meter inaccuracies, unauthorized consumption, and data handling errors.

The City has prepared and submitted annual water loss audits to the DWR in accordance with State requirements. These audits form the basis for reporting historical and current distribution system water losses in this UWMP.

In addition to historical reporting, distribution system water losses are included as a water use sector in projected demands for the planning horizon in five-year increments through 2050, consistent with CWC Section 10631(d)(1).

4.3.1. Previous Five Years Distribution System Losses

The City's distribution system's water losses for the most recent five-year reporting period are summarized in Table 4-2. Reported water losses include real losses, apparent losses, and authorized unbilled consumption, consistent with the AWWA water audit methodology. Water loss is calculated as the difference between the volume of water entering the distribution system and the volume of authorized consumption, including both billed and unbilled metered uses.

Although the City has historically prepared its annual AWWA water loss audits on a fiscal-year basis in accordance with its operational and billing records, the water loss values presented in Table 4-2 have been developed using calendar-year data to maintain consistency with the reporting period used throughout this UWMP. Consequently, the water loss values presented in Table 4-2 may not correspond directly with the City's validated fiscal-year AWWA water audits due to the differing reporting periods.

Annual water loss volumes reflect a combination of actual system conditions, operational activities, and improvements in data accuracy. Year-to-year variations may result from factors such as distribution system leaks, meter accuracy, authorized system uses, changes in customer consumption patterns, and ongoing improvements in data collection, metering technology, and audit validation procedures.

In accordance with CWC Section 10631(d)(3), the City has completed and submitted validated annual water loss audits for each of the past five fiscal years using the AWWA Free Water Audit Software and State reporting requirements. The City continues to improve the accuracy of its water loss accounting through implementation of its AMI program, enhanced system monitoring, improved meter accuracy, and refined data management practices. These efforts are expected to improve future water audit accuracy and support the City's long-term water loss control objectives. Table 4-7 summarizes the City's annual water loss reporting for the 2021 through 2025 reporting period.

Water Loss Audit Reporting (Submittal Table 4-5)		
Public Water System ID#	**Reporting Period**	**Submitted to DWR Water Loss Audit Program (yes/no)**
Report submittal status for all five years for each Public Water System as available.		
CA5410002	2020	Yes
	2021	Yes
	2022	Yes
	2023	Yes
	2024	Yes
DWR NOTES: Suppliers will provide a link to the WUEdata submittals of their Water Loss Audit Reports.		
NOTES: AWWA-WAS-v5-09152014(WIP)_edits.xls FINAL FY 2021-22 City of Coalinga Water Audit.xlsx FINAL FY 2022-23 City of Coalinga Water Audit V6.xlsx FY 2023-24 FINAL City of Coalinga Water Audit V6.xlsx 2024 2025 Validated Wtr Audit for Coalinga FINAL.xlsx		

4.3.2. Progress Toward Meeting the Water Loss Performance Standard

Pursuant to CWC Section 10631(d)(3)(C), the City is required to report its progress toward meeting the SWRCB's Water Loss Performance Standard. The Water Loss Performance Standard, established under 23 CCR Section 980 et seq., includes separate real water loss and apparent water loss standards intended to improve system efficiency and reduce avoidable water losses. These standards are expressed in gallons per service connection per day (GPSCD).

Table 4-8 presents the City's progress toward meeting the 2028 Water Loss Performance Standard using the most recent validated AWWA water loss audit data from fiscal year(FY) 2024-2025. The SWRCB has established a 2028 real water loss performance standard of 21.6 GPSCD and apparent water loss performance standard of 28.3 GPSCD for the City.

Based on the FY 2024-2025 validated water loss audit, the City reported 201.1 MG of real water losses and 66.3 MG of apparent water losses. With 4,061 active service connections during FY 2024-2025, these losses equate to 44.2 GPSCD for real losses and 14.6 GPSCD for apparent losses. As shown in Table 4-8, the City is currently meeting the SWRCB's apparent water loss performance standard but has not yet achieved the applicable real water loss performance standard.

Although compliance with the Water Loss Performance Standard is not required until January 1, 2028, the City recognizes the need to continue reducing losses within the distribution system. To improve performance, the City has implemented an AMI program that replaces existing customer meters with cellular-read technology to improve meter accuracy, enhance system monitoring, and strengthen water accounting. In conjunction with ongoing routine leak detection, infrastructure maintenance, and data management improvements, these efforts are expected to improve the accuracy of future water audits and reduce both real and apparent water losses over time, supporting the City's progress toward achieving the 2028 Water Loss Performance Standard.

Table 4-8 Progress Towards 2028 Water Loss Standard (Submittal Table 4-6)

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?	Real Water Loss				Apparent Water Loss			
		State Water Board Standard	Most Recent AWWA Water Loss Audit		Real Water Loss (GPSCD)	State Water Board Standard	Most Recent AWWA Water Loss Audit		Apparent Water Loss (GPSCD)
		2028 Real Water Loss Standard (GPSCD)	Number of Connections	Volume of Total Real Loss (from AWWA Water Loss Audit) (MG)		2028 Apparent Water Loss Standard per Unit per Day (GPSCD)	Number of Connections	Volume of Total Apparent Loss (from AWWA Water Loss Audit) (MG)	
CA1010004	Yes	21.6	4,061	201.1	44.2	28.3	4,061	66.3	14.6
Water Board's Calculated Water Loss Standards									

CHAPTER 5 - SB X7-7 BASELINES, TARGETS, AND COMPLIANCE

5.1. Baseline and Targets

The Water Conservation Act of 2009, also known as the SB X7-7, established a statewide goal to reduce urban per capita water use by 20 percent by 2020. To support this goal, each urban retail water supplier was required to establish baseline water use and corresponding 2020 targets, measured in gallons per capita per day (GPCD), and to demonstrate compliance with those targets.

The City previously established its baseline and 2020 water use target in its 2010 and 2015 UWMPs in accordance with applicable methodologies. This chapter documents the City's compliance with its 2020 water use target consistent with CWC requirements and DWR guidance. Compliance is demonstrated through the SB X7-7 Compliance Form attached in Appendix D, and associated submittal tables included in this 2025 UWMP.

In addition to SB X7-7 compliance reporting, urban water suppliers are subject to long-term water use efficiency standards established under Senate Bill 606 and Assembly Bill 1668. These standards establish water use objectives for indoor residential use, outdoor irrigation, commercial, industrial, and institutional (CII) uses, and water loss. These requirements will guide future water use efficiency planning and reporting.

This chapter summarizes the City's compliance with the SB X7-7 2020 water use target and provides an overview of applicable water use efficiency standards that will inform future planning efforts.

5.2. Gross per Capita Water Use Baselines and Targets

The City calculated its retail service area's five-year baseline, 10-year baseline, 2015 interim target, and 2020 compliance target in accordance with the Water Conservation Act of 2009 and DWR's *Methodologies for Calculating Baseline and Compliance Urban Per Capita Water Use* (For the Consistent Implementation of the Water Conservation Act of 2009). Using Method 1, the City established its urban water use targets by applying a 20 percent reduction to the baseline daily per capita water use.

The calculated interim and compliance targets were based on this methodology and were previously adopted in the City's 2015 and 2020 UWMPs. Table 5-1 summarizes the baselines and targets calculated for the City.

Table 5-1 Gross Per Capita Water Use Baselines and Targets Summary

Baseline Period	Start Year	End Year	Average Baseline (GPCD)	Interim 2015 Target (GPCD)	Confirmed 2020 Target (GPCD)
10–Year Baseline	2001	2010	341	307	273
5-Year Baseline	2006	2010	330		

5.3. Compliance with the 2020 Daily per Capita Water Use Target

During the 2020 UWMP reporting cycle, the City of Coalinga was an urban retail water supplier and was not subject to a merger or consolidation. Accordingly, the City's compliance determination is based on its

previously established individual 2020 water use target. As described previously, the City calculated its baseline and targets using Method 1 (20 percent reduction) under Senate Bill X7-7 and adopted a 2020 target of 273 gallons per capita per day (GPCD).

The City's actual 2020 water use, calculated in accordance with the required SB X7-7 methodology, was 214 GPCD, which is below the adopted 2020 target. Based on this comparison, the City successfully achieved its required targeted reduction and was compliant with SB X7-7 requirements during the 2020 reporting year.

Consistent with 2025 UWMP reporting requirements, the City also evaluated whether it continues to meet the previously established 2020 target under current conditions. Based on the City's 2025 SB X7-7 Compliance Form calculations, the reported 2025 GPCD is 199, which remains below the 2020 target of 273 GPCD. This indicates that the City continues to maintain compliance with its established target.

Table 5-2 summarizes the City's adopted 2020 target, actual 2020 water use, compliance determination, and the updated 2025 evaluation. Supporting calculations and verification are provided in the SB X7-7 Compliance Form included in Appendix D.

Table 5-2 SB X7-7 2020 Target Progress (Submittal Table 5-1)

☐	**Check the box if the Supplier was not an Urban Water Supplier during or before the 2020 UWMP reporting cycle. Proceed to the next table.**					
Was Supplier part of a merger or consolidation since 2020?	**Regional Alliance Target or Individual Target?**	**2020 Target GPCD**	**Actual 2020 GPCD**	**Did Supplier Achieve Targeted Reduction for 2020?**	**Actual 2025 GPCD**	**Did Supplier meet the 2020 Target in 2025?**
No	Individual	273	214	Yes	199	Yes

CHAPTER 6 - NORMAL-YEAR WATER SUPPLY CHARACTERIZATION

This chapter characterizes the City of Coalinga's existing and projected water supplies available to meet current and future water demands under normal hydrologic conditions. Consistent with the requirements of the UWMPA, the chapter identifies the City's water supply sources, evaluates historical and projected supply availability, discusses water quality and operational considerations, and describes planned water supply and infrastructure improvements intended to maintain long-term water system reliability.

The City of Coalinga's potable water system relies solely on treated surface water purchased from the USBR through the CVP. Imported surface water serves as the City's principal source of potable water under normal operating conditions. The City does not currently rely on groundwater supplies for normal operations. In addition, while the City owns and operates a municipal wastewater treatment facility, treated effluent is currently discharged and is not beneficially reused for recycled water applications within the service area.

The following sections summarize the City's historical water supplies, projected normal-year supplies through the 2050 planning horizon, water quality considerations associated with the supply source, and anticipated future water supply projects. The adequacy and reliability of these supplies under normal, single dry-year, and multiple dry-year conditions, including the potential effects of drought and climate change, are evaluated in Chapter 7.

Water Supply Characterization

6.1.1. Purchased or Imported Water

The City of Coalinga's potable water supply is derived entirely from imported surface water purchased from the USBR through the CVP. Raw water is delivered to the City's WTP via the Coalinga Canal, which receives water from the California Aqueduct. Following treatment, the water is distributed throughout the City's potable water system to residential, commercial, industrial, institutional, and public customers.

The City's imported water supply is governed by a long-term water service contract with the USBR that provides for the delivery of up to 10,000 acre-feet (AF) of CVP water annually. The original contract was executed in 1968 and subsequently continued through a series of interim renewal contracts until the current long-term repayment contract became effective on January 22, 2021. Under this agreement, the City receives water allocations based on available CVP supplies and applicable federal operating criteria.

Although the contract provides for annual deliveries of up to 10,000 AF, actual deliveries vary from year to year depending on hydrologic conditions, reservoir storage, regulatory requirements, and annual allocation decisions made by the USBR. Historical and projected imported water supplies available to the City under normal-year conditions are summarized later in this chapter, while the reliability of these supplies during single dry-year and multiple dry-year conditions is evaluated in Chapter 7.

6.1.2. Groundwater

Water Code Section 10631(b)(4)

If groundwater is identified as an existing or planned source of water available to the supplier, all of the following information:

(A) The current version of any groundwater sustainability plan or alternative adopted pursuant to Part 2.74 (commencing with Section 10720), any groundwater management plan adopted by the urban water supplier, including plans adopted pursuant to Part 2.75 (commencing with Section 10750), or any other specific authorization for groundwater management for basins underlying the urban water supplier's service area.

(B) A description of any groundwater basin or basins from which the urban water supplier pumps groundwater. For basins that a court or the board has adjudicated the rights to pump groundwater, a copy of the order or decree adopted by the court or the board and a description of the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. For a basin that has not been adjudicated, information as to whether the department has identified the basin as a high- or medium-priority basin in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to coordinate with groundwater sustainability agencies or groundwater management agencies listed in subdivision (c) of Section 10723 to maintain or achieve sustainable groundwater conditions in accordance with a groundwater sustainability plan or alternative adopted pursuant to Part 2.74 (commencing with Section 10720).

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

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

The City of Coalinga does not currently utilize groundwater as an existing or planned source of potable water supply. The City's municipal water demands are met entirely through imported surface water purchased from the USBR.

Groundwater underlying the Coalinga area is generally unsuitable for municipal potable use due to naturally occurring elevated concentrations of total dissolved solids (TDS), sodium, and sulfate. These water quality limitations make groundwater an impractical source of drinking water without significant treatment. Additionally, the relatively poor groundwater quality limits its suitability for agricultural irrigation, as continued use may contribute to the accumulation of salts within the soil.

Because the City does not currently pump groundwater for municipal water supply purposes and does not anticipate developing groundwater as a potable water source during the 2025 UWMP planning period, the groundwater reporting requirements of CWC Section 10631(b)(4) are not applicable. Accordingly, Submittal Table 6-1, Groundwater Volume Pumped, is not included in this UWMP, as the City has no historical or projected municipal groundwater production to report.

6.1.3. Surface Water

Due to the naturally poor quality of groundwater underlying the Coalinga area, the City relies exclusively on imported surface water from the federal CVP for its potable water supply. Water is purchased from

the USBR pursuant to a long-term water service contract that provides the City with the right to receive up to 10,000 AF of CVP water annually. The City originally entered into a 40-year water service contract with the USBR on October 28, 1968. Following the expiration of that agreement on December 31, 2008, water deliveries continued under a series of interim renewal contracts while the USBR completed the required environmental review for the long-term contract renewal. On January 22, 2021, the City and the USBR executed Contract No. 14-06-200-4173A-IR1-P, establishing a long-term repayment contract that continues the City's contractual entitlement to receive up to 10,000 AF of CVP water per year, subject to annual allocation determinations and applicable federal operating requirements.

The City's imported water supply originates in the Sacramento-San Joaquin Delta and is conveyed through the CVP conveyance system. Water is transported south through the Delta-Mendota Canal and/or the California Aqueduct, where it enters the O'Neill Forebay before continuing south in the California Aqueduct to the headworks of the Coalinga Canal, located approximately 15 miles northeast of the City near the Highway 145 crossing. From this point, raw water is conveyed approximately 12 miles south through the Coalinga Canal to the City's WTP intake. A raw water pumping station lifts the water from the canal into the City's conventional surface water treatment facility, where it is treated to meet all applicable drinking water standards before being distributed through the City's potable water distribution system.

6.1.4. Existing Water System Infrastructure

The City of Coalinga's potable water system consists of a conventional surface water treatment plant, raw and treated water pumping facilities, transmission pipelines, treated water storage reservoirs, booster pumping stations, and an interconnected distribution system that serves the City, surrounding commercial, industrial, and agricultural customers, the Pleasant Valley State Prison, and the Coalinga State Hospital.

6.1.4.1. Water Treatment Plant

The City's conventional surface WTP began operation in April 1972 with an original average treatment capacity of 8 million gallons per day (MGD) and a maximum capacity of 12 MGD. In response to increased water demands associated with the construction of the Pleasant Valley State Prison, the WTP was expanded to provide an average treatment capacity of 12 MGD and a maximum treatment capacity of 16 MGD.

The WTP utilizes conventional surface water treatment processes, including chemical pretreatment, coagulation, flocculation, sedimentation, filtration, corrosion control, and primary chlorine disinfection. Chloramines are applied for secondary disinfection to maintain a disinfectant residual throughout the distribution system while minimizing the formation of regulated disinfection byproducts.

Raw water is conveyed from the Coalinga Canal to the WTP by a dedicated raw water pumping station. Following treatment, filtered water is pumped into a 27-inch transmission main located along Palmer Avenue for delivery to the City's treated water storage facilities.

6.1.4.2. Filtered Water Pump Station

The filtered water pump station consists of five vertical turbine pumps, including two 450-horsepower (HP) pumps rated at approximately 2,300 and 2,400 gallons per minute (gpm) and three 700-HP pumps

rated at approximately 3,600 gpm each. Under normal operating conditions, the pump station is capable of delivering the WTP's maximum treatment capacity of approximately 16.4 MGD (11,400 gpm) while maintaining redundancy with one of the smaller pumps out of service.

6.1.4.3. Treated Water Storage

The City maintains five treated water storage reservoirs with a combined storage capacity of approximately 16.1 MG. Three reservoirs including the Palmer Avenue, Calaveras Avenue, and Derrick Avenue Reservoirs, provide operational storage for the municipal potable water system and collectively provide approximately 15.4 MG of storage. These reservoirs balance fluctuations in water demand, maintain system pressures, provide emergency and fire protection storage, and improve overall system reliability.

The remaining two reservoirs, the Oil King Reservoir (0.5 MG) and the Northwest Reservoir (0.2 MG), are dedicated exclusively to serving the City's oil field customers through separate transmission and booster pumping facilities. Because these reservoirs do not serve the municipal potable water system, they are not included in the City's available municipal treated water storage capacity.

6.1.4.4. Booster Pump Stations

The City operates two booster pumping stations that exclusively serve industrial oil company customers and are not part of the primary municipal potable water system.

The Oil King Booster Station consists of two 200-HP booster pumps rated at approximately 1,440 gpm, which convey water from the Palmer Avenue Reservoir to the Oil King Reservoir. The Derrick Avenue Booster Station consists of two 75-HP booster pumps rated at approximately 556 gpm, which supply the Northwest Reservoir.

6.1.4.5. Transmission and Distribution System

Following treatment, filtered water is conveyed west from the WTP through a 27-inch transmission main along Palmer Avenue. Approximately two miles downstream, the transmission main divides at Calaveras Avenue. One branch continues west to the Palmer Avenue Reservoir, while the second branch conveys water south through a 12-inch transmission pipeline to the Calaveras Avenue Reservoir before continuing to the Pleasant Valley State Prison. Although the Calaveras system can hydraulically supply portions of the City, water typically flows toward the prison due to prevailing operating conditions.

Water stored in the Palmer Avenue Reservoir is conveyed approximately eight miles through 24-inch and 27-inch transmission mains to the Derrick Avenue Reservoir, which functions as the City's primary distribution storage facility. From the Derrick Avenue Reservoir, treated water enters the municipal distribution system through a network of 18-inch, 24-inch, and 30-inch transmission mains.

The City's distribution system consists of water mains ranging from 4 inches to 14 inches in diameter. The system is designed to meet peak-hour customer demands while maintaining adequate system pressures and providing sufficient fire flow throughout the service area.

6.1.5. Stormwater

The City owns and operates a municipal stormwater collection system designed to convey storm runoff and minimize localized flooding within the service area. The storm drainage system consists of a network

of storm drain inlets, gravity pipelines, and approximately 12 drainage zones that discharge to four permanent stormwater detention basins or to Warthan Creek and Los Gatos Creek. The system operates entirely by gravity and does not require pump stations or lift stations. Existing storm drain pipelines range in diameter up to 48 inches.

Several portions of the City's storm drainage system are hydraulically undersized and rely on overland conveyance through streets, curbs, and gutters during larger storm events. Although the City utilizes stormwater detention basins for flood management, these facilities are not designed for stormwater capture, groundwater recharge, or other beneficial water supply purposes.

The City does not currently recover or utilize stormwater as an existing or planned municipal water supply source. Consequently, stormwater is not included in the City's available water supplies or projected water supply portfolio for purposes of this UWMP. However, the City will continue to evaluate opportunities to improve stormwater management and identify potential future projects that could provide water supply, groundwater recharge, or other beneficial uses as funding and local conditions allow.

6.1.6. Wastewater and Recycled Water

CWC Section 10633R

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

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

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

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

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

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

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

(g) A plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the

increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.

CWC Section 10633 requires urban water suppliers to provide, to the extent information is available, a description of wastewater and recycled water facilities, current recycled water use, and the potential for recycled water to serve as a future water supply source within the service area. This section summarizes the City of Coalinga's wastewater collection and treatment system, existing recycled water uses, and future opportunities for expanded reuse.

6.1.6.1. Recycled Water Coordination

CWC Section 10633

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

The City of Coalinga owns and operates a municipal wastewater collection, treatment, and disposal system that serves residential, commercial, institutional, and public customers throughout the service area. Wastewater generated within the City is collected through the municipal sewer collection system and conveyed to the City's Wastewater Treatment Plant (WWTP), where it is treated prior to disposal. The City's WWTP is the sole municipal wastewater treatment facility serving the City and therefore represents the only potential source of recycled water within the service area.

The City's WWTP provides secondary treatment but does not currently produce disinfected tertiary recycled water suitable for unrestricted non-potable reuse. Historically, treated effluent was beneficially reused through agreements with nearby agricultural users for irrigation of non-food crops. Prior to 2003, treated effluent was managed through the West Hills Community College Farm. Following relocation of the College's agricultural operations, the City entered into agreements with adjacent agricultural landowners to continue irrigation reuse until 2014.

Currently, treated effluent is discharged from the WWTP stabilization ponds to adjacent percolation areas, where it infiltrates into the underlying soils. Although this method provides incidental groundwater recharge, the discharged effluent is not recovered for subsequent municipal or agricultural use and is therefore not considered a direct beneficial recycled water use for purposes of this UWMP.

At this time, the City has no existing recycled water customers, recycled water distribution infrastructure, or planned recycled water projects. Based on the City's current wastewater treatment processes, available infrastructure, and projected water demands, development of a recycled water system is not considered economically justified during the 2025 UWMP planning period. The City will continue to evaluate opportunities for future recycled water development should regulatory requirements, funding opportunities, treatment capabilities, or customer demands change.

6.1.6.2. Wastewater Collection, Treatment, and Disposal

CWC Section 10633(a)

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

The City of Coalinga owns and operates a municipal wastewater collection and treatment system that serves residential, commercial, institutional, and public customers throughout the service area. There are currently no significant industrial users discharging into the City's wastewater collection system.

The wastewater collection system consists of more than 42 miles of gravity sewer pipelines ranging from 6 to 24 inches in diameter, together with four sewer lift stations and associated force mains. The collection system conveys wastewater through a network of trunk sewers and interceptor pipelines to the City's WWTP, located approximately one mile east of the City near the confluence of Los Gatos Creek and Warthan Creek.

The City operates the WWTP in accordance with the applicable Waste Discharge Requirements (WDRs) issued by the California Regional Water Quality Control Board (RWQCB). The facility has a design treatment capacity of 1.34 million gallons per day (MGD) and provides secondary treatment using preliminary screening, primary clarification, aerated facultative lagoons, stabilization ponds, aerobic sludge digestion, and sludge drying beds. The treatment process produces undisinfected secondary effluent consistent with the requirements of Title 22 of the California Code of Regulations.

Following treatment, effluent is pumped from the stabilization ponds to adjacent percolation areas for disposal in accordance with the WWTP's WDRs. The City does not currently produce disinfected tertiary recycled water or operate a recycled water distribution system.

Wastewater flows have remained relatively stable over the past five years. Between 2021 and 2024, the volume of wastewater collected and treated ranged from approximately 320 to 331 MG annually. During 2025, the City collected and treated approximately 314 MG of wastewater, of which approximately 247 MG of treated effluent was discharged in accordance with the WWTP's WDRs. These quantities are summarized in Table 6-1 and reported in the applicable UWMP submittal tables.

Table 6-1 Wastewater Collected Within Service Area in 2025 (Submittal Table 6-2)				
☐	Check the box if there is no wastewater collection system. Proceed to the next table.			
100%	Percentage of 2025 service area served by wastewater collection system.			
100%	Percentage of 2025 service area population served by wastewater collection system.			
Wastewater Collection			**Recipient of Collected Wastewater**	
Name of Wastewater Collection Agency	**Wastewater Volume Metered or Estimated?**	**Volume of Wastewater Collected from UWMP Service Area 2025 (MG)**	**Name of Wastewater Treatment Plant (WWTP) and Place ID Number**	**Is WWTP Located Within UWMP Area?**
City of Coalinga	Metered	314	Coalinga WWTF, Place ID 273107	Yes
Total Wastewater Received from UWMP Service Area in 2025:		**314**		

As stated above, the City does not operate a municipal recycled water distribution system. However, the City's WWTP remains a potential future source of recycled water should additional treatment upgrades, storage and transmission infrastructure, regulatory approvals, and economically feasible reuse opportunities be identified. Future beneficial reuse could help offset potable water demands and improve long-term water supply reliability.

Table 6-3 summarizes the quantity of wastewater collected from within the City's service area and treated at the City's WWTF during 2025. Consistent with CWC Section 10633(a), this table presents the volume of wastewater received from within the service area and the total volume treated at the City's WWTF.

As discussed previously, the City does not currently operate a municipal recycled water distribution system or produce disinfected tertiary recycled water suitable for direct beneficial reuse. However, the City's WWTP represents a potential future source of recycled water should additional treatment upgrades, storage and distribution infrastructure, regulatory approvals, and economically feasible reuse opportunities be identified. Future recycled water projects could reduce the demand for imported CVP water by providing a non-potable supply for appropriate applications, such as landscape irrigation, agricultural irrigation, industrial uses, or other approved beneficial uses, thereby improving the long-term sustainability and reliability of the City's overall water supply portfolio.

Table 6-2 summarizes the quantity of wastewater collected within the City's service area and the volume of wastewater treated at the City's WWTP. Consistent with CWC Section 10633(a), the table identifies the volume of wastewater collected and treated, the amount discharged through percolation in accordance with the City's Waste Discharge Requirements and confirms that no recycled water was beneficially reused within the service area during the reporting year.

Table 6-2 Wastewater Treatment and Outcomes Within UWMP Service Area in 2025 (Submittal Table 6-3)

☐	**Check the box if no wastewater is treated or disposed of within the UWMP service area.**		
Wastewater Treatment Plant Name and Place ID Number	**Does This Plant Treat Wastewater Generated Outside the UWMP Service Area?**	**2025 Volume of Wastewater Received from UWMP Service Area (MG)**	**Total 2025 Volume of Water Treated (MG)**
Coalinga WWTF, Place ID 273107	No	314	314

Table 6-3 summarizes the disposition of treated wastewater within the City of Coalinga's service area during 2025. The City's WWTP produces undisinfected secondary effluent, which is discharged to adjacent percolation areas in accordance with the facility's WDRs. The City does not currently produce disinfected tertiary recycled water or operate a municipal recycled water distribution system. Consequently, no treated wastewater was beneficially reused within or outside the City's service area during the 2025 reporting period, and all treated effluent was managed through the City's existing percolation disposal system.

Table 6-3 Wastewater Treatment and Outcomes Within UWMP Service Area in 2025 (Submittal Table 6-3)											
☐	Check the box if no wastewater is treated or disposed of within the UWMP service area.										
Wastewater Treatment Plant Name and Place ID Number	2025 Outcomes of Treated Wastewater										
	Water Recycled Within UWMP Service Area		Water Recycled Outside of UWMP Service Area		Effluent Discharge that is not a Permitted Recycled Water Use		Required Discharge for Instream Flow		Delivered to Another Entity for Additional Treatment		
	Treatment Level	Volume (MG)	Treatment Level	Volume (MG)	Treatment Level	Volume (MG)	Treatment Level	Volume (MG)	Treatment Level	Volume (MG)	Name of Other Entity
Coalinga WWTF, Place ID 273107	NA	0	NA	0	Secondary, Undisinfected	247	NA	0	NA	0	NA

6.1.6.3. Recycled Water System Description

CWC Section 10633 (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.

As stated above, the City of Coalinga does not currently operate a municipal recycled water distribution system and does not directly deliver recycled water for beneficial reuse within the service area. At present, treated effluent generated at the City's WWTP is managed through the existing wastewater treatment and disposal system, where undisinfected secondary effluent is discharged to adjacent percolation areas in accordance with the City's WDRs. The City does not currently produce disinfected tertiary recycled water suitable for direct non-potable reuse.

Because the City does not have an active recycled water system, there are currently no municipal recycled water customers, no recycled water distribution infrastructure, and no direct recycled water deliveries for landscape irrigation, agricultural irrigation, industrial reuse, groundwater recharge through a permitted recycled water project, or other beneficial uses. Accordingly, there is no reported recycled water use within the City's service area for 2025.

6.1.6.4. Current, Potential, and Projected Recycled Water Uses

CWC Section 10633

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

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

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

Recycled water is not currently incorporated into the City's water supply portfolio. Following secondary treatment at the City's WWTP, treated effluent is discharged to adjacent percolation areas consistent with the facility's WDRs, and is not distributed for municipal, agricultural, industrial, or other beneficial uses. Accordingly, direct recycled water use within the City in 2025 is 0 MG.

Although the City does not currently operate a recycled water program, the WWTP remains a potential future source of recycled water should treatment upgrades, storage facilities, transmission infrastructure, regulatory approvals, and economically feasible demand opportunities be identified. Potential future applications could include irrigation of parks, landscaped areas, roadway medians, agricultural lands, public facilities, industrial uses, construction water, or other approved non-potable uses that could reduce reliance on imported CVP water.

At this time, implementation of a recycled water system is constrained by the capital costs associated with upgrading the existing WWTP to produce disinfected tertiary recycled water, construction of storage and distribution facilities, seasonal fluctuations in recycled water demand, operational and regulatory

requirements, and the availability of funding. Based on these constraints, the City has not identified any funded recycled water capital improvement projects or planned recycled water customers during the 2025 UWMP planning horizon.

Accordingly, the City projects no direct recycled water uses through 2050. Because the City does not currently beneficially reuse recycled water and has no planned recycled water projects, Submittal Table 6-4 (Recycled Water Direct Beneficial Uses Within Service Area) and Submittal Table 6-5 (2020 UWMP Recycled Water Use Projection Compared to 2025 Actual) are not applicable and are therefore not included in this UWMP.

The City will continue to evaluate opportunities to beneficially reuse treated wastewater as part of its long-term water resources planning efforts and will consider recycled water development as future treatment technologies, regulatory requirements, funding opportunities, and customer demands evolve.

6.1.6.5. Actions to Encourage and Optimize Future Recycled Water Use

CWC Section 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 the following:

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

Consistent with CWC Section 10633(g) and the 2025 UWMP Guidebook, urban water suppliers are required to describe actions planned to encourage and optimize future recycled water use. The City of Coalinga does not operate a municipal recycled water distribution system and does not have funded recycled water expansion projects planned during the 2025 UWMP planning horizon. Accordingly, no specific recycled water implementation actions or quantifiable increases in recycled water use are identified at this time.

While no near-term expansion projects are currently planned, the City recognizes that treated effluent from the City's WWTP may represent a potential long-term supplemental water resource. As future conditions warrant, the City may evaluate opportunities to optimize recycled water use through feasibility studies, treatment upgrades, storage improvements, transmission infrastructure, and identification of nearby non-potable demands such as parks, landscaped areas, agricultural irrigation, public facilities, or groundwater recharge projects subject to regulatory approval.

Because the City does not currently plan to expand recycled water use during the planning horizon, Submittal Table 6-6 (Methods to Encourage Future Recycled Water Use) is not applicable to this UWMP. The City will continue to monitor future opportunities to beneficially reuse treated wastewater as part of long-term water supply planning.

6.1.7. Desalinated Water Opportunities

CWC Section 10631(g)

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

The City has evaluated the potential for desalinated water as a long-term water supply in accordance with CWC Section 10631(g). Due to the City's inland location and significant distance from the Pacific Ocean, development of ocean desalination facilities or conveyance infrastructure to deliver desalinated seawater directly to the service area is not considered technically or economically feasible.

Similarly, there are no known brackish groundwater sources within or near the City's service area that would support development of a brackish water desalination project.

Based on these factors, desalinated water is not currently a feasible or planned water supply option for the City of Coalinga but may be revisited as part of future regional water supply planning efforts.

6.1.8. Water Exchanges or Transfers

CWC Section 10631(c)

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

The City of Coalinga does not currently participate in any short-term or long-term water transfer or exchange programs and has no existing contractual agreements to receive water through transfer or exchange mechanisms. The City's potable water supply is provided through its long-term water service contract with the USBR for CVP water.

Currently, the City has not identified any feasible opportunities to supplement its existing water supply through water transfers or exchange agreements. Accordingly, water transfers and exchanges are not included as a component of the City's existing or projected water supply portfolio during the 2025 UWMP planning horizon.

6.1.9. Supply from Storage

For purposes of this UWMP, "supply from storage" refers to water that was previously placed into surface or groundwater storage in a prior year and is subsequently withdrawn for use during the reporting year. Consistent with the 2025 UWMP Guidebook, only water that was stored prior to the current reporting year and later extracted is reported as supply from storage to avoid double counting of water supplies.

The City does not rely on long-term surface or groundwater storage as a primary water supply source. While the City operates storage tanks within its distribution system, these facilities are used for operational and system balancing purposes (meeting peak demand, maintaining pressure, and providing emergency storage) and do not function as long-term storage from which water is later withdrawn as a distinct supply source.

6.1.10. Other

The "Other" water supply category is used to report any water sources that are not adequately described by the defined supply categories in this UWMP. For the 2025 reporting year, the City does not have any water supplies that fall outside of the standard supply categories.

6.1.11. Future Water Projects

CWC Section 10631 (f)

Include a description of all water supply projects and water supply programs that may be undertaken by the urban water supplier to meet the total projected water use, as established pursuant to subdivision

(a) of Section 10635. The urban water supplier shall include a detailed description of expected future projects and programs that the urban water supplier may implement to increase the amount of the water supply available to the urban water supplier in normal and single dry water years and for a period of drought lasting five consecutive water years. The description shall identify specific projects and include a description of the increase in water supply that is expected to be available from each project. The description shall include an estimate with regard to the implementation timeline for each project or program.

The City of Coalinga continually evaluates opportunities to improve the reliability, efficiency, and resiliency of its water system through ongoing infrastructure maintenance and capital improvement projects. However, the City has not identified any future water supply projects or programs that are expected to increase the quantity of water available to the City during the 2025 UWMP Plan planning horizon. Existing CVP water supplies are projected to be adequate to meet the City's projected demands under normal-year conditions, and the City has not identified any new surface water, groundwater, recycled water, desalination, or water transfer projects that would provide additional water supplies.

The City is currently implementing a systemwide meter replacement program to improve customer metering accuracy, reduce apparent water losses, enhance water use accounting, and support compliance with the SWRCB's water loss performance standards. Although this project will improve operational efficiency and water system management, it does not increase the quantity of water available to the City and therefore is not considered a future water supply project for purposes of CWC Section 10631(f).

Pursuant to CWC Section 10631(f), the City evaluated potential future water supply projects and programs that could increase available water supplies during normal, single dry, and multiple dry water years. At this time, the City has not identified any projects or programs that would result in a quantifiable increase in available water supplies. Therefore, DWR Submittal Table 6-7, Expected Future Water Supply Projects or Programs, is not applicable and is not included in this UWMP.

6.2. Summary of Existing and Planned Sources

CWC Code 10631

(b) Identify and quantify, to the extent practicable, the existing and planned sources of water available to the supplier over the same five-year increments described in subdivision (a), providing supporting and related information, including all of the following…

(b)(2) When multiple sources of water supply are identified, a description of the management of each supply in correlation with the other identified supplies.

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

The City of Coalinga's water supply portfolio consists entirely of imported surface water purchased from the USBR through the CVP. Imported water is used for two distinct purposes within the City's service area. Potable water is conveyed to the City's WTP, where it is treated and distributed through the municipal potable water system to residential, commercial, institutional, governmental, industrial, and public customers. In addition, the City delivers untreated imported surface water to agricultural customers for non-potable irrigation purposes.

Since both potable and non-potable supplies originate from the same imported CVP source, the City does not manage multiple independent water supply sources. Rather, imported water deliveries are managed through the City's existing conveyance, treatment, storage, and distribution facilities to satisfy potable demands while also providing untreated water deliveries for agricultural customers. The City does not currently utilize groundwater, recycled water, stormwater, desalinated water, or water transfer and exchange programs as existing or planned municipal water supply sources.

Table 6-4 summarizes the City's actual water supplies during 2025. During the reporting year, the City supplied approximately 1,282 MG of treated potable water and 1,067 MG of untreated imported surface water for non-potable agricultural use, for a total water supply of approximately 2,349 MG.

Table 6-4 Water Supplies — 2025 Actual (Submittal Table 6-8)

Water Supply	2025		
	Water Type	Actual Volume (MG)	Total Entitlement (MG)
Surface water (not desalinated)[1]	Potable	1,282	1,282
Purchased or Imported Water[2]	Non-Potable	1,067	1,067
	Subtotal Potable	**1,282**	**1,282**
	Subtotal Non-Potable	**1,067**	**1,067**
	TOTAL	**2,349**	**2,349**

NOTES:
[1]Surface Water (not desalinated) represents imported CVP surface water treated at the City's WTP and delivered through the municipal potable water distribution system.
[2]Purchased or Imported Water represents untreated CVP surface water delivered by the City for agricultural irrigation and other non-potable uses.

Projected water supplies through the 2050 planning horizon are summarized in Table 6-5. Potable water supplies are projected to increase from approximately 1,338 MG in 2030 to 1,952 MG by 2050 to accommodate projected growth within the City's service area, while deliveries of untreated imported surface water for agricultural customers are projected to remain constant at approximately 1,067 MG throughout the planning period. As a result, the City's total projected water supply is expected to increase from approximately 2,405 MG in 2030 to 3,020 MG by 2050. The existing and projected water supplies presented in Tables 6-4 and 6-5 form the basis for the normal-year, single dry-year, and multiple dry-year water supply reliability analyses presented in Chapter 7.

Table 6-5 Water Supplies — Projected (Submittal Table 6-9)

Water Supply	Water Type	Projected Water Supply									
		2030		2035		2040		2045		2050	
		Reasonably Available Volume (MG)	Total Entitlement (MG)	Reasonably Available Volume (MG)	Total Entitlement (MG)	Reasonably Available Volume (MG)	Total Entitlement (MG)	Reasonably Available Volume (MG)	Total Entitlement (MG)	Reasonably Available Volume (MG)	Total Entitlement (MG)
Surface water (not desalinated)[1]	Potable	1,338	1,338	1,462	1,462	1,603	1,603	1,766	1,766	1,952	1,952
Purchased or Imported Water[2]	Non-Potable	1,067	1,067	1,067	1,067	1,067	1,067	1,067	1,067	1,067	1,067
Subtotal Potable		**1,338**	**1,338**	**1,462**	**1,462**	**1,603**	**1,603**	**1,766**	**1,766**	**1,952**	**1,952**
Subtotal Non-Potable		**1,067**	**1,067**	**1,067**	**1,067**	**1,067**	**1,067**	**1,067**	**1,067**	**1,067**	**1,067**
TOTAL		**2,405**	**2,405**	**2,529**	**2,529**	**2,671**	**2,671**	**2,833**	**2,833**	**3,020**	**3,020**

NOTES:
[1]Surface Water (not desalinated) represents imported CVP surface water treated at the City's WTP and delivered through the municipal potable water distribution system.
[2]Purchased or Imported Water represents untreated CVP surface water delivered by the City for agricultural irrigation and other non-potable uses.

6.3. Energy Use

CWC Section 10631.2. (a)

In addition to the requirements of Section 10631, an urban water management plan shall include any of the following information that the urban water supplier can readily obtain:

(1) An estimate of the amount of energy used to extract or divert water supplies.

(2) An estimate of the amount of energy used to convey water supplies to the water treatment plants or distribution systems.

(3) An estimate of the amount of energy used to treat water supplies.

(4) An estimate of the amount of energy used to distribute water supplies through its distribution systems.

(5) An estimate of the amount of energy used for treated water supplies in comparison to the amount used for nontreated water supplies.

(6) An estimate of the amount of energy used to place water into or withdraw from storage.

(7) Any other energy-related information the urban water supplier deems appropriate.

In accordance with CWC Section 10631.2(a), this section provides information regarding energy use associated with the production and distribution of water supplies within the City's service area. The information is intended to provide a planning-level estimate of the energy required to operate the City's potable water system using data that is readily available from utility records and system operations.

The City relies exclusively on imported surface water supplied through its long-term CVP water service contract with the USBR. Raw CVP water is conveyed to the City's WTP, where it is treated to meet all applicable drinking water standards before being delivered to the potable water distribution system. Accordingly, the City's primary energy demands are associated with treatment of imported surface water, operation of the distribution system, and movement of treated water through the City's storage and transmission facilities.

Within the City's water system, energy is primarily consumed for operation of treatment processes, including chemical feed systems, filtration, pumping, instrumentation, and other treatment equipment at the WTP. Additional energy is required to convey treated water throughout the distribution system, maintain system pressures, and transfer water into and out of storage facilities as necessary to meet customer demands. The City does not directly incur energy associated with extracting or conveying raw CVP water to its point of delivery, and upstream embedded energy associated with imported water is not included in this analysis.

Energy intensity is defined as the amount of electrical energy required to treat and deliver a unit volume of potable water and is commonly expressed in kilowatt-hours per million gallons (kWh/MG). For the City of Coalinga, energy intensity reflects the electricity used to operate the WTP and associated potable water delivery facilities under the City's operational control. Energy consumption is measured through metered electrical service accounts and recorded in kilowatt-hours (kWh).

An energy intensity analysis was completed for the reporting period of January 1, 2025, through December 31, 2025, using DWR's recommended Total Utility Approach. During 2025, the City delivered approximately 1,282 MG of potable water and consumed approximately 3,017,791 kWh of electricity for treatment and distribution operations, resulting in a system-wide energy intensity of approximately 2,354 kWh/MG. The City does not currently generate renewable energy to offset electrical consumption associated with its potable water operations. The results are summarized in Table 6-6, and the corresponding DWR Optional Submittal Table O-1B is included in Appendix E.

Table 6-6 Recommended Energy Reporting - Single Delivery Product - Total Utility Approach (Submittal Table O-1B)

Water Delivery Product	Retail Potable Deliveries	**Only for Water Delivery Products Under the Urban Water Supplier's 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	MG	**Total Utility**	**Hydropower**	**Net Utility**
Volume of Water Entering Process		1,282	0	1,282
Energy Consumed (kWh)		3,017,791	0	3,017,791
Energy Intensity (kWh/vol. converted to MG)		2,354	0	2,354

As discussed in Section 6.1.5, the City of Coalinga collects, treats, and disposes of wastewater generated within its service area through the City's municipal wastewater collection and treatment system. In accordance with CWC Section 10631.2(a), Table 6-7 summarizes the energy associated with the City's wastewater operations for the reporting period of January 1, 2025, through December 31, 2025.

Wastewater system energy intensity represents the amount of electrical energy required to collect, convey, treat, and discharge wastewater and is expressed as kWh/MG of wastewater processed. During the reporting period, the City treated approximately 314 MG of wastewater and consumed a total of approximately 847,045 kWh of electricity for wastewater collection and treatment operations. This resulted in an overall wastewater system energy intensity of approximately 1,349 kWh/MG. Energy consumption associated with the wastewater collection system accounted for approximately 17,989 kWh, while wastewater treatment operations accounted for approximately 829,056 kWh. The City did not produce recycled water or generate renewable energy associated with its wastewater operations during the reporting period.

The reported energy consumption is based on metered electrical usage for the WWTP and sewer lift stations and is intended to provide a planning-level estimate of the energy required to operate the City's wastewater system. The results are summarized in Table 6-7, and the corresponding DWR Optional Submittal Table O-2 is included in Appendix E.

Table 6-7 Recommended Energy Reporting - Single Delivery Product - Total Utility Approach (Submittal Table O-1C)

Water Delivery Product	Retail Potable Deliveries	**Only for Water Delivery Products Under the Urban Water Supplier's 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	MG	**Total Utility**	**Hydropower**	**Net Utility**
Volume of Water Entering Process		314	314	0
Energy Consumed (kWh)		17,989	829,056	0
Energy Intensity (kWh/vol. converted to MG)		57	2,641	0

CHAPTER 7 - WATER SERVICE RELIABILITY AND DROUGHT RISK ASSESSMENT

Assessing water service reliability is the fundamental purpose for the UWMP and a core requirement of the UWMPA. Water service reliability reflects the ability of the City of Coalinga to meet the current and projected water needs of its customers under a range of hydrologic, regulatory, and operational conditions.

Consistent with CWC Sections 10631(c) and 10635, this chapter evaluates the reliability of City's water supplies by comparing projected water demands with available supplies under varying conditions, including normal years, single dry years, and droughts lasting five consecutive years. This analysis considers multiple factors that may influence supply reliability, including hydrologic variability, climate change, regulatory constraints, infrastructure limitations, and operational considerations.

The City relies exclusively on imported surface water purchased from the USBR through the CVP to meet its potable water demands. In addition, the City delivers untreated imported CVP water for agricultural irrigation. Because the City depends on a single imported water source, water supply reliability is closely tied to the availability of CVP supplies, annual allocation decisions made by the USBR, and the operational and regulatory conditions affecting the State's interconnected water conveyance system. Long-term planning therefore focuses on maintaining reliable imported water deliveries while ensuring that the City's treatment, storage, and distribution facilities can meet projected customer demands.

This chapter also considers water quality as an important component of water supply reliability. Maintaining compliance with federal and State drinking water standards is essential to ensuring the continued availability of a safe and reliable potable water supply. The City's conventional surface WTP is designed to treat imported CVP water to meet all applicable drinking water standards prior to distribution. Ongoing monitoring, treatment optimization, and regulatory compliance remain integral components of the City's water supply reliability planning.

In accordance with CWC Section 10635, this chapter includes a Drought Risk Assessment (DRA) evaluating the City's ability to meet projected demands during a continuous five-year drought. The DRA provides a forward-looking assessment of the potential impacts of prolonged drought on the City's imported water supplies and serves as the basis for the WSCP and other demand management strategies.

The water service reliability assessment presented in this chapter summarizes City's expected ability to meet projected demands under normal, single dry year, and five consecutive dry year conditions for planning horizon years 2030, 2035, 2040, 2045, and 2050. This evaluation provides the basis for identifying potential supply shortages and informs the City's water shortage contingency planning, demand management strategies, and long-term resource planning.

7.1. Constraints on Water Sources

CWC Section 10631 (b)(1)

A detailed discussion of anticipated supply availability under a normal water year, single dry year, and droughts lasting at least five years, as well as more frequent and severe periods of drought, as described in the drought risk assessment. For each source of water supply, consider any information pertinent to

the reliability analysis conducted pursuant to Section 10635, including changes in supply due to climate change.

CWC Section 10634

The plan shall include information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments as described in subdivision (a) of Section 10631, and the manner in which water quality affects water management strategies and supply reliability.

CWC Section 10635 (b)(2)

A determination of the reliability of each source of supply under a variety of water shortage conditions. This may include a determination that a particular source of water supply is fully reliable under most, if not all, conditions.

CWC Section 10635 (b)(4)

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 is influenced by a range of physical, regulatory, and operational factors that may affect the availability of water under varying conditions, including normal years, single dry years, and droughts lasting five consecutive years or longer. This section describes key constraints that may affect the reliability of each water supply source, including water quality considerations, climatic variability, and legal and institutional factors.

As previously stated, the City of Coalinga relies exclusively on imported surface water purchased from the USBR through the CVP to meet its potable water demands. Consequently, the reliability of the City's water supply is closely tied to annual CVP allocations, hydrologic conditions throughout the Sacramento-San Joaquin watershed, regulatory requirements governing operation of the CVP, and the ability of the State's water conveyance facilities to deliver imported water to the City's WTP. Unlike agencies with multiple water supply sources, the City does not have groundwater, recycled water, or other local supplies available to supplement imported water deliveries during periods of reduced CVP allocations.

In addition to supply availability, water quality remains an important component of water supply reliability. The City treats imported CVP water at its conventional surface WTP to meet all applicable federal and State drinking water standards prior to distribution. Continued compliance with drinking water regulations, together with ongoing operation and maintenance of the City's treatment, transmission, storage, and distribution facilities, is essential to maintaining a reliable potable water supply.

The factors discussed in the following sections summarize the primary constraints that may affect the availability and reliability of the City's imported water supplies and are incorporated into the water supply reliability assessment and DRA presented in this chapter.

7.1.1. Water Quality

The quality of the City's imported surface water supply is an important factor affecting long-term water supply reliability. The City obtains its raw water from the USBR's CVP, which originates in the Sacramento-San Joaquin Delta (Delta). The water quality of the Delta is vulnerable to a variety of naturally occurring and human-related sources of contamination associated with urban development, agricultural activities, industrial operations, wastewater discharges, and historic land uses throughout the watershed.

Although the City's WTP is designed to treat imported CVP water to meet all applicable federal and State drinking water standards, changes in source water quality may affect treatment requirements, operational costs, and long-term water supply management. Continued monitoring of source water quality and optimization of treatment processes are therefore essential components of maintaining a safe and reliable potable water supply.

In addition to treatment considerations, water quality within the Delta may influence the operation of the CVP. Regulatory actions intended to protect Delta water quality, aquatic habitat, and environmental resources, as well as changes to water quality objectives or operational criteria, may affect the quantity of CVP water deliveries. While the magnitude of any future impacts cannot be quantified, such regulatory or operational changes could reduce the amount of water available to the City during certain hydrologic conditions.

The City continues to monitor water quality through routine source water and finished water sampling, compliance monitoring, and implementation of all applicable drinking water regulations. Annual Consumer Confidence Reports (CCRs), available on the City's website, provide detailed information regarding drinking water quality, regulatory compliance, and water quality monitoring results.

7.1.2. Climatic Changes

Climate variability and long-term climate change have the potential to affect the reliability of the City of Coalinga's imported water supplies. Although the City does not rely on local precipitation or groundwater to meet its potable water demands, changes in statewide hydrologic conditions may influence the availability of water delivered through the USBR's CVP.

California has experienced increasing variability in precipitation patterns, including more frequent and prolonged droughts, reduced snowpack, earlier snowmelt runoff, and more extreme storm events. These changes may affect reservoir storage, runoff timing, and the operational flexibility of the CVP. Extended dry periods can reduce available water supplies and result in lower annual CVP allocations, while more intense precipitation events may alter reservoir operations and water management strategies.

Climate change may also increase water demands within the City's service area. Higher average temperatures and more frequent extreme heat events can increase outdoor irrigation requirements, elevate evaporative losses, and increase overall potable water demand during the summer months. These changing demand patterns are considered in the City's long-term water demand projections and water supply planning.

To address these uncertainties, the City evaluates water supply reliability under multiple hydrologic conditions, including normal-year, single dry-year, and drought conditions lasting five consecutive years, as required by the UWMPA. In addition, the City's WSCP establishes response actions to reduce water demand and manage available supplies during periods of reduced CVP deliveries.

7.1.3. Legal and Institutional Constraints

Legal, regulatory, and institutional factors play an important role in the reliability of the City of Coalinga's imported water supply. The City relies exclusively on surface water purchased from the USBR through the CVP pursuant to Contract No. 14-06-200-4173A-IR1-P, a long-term repayment contract executed on January 22, 2021. The contract authorizes the City to receive up to 10,000 AF of CVP water annually for municipal, industrial, and other authorized purposes. Although the contract establishes the City's contractual entitlement, annual water deliveries are subject to hydrologic conditions, reservoir storage, operational constraints, and applicable federal laws, regulations, and policies governing the operation of the CVP.

The reliability of the City's imported water supply is also influenced by the USBR's management of the CVP, including implementation of the Municipal and Industrial (M&I) Shortage Policy. The M&I Shortage Policy establishes the procedures by which available CVP supplies are allocated among M&I contractors during periods of limited water availability. During drought conditions or other water supply shortages, annual CVP allocations may be reduced based on available supplies, while maintaining sufficient deliveries to protect public health and safety to the extent practicable.

In addition to USBR operating policies, future water supply reliability may be affected by federal and State regulatory requirements governing operation of the Delta and the CVP. These include environmental regulations, endangered species protection measures, water quality objectives, reservoir operating requirements, and other regulatory actions that may influence the timing or quantity of CVP water deliveries. Although the specific impacts of future regulatory changes cannot be quantified, they represent an important consideration in the City's long-term water supply planning.

To address these legal and institutional uncertainties, the City maintains a WSCP that identifies staged response actions to reduce customer demands during periods of reduced water availability. These planning efforts help ensure the continued delivery of water for essential public health, sanitation, and fire protection purposes should CVP allocations be reduced.

7.2. Water Service Reliability Assessment

CWC Section 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. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

Water supply reliability is evaluated based on the characteristics of City’s water supplies under representative water year types. In accordance with CWC Section 10635(a), the City’s water service reliability is assessed under three hydrologic conditions, which are described in the following sections.

7.2.1. Year Type Characterization

For evaluating water supply reliability, the City has defined representative water year types based on historical supply records. These year types are intended to reflect a range of hydrologic conditions and corresponding supply availability that may be experienced during the planning horizon.

- Normal Year – A normal year represents typical water supply conditions under average hydrologic conditions. This could be a single year or averaged range of years that most closely represents the average water supply available to the Supplier. For this UWMP, the normal year supply was determined based on the average volume of potable water supplied by the City over the representative period of 2016 through 2025. During this period, the average annual potable water supply was approximately 2,118 MG. This value is used to represent the volume of potable water available under normal conditions.
- Single Dry Year – A single dry year represents the year with the lowest recorded water supply available to the City. Based on historical records, 2022 is identified as the single dry year, during which City supplied approximately 1,204 MG of potable water. This value is used to represent reduced supply availability under dry year conditions.
- Five-Consecutive Year Drought – A five-consecutive year drought represents an extended period of reduced water supply availability and is defined as the driest five-year sequence based on historical records. For this UWMP, the City evaluated potable water supply data over the period from 2001 through 2025 to identify the lowest consecutive five-year average. The period from 2018 through 2022 represents the driest five-year sequence, during which the average annual potable water supply was approximately 1,961 MG. During this period, the volume of potable water supplied decreased at an average annual rate of approximately 16.9 percent. This period is used to represent extended drought conditions for the reliability assessment.

Table 7-1 summarizes the City's historical supply reliability under the representative water year types described above. The available supply columns present both the volume and corresponding percentage of potable water supply that would be expected if hydrologic conditions similar to each year type were to recur.

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

Year Type	Base Year	Available Supplies if Year Type Repeats	
		☐	Check the box if quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP.
		Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available	**% of Average Supply**
Average Year	2016-2025	2,118	100%
Single-Dry Year	2022	1,204	57%

Table 7-1 Basis of Water Year Data (Reliability Assessment) (Submittal Table 7-1)			
Year Type	**Base Year**	**Available Supplies if Year Type Repeats**	
		☐	Check the box if quantification of available supplies is not compatible with this table and is provided elsewhere in the UWMP.
		Quantification of available supplies is provided in this table as either volume only, percent only, or both.	
		Volume Available	**% of Average Supply**
Consecutive Dry Years 1st Year	2018	1,961	93%
Consecutive Dry Years 2nd Year[(1)]	2019	1,630	77%
Consecutive Dry Years 3rd Year[(1)]	2020	1,354	64%
Consecutive Dry Years 4th Year[(1)]	2021	1,125	53%
Consecutive Dry Years 5th Year[(1)]	2022	935	44%
NOTES: [(1)]Assumes a 16.9 percent decrease in the available water supply from previous year.			

7.2.2. Supply and Demand Comparison

CWC Section 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. The water service reliability assessment shall be based upon the information compiled pursuant to Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.

This section presents a comparison of the City's projected water demands and available water supplies to evaluate the reliability of water service under normal, single dry year, and multiple dry year conditions. This assessment compares total projected water use with available water supplies over a 20-year planning horizon, in five-year increments, and is based on the demand projections presented in Chapter 4 and the supply projections presented in Chapter 6.

The following subsections evaluate water supply reliability by comparing total annual supply and demand for each representative water year type for the years 2025 through 2050. This analysis provides the basis for determining whether sufficient supplies are available to meet projected demands under varying hydrologic conditions.

7.2.2.1. Normal Year

As discussed in Chapter 6, the City relies exclusively on imported surface water supplies obtained through its long-term water service contract with the USBR for CVP water. Under normal hydrologic conditions, the City's contracted water supply is expected to provide sufficient water to meet projected potable and non-potable water demands throughout the 2025 UWMP planning horizon. The City continues to coordinate with USBR regarding water deliveries and maintains treatment, storage, and distribution facilities capable of delivering the projected water demands under normal operating conditions.

Although the reliability of imported surface water may be influenced by hydrologic conditions, regulatory requirements, or operational constraints affecting the CVP, the City does not anticipate supply limitations under normal-year conditions. In addition, the City maintains a comprehensive WSCP, presented in Chapter 8, which establishes procedures for responding to potential supply reductions or emergency interruptions should they occur.

Table 7-2 presents a comparison of projected normal-year water supplies and demands for the planning horizon. As shown, projected normal-year supplies are sufficient to meet projected demands through 2050. The projected supply totals are consistent with Table 6-5, and the projected demand totals are consistent with Table 4-5. Based on this comparison, the City is expected to maintain a reliable water supply under normal-year conditions, with no anticipated water supply surplus or shortfall.

Table 7-2 Normal Year Supply and Use Comparison (Submittal Table 7-2)

	2030	2035	2040	2045	2050
Supply Totals (MG) (From Table 6-5)	2,405	2,529	2,671	2,833	3,020
Use Totals (MG) (From Table 4-5)	2,405	2,529	2,671	2,833	3,020
Surplus/(shortfall)	0	0	0	0	0

7.2.2.2. Single Dry Year

Single dry year conditions represent a year of below-average hydrologic conditions that may reduce available CVP water supplies due to lower runoff, reservoir storage, or allocation reductions by the USBR. For planning purposes, the City evaluated single dry year conditions by applying an approximate 43 percent reduction to both projected water supplies and projected water demands relative to normal-year conditions. The reduction in projected demand reflects implementation of the demand reduction measures contained in the City's WSCP, which are intended to maintain a balance between available supplies and customer demands during drought conditions.

Because the City relies exclusively on imported CVP surface water, the reliability of its water supply during a single dry year is dependent on the availability of contracted USBR deliveries. The City's long-term water service contract, together with proactive water conservation measures and implementation of the WSCP, provides the operational framework necessary to manage reduced water supplies while maintaining reliable water service. The City's AWSDA process further supports timely evaluation of available supplies and implementation of appropriate shortage response actions, if necessary.

Table 7-3 compares projected single dry year water supplies and projected demands through the 2050 planning horizon. As shown, projected supplies are sufficient to meet projected demands under single dry year conditions. Based on this comparison, the City does not anticipate water supply shortages under the assumed single dry year scenario and is expected to maintain reliable service through implementation of its planned drought response measures.

Table 7-3 Single Dry Year Supply and Use Comparison (Submittal Table 7-3)

	2030	2035	2040	2045	2050
Supply Totals (MG)	1,367	1,437	1,518	1,610	1,716
Use Totals (MG)	1,367	1,437	1,518	1,610	1,716
Surplus/(shortfall)	0	0	0	0	0

7.2.2.3. Five Consecutive Dry Years

Table 7-4 presents the comparison of projected water supplies and demands under a multiple dry year scenario consisting of five consecutive dry years over the planning horizon. This analysis is intended to evaluate the City's ability to meet demands under prolonged drought conditions. For planning purposes, the City assumes incremental reductions in both available water supply and demand relative to normal year conditions. These reductions reflect the potential for reduced CVP water deliveries during prolonged drought conditions and the corresponding demand reductions evaluated as part of the City's WSCP.

Specifically, reductions of approximately 7 percent in the first year, 23 percent in the second year, 36 percent in the third year, 47 percent in the fourth year, and 56 percent in the fifth year are applied relative to normal year conditions. These reductions reflect the potential for progressively reduced CVP water deliveries during an extended drought sequence and the corresponding reductions in projected water use evaluated under the City's WSCP. This approach provides a conservative assessment of the City's ability to respond to prolonged water supply shortages while evaluating the adequacy of available supplies under increasingly severe drought conditions.

Table 7-4 Multiple Dry Years Supply and Use Comparison (Submittal Table 7-4)

		2030	2035	2040	2045	2050
First Year	Supply Totals (MG)	2,227	2,342	2,473	2,624	2,796
	Use Totals (MG)	2,227	2,342	2,473	2,624	2,796
	Surplus/(shortfall)	0	0	0	0	0
Second Year	Supply Totals (MG)	1,851	1,946	2,055	2,180	2,324
	Use Totals (MG)	1,851	1,946	2,055	2,180	2,324
	Surplus/(shortfall)	0	0	0	0	0
Third Year	Supply Totals (MG)	1,538	1,617	1,708	1,812	1,931
	Use Totals (MG)	1,538	1,617	1,708	1,812	1,931
	Surplus/(shortfall)	0	0	0	0	0
Fourth Year	Supply Totals (MG)	1,278	1,344	1,419	1,505	1,604
	Use Totals (MG)	1,278	1,344	1,419	1,505	1,604
	Surplus/(shortfall)	0	0	0	0	0
Fifth Year	Supply Totals (MG)	0	0	0	0	0

Table 7-4 Multiple Dry Years Supply and Use Comparison (Submittal Table 7-4)						
		2030	2035	2040	2045	2050
	Use Totals (MG)	1,062	1,117	1,179	1,251	1,333
	Surplus/(shortfall)	1,062	1,117	1,179	1,251	1,333

As shown in Tables 7-2, 7-3, and 7-4, projected water supplies are sufficient to meet anticipated demands throughout the five-year drought sequence and across the planning horizon. No supply shortages are projected under this scenario. While the City's imported water supply has historically provided reliable service, continued implementation of water conservation programs, demand management measures, and WSCP actions will remain important to maintain long-term water supply reliability and enhance system resilience during extended dry conditions.

7.2.3. Description of Management Tools and Options

CWC Section 10620(f)

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

The City of Coalinga recognizes the importance of managing its available water supplies efficiently to ensure long-term water supply reliability. The City relies exclusively on imported surface water provided through its long-term water service contract with the USBR for CVP water. Because the City's potable water supply is derived entirely from imported water, the City focuses on maximizing the efficient use of its available supply through conservation, system efficiency, and demand management rather than developing alternative local water sources.

To support efficient water use and reduce overall demand, the City implements a variety of Demand Management Measures (DMMs), including water conservation programs, public education and outreach, water loss management, conservation-oriented rate structures, and ongoing improvements to its water distribution system. The City also continues to improve system efficiency through replacement of aging infrastructure and completion of its AMR program, which enhances water use monitoring and improves the ability to identify leaks and unauthorized water use. Additional information regarding the City's DMMs is provided in Chapter 9.

The City's WSCP, presented in Chapter 8, provides a comprehensive framework for responding to drought and other water supply shortage conditions. The WSCP establishes staged response actions that reduce water demand, prioritize essential water uses, and maintain reliable service during periods of reduced water availability. In addition, the City conducts an Annual Water Supply and Demand Assessment to evaluate projected water supplies, anticipated demands, and the need for implementing appropriate shortage response actions.

The City also coordinates closely with the USBR and other regional water agencies regarding water supply conditions, CVP operations, and anticipated water allocations. This coordination, together with continued implementation of conservation programs, infrastructure improvements, and DMMs, supports the efficient use of the City's available water supplies and enhances long-term water supply reliability.

7.3. Drought Risk Assessment

CWC Section 10612

"Drought Risk Assessment" means a method that examines water shortage risks based on the driest five-year historic sequence for the agency's water supply, as described in subdivision (b) of Section 10635.

CWC Section 10635(b)

Every urban water supplier shall include, as part of its urban water management plan, a drought risk assessment for its water service to its customers as part of information considered in developing the demand management measures and water supply projects and programs to be included in the urban water management plan. The urban water supplier may conduct an interim update or updates to this drought risk assessment within the five-year cycle of its urban water management plan update. The drought risk assessment shall include each of the following:

(1) 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 water years, starting from the year following when the assessment is conducted.

(2) A determination of the reliability of each source of supply under a variety of water shortage conditions. This may include a determination that a particular source of water supply is fully reliable under most, if not all, conditions.

(3) A comparison of the total water supply sources available to the water supplier with the total projected water use for the drought period.

(4) 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.

In accordance with CWC Sections 10612 and 10635(b), the City has prepared a DRA as part of this 2025 UWMP to evaluate the reliability of its water supplies under a drought lasting five consecutive years. The DRA was originally developed for the 2020 UWMP and has been reevaluated and updated for this 2025 UWMP to incorporate the most recent data, revised assumptions, and current regulatory and planning considerations. The DRA is intended to assess potential water supply shortages and to inform the development of DMMs, water improvement projects, and operational strategies.

The DRA presented in this section provides a forward-looking evaluation of water supply reliability over a five-year period beginning in the year following preparation of this 2025 UWMP. This assessment considers the relationship between projected water supplies and unconstrained water demands under extended drought conditions, as well as relevant factors such as historical hydrology, regulatory considerations, and local operational conditions. The DRA may be updated by the City outside of the UWMP cycle as new data becomes available or conditions change.

7.3.1. Data, Methodology, and Basis of Analysis

The DRA presented in Table 7-5 evaluates the City's water supply reliability under a representative five-consecutive dry year scenario. The analysis is based on a planning-level comparison of projected water supplies and unconstrained demands, consistent with DWR guidance.

The following data, assumptions, and methodology were used in preparation of the City's DRA:

- The representative five-year drought sequence for this 2025 UWMP is based on the recent extended drought period from 2018 through 2022, during which hydrologic conditions throughout California significantly reduced surface water availability. As the City of Coalinga relies exclusively on imported CVP surface water for its potable water supply, extended drought conditions may result in reduced water deliveries from the USBR. Based on historical operational data and recent drought conditions, the City's potable water supply is projected to decline by an average of approximately 10 percent over the representative five-year drought period.
- Projected potable water supplies during the representative five-year drought scenario are assumed to decrease incrementally relative to normal-year conditions to reflect progressively reduced CVP water deliveries associated with prolonged drought conditions. Reductions of approximately 7 percent in Year 1, 23 percent in Year 2, 36 percent in Year 3, 47 percent in Year 4, and 56 percent in Year 5 are applied. These assumptions are consistent with the City's reliability analysis presented in Section 7.2 and represent a conservative planning approach.
- Projected water demands during the drought period are based on unconstrained demand projections presented in Table 4-5 (Section 4.2.5) of this UWMP, consistent with DWR guidance requiring that drought risk be evaluated without assuming demand reductions prior to implementation of shortage response actions.
- Projected demands are compared with available supplies to identify potential supply shortfalls during the representative five-year drought sequence and to evaluate the effectiveness of the City's WSCP. The analysis assumes that projected supply shortfalls would be addressed through implementation of the appropriate WSCP shortage response stage based on the magnitude of the anticipated shortage. The specific shortage stage implemented would be determined through the City's AWSDA and the actual water supply conditions occurring at that time. The conservation measures and response actions associated with each shortage stage are described in Chapter 8.
- For purposes of this analysis, projected supply shortfalls are assumed to be fully offset through the demand reduction measures associated with the applicable WSCP shortage stage. No additional water supply augmentation projects are assumed during the representative drought sequence. This planning approach reflects the City's reliance on imported CVP water supplies and demonstrates the effectiveness of the City's demand management and shortage response measures in maintaining a balance between projected water supplies and projected water demands during extended drought conditions.

Table 7-5 Five-Year Drought Risk Assessment (Submittal Table 7-5)

2026	Total
Total Water Use (MG)	2,318
Total Supplies (MG)	2,147
Surplus/Shortfall w/o WSCP Action (MG)	(172)
Planned WSCP Actions	
WSCP - supply augmentation benefit (MG)	0
WSCP - use reduction savings benefit (MG)	172
Revised Surplus/(shortfall) (MG)	0

Table 7-5 Five-Year Drought Risk Assessment (Submittal Table 7-5)	
2027	**Total**
Total Water Use (MG)	2,339
Total Supplies (MG)	1,800
Surplus/Shortfall w/o WSCP Action (MG)	(539)
Planned WSCP Actions	
WSCP - supply augmentation benefit (MG)	-
WSCP - use reduction savings benefit (MG)	539
Revised Surplus/(shortfall) (MG)	0
2028	**Total**
Total Water Use (MG)	2,361
Total Supplies (MG)	1,509
Surplus/Shortfall w/o WSCP Action (MG)	(851)
Planned WSCP Actions	
WSCP - supply augmentation benefit (MG)	-
WSCP - use reduction savings benefit (MG)	851
Revised Surplus/(shortfall) (MG)	0
2029	**Total**
Total Water Use (MG)	2,383
Total Supplies (MG)	1,266
Surplus/Shortfall w/o WSCP Action (MG)	(1,117)
Planned WSCP Actions	
WSCP - supply augmentation benefit (MG)	-
WSCP - use reduction savings benefit (MG)	1,117
Revised Surplus/(shortfall) (MG)	0
2030	**Total**
Total Water Use (MG)	2,405
Total Supplies (MG)	1,062
Surplus/Shortfall w/o WSCP Action (MG)	(1,343)
Planned WSCP Actions	
WSCP - supply augmentation benefit (MG)	-
WSCP - use reduction savings benefit (MG)	1,343
Revised Surplus/(shortfall) (MG)	0

The results of the DRA demonstrate that, while significant water supply shortfalls may occur during an extended drought in the absence of management actions, implementation of the City's WSCP provides a framework for reducing water demand and responding to projected supply shortages. Through continued implementation of water conservation programs, demand management measures, AWSDAs, and the staged response actions identified in the WSCP, the City is better positioned to maintain reliable water service during extended drought conditions. The City will also continue to coordinate with the USBR

regarding CVP water supply conditions and deliveries to support ongoing water supply planning and operational decision-making.

7.3.2. Water Supply Determination

As previously stated, the City of Coalinga relies exclusively on imported surface water provided through its long-term water service contract with the USBR for CVP water to meet its potable water demands. The reliability of the City's water supply is dependent upon the availability of CVP water deliveries, which may be affected by hydrologic conditions, reservoir storage, regulatory requirements, and operational constraints.

For purposes of the DRA, conservative assumptions were applied to evaluate the potential effects of prolonged drought conditions on available water supplies. These assumptions reflect the potential for reduced CVP water deliveries during an extended drought and are intended to evaluate the City's vulnerability to water supply shortages and the effectiveness of the response actions identified in the City's W WSCP.

7.3.3. Supply and Demand Comparison

Projected water supplies and demands during the representative five-year drought period were compared to evaluate potential water supply shortfalls under extended drought conditions. As shown in Table 7-5, projected water demands exceed available water supplies in each year of the drought sequence if no water shortage response actions are implemented. Projected supply shortfalls range from approximately 172 MG in the first year to 1,343 MG by the fifth year, reflecting the increasing severity of the assumed drought conditions.

For purposes of the DRA, these projected shortfalls are assumed to be offset through implementation of the City's WSCP. The analysis assumes that demand reductions achieved through the applicable WSCP shortage response actions are sufficient to eliminate the projected deficits, resulting in a balanced supply and demand condition throughout the representative drought period. No additional water supply augmentation is assumed as part of this analysis.

The specific shortage response stage implemented during an actual drought would be determined through the City's AWSDA and would be based on the magnitude of the projected shortage, available CVP water supplies, and other operational considerations. This analysis demonstrates the importance of the City's WSCP as a planning tool for responding to potential water supply shortages during prolonged drought conditions through staged demand reduction measures and other drought response actions.

7.3.4. Consideration of Climate Change and Other Factors

Consistent with CWC Section 10635(b)(4), the DRA considers factors that may influence future water supply reliability, including:

- Historical drought hydrology, as represented by the representative five-year drought sequence identified in this UWMP (2018-2022).
- Potential impacts of climate change, including increased temperatures, changes in precipitation patterns, reduced snowpack, altered runoff timing, and more frequent and prolonged droughts that may affect CVP water availability.

- Regulatory and operational factors affecting imported water supplies, including water allocation decisions by the USBR, environmental regulations, reservoir operations, and conveyance system constraints that may influence CVP water deliveries.
- Local operational conditions, including water treatment capacity, storage facilities, distribution system reliability, aging infrastructure, and the City's ability to implement water conservation measures and WSCP response actions.

While climate change introduces uncertainty regarding future hydrologic conditions and the availability of imported water supplies, the City will continue to evaluate water supply conditions through its AWSDA and implement appropriate response actions as necessary. Continued coordination with the USBR, implementation of the City's DMMs, and execution of the WSCP will help support long-term water supply reliability and resiliency under changing climate conditions.

7.3.5. Summary of Findings

The results of the DRA indicate that, under the representative five-year drought scenario, the City would experience projected water supply shortfalls in each year of the drought sequence if no water shortage response actions were implemented. The projected shortfalls increase over time, reflecting the cumulative effects of prolonged drought conditions on available CVP water supplies.

For purposes of the DRA, the projected supply shortfalls are assumed to be offset through implementation of the demand reduction measures identified in the City's WSCP. This planning analysis demonstrates the importance of the City's conservation programs, DMMs, AWSDA, and staged drought response actions in addressing potential water supply shortages during extended drought conditions.

Overall, the DRA provides a framework for evaluating the City's vulnerability to prolonged drought and supports informed planning to maintain reliable water service under a range of future hydrologic conditions.

CHAPTER 8 - WATER SHORTAGE CONTINGENCY PLAN

CWC Section 10632.3

It is the intent of the Legislature that, upon proclamation by the Governor of a state of emergency under the California Emergency Services Act (Chapter 7 (commencing with Section 8550) of Division 1 of Title 2 of the Government Code) based on drought conditions, the board defer to implementation of locally adopted water shortage contingency plans to the extent practicable.

The City of Coalinga's WSCP has been prepared in accordance with CWC Section 10632.3 and consistent with guidance provided in the 2025 UWMP Guidebook. The WSCP establishes a comprehensive and actionable framework for responding to water supply shortages and interruptions, including both extended drought conditions and sudden catastrophic supply events.

The WSCP updates and replaces the contingency plan originally adopted as part of the City's 2020 UWMP by incorporating current water demand information, updated water supply reliability analyses, revised drought risk assessments, and the most recent operational and planning information available to the City. Although incorporated within this UWMP, the WSCP is intended to function as a stand-alone operational planning document that may be implemented independently whenever water shortage conditions warrant.

The technical foundation for this WSCP is provided by the Water Service Reliability Assessment (WSRA) and DRA presented in Chapter 7. Those analyses evaluate the reliability of the City's water supplies under normal, single dry-year, multiple dry-year, and extended drought conditions and identify potential supply shortages that may occur under a range of hydrologic and operational scenarios. The findings of those analyses establish the basis for the City's shortage response framework and the corresponding demand reduction and supply management actions presented in this chapter.

Consistent with CWC Section 10632.3, the WSCP establishes six standard water shortage levels corresponding to progressive reductions in available water supply and defines locally appropriate shortage response actions for each level. The plan also includes procedures for conducting annual water supply and demand assessments, as required under CWC Section 10632.1, which support ongoing evaluation of water supply conditions and inform the need for potential WSCP activation or adjustment.

The primary objective of the WSCP is to ensure that the City can effectively manage water supply shortages while protecting public health and safety, minimizing economic impacts, and preserving environmental and community resources. The WSCP also establishes communication protocols, monitoring and reporting procedures, enforcement mechanisms, and a process for periodic refinement to ensure the plan remains effective under changing conditions.

This WSCP will serve as the City’s primary framework for responding to water shortages and will be implemented during locally declared water shortage conditions, regional or county emergency declarations, or statewide drought emergencies, consistent with applicable laws and regulations. As noted in the CWC, it is the intent of the Legislature that, during a declared drought emergency, locally adopted water shortage contingency plans such as this be implemented to the extent practicable.

The elements of the WSCP presented in this chapter are organized to address all requirements of CWC Section 10632, including water supply reliability analysis, annual assessment procedures, shortage levels,

response actions, communication protocols, compliance and enforcement, legal authorities, financial considerations, monitoring and reporting, and plan refinement.

8.1. Water Supply Reliability Analysis

CWC Section 10632(a)(1)

The analysis of water supply reliability conducted pursuant to Section 10635.

CWC Section 10632.5.(a)

In addition to the requirements of paragraph (3) of subdivision (a) of Section 10632, beginning January 1, 2020, the plan shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities.

The City of Coalinga relies primarily on imported surface water purchased from the USBR through the CVP to meet potable and non-potable water demands within its service area. Water is conveyed to the City through the CVP and treated at the City's surface WTP prior to distribution to customers for potable water use. Due to poor groundwater quality, the City does not utilize any groundwater sources for potable water operations. As discussed in Chapter 7, the reliability of the City's water supply is therefore largely dependent upon the availability of CVP allocations, hydrologic conditions within the Sacramento-San Joaquin watershed, the operational reliability of the State and federal water conveyance systems, and the City's treatment, storage, and distribution infrastructure.

Potential water shortage conditions affecting the City may result from a variety of factors, including:

- Reduced CVP water allocations resulting from drought or hydrologic conditions.
- Regulatory restrictions affecting operation of the CVP or Delta conveyance facilities.
- Interruptions in imported water deliveries caused by conveyance system maintenance or infrastructure failures.
- Water quality incidents affecting the City's source water or treatment facilities.
- Electrical power outages affecting treatment or distribution operations.
- Mechanical failure of treatment facilities, pumps, storage reservoirs, or transmission and distribution infrastructure.
- Seismic events or other catastrophic emergencies affecting critical water system facilities.
- Increased customer demands during prolonged periods of hot and dry weather.

The City has established policies and procedures to manage water supplies during normal, drought, and emergency conditions through its WSCP, which was originally developed during the 2020 UWMP reporting cycle and has been updated as part of the 2025 UWMP. Consistent with State requirements, the WSCP establishes six standard water shortage levels corresponding to increasing degrees of supply deficiency relative to normal conditions. Each shortage level includes specific demand reduction measures, water use restrictions, operational actions, communication protocols, and enforcement procedures intended to maintain water system reliability and protect public health and safety. Implementation of shortage response actions is cumulative, such that higher shortage levels incorporate the response measures of preceding levels as appropriate.

The City's water supply reliability assessment and DRA presented in Chapter 7 indicate that the City is expected to maintain reliable water service under normal-year, single dry-year, and multiple dry-year conditions through implementation of its existing water management strategies and, when necessary, the staged demand reduction measures identified in this WSCP. While the DRA projects water supply shortfalls under extended drought conditions due to reduced CVP water allocations, these projected shortages are assumed to be addressed through implementation of the City's WSCP response actions. The City will continue to evaluate available water supplies annually through the ASWDAs and, as warranted, implement the appropriate shortage response stage to maintain reliable water service while protecting available water supplies.

Accordingly, this WSCP provides a structured and adaptive framework for responding to water shortages through staged conservation measures, operational modifications, public outreach, and emergency response actions. The City will continue to evaluate water supply and demand conditions annually pursuant to CWC Section 10632.1 through preparation of its Annual Water Supply and Demand Assessment (AWSDA). Based on the results of these annual assessments, the City will determine whether implementation, modification, or termination of a water shortage stage is warranted to maintain a reliable and sustainable water supply while protecting public health, safety, and essential community services.

Consistent with CWC Section 10632.5(a), the City has also evaluated potential seismic risks to the water system. Seismic events have the potential to damage critical water system infrastructure, including raw water conveyance facilities, the surface WTP, transmission pipelines, storage reservoirs, pumping facilities, electrical equipment, and the distribution system, resulting in temporary service interruptions or reduced system capacity. To improve system resiliency and minimize the impacts of emergency events, the City continues to implement routine infrastructure inspection and maintenance, preventive equipment replacement, emergency response planning, operator training, and system monitoring. The City will continue to evaluate opportunities to improve operational redundancy and enhance the resiliency of critical water infrastructure as future capital improvement projects are implemented.

8.2. Annual Water Supply and Demand Assessment Procedures

CWC Section 10632(a)(2)

The procedures used in conducting an annual water supply and demand assessment that include, at a minimum, both of the following:

(A) The written decision-making process that an urban water supplier will use each year to determine its water supply reliability.

(B) The key data inputs and assessment methodology used to evaluate the urban water supplier's water supply reliability for the current year and one dry year, including all of the following:

(i) Current year unconstrained demand, considering weather, growth, and other influencing factors, such as policies to manage current supplies to meet demand objectives in future years, as applicable.

(ii) Current year available supply, considering hydrological and regulatory conditions in the current year and one dry year. The annual supply and demand assessment may consider more than one dry year solely at the discretion of the urban water supplier.

(iii) Existing infrastructure capabilities and plausible constraints.

(iv) A defined set of locally applicable evaluation criteria that are consistently relied upon for each annual water supply and demand assessment.

(v) A description and quantification of each source of water supply.

CWC Section 10632.1.

An urban water supplier shall conduct an annual water supply and demand assessment pursuant to subdivision (a) of Section 10632 and, on or before July 1 of each year, submit an annual water shortage assessment report to the department with information for anticipated shortage, triggered shortage response actions, compliance and enforcement actions, and communication actions consistent with the supplier's water shortage contingency plan. An urban water supplier that relies on imported water from the State Water Project or the Bureau of Reclamation shall submit its annual water supply and demand assessment within 14 days of receiving its final allocations, or by July 1 of each year, whichever is later.

The City conducts an AWSDA each fiscal year to evaluate current and anticipated water supply reliability conditions and determine whether implementation of water shortage response actions under the WSCP is necessary. The AWSDA is prepared in accordance with CWC Sections 10632(a)(2) and 10632.1 and serves as the basis for determining the appropriate water shortage response level for the City's water system.

Because the City relies primarily on imported surface water supplied by the USBR through the CVP, the AWSDA focuses on evaluating anticipated CVP water allocations, current hydrologic and regulatory conditions, projected customer demands, operational capabilities of the City's treatment and distribution system, and other factors that may affect the City's ability to reliably meet water demands. The AWSDA provides a proactive evaluation of near-term water supply conditions to ensure that potential shortages are identified early, and appropriate response actions are implemented in a timely manner.

The AWSDA includes the following components:

- Data and Methodologies
- Evaluation Criteria
- Description of Water System
- Unconstrained Customer Demand
- Infrastructure Considerations
- Other Factors
- Water Supply and Demand Evaluation

These components provide a consistent and repeatable framework for evaluating the City's water supply reliability from year to year. The assessment compares projected unconstrained customer demands with anticipated available water supplies while considering hydrologic conditions, regulatory requirements, infrastructure capabilities, and other operational factors that may influence the City's ability to reliably meet customer demands.

8.2.1. Decision Making Process

The City follows a structured decision-making process each year to evaluate the reliability of its available water supplies and determine whether implementation of a water shortage response stage is warranted. The annual assessment is coordinated by the Public Works Department using the most current

information available regarding water supplies, customer demands, hydrologic conditions, infrastructure capabilities, and regulatory requirements.

The annual assessment process begins with the collection and review of current operational data, including projected customer water demands, anticipated CVP allocations, water production records, treatment and distribution system performance, and any operational or regulatory conditions that may affect water supply reliability. Based on the results of the assessment, City staff compare projected water demands with anticipated available supplies to determine whether a water shortage is expected to occur. If the assessment indicates that available supplies are expected to be insufficient to meet projected demands, staff evaluate the magnitude of the anticipated shortage and identify the appropriate water shortage response stage consistent with the shortage levels established in this WSCP.

The results of the annual assessment are reviewed by City management and used to determine whether implementation, continuation, modification, or termination of a water shortage response stage is appropriate. If implementation of a shortage stage is recommended, the City Council is provided with the assessment findings and considers activation of the corresponding water shortage response actions described in this WSCP. Following completion of the annual assessment, the City submits the required AWSDA worksheet to DWR in accordance with CWC Section 10632.1.

8.2.2. Data and Methodologies

The AWSDA is prepared each year to evaluate the reliability of the City's available water supplies for the current fiscal year while considering conditions that could affect water supply availability. The AWSDA is prepared in accordance with CWC Sections 10632(a)(2) and 10632.1 and provides the technical basis for determining whether implementation of a WSCP shortage level is warranted. The assessment methodology is applied consistently from year to year while incorporating the most current operational, hydrologic, climatic, and regulatory information available.

The AWSDA evaluates the City's projected water demands and compares them with the water supplies expected to be available under both current-year and dry-year conditions. Because the City relies primarily on imported surface water supplied by the USBR through the CVP, the assessment places particular emphasis on anticipated CVP allocations, hydrologic conditions, regulatory constraints affecting CVP operations, and the operational capability of the City's water treatment and distribution system.

To support this evaluation, the AWSDA incorporates the most current information available regarding water supplies, customer demands, and system operations. Data reviewed as part of the annual assessment may include:

- Current and projected CVP allocations and contractual water supplies;
- Historical and current monthly water production and customer demand data;
- Population estimates, service area growth, and land use projections;
- Weather, precipitation, and hydrologic conditions;
- Water quality conditions that could affect source availability or treatment operations;
- Recently completed studies, planning documents, and applicable regulatory requirements;
- Existing and planned water system improvements, including treatment, storage, transmission, and distribution facilities;

- Operational issues encountered during the previous year, such as facility outages, pipeline failures, maintenance activities, or other infrastructure constraints; and
- Other local or regional factors that could potentially influence the reliability of the City's water supply.

Using these data, the City develops an estimate of unconstrained customer demand, representing the anticipated water demand that would occur in the absence of mandatory water shortage restrictions. Demand projections are developed using historical water use trends, population growth, seasonal demand patterns, weather conditions, and other factors affecting water consumption. The methodology remains generally consistent with the demand forecasting approach presented in Chapter 4 of this UWMP to ensure consistency between long-term planning and annual shortage assessments.

The City compares projected unconstrained customer demand with the estimated available water supply to determine whether sufficient supplies exist to meet anticipated demands while maintaining adequate reliability. If projected demands exceed available supplies, or if other operational or regulatory conditions indicate that supplies may become constrained, the City evaluates the anticipated magnitude of the shortage and identifies the appropriate WSCP shortage level using the criteria established in Section 8.3. The results of the AWSDA form the basis for determining whether to implement, modify, continue, or terminate water shortage response actions.

The methodology is updated annually using the most recent operational data and planning information to ensure that the City's water shortage response decisions reflect current conditions and remain consistent with this UWMP, applicable regulatory requirements, and evolving water supply conditions.

8.3. Six Standard Water Shortage Stages

CWC Section 10632(a)(3)

(A) Six standard water shortage levels corresponding to progressive ranges of up to 10, 20, 30, 40, and 50 percent shortages and greater than 50 percent shortage. Urban water suppliers shall define these shortage levels based on the suppliers' water supply conditions, including percentage reductions in water supply, changes in groundwater levels, changes in surface elevation or level of subsidence, or other changes in hydrological or other local conditions indicative of the water supply available for use. Shortage levels shall also apply to catastrophic interruption of water supplies, including, but not limited to, a regional power outage, an earthquake, and other potential emergency events.

(B) An urban water supplier with an existing water shortage contingency plan that uses different water shortage levels may comply with the requirement in subparagraph (A) by developing and including a cross-reference relating its existing categories to the six standard water shortage levels.

In accordance with CWC Section 10632(a)(3), the City's WSCP includes six standard water shortage levels corresponding to progressive reductions in available water supply of up to 10, 20, 30, 40, and 50 percent, and greater than 50 percent relative to normal water supply conditions. These standardized shortage levels provide a consistent framework for evaluating water supply reliability, implementing appropriate response actions, and communicating water shortage conditions to customers, regulatory agencies, and the public.

Implantation of the City's water shortage levels are determined by the AWSDA described in Section 8.2 and are based on the relationship between projected unconstrained customer demands and the quantity of water expected to be available to the City. Because the City relies primarily on imported surface water supplied by the USBR through the CVP, evaluation of the appropriate shortage level considers anticipated CVP allocations, hydrologic conditions, regulatory requirements, contractual water supplies, treatment and distribution system capabilities, and other operational factors that may affect the City's ability to reliably meet customer demands.

Water shortage stages may be triggered by a variety of circumstances, including, but not limited to:

- Reduced CVP allocations resulting from drought or hydrologic conditions;
- Regulatory restrictions affecting CVP operations or imported water deliveries;
- Interruptions to imported water supplies caused by conveyance system failures or maintenance activities;
- Water quality conditions affecting source water availability or treatment operations;
- Mechanical failures of treatment, pumping, storage, transmission, or distribution facilities;
- Electrical power outages or other operational disruptions; and
- Catastrophic events, including earthquakes, wildfires, flooding, or other emergencies that significantly impair the City's ability to provide reliable water service.

Each water shortage level represents an increasing degree of anticipated supply deficiency and corresponds to progressively more stringent demand reduction measures, operational adjustments, public outreach efforts, and compliance and enforcement actions described in Sections 8.4 through 8.10. Implementation of shortage response actions is cumulative, such that measures implemented during higher shortage stages include the applicable actions from preceding stages unless otherwise specified.

The City's WSCP, originally adopted with the 2020 UWMP and updated as part of this 2025 UWMP, utilizes the six standard water shortage levels established by the UWMPA. Accordingly, no cross-reference to an alternative water shortage staging system is required. Table 8-1 identifies the correspondence between the City's WSCP stages and the standard water shortage levels required by CWC Section 10632(a)(3).

Table 8-1 Cross-reference for Standard vs Supplier Shortage Levels (Submittal Table 8-1)

☒	Check the box if the Supplier uses the Standard six levels of water shortage.		
Standard Shortage Levels	**Percent Shortage Range**	**Shortage Levels**	**Percent Shortage Range**
1	Up to 10%	1	Up to 10%
2	Up to 20%	2	Up to 20%
3	Up to 30%	3	Up to 30%
4	Up to 40%	4	Up to 40%
5	Up to 50%	5	Up to 50%
6	>50%	6	>50%

8.4. Shortage Response Actions

CWC Section 10632 (a)(4)

Shortage response actions that align with the defined shortage levels and include, at a minimum, all of the following:

(A) Locally appropriate supply augmentation actions.

(B) Locally appropriate demand reduction actions to adequately respond to shortages.

(C) Locally appropriate operational changes.

(D) Additional, mandatory prohibitions against specific water use practices that are in addition to state-mandated prohibitions and appropriate to the local conditions.

(E) For each action, an estimate of the extent to which the gap between supplies and demand will be reduced by implementation of the action

CWC Section 10632.2

An urban water supplier shall follow, where feasible and appropriate, the prescribed procedures and implement determined shortage response actions in its water shortage contingency plan, as identified in subdivision (a) of Section 10632, or reasonable alternative actions, provided that descriptions of the alternative actions are submitted with the annual water shortage assessment report pursuant to Section 10632.1. Nothing in this section prohibits an urban water supplier from taking actions not specified in its water shortage contingency plan, if needed, without having to formally amend its urban water management plan or water shortage contingency plan.

In accordance with CWC Section 10632(a)(4), this section describes the shortage response actions that the City may implement for each defined water shortage level. These actions are designed to reduce the gap between available water supplies and projected unconstrained demand while minimizing social, economic, and environmental impacts to the community.

Because the City relies exclusively on imported surface water supplied by the USBR through the CVP, the City's shortage response actions are designed to address conditions that may reduce the availability or reliability of imported water supplies. Such conditions may include reduced CVP allocations resulting from drought, hydrologic or regulatory constraints, interruptions in imported water deliveries, water quality concerns, treatment or distribution system limitations, or catastrophic events affecting the City's water system.

The City's response strategy consists of a combination of locally appropriate demand reduction measures, operational modifications, supply management actions, public outreach, and mandatory water use restrictions. These actions are intended to achieve the demand reduction necessary to offset anticipated supply shortages while maintaining essential public health, safety, and fire protection services.

Water shortage response actions are implemented using a staged, cumulative approach. As shortage conditions become more severe, the response measures associated with each preceding shortage stage remain in effect unless otherwise modified by the City. The specific actions implemented during a water shortage event will depend on the severity, duration, and cause of the shortage, as determined through the AWSDA described in Section 8.2.

Consistent with CWC Section 10632.2, the City may implement alternative or additional actions not specifically identified in this WSCP, as necessary to effectively respond to water shortage conditions. Any such actions will be documented and reported as part of the AWSDA report submitted to DWR.

Table 8-2 summarizes the six standard water shortage levels and corresponding severity classifications utilized by the City. The shortage levels are based on the estimated reduction in available water supplies relative to normal supply conditions and may also be triggered by operational disruptions, infrastructure failures, water quality concerns, regulatory actions, or catastrophic emergencies that affect the City's ability to reliably meet customer demands.

Table 8-2 Water Shortage Contingency Plan Levels

Shortage Level	Percent Shortage Range	Severity	Shortage Response Actions
1	Up to 10%	Potential Shortage	Minor reductions in available water supplies resulting from reduced CVP allocations, short-term operational constraints, or other conditions indicating the potential for future shortages.
2	Up to 20%	Minor Shortage	Reduced imported water supplies or operational limitations requiring implementation of additional conservation measures to maintain system reliability.
3	Up to 30%	Moderate Shortage	Significant reductions in available water supplies resulting from prolonged drought, reduced CVP allocations, water quality concerns, or infrastructure limitations affecting system operations.
4	Up to 40%	Severe Shortage	Severe supply shortages caused by prolonged drought, substantial reductions in imported water deliveries, major infrastructure constraints, or emergency operating conditions.
5	Up to 50%	Critical Shortage	Critical water supply conditions requiring substantial demand reductions because of major supply interruptions, extended drought, or significant operational failures affecting water delivery.
6	> 50%	Extreme Emergency Shortage	Catastrophic interruption of water supplies or water system operations resulting from major infrastructure failures, earthquakes, regional power outages, contamination events, or other emergency conditions requiring extraordinary response actions.

Table 8-3 identifies the target demand reduction associated with each shortage level, which reflects the estimated reduction needed to address the supply-demand imbalance. The specific response actions

associated with each shortage level, including demand reduction, supply augmentation, operational changes, and prohibitions, are presented in Table 8-6.

Table 8-3 Water Usage Reduction by Stage

Shortage Level	Mandatory or Voluntary Percent Demand Reduction	Severity
1	5%	Potential Shortage
2	10%	Minor Shortage
3	20%	Moderate Shortage
4	30%	Severe Shortage
5	50%	Critical Shortage
6	60%	Extreme Emergency Shortage

8.4.1. Supply Augmentation

Consistent with the City's 2022 WSCP, opportunities to augment potable water supplies during a water shortage are limited due to the City's reliance on imported surface water supplied by the USBR. Unlike agencies with multiple independent water sources, the City has limited ability to develop new short-term supplies during drought or emergency conditions. As a result, the City's primary strategy for addressing water shortages is implementation of staged demand reduction measures and operational practices that maximize the efficient use of available supplies.

Although opportunities are limited, the City will continue to evaluate feasible supply augmentation measures that may improve water supply reliability during severe shortages. These measures include expanding public information efforts to encourage voluntary conservation and, when feasible and economically practical, pursuing temporary water transfers with other eligible CVP contractors. Because the availability, timing, and quantity of transferable water cannot be guaranteed, temporary transfers are not relied upon when determining the City's shortage stages but may provide supplemental supplies during severe or prolonged shortages.

Table 8-4 summarizes the supply augmentation and other actions that may be implemented during each water shortage level, together with the estimated reduction in the supply-demand gap, where practicable.

Table 8-4 Supply Augmentation and Other Actions (Submittal Table 8-2)

Yes	Is the Supplier completing this table using the standard six levels? (yes/no)			
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**
		Volume or Percentage	**Shortage Gap Reduction Value**	
1-6	Expand Public Information Campaign	Percentage	1-2	Expanded customer outreach, education, and conservation messaging support voluntary conservation and improve

Table 8-4 Supply Augmentation and Other Actions (Submittal Table 8-2)				
Yes	Is the Supplier completing this table using the standard six levels? (yes/no)			
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**
		Volume or Percentage	**Shortage Gap Reduction Value**	
				participation in water use efficiency measures during all shortage stages.
4-6	Transfers	Volume (MG)	980	When feasible, the City may pursue temporary water transfers with other eligible USBR CVP contractors, including San Luis Unit contractors and agricultural water users. Because the quantity and availability of transferable water cannot be assured, these transfers are not relied upon when establishing shortage stages but may supplement available supplies during severe shortages.

8.4.2. Demand Reductions

Demand reduction actions are the primary means by which the City responds to water shortage conditions. Consistent with CWC Section 10632(a)(4), the City's WSCP establishes a progressive series of conservation measures intended to reduce customer water demands while maintaining essential public health, safety, sanitation, and fire protection services.

The demand reduction measures presented in this section are based on the conservation requirements contained in the City's adopted WSCP and Section 6-4C of the Coalinga Municipal Code. These measures have been reorganized and updated to correspond with the six standard water shortage levels required by the UWMPA while maintaining consistency with the City's existing conservation ordinance and adopted water shortage response policies.

The City of Coalinga relies primarily on imported surface water delivered through the CVP; therefore, demand management remains the most effective and reliable method for responding to reductions in available water supplies. As water shortage conditions become more severe, the City will implement increasingly stringent conservation measures to reduce potable water demands, preserve available supplies, and maintain reliable water service.

The City's demand reduction strategy is implemented in a progressive and cumulative manner. Each successive water shortage level incorporates the measures from the preceding levels unless otherwise modified by the City Council. The effectiveness of implemented conservation measures will be evaluated through ongoing monitoring of water production, customer demand, CVP allocations, and overall system performance. Based on the results of the AWSDA, the City may implement additional measures, relax existing restrictions, or transition between shortage levels as conditions warrant.

The six standard water shortage levels correspond generally to the three conservation stages established by Section 6-4C of the Coalinga Municipal Code, as summarized below:

- WSCP Stage 1 (Potential Shortage) corresponds to the City's Standard Conservation Alert and emphasizes year-round water conservation, public education, repair of water leaks, limitations on irrigation during peak daytime hours, prohibitions on wasteful water use, and restrictions on decorative fountains and unauthorized hydrant use. Customers are encouraged to achieve an overall voluntary reduction in water use of approximately five percent.
- WSCP Stages 2 and 3 (Minor and Moderate Shortages) generally correspond to the City's High Water Conservation Alert. During these stages, mandatory outdoor irrigation schedules, restrictions on swimming pool filling, limitations on irrigation of commercial landscapes, restaurants serving water only upon request, and other mandatory conservation measures are implemented to achieve the City's target demand reductions.
- WSCP Stages 4 through 6 (Severe, Critical, and Extreme Emergency Shortages) generally correspond to the City's Emergency Water Conservation Alert. During these stages, nearly all nonessential outdoor water uses may be prohibited, including landscape irrigation except for limited health and safety purposes, restrictions on commercial landscape irrigation, and prohibitions on filling swimming pools and other decorative water features. In addition, pursuant to Section 6-4C.11 of the Municipal Code, the City Council may adopt additional mandatory water use restrictions and emergency conservation measures, as necessary, to respond to severe drought conditions, catastrophic infrastructure failures, or other emergency water supply conditions.

Violations of the City's water conservation requirements are subject to the enforcement provisions established in Section 6-4C.09 of the Municipal Code, including written warnings, escalating fines, installation of flow restricting devices, discontinuation of water service, and other remedies authorized by the Municipal Code.

Table 8-5 summarizes the demand reduction actions that may be implemented under each of the six standard water shortage levels, including the estimated reduction in the supply-demand gap, and corresponding provisions of Section 6-4C of the Coalinga Municipal Code.

Table 8-5 Demand Reduction Actions (Submittal Table 8-3)					
Yes	Is the Supplier completing this table using the standard six levels? (yes/no)				
Shortage Level	**Demand Reduction Actions**	**How much is this going to reduce the shortage gap?**		**Additional Explanation or Reference**	**Penalty, Charge, or Other Enforcement?**
		Volume or Percentage	**Shortage Gap Reduction Value**		
1-6	Other - Prohibit use of potable water for washing hard surfaces	Percentage	1-2	Prohibits washing sidewalks, driveways, parking areas, patios, and similar hard surfaces with potable water except as necessary for health and safety. Municipal Code §6-4C.06(a).	Yes

Table 8-5 Demand Reduction Actions (Submittal Table 8-3)					
Yes	Is the Supplier completing this table using the standard six levels? (yes/no)				
Shortage Level	**Demand Reduction Actions**	**How much is this going to reduce the shortage gap?**		**Additional Explanation or Reference**	**Penalty, Charge, or Other Enforcement?**
		Volume or Percentage	**Shortage Gap Reduction Value**		
1-6	Water Features - Restrict water use for decorative water features, such as fountains	Percentage	<1	Decorative fountains shall use only recirculating water systems. Municipal Code §6-4C.06(b).	Yes
1-6	Other - Customers must repair leaks, breaks, and malfunctions in a timely manner	Percentage	1-3	Customers must repair leaks within 72 hours after written notification by the City. Municipal Code §6-4C.06(c).	Yes
1-6	Landscape - Limit landscape irrigation to specific times	Percentage	2-5	Irrigation prohibited between 10:00 a.m. and 6:00 p.m.; handheld hoses with shut-off nozzles exempt. Municipal Code §6-4C.06(d).	Yes
1-6	Other	Percentage	<1	Hydrant use limited to firefighting and authorized construction uses. Municipal Code §6-4C.06(e).	Yes
2-6	Landscape - Limit landscape irrigation to specific days	Percentage	5-10	Irrigation limited to designated days and times; no irrigation Sundays, Mondays, or Thursdays. Municipal Code §6-4C.07(c).	Yes
2-6	Landscape - Limit landscape irrigation to specific days	Percentage	1-3	Commercial nurseries, golf courses, and other water-dependent industries limited to irrigation every other day during nighttime hours unless recycled water is used. Municipal Code §6-4C.07(b).	Yes

Table 8-5 Demand Reduction Actions (Submittal Table 8-3)					
Yes	Is the Supplier completing this table using the standard six levels? (yes/no)				
Shortage Level	Demand Reduction Actions	How much is this going to reduce the shortage gap?		Additional Explanation or Reference	Penalty, Charge, or Other Enforcement?
		Volume or Percentage	Shortage Gap Reduction Value		
2-6	Other water feature or swimming pool restriction	Percentage	<1	Filling or refilling swimming pools requires City approval and is limited to designated irrigation days. Municipal Code §6-4C.07(d).	Yes
2-6	CII - Restaurants may only serve water upon request	Percentage	<1	Restaurants shall serve drinking water only upon customer request. Municipal Code §6-4C.07(e).	Yes
3-6	Landscape - Prohibit all landscape irrigation	Percentage	10-20	Outdoor irrigation prohibited except for minimal watering using a handheld hose equipped with a shut-off nozzle. Municipal Code §6-4C.08(b).	Yes
3-6	Landscape - Prohibit certain types of landscape irrigation	Percentage	1-3	Commercial nurseries, golf courses, and other water-dependent industries limited to handheld hose use only. Municipal Code §6-4C.08(c).	Yes
4-6	Other water feature or swimming pool restriction	Percentage	<1	Filling or refilling swimming pools, spas, and similar features prohibited except as necessary for maintenance. Municipal Code §6-4C.08(d).	Yes
4-6	Other	Percentage	20-30	The City Council may adopt additional mandatory water use restrictions or water use limits during declared drought emergencies pursuant to Municipal Code §6-4C.11 and CWC Section 350.	Yes

8.4.3. Operational Changes

During water shortage conditions, the City's operations may be modified to support implementation of demand reduction measures and maintain reliable water service. Operational changes will be

implemented based on the severity of the shortage level and corresponding reduction targets. Operational changes are intended to support implementation of the City's demand reduction measures while maintaining reliable and efficient operation of the potable water system during water shortage conditions. The specific operational changes implemented will depend on the severity and anticipated duration of the shortage, available CVP water supplies, treatment plant operations, and overall system conditions.

As part of the AWSDA process, the City will evaluate existing operational procedures to identify opportunities to improve water use efficiency, optimize available water supplies, and maintain system reliability during drought and emergency conditions. Operational changes are implemented in conjunction with the demand reduction measures described in Section 8.4.2 and may be modified as conditions warrant. These operational measures may include, but are not limited to, the following:

- Expand public information and customer outreach efforts to communicate current water supply conditions, conservation requirements, and available water efficiency resources.
- Coordinate with the USBR regarding CVP water allocations, delivery schedules, and other operational considerations affecting imported water supplies.
- Optimize operation of the City's water treatment plant, storage facilities, and distribution system to maximize the efficient use of available water supplies.
- Defer or modify non-essential system maintenance activities, where feasible, to maintain maximum treatment and delivery capacity during periods of reduced water supply.
- Limit water main and fire hydrant flushing activities to those necessary to maintain water quality, regulatory compliance, fire protection, and public health and safety.
- Verify the accuracy of treatment and customer water meters to improve water accounting and reduce apparent water losses.
- Increase monitoring of water system operations to identify leaks, excessive water use, or other operational inefficiencies and prioritize repairs that improve system reliability.
- Monitor construction water use and authorized hydrant meter use to ensure compliance with City requirements and minimize unnecessary water use.
- Conduct targeted outreach to high-volume water users to encourage implementation of additional conservation measures during declared water shortages.
- Evaluate operational practices and emergency procedures to ensure continued delivery of water for essential public health, safety, and fire protection purposes.

8.4.4. Additional Mandatory Restrictions

Consistent with CWC Section 10632(a)(4)(D), the City has established locally appropriate mandatory water use restrictions to reduce discretionary water use, eliminate wasteful water practices, and preserve available water supplies during drought and emergency water shortage conditions. These restrictions are based on the City's adopted WSCP and Chapter 6-4C of the Coalinga Municipal Code and supplement statewide water conservation requirements with measures specifically tailored to the City's water system and operational needs.

The City's mandatory restrictions are implemented progressively as water shortage conditions become more severe. Initial restrictions emphasize eliminating avoidable water waste through measures such as

prohibiting the washing of sidewalks and other hard surfaces with potable water, requiring timely repair of customer water leaks, limiting landscape irrigation during peak daytime hours, restricting unauthorized use of fire hydrants, and requiring decorative fountains to utilize recirculating water systems.

During more severe water shortage conditions, additional mandatory restrictions are implemented to further reduce potable water demands. These measures include designated days and hours for landscape irrigation, restrictions on filling or refilling swimming pools, requirements that restaurants serve drinking water only upon request, limitations on irrigation by commercial nurseries, golf courses, and other water-dependent industries, and prohibitions on nonessential outdoor water use except where necessary to protect public health and safety.

The Municipal Code also authorizes the City Council to adopt additional mandatory water use restrictions and emergency conservation measures by resolution when necessary to respond to severe drought conditions, significant reductions in available water supplies, catastrophic infrastructure failures, or other emergency events affecting the City's ability to provide reliable water service. This authority provides the flexibility necessary to implement additional conservation measures beyond those specifically identified in Chapter 6-4C should future conditions warrant.

Compliance with the City's mandatory water use restrictions is achieved through customer education, public outreach, routine monitoring, and enforcement activities. Violations are subject to the enforcement provisions established in Chapter 6-4C of the Municipal Code, which include written warnings for initial violations, escalating fines for subsequent violations, installation of flow-restricting devices, discontinuation of water service, and other remedies authorized by the Municipal Code and applicable provisions of the CWC.

8.4.5. Emergency Response Plan

CWC Section 10632(c) requires urban water suppliers to develop an Emergency Response Plan (ERP) that documents the actions to be undertaken to prepare for and respond to a catastrophic interruption of water supplies. A catastrophic interruption may result from natural or human-caused events that significantly disrupt the availability, treatment, or distribution of water. Such events may include, but are not limited to, extreme weather conditions, wildfires, earthquakes, infrastructure failures, or acts of terrorism.

The City of Coalinga maintains a comprehensive Water System Emergency Response Plan (ERP) that establishes standardized procedures for preparing for, responding to, and recovering from water system emergencies. The ERP was updated in 2021 to comply with the America's Water Infrastructure Act (AWIA) and incorporates the findings of the City's certified Risk and Resilience Assessment. The ERP identifies strategies to improve the physical security, operational resilience, and cybersecurity of the City's water system, establishes emergency response procedures, identifies critical equipment and resources, and provides guidance for restoring safe and reliable water service following an emergency. The ERP also includes emergency contact information, public notification procedures, incident-specific action plans, mutual aid coordination, and recovery protocols.

The ERP is intended to complement the City's Emergency Operations Plan (EOP) and is implemented in accordance with California's Standardized Emergency Management System (SEMS). Emergency incidents are managed using the Incident Command System (ICS), allowing City personnel to coordinate with Fresno

County, the California Governor's Office of Emergency Services (Cal OES), the SWRCB DDW, and other local, regional, State, and Federal agencies through established mutual aid and emergency management frameworks. The City is located within Cal OES Mutual Aid Region V, and emergency resource requests are coordinated through the Fresno County Operational Area when local resources are insufficient.

The City's potable water system receives untreated CVP water conveyed through the California Aqueduct and Coalinga Canal to the City's WTP before distribution to customers. Consequently, emergency response planning addresses events that could interrupt source water deliveries, damage treatment or distribution facilities, disrupt electrical power or communications, compromise water quality, or otherwise affect the City's ability to provide safe drinking water. The ERP includes procedures for responding to these incidents, implementing precautionary measures, issuing boil water or do-not-drink notices when necessary, coordinating emergency sampling and regulatory notifications, restoring system operations, and communicating with customers and responding agencies throughout the emergency.

Although catastrophic interruptions are managed separately from drought-related water shortages, emergency conditions may require implementation of one or more water shortage response levels described in this WSCP if available water supplies or system capacity are significantly reduced. The City will continue to periodically review and update its ERP to maintain compliance with applicable regulatory requirements and to reflect changes in water system infrastructure, operational practices, and emergency management procedures.

8.4.6. Seismic Risk Assessment and Mitigation Plan

CWC Section 10632.5.(a)

In addition to the requirements of paragraph (3) of subdivision (a) of Section 10632, beginning January 1, 2020, the plan shall include a seismic risk assessment and mitigation plan to assess the vulnerability of each of the various facilities of a water system and mitigate those vulnerabilities.

(b) An urban water supplier shall update the seismic risk assessment and mitigation plan when updating its urban water management plan as required by Section 10621.

(c) An urban water supplier may comply with this section by submitting, pursuant to Section 10644, a copy of the most recent adopted local hazard mitigation plan or multihazard mitigation plan under the federal Disaster Mitigation Act of 2000 (Public Law 106-390) if the local hazard mitigation plan or multihazard mitigation plan addresses seismic risk.

The CWC Section 10632.5 requires urban water suppliers to assess the vulnerability of water system facilities to seismic hazards and identify measures to mitigate those vulnerabilities. This assessment is required to be updated as part of each UWMP cycle. Compliance with this requirement may be achieved through incorporation of information from an adopted Local Hazard Mitigation Plan (LHMP) or Multi-Hazard Mitigation Plan (MHMP), provided that seismic risks are adequately addressed. The City of Coalinga satisfies this requirement through implementation of its Water System ERP, which incorporates the findings of the City's certified Risk and Resilience Assessment, and through the City’s participation in the Fresno County Multi-Hazard Mitigation Plan (MHMP), both of which address earthquake hazards and emergency response procedures.

The City is located within a seismically active region of western Fresno County where several active and potentially active fault systems, including the San Andreas Fault, Coast Range-Sierran Block Boundary, and

other regional faults, can produce significant ground shaking. The City experienced a 6.7 magnitude earthquake in 1983, which caused widespread structural damage throughout the community and demonstrated the City's vulnerability to future seismic events. Although the potential for liquefaction within the City is considered low because groundwater levels are generally 300 to 400 feet below ground surface, strong ground shaking remains the primary seismic hazard affecting the City and its critical infrastructure.

An earthquake has the potential to disrupt the City's potable water system by damaging raw water conveyance facilities associated with the CVP, pumping stations, the City's WTP, transmission and distribution pipelines, storage reservoirs, electrical power systems, communications equipment, and supervisory control and data acquisition (SCADA) systems. Damage to one or more of these facilities could interrupt water production, treatment, or distribution and may require implementation of emergency water shortage response actions. The ERP specifically identifies earthquakes as a potential catastrophic event and establishes procedures for protecting personnel, assessing structural damage, activating the Emergency Operations Center (EOC), inspecting storage tanks, pipelines, buildings, and treatment equipment, prioritizing repairs to water main breaks, coordinating mutual aid with neighboring water agencies, and restoring water service as quickly as practicable.

The City's mitigation strategy focuses on maintaining operational resilience before, during, and after a seismic event. Mitigation measures include maintaining and periodically updating the ERP, conducting emergency preparedness training and exercises, coordinating with local, regional, State, and Federal emergency response agencies through the SEMS and ICS, maintaining mutual aid agreements, inspecting and maintaining critical water system infrastructure, and incorporating seismic considerations into future capital improvement projects. These measures are also consistent with the policies contained in the City's General Plan Safety Element, which calls for maintaining and upgrading critical public facilities, coordinating emergency preparedness efforts, improving emergency response capabilities, and ensuring that critical infrastructure is designed and maintained to reduce seismic risk.

The City will continue to update its seismic risk assessment and mitigation measures through future revisions to the Water System ERP, the Fresno County MHMP, and other applicable emergency planning documents to improve the resilience and reliability of the City's water system following future seismic events.

8.4.7. Shortage Response Action Effectiveness

The City of Coalinga continuously monitors water system operations to evaluate the effectiveness of the shortage response actions implemented under this WSCP. The City's potable water system is fully metered, including raw water deliveries to the WTP, finished water production, and customer service connections. Metered water use data are compiled and reviewed on a regular basis to monitor customer demands, identify seasonal and long-term consumption trends, and assess the effectiveness of implemented conservation measures.

Pursuant to CWC Section 10632.1, the City prepares an AWSDA each year to evaluate projected water supplies and demands for the current year and the following year. The AWSDA considers available CVP allocations, anticipated water treatment and distribution system capacity, historical and projected customer demands, operational conditions, and other factors that may affect water supply reliability.

Based on the results of the AWSDA and other operational information, the City determines whether a water shortage condition exists and whether adjustments to the current shortage response stage are warranted.

During water shortage conditions, City staff monitor customer water use and compare actual demands to established baseline conditions to evaluate whether the targeted demand reductions associated with each shortage stage are being achieved. Water use trends are reviewed throughout the shortage period, and the effectiveness of conservation measures is assessed using metered consumption data, operational observations, customer participation, and enforcement activities. Where necessary, the City may modify outreach efforts, increase enforcement, or implement additional demand reduction measures authorized under Chapter 6-4C of the Coalinga Municipal Code to achieve the desired level of water savings.

The estimated demand reductions associated with each shortage response action are presented in Table 8-5. These estimates represent planning-level values intended to assist in evaluating the relative effectiveness of individual conservation measures and may vary depending on customer response, weather conditions, and the severity and duration of the water shortage.

The overall effectiveness of the City's shortage response program depends on a combination of enforceable water use restrictions, operational management, public outreach, customer participation, and ongoing monitoring of water use. The City will continue to evaluate the performance of its shortage response actions through the AWSDA process and routine system monitoring and will revise or expand conservation measures, as necessary, to maintain water supply reliability and comply with applicable State water shortage planning requirements.

8.5. Communication Protocols

CWC Section 10632 (a)(5)

Communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and state governments, regarding, at a minimum, all of the following:

(A) Any current or predicted shortages as determined by the annual water supply and demand assessment described pursuant to Section 10632.1.

(B) Any shortage response actions triggered or anticipated to be triggered by the annual water supply and demand assessment described pursuant to Section 10632.1.

(C) Any other relevant communications

CWC Section 10632(a)(5) requires urban water suppliers to establish communication protocols and procedures to inform customers, the public, interested parties, and local, regional, and State agencies regarding current and anticipated water shortages, shortage response actions, and other relevant water supply information. The City of Coalinga recognizes that timely, accurate, and consistent communication is essential to the successful implementation of its WSCP and to achieving customer participation in water conservation efforts.

The City will communicate the results of its AWSDA, including any current or projected water supply shortages and any shortage response actions that have been or are anticipated to be implemented. If the AWSDA determines that a water shortage condition exists or is likely to occur, the City will notify

customers of the applicable shortage stage, the required demand reduction target, mandatory and voluntary conservation measures, implementation schedule, and enforcement provisions. The City will also provide updates whenever water supply conditions improve or deteriorate sufficiently to warrant a change in the declared water shortage stage.

The primary methods of communicating water shortage information include customer bill inserts, the City's website, public meetings, press releases, and direct customer notifications, as appropriate. Information distributed during a water shortage will describe the applicable water use restrictions, provide practical water conservation recommendations, explain the reasons for the shortage declaration, and identify available City contacts for additional information. Depending on the severity of the shortage, the City may also utilize local newspapers, social media, electronic notifications, mailed notices, or other communication methods to ensure customers receive timely and consistent information.

The City will coordinate, as appropriate, with the USBR, DWR, SWRCB, Fresno County, neighboring water agencies, and other local, regional, and State organizations to ensure consistent public messaging regarding water supply conditions and drought response activities. Coordination with these agencies also assists the City in communicating changes in CVP allocations, regulatory requirements, and other factors that may affect the reliability of the City's water supplies.

Communication efforts will be adjusted based on the severity of the water shortage and the level of response required. As shortage conditions become more severe, the City will increase the frequency and scope of public outreach and customer notifications to encourage compliance with conservation measures and to maintain transparency regarding water supply conditions. The City will continue to evaluate the effectiveness of its communication program and update its outreach strategies, as necessary, to support implementation of this WSCP and promote efficient water use throughout the service area.

8.6. Compliance and Enforcement

CWC Section 10632 (a)(6)

For an urban retail water supplier, customer compliance, enforcement, appeal, and exemption procedures for triggered shortage response actions as determined pursuant to Section 10632.2.

CWC Section 10632(a)(6) requires urban retail water suppliers to establish customer compliance, enforcement, appeal, and exemption procedures for shortage response actions implemented under the WSCP. The City of Coalinga has established these procedures through Chapter 6-4C of the Coalinga Municipal Code, which authorizes the City to implement and enforce mandatory water conservation measures during declared water shortage conditions.

During a declared water shortage, the City will monitor compliance with applicable conservation requirements using customer meter data, field observations, customer complaints, and operational inspections conducted by City staff. Customers may be identified for potential violations based on observed water waste or failure to comply with mandatory restrictions applicable to the declared shortage stage. Examples of prohibited water uses include excessive irrigation runoff, irrigation outside of permitted days or times, failure to repair leaks, unauthorized use of fire hydrants, operation of decorative fountains without recirculating water, prohibited filling or refilling of swimming pools, nonessential outdoor water use, or other violations established by Chapter 6-4C of the Municipal Code.

When violations occur, the City may take enforcement actions in accordance with Chapter 6-4C of the Coalinga Municipal Code. Depending on the nature, severity, and frequency of the violation, enforcement may include issuance of a written notice of violation, a requirement to correct the violation within a specified timeframe, assessment of administrative fines as authorized by the Municipal Code, installation of a flow-restricting device at the customer's expense, or discontinuation of water service for continued or repeated noncompliance. In addition, pursuant to Section 6-4C.11 of the Municipal Code, the City reserves the authority to implement additional water use restrictions or emergency conservation measures, as necessary, to protect public health, safety, and welfare and to preserve available water supplies during severe water shortage conditions.

Customers may request an exception or exemption from specific water conservation requirements in accordance with Section 6-4C.04 of the Coalinga Municipal Code. The City Manager or his or her designee is authorized to grant exceptions where water use is necessary to protect public health and safety, provide essential government services, meet documented medical needs, utilize recycled water, or where an alternative water source is available. The City Council may grant exemptions, with or without conditions, if it determines that compliance would result in an extreme financial hardship that cannot otherwise be mitigated. Requests for an exemption must be submitted in writing to the City Clerk at least two weeks prior to the regularly scheduled City Council meeting at which the request will be considered. The City Council's determination on an exemption request is final. In addition, prior to limiting or discontinuing water service for enforcement purposes, the City will provide written notice of its intent and afford the customer the opportunity to request an administrative review and hearing in accordance with Section 6-4.26 of the Municipal Code.

The City recognizes that effective implementation of its WSCP depends on a combination of customer education, public outreach, and consistent enforcement. Accordingly, the City will continue to emphasize communication and voluntary conservation while utilizing the enforcement authorities provided under Chapter 6-4C of the Municipal Code to achieve the demand reductions necessary to maintain water supply reliability during droughts, water shortages, and other emergency conditions.

8.7. Legal Authorities

CWC Section 10632 (a)(7)

(A) A description of the legal authorities that empower the urban water supplier to implement and enforce its shortage response actions specified in paragraph (4) that may include, but are not limited to, statutory authorities, ordinances, resolutions, and contract provisions.

(B) A statement that an urban water supplier shall declare a water shortage emergency in accordance with Chapter 3 (commencing with Section 350) of Division 1. [see below]

(C) A statement that an urban water supplier shall coordinate with any city or county within which it provides water supply services for the possible proclamation of a local emergency, as defined in Section 8558 of the Government Code.

CWC Section Division 1, Section 350

Declaration of water shortage emergency condition. The governing body of a distributor of a public water supply, whether publicly or privately owned and including a mutual water company, shall declare a water shortage emergency condition to prevail within the area served by such distributor whenever it

finds and determines that the ordinary demands and requirements of water consumers cannot be satisfied without depleting the water supply of the distributor to the extent that there would be insufficient water for human consumption, sanitation, and fire protection.

In accordance with CWC Section 10632(a)(7), the City has the legal authority to implement and enforce the shortage response actions identified in this WSCP pursuant to applicable provisions of the CWC, California Government Code, Chapter 6-4C (Water Conservation) of the Coalinga Municipal Code, and other applicable ordinances, resolutions, and emergency actions adopted by the City Council. These authorities empower the City to implement mandatory and voluntary water conservation measures, establish water use restrictions, prohibit nonessential water uses, adopt additional drought response measures as necessary, and enforce compliance through the procedures established in the Municipal Code.

Consistent with CWC Section 350, the City Council shall declare a water shortage emergency whenever it finds and determines that the ordinary demands and requirements of water customers cannot be satisfied without depleting the City's available water supplies to the extent that insufficient water would remain for human consumption, sanitation, and fire protection. Upon declaration of a water shortage emergency, the City may implement the applicable shortage response actions identified in this WSCP and Chapter 6-4C of the Coalinga Municipal Code, including any additional water use restrictions authorized under Section 6-4C.11.

Pursuant to Government Code Section 8558, the City will coordinate with Fresno County and other appropriate local, regional, State, and federal agencies regarding the potential proclamation of a local emergency when drought, catastrophic infrastructure failure, interruption of CVP water deliveries, water quality emergencies, or other conditions threaten the reliability of the City's potable water system. Such coordination may include emergency response planning, mutual aid, public communication, operational coordination, and implementation of emergency measures necessary to protect public health and safety and maintain reliable water service.

The legal authorities detailed in this section provide the framework necessary for the City to implement the shortage response actions identified in this WSCP, respond to changing water supply conditions identified through the AWSDA, and protect the long-term reliability of the City's potable water system while maintaining compliance with applicable State laws and regulations.

8.8. Financial Consequences of WSCP Activation

CWC Section 10632(a)(8)

A description of the financial consequences of, and responses for, drought conditions, including, but not limited to, all of the following:

(A) A description of potential revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(B) A description of mitigation actions needed to address revenue reductions and expense increases associated with activated shortage response actions described in paragraph (4).

(C) A description of the cost of compliance with Chapter 3.3 (commencing with Section 365) of Division 1. [retail urban suppliers only]

The City of Coalinga finances the operation, maintenance, and capital improvements of its potable water system through revenues generated from customer water service charges. In September 2020, the City completed a Water and Wastewater Financial Analysis and Rate Study, and the City Council subsequently adopted Resolution No. 3989, establishing a revised water rate structure that became effective in November 2020. The adopted rate structure consists of two primary components: (1) a volumetric charge based on metered water consumption for Urban Residential, Urban Commercial, Rural, and California Department of Corrections customers; and (2) a fixed service charge based on meter size that recovers costs associated with system operations, maintenance, and water system infrastructure.

Implementation of shortage response actions under this WSCP may reduce water sales revenues because conservation measures decrease customer water consumption. However, many of the costs associated with operating and maintaining the City's water system remain relatively fixed regardless of water demand. In addition, the City may incur increased expenses associated with implementing the WSCP, including public outreach and customer notifications, compliance monitoring, enforcement activities, and operational adjustments.

The 2020 Water and Wastewater Financial Analysis and Rate Study anticipated fluctuations in water demand, including periods of reduced consumption associated with drought conditions, and established water rates intended to provide sufficient revenues to support continued operation of the water system while maintaining appropriate operating and capital reserves. During any declared water shortage, the City will monitor the financial performance of the water enterprise fund and, if necessary, evaluate appropriate mitigation measures to maintain the financial stability. Such measures may include the use of available reserve funds, deferral of nonessential capital improvement projects, modification of operations and maintenance expenditures, pursuit of available State or federal financial assistance, or preparation of an updated water rate study. Any revisions to water rates or charges would be considered by the City Council in accordance with Chapter 3.3 (commencing with Section 365) of Division 1 of the CWC, Proposition 218, and other applicable provisions of State law.

The City does not anticipate that compliance with Chapter 3.3 (commencing with Section 365) of Division 1 of the CWC will result in significant additional costs beyond those associated with routine administration of the water enterprise fund. Should future water shortages require modifications to the City's rate structure or implementation of additional drought-related charges, the City will comply with all applicable statutory notice, public hearing, and rate adoption requirements prior to implementing such changes.

8.9. Monitoring and Reporting

CWC Section 10632(a)(9)

For an urban retail water supplier, monitoring and reporting requirements and procedures that ensure appropriate data is collected, tracked, and analyzed for purposes of monitoring customer compliance and to meet state reporting requirements.

In accordance with CWC Section 10632(a)(9), the City of Coalinga continuously monitors water supply conditions, WTP operations, and metered customer water use to support implementation of this WSCP and comply with applicable State reporting requirements. Water use and operational data are routinely evaluated to assess water supply reliability, monitor customer demand, and determine whether adjustments to the declared water shortage stage are warranted.

The City uses information on CVP water supplies, treated water production, customer consumption, and operational conditions to prepare the AWSDA and evaluate the effectiveness of implemented shortage response actions. During declared water shortages, customer water use is compared to established baseline conditions to assess progress toward demand reduction targets. If necessary, the City may increase public outreach, enhance compliance monitoring, or implement additional conservation measures authorized under Chapter 6-4C of the Coalinga Municipal Code.

The City will maintain records documenting water supply conditions, customer demands, and implementation of shortage response actions, and will comply with all applicable State reporting requirements, including preparation of the AWSDA, UUWMPs, annual water loss audits, and any additional reporting required by the California Department of Water Resources or the State Water Resources Control Board. Monitoring results and conservation information will be communicated to customers through the City's website, customer bill inserts, public notices, and other appropriate outreach methods.

8.10. WSCP Refinement Procedures

CWC Section 10632 (a)(10)

Reevaluation and improvement procedures for systematically monitoring and evaluating the functionality of the water shortage contingency plan in order to ensure shortage risk tolerance is adequate and appropriate water shortage mitigation strategies are implemented as needed.

In accordance with CWC Section 10632(a)(10), the City will periodically evaluate the effectiveness of this WSCP to ensure that shortage response actions remain appropriate, effective, and consistent with current water supply conditions, regulatory requirements, and operational practices. Information developed through the AWSDA, water use monitoring, operational experience, and implementation of shortage response actions will be used to identify opportunities for improvement and determine whether revisions to the WSCP are warranted.

As part of future UWMP updates, or as otherwise necessary, the City will review the WSCP to incorporate changes in water supply conditions, infrastructure, regulatory requirements, and lessons learned during droughts or other water shortage events. Any substantive revisions to the WSCP will be considered by the City Council at a publicly noticed meeting and adopted by resolution, as required by the CWC.

8.11. Special Water Feature Distinction

CWC Section 10632 (b)

For purposes of developing the water shortage contingency plan pursuant to subdivision (a), an urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code.

In accordance with CWC Section 10632(b), an urban water supplier shall analyze and define water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, separately from swimming pools and spas, as defined in subdivision (a) of Section 115921 of the Health and Safety Code. The City distinguishes artificially supplied water features, including decorative fountains, ponds, lakes, and waterfalls, from swimming pools and spas when implementing this WSCP. Decorative water features are

generally considered discretionary water uses and are addressed separately because they typically do not serve public health or safety purposes.

Consistent with Chapter 6-4C of the Coalinga Municipal Code, decorative fountains may operate only if they utilize a recirculating water system, while restrictions on filling or refilling swimming pools and spas may be implemented during higher water shortage stages. By addressing these water uses separately, the City can implement targeted conservation measures appropriate to the severity of the water shortage while maintaining consistency with State requirements and the adopted WSCP.

8.12. Plan Adoption, Submittal, Availability, and Amendment Procedures

CWC Section 10632 (c)

The urban water supplier shall make available the water shortage contingency plan prepared pursuant to this article to its customers and any city or county within which it provides water supplies no later than 30 days after adoption of the water shortage contingency plan.

CWC Section 10642.

…Prior to adopting either [UWMP and WSCP], the urban water supplier shall make both the plan [UWMP] and water shortage contingency plan available for public inspection and shall hold a public hearing or hearings thereon…After the hearing or hearings, the plan [UWMP] or water shortage contingency plan shall be adopted as prepared or as modified after the hearing or hearings.

CWC Section 10640.

(b) …The supplier shall likewise periodically review the water shortage contingency plan as required by paragraph (10) of subdivision (a) of Section 10632 and any amendments or changes required as a result of that review shall be adopted pursuant to this article [Article 3 Sections 10640 -10645]

CWC Section 10644(a)(2)(b)

If an urban water supplier revises its water shortage contingency plan the supplier shall submit to the department a copy of it water shortage contingency plan prepared pursuant to subdivision (a) of Section 10632 [required elements of a WSCP] no later than 30 days after adoption, in accordance with protocols for submission and using electronic reporting tools developed by the department.

In accordance with CWC Sections 10632(c), 10642, 10640(b), and 10644(a)(2), the City will ensure that its WSCP is adopted, maintained, and made publicly available in compliance with statutory requirements. Pursuant to Section 10642, the City made the WSCP available for public inspection and conducted a duly noticed public hearing prior to adoption. Following the public review process, the City Council formally adopted the WSCP on March 3, 2022, in conjunction with the 2020 UWMP, by Resolution No. 4071.

In accordance with Section 10632(c), the City makes the WSCP available to customers and to any city or county within which it provides water service no later than 30 days following adoption. The WSCP is publicly accessible through the City's website and will continue to be made available for all future updates. Consistent with Section 10644(a)(2), the adopted WSCP was submitted to the DWR within 30 days of adoption using the required electronic reporting tools.

In accordance with Section 10640(b), the City will periodically review and evaluate the WSCP and implement amendments as necessary to reflect updated conditions, regulatory requirements, and

operational experience. Any revisions to the WSCP will be adopted following a publicly noticed City Council meeting and will be submitted to DWR and made publicly available within 30 days of adoption, consistent with applicable CWC requirements.

The WSCP will continue to be updated, adopted, and implemented in coordination with future UWMP updates to ensure consistency between planning documents and continued compliance with state law.

CHAPTER 9 - DEMAND MANAGEMENT MEASURES

CWC Section 10631

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

(1)(A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measure that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

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

(i) Water waste prevention ordinances.

(ii) Metering.

(iii) Conservation pricing.

(iv) Public education and outreach.

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

(vi) Water conservation program coordination and staffing support.

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

CWC Section 10631(e) requires urban retail water suppliers to provide a narrative description of the water demand management measures (DMMs) implemented over the past five years and those planned to achieve applicable water use objectives and targets. DMMs measures are policies, programs, ordinances, and operational practices implemented by suppliers to promote water use efficiency, conservation, and ultimately reduce long-term potable water demand.

Consistent with the 2025 UWMP Guidebook, this chapter describes the nature, extent, and effectiveness of the City's DMMs, including how these measures contribute to achieving water use efficiency objectives established under Senate Bill 606 and Assembly Bill 1668, as well as the City's previously established SB X7-7 targets. Because the City of Coalinga relies exclusively on imported raw surface water supplies delivered through the USBR's CVP, the City's water supply remains subject to drought conditions, hydrologic variability, regulatory constraints, conveyance interruptions, and changes in federal water project operations. Accordingly, efficient water use and proactive demand management remain essential to maintaining long-term water supply reliability and maximizing the beneficial use of the City's available water supplies.

During the past five years, the City has continued to implement a comprehensive water conservation program focused on improving water use efficiency, updating customer metering, reducing distribution system losses through leak detection and water loss management, educating customers on water conservation practices, enforcing water waste prohibitions, and implementing drought preparedness and response measures through the City's adopted WSCP. Collectively, these measures improve distribution

system efficiency, reduce avoidable water losses, and help ensure the City's limited imported water supplies are used as efficiently as possible.

The CWC identifies seven categories of DMMs to be addressed in this chapter:

- Water waste prevention ordinances
- Metering
- Conservation pricing
- Public education and outreach
- Programs to assess and manage distribution system real loss
- Water conservation program coordination and staffing support
- Other demand management measures

The following sections describe City's implementation of these measures and how they support compliance with current and future water use efficiency requirements.

9.1. Implementation over the Past Five Years

In accordance with CWC Section 10631(e)(1)(A), the City has implemented a range of demand management measures over the previous five-year period (2020–2025) to promote water use efficiency, reduce system demand, and support the long-term reliability of its potable water supplies. As a retail water supplier that relies exclusively on imported raw surface water delivered through the USBR's CVP, the City recognizes the importance of maximizing the efficient use of its available water supplies through conservation, system efficiency improvements, and proactive water management.

The City's conservation framework is implemented through the Coalinga Municipal Code and the City's adopted WSCP, which establish enforceable water conservation requirements, prohibit wasteful water use practices, and define staged response actions during periods of water shortage. As discussed in Chapter 8, the WSCP establishes six water shortage response levels consistent with current CWC requirements. Even under normal water supply conditions, the City promotes year-round water conservation practices that encourage efficient indoor and outdoor water use and reduce unnecessary potable water demands.

The City maintains a fully metered water distribution system, allowing for accurate measurement of customer water use, timely identification of abnormal consumption, improved leak detection, and enhanced water system accountability. Metering also supports the City's water rate structure and provides the operational data necessary to complete annual water loss audits, prepare water use projections, evaluate system performance, and support long-range planning. During the previous five years, the City has undertaken a comprehensive customer meter replacement program to replace aging meters with automated radio-read meters. The replacement program is anticipated to be substantially complete by the end of 2026 and is expected to improve meter accuracy, increase operational efficiency, enhance the reliability of customer water use data, and support more effective identification of system leaks and unauthorized water use.

Public education and outreach remain integral components of the City's conservation program. The City provides customers with information regarding water conservation practices, water waste prohibitions, drought conditions, and applicable water use restrictions through customer communications, utility billing

materials, public notices, and the City's website. Educational efforts encourage customers to adopt water-efficient landscaping, irrigation practices, and indoor water conservation measures to reduce overall potable water demand.

The City also continues to improve distribution system efficiency by conducting annual AWWA water loss audits and implementing measures to reduce both real and apparent water losses. These efforts include routine system maintenance, leak detection and repair, replacement of aging infrastructure, and continued customer meter replacement. As discussed in Chapter 4, the City is actively pursuing additional measures to improve water loss accounting and reduce system losses in advance of the SWRCB's 2028 Water Loss Performance Standard.

Water conservation program implementation is coordinated by City staff through the Public Works Department as part of the City's ongoing utility operations, customer service, capital improvement planning, regulatory reporting, and water resource management responsibilities. Conservation measures are integrated with the City's broader water supply reliability planning efforts, including the AWSDA, implementation of the WSCP, compliance with state urban water use efficiency requirements, and continued coordination with the USBR regarding the City's CVP water supply.

Collectively, these demand management measures demonstrate the City's continued commitment to promoting efficient water use, reducing avoidable water losses, maintaining reliable imported water supplies, and ensuring compliance with current and future state water conservation and urban water use efficiency requirements.

9.2. Implementation to Achieve Water-Use Targets

CWC Section 10631

(e)(1)(A) For an urban retail water supplier, as defined in Section 10608.12, a narrative description that addresses the nature and extent of each water demand management measure implemented over the past five years. The narrative shall describe the water demand management measure that the supplier plans to implement to achieve its water use targets pursuant to Section 10608.20.

In accordance with CWC Section 10631(e)(1)(A), the City will continue to implement and enhance DMMs to achieve applicable water use targets and water use efficiency objectives established pursuant to Section 10608.20. These objectives include maintaining compliance with the City’s SB X7-7 targets and progressing toward long-term water use efficiency standards established under Senate Bill 606 and Assembly Bill 1668, while also promoting the efficient use of its imported CVP water supplies.

Because the City relies exclusively on imported surface water provided under contract with the USBR, efficient water use remains an essential component of maintaining long-term water supply reliability. Water conservation reduces demand on the City's available water supplies, enhances operational flexibility during drought and other supply disruptions, and supports responsible stewardship of limited water resources.

The City will continue to rely on its existing conservation framework, including Chapter 13.05 of the Coalinga Municipal Code and the WSCP, to guide implementation of both ongoing and enhanced conservation measures. As discussed in Chapter 8, the WSCP establishes six stages of response to water shortage conditions consistent with current CWC requirements. Stage 1 conservation measures remain in

effect during normal water supply conditions and establish the City's baseline conservation program through water waste prohibitions, public education, and efficient water use practices. During periods of drought, reduced imported water deliveries, infrastructure outages, or other supply constraints, the City will implement progressively more restrictive conservation measures consistent with the WSCP to achieve additional demand reductions.

The City will continue to utilize its fully metered water system to monitor customer demand, evaluate water use trends, identify abnormal consumption, and support long-range system planning. As part of its ongoing commitment to improving system efficiency, the City has implemented a systemwide customer meter replacement program to replace aging customer meters with automated radio-read meters. The replacement program is anticipated to be completed by the end of 2026 and is expected to improve meter accuracy, strengthen water accountability, enhance leak detection capabilities, and provide more reliable consumption data for operational planning, billing, annual water loss audits, and regulatory reporting.

Management of distribution system water losses will remain an important component of the City's demand management strategy. The City will continue to prepare annual AWWA water loss audits, monitor its progress toward meeting the SWRCB's Water Loss Performance Standards, conduct routine maintenance, promptly repair water main leaks and service line failures, and implement targeted infrastructure improvements to reduce real water losses and improve overall system reliability.

Public education and outreach will continue to support achievement of the City's urban water use objectives. Conservation messaging will encourage efficient indoor and outdoor water use, proper irrigation scheduling, timely repair of customer-side leaks, and increased awareness of the importance of conserving imported water supplies. Outreach efforts may include billing inserts, the City's website, social media, public notices, and educational materials distributed during both normal and drought conditions.

Water conservation program implementation will continue to be integrated into the City's routine utility operations, customer service activities, capital improvement planning, and regulatory compliance efforts. The City will periodically evaluate the effectiveness of its DMMs using performance indicators such as water production trends, gallons per capita per day (GPCD), annual water loss audit results, customer demand data, and other operational metrics. Conservation programs and operational practices will be refined as necessary to support continued compliance with State water use efficiency requirements and to maintain a reliable and resilient water supply system.

Through continued implementation and refinement of these DMMs, the City will promote efficient water use, improve system reliability, reduce avoidable water losses, support compliance with State-mandated urban water use efficiency standards, and enhance the long-term reliability of its imported CVP water supplies for the benefit of existing and future customers.

9.3. Required Demand Management Measures

9.3.1. Water Waste Prevention Ordinance

This DMM consists of adopting and enforcing a water waste prevention ordinance that prohibits the inefficient or unnecessary use of water. Such ordinances typically include specific prohibitions on practices that result in water waste, such as excessive runoff from landscape irrigation, irrigation during precipitation events, and the use of hoses without automatic shutoff nozzles.

The City of Coalinga established its water waste prevention framework through Chapter 4C, Water Conservation, of the Coalinga Municipal Code in 2009. The ordinance applies to all City water customers and was adopted to minimize the potential for water shortages, reduce inefficient water consumption, and preserve available water supplies necessary for domestic use, sanitation, and fire protection. The ordinance also authorizes the City Council to declare water conservation stages when reduced water supplies or interruptions in water deliveries warrant additional conservation measures.

Under the Municipal Code, the City's Stage 1 – Standard Conservation Alert establishes the baseline water waste prohibitions that remain in effect during normal water supply conditions. These requirements include prohibiting the hosing of sidewalks, driveways, parking areas, patios, and other hard surfaces; requiring decorative fountains to utilize recirculating water systems; requiring customers to repair leaks within 72 hours following written notification by the City; prohibiting landscape irrigation between 10:00 a.m. and 6:00 p.m., except for specified water-dependent uses; requiring handheld hoses to be equipped with automatic shutoff nozzles; and limiting the use of fire hydrants to firefighting or other authorized purposes.

The Municipal Code also establishes additional restrictions during Stage 2 – High Water Conservation Alert and Stage 3 – Emergency Water Conservation Alert. Stage 2 includes designated irrigation days for residential and nonresidential customers, limits irrigation frequencies for water-dependent industries, restricts swimming pool filling and refilling, and prohibits restaurants from serving drinking water unless requested by the customer. Stage 3 prohibits nearly all outdoor water use except for limited hand watering necessary for plant survival and prohibits other nonessential water uses, including filling or refilling swimming pools, spas, and similar facilities beyond that necessary for maintenance.

Although the Municipal Code currently contains three conservation stages, the City's WSCP, adopted in 2022 as part of the 2020 UWMP cycle, establishes the six standard water shortage levels required by California Water Code Section 10632. The WSCP incorporates the Municipal Code restrictions and expands them through additional shortage response actions, demand reduction measures, communication protocols, and enforcement procedures appropriate to each shortage level. During declared water shortage conditions, the City will implement the applicable conservation measures identified in the WSCP in conjunction with the existing requirements of Chapter 4C of the Municipal Code.

The City's water waste prevention ordinance is supported through ongoing public education, customer outreach, and enforcement activities. Conservation information is distributed through utility bill messaging, public notices, the City's website, and other communication methods to encourage voluntary compliance with water conservation requirements. The Municipal Code authorizes progressive enforcement actions for violations, including written notices, monetary penalties, installation of flow restrictors, discontinuation of water service, and other enforcement remedies as appropriate.

Collectively, the City's water conservation ordinance, WSCP implementation procedures, public education efforts, and enforcement authority provide the foundation for reducing unnecessary potable water use, improving long-term water use efficiency, supporting compliance with State urban water use efficiency requirements, and protecting the reliability of the City's imported Central Valley Project water supplies.

9.3.2. Metering

CWC Section 526

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

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

CWC Section 527

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

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

CWC Sections 526 and 527 require urban water suppliers to install water meters on all applicable service connections. Because the City of Coalinga receives its potable water supply from the federal CVP, the City is subject to the requirements of CWC Section 526, which requires meters on all residential and nonagricultural commercial service connections. Metering supports volumetric billing, improved water use accountability, accurate demand forecasting, and implementation of water conservation programs.

The City of Coalinga maintains a fully metered potable water distribution system. All residential, multi-family, commercial, industrial, institutional, landscape irrigation, and other metered service connections are equipped with customer water meters and are billed based on actual water consumption. In recent years, the City has continued replacing older manually read meters with automated radio-read meters, improving the accuracy and efficiency of meter reading, billing, and water use monitoring.

In addition to customer metering, the City's WTP and distribution system are equipped with production and operational meters that measure water delivered from the City's CVP supply and distributed throughout the system. These meters provide the information necessary to monitor system operations, evaluate water demands, prepare annual water loss audits, and support long-term water supply planning.

The City routinely reviews customer consumption data to identify abnormal water use patterns, unusually high consumption, and potential customer-side leaks. When abnormal usage is identified, customers may be notified so that repairs can be made in a timely manner, reducing unnecessary water loss and improving overall system efficiency. Metering data also supports preparation of the City's annual AWWA Water Loss Audit, AWSDA, UWUO reporting, UWMP updates, and other State-required water use efficiency reporting.

The City will continue to maintain, replace, and upgrade its metering infrastructure as part of its ongoing asset management and water conservation efforts. Continued investment in automated meter technology and accurate production metering will improve data quality, support efficient system operations, strengthen water accountability, and ensure continued compliance with State water use efficiency requirements and the City's WSCP.

9.3.3. Conservation Pricing

Conservation pricing is a DMM that promotes efficient water use by linking water charges to the volume of water consumed. Under this approach, customers who use more water pay higher overall water bills, providing a financial incentive to conserve while generating sufficient revenue to operate, maintain, and improve the water system.

The City utilizes a uniform volumetric rate structure combined with fixed monthly service charges. Each customer pays a monthly base rate based on meter size, plus a charge for every 1,000 gallons of water consumed. Because all customers are billed based on actual metered water use, customers who reduce their water consumption can lower their monthly water bills, providing a financial incentive for efficient water use and conservation.

The City's current water rates were established through the 2020 Water and Wastewater Financial Analysis and Rate Study, which evaluated the City's operating costs, capital improvement needs, wholesale water costs, and long-term financial requirements. Following the required Proposition 218 public hearing process, the City Council adopted Resolution No. 3989, approving revised water rates effective November 1, 2020, with scheduled annual adjustments through November 1, 2024.

The City will continue to periodically evaluate its water rates to ensure they provide adequate funding for system operations and capital improvements while encouraging efficient water use, supporting implementation of the WSCP, and maintaining the long-term reliability of the City's imported CVP water supply. Following completion of the City's systemwide automated meter replacement program, the City anticipates preparing an updated water and wastewater rate study during the next UWMP planning cycle. The updated rate study will utilize improved customer consumption data to evaluate the adequacy and equity of the existing rate structure and determine whether modifications are warranted to support future operational, capital, and water conservation objectives.

9.3.4. Public Education and Outreach

Public education and outreach are important components of the City’s demand management strategy and provide customers with information regarding efficient water use practices, conservation requirements, and water supply conditions. The City implements public outreach efforts through customer communications, public notices, billing information, and information made available on the City’s website.

The City provides water conservation and water system information through a variety of communication methods, including its website, social media platforms, utility bill inserts, direct mailings, and customer service interactions. The City also provides public notices, press releases, and other informational materials as needed to communicate water supply conditions, conservation measures, and updates to water system operations. During periods requiring increased conservation, the City utilizes these communication channels, in addition to local media outlets and public meetings, to inform customers of applicable water use restrictions and demand reduction measures.

Each year, the City distributes the required Consumer Confidence Report (CCR) to all water customers, providing information regarding drinking water quality, water sources, and system performance. Water conservation information, watering guidelines, and educational materials are also made available through the City's website and other outreach efforts.

The City will continue to expand public education and outreach efforts as needed to promote water conservation, support implementation of its WSCP, and encourage the efficient use of its imported CVP water supplies.

9.3.5. Programs to Assess and Manage Distribution System Real Loss

The City recognizes that distribution system real losses, including leakage from pipelines, storage facilities, and system appurtenances, represent a significant component of total water loss, and ultimately increase the demand for imported CVP water supplies. Effective management of these losses is essential to improving system efficiency, reducing non-revenue water, and supporting long-term water supply reliability and operational efficiency.

The City conducts annual water loss audits in accordance with the AWWA Water Audit Methodology and submits the validated audit to DWR through the WUEdata reporting system. These audits quantify real and apparent water losses, evaluate data validity, and provide information used to identify opportunities for improving system performance and reducing non-revenue water.

To reduce real water losses, the City performs routine system maintenance, investigates and repairs water main breaks and leaks, replaces deteriorated infrastructure as funding allows, and monitors system operations for abnormal flow or pressure conditions. The City is also completing a systemwide automated meter replacement program, which will improve customer consumption data, enhance leak detection capabilities, and support more accurate water accounting.

The City will continue to use annual water loss audit results to prioritize infrastructure improvements, guide maintenance activities, and evaluate progress toward meeting the State's Water Loss Performance Standards. Through ongoing system maintenance, infrastructure replacement, and improved metering, the City will continue working to reduce real water losses, improve distribution system efficiency, and enhance the long-term reliability of its imported water supply.

9.3.6. Water Conservation Program Coordination and Staffing Support

Effective implementation of this DMMs requires coordination among staff responsible for water system operations, planning, maintenance, customer service, regulatory compliance, and public outreach. The City supports its water conservation program through a collaborative effort involving Public Works staff and the Water Conservation Analyst.

Water conservation program responsibilities are shared among the Public Works Director, City Engineer, Public Works Utility Supervisor, Water Conservation Analyst, and other supporting staff. Public Works staff are responsible for implementing the WSCP, preparing required State reports, conducting annual AWWA water loss audits, overseeing the City's automated meter replacement program, responding to water waste concerns, and maintaining the City's water distribution system. The Water Conservation Analyst supports the City's conservation objectives through administration of the Turf Replacement Program, coordination with residents and consultants, customer outreach, and promotion of water-efficient landscaping practices.

Water conservation activities are integrated into the City's routine utility operations and long-term planning to improve system efficiency, reduce water losses, promote compliance with State water conservation requirements, and encourage the efficient use of the City's imported CVP water supplies.

The City will continue to evaluate opportunities to enhance its conservation programs and staffing as future regulatory requirements and funding opportunities evolve.

9.3.7. Other Demand Management Measures

In addition to the DMMs described in this chapter, the City of Coalinga implements supplemental conservation programs that encourage efficient water use and support long-term water resource sustainability. These programs focus primarily on reducing outdoor potable water demand, which represents one of the greatest opportunities for water savings within the City's service area. Through financial incentives, technical assistance, and customer education, the City promotes water-efficient landscaping and alternative water use practices that complement the conservation measures outlined in this UWMP and the WSCP.

9.3.7.1. Turf Replacement Program

The City administers a grant-funded Turf Replacement Program that encourages eligible residential property owners to replace high-water-use turf with drought-tolerant, water-efficient landscaping. The program promotes sustainable landscape design by reducing outdoor irrigation demands while maintaining functional and aesthetically pleasing landscapes. Eligible projects may receive financial incentives for replacing existing turf, installing efficient micro-drip irrigation systems, and incorporating smart irrigation controllers to improve irrigation efficiency.

The City's Water Conservation Analyst administers the program by assisting residents throughout the application and implementation process, coordinating project reviews and inspections, providing technical guidance on drought-tolerant landscaping, and ensuring compliance with program requirements. In addition to reducing potable water demand, the program increases public awareness of water-efficient landscaping practices and supports the City's long-term conservation goals. Additional program information, eligibility requirements, and application materials are available through the City's Public Works Department.

9.3.7.2. Greywater Rebate Program

The City also offers a Greywater Rebate Program to encourage residential customers to install eligible greywater systems that reuse water from household sources, such as clothes washers, showers, bathtubs, and bathroom sinks, for landscape irrigation. By offsetting the use of potable water for outdoor irrigation, the program promotes the beneficial reuse of water, improves outdoor water use efficiency, and supports the City's overall conservation objectives.

The Greywater Rebate Program complements the Turf Replacement Program by encouraging customers to adopt multiple water-saving practices that reduce landscape irrigation demands while maintaining healthy and attractive landscapes. Information regarding program eligibility, rebate requirements, and application procedures is available through the City's Public Works Department.

9.3.7.3. Residential Plumbing Fixtures

California has significantly improved indoor water use efficiency through statewide plumbing and appliance efficiency standards. Current State law requires the installation of high-efficiency plumbing fixtures in new construction and most remodeling projects, including high-efficiency toilets, urinals, showerheads, and faucets that meet applicable California Plumbing Code and water efficiency

requirements. As older plumbing fixtures are replaced over time, indoor residential water demands continue to decline without the need for a dedicated retrofit program.

The City of Coalinga benefits from these statewide efficiency requirements by requiring compliance with applicable building and plumbing codes for new development and redevelopment projects. Although the City does not currently offer a residential plumbing fixture retrofit rebate program, customers continue to realize water savings as older fixtures and appliances are replaced with modern, high-efficiency models.

The City will continue to evaluate opportunities to pursue grant funding or other financial assistance to expand customer conservation incentive programs, including rebates or incentives for water-efficient plumbing fixtures, appliances, and other water-saving technologies, as funding becomes available.

CHAPTER 10 - PLAN ADOPTION, SUBMITTAL, AND IMPLEMENTATION

This chapter describes the procedures followed by the City of Coalinga for the preparation, public review, adoption, and submittal of the 2025 UWMP in accordance with the CWC. This chapter also summarizes the steps taken to ensure public participation, interagency coordination, and ongoing implementation of the Plan.

10.1. Plan Completion Timeline

This 2025 UWMP includes water use, supply, and planning data for calendar year 2025. The Plan evaluates current conditions, and projected water demands and supplies over a minimum 20-year planning horizon in accordance with the CWC and the 2025 UWMP Guidebook.

10.2. Notice of Plan Preparation

CWC Section 10621

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

CWC Section 10621(b) requires that each urban water supplier notify cities and counties within its service area, as well as other appropriate agencies, at least 60 days prior to the public hearing on the UWMP. The City of Coalinga is the sole retail water supplier within its service area and prepares its UWMP independently; however, the City coordinates with regional agency water providers to support consistent and informed water resources planning.

In compliance with CWC Section 10621(b), the City provided formal written notification of the preparation of its 2025 UWMP to relevant agencies and jurisdictions, including:

- U.S. Bureau of Reclamation
- County of Fresno
- Westlands Water District
- Coalinga-Huron School District

Notification letters were issued on May 26, 2026 inviting these agencies to participate in the UWMP preparation process and provide input as appropriate . Copies of these notification letters are included in Appendix B.

10.3. Notice of Public Hearing

CWC Section 10642

…Prior to adopting either [the plan or water shortage contingency plan], the urban water supplier shall make both the plan and the water shortage contingency plan available for public inspection and shall hold a public hearing or hearings thereon. Prior to any of these hearings, notice of the time and place of the hearing shall be published within the jurisdiction of the publicly owned water supplier pursuant to Section 6066 of the Government Code [see below]. The urban water supplier shall provide

notice of the time and place of a hearing to any city or county within which the supplier provides water supplies Notices by a local public agency pursuant to this section shall be provided pursuant to Chapter 17.5 (commencing with Section 7290) of Division 7 of Title 1 of the Government Code. A privately owned water supplier shall provide an equivalent notice within its service area.

Government Code Section 6066

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

CWC Section 10642 requires that, prior to adoption, the UWMP and WSCP be made available for public inspection and that a public hearing be held. Notice of the time and place of the hearing must be published pursuant to Government Code Section 6066, which requires publication once per week for two successive weeks.

In accordance with these requirements, the City:

- Made the draft 2025 UWMP and WSCP available for public review prior to adoption.
- Published a Notice of Public Hearing in the local newspaper of general circulation in accordance with Government Code Section 6066. A copy of the publication is provided in Appendix G.
- Provide notice of the public hearing to all agencies who were previously notified of the plan preparation. A copy of the notices are provided in Appendix H.
- Posted the Notice of Public Hearing on the City's website.

Table 10-1 summarizes the cities and counties notified in accordance with statutory requirements. In addition to those listed in Table 10-1, the City also provided a 60-day notice and Notice of Public Hearing to the USBR, Westlands Water District, and Coalinga-Huron School District.

Table 10-1 Notification to Cities and Counties (Submittal Table 10-1)

City Name	60 Day Notice	Notice of Public Hearing
Not Applicable	Not Applicable	Not Applicable
County Name	**60 Day Notice**	**Notice of Public Hearing**
County of Fresno	Yes	Yes

10.4. Public Hearing and Adoption

CWC Section 10642

Each urban water supplier shall encourage the active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of both the plan and the water shortage contingency plan. Prior to adopting either, the urban water supplier shall make both the plan and the water shortage contingency plan available for public inspection and shall hold a public hearing or hearings thereon…. After the hearing or hearings, the plan or water shortage contingency plan shall be adopted as prepared or as modified after the hearing or hearings.

Government Code Section 7291

…every local public agency… serving a substantial number of non-English-Speaking people, shall employ a sufficient number of qualified bilingual persons in public contact positions or as interpreters to assist those in such positions, to ensure provision of information and services in the language of the non-English-speaking person.

CWC Section 10642 requires that urban water suppliers encourage public participation and hold a public hearing prior to adoption of the UWMP and WSCP. The City will hold a duly noticed public hearing before the City Council to receive comments on the draft 2025 UWMP and WSCP. The hearing will provide an opportunity for public review and input from all interested parties.

Following the public hearing, the City Council will consider all comments received and may adopt the UWMP and WSCP as prepared or as modified. Adoption will be completed by resolution of the City Council of the City of Coalinga and a copy of the adopting resolution is included in Appendix I.

In accordance with Government Code Section 7291, the City will provide language assistance or accommodations, as appropriate, to ensure meaningful public participation.

10.5. Plan Submittal

CWC Section 10621

(e) Each urban water supplier shall update and submit its 2025 plan to the department by July 1, 2026…

CWC Section 10635

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

CWC Section 10644

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

The City of Coalinga's submittal process for its 2025 UWMP is detailed below.

10.5.1. Submitting a UWMP and WSCP to DWR

In accordance with CWC Sections 10621(e) and 10644(a)(1), the final UWMP and WSCP will be submitted to the DWR within 30 days of adoption. Following adoption, the City will submit the 2025 UWMP, including the WSCP, electronically through DWR's Water Use Efficiency (WUEdata) portal.

10.5.2. Electronic Data Submittal

Section 10644 (a)(2)

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

CWC Section 10644(a)(2) requires submission of standardized data tables in electronic format. The City will submit all required UWMP data tables through the WUEdata portal concurrently with the UWMP submittal.

10.5.3. Submitting UWMP, including WSCP, to the California State Library

Within 30 days of adoption of the 2025 UWMP by the City of Coalinga City Council, a copy (CD or hardcopy) of the 2025 UWMP will be submitted to the State of California Library. The 2025 UWMP will be mailed to the following address if sent by regular mail:

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

10.5.4. Submitting UWMP to the Cities and Counties

Pursuant to CWC Sections 10621(e) and 10635(c), the City will provide copies of the adopted UWMP and WSCP to Tulare County, and other relevant agencies within 30 days of adoption.

10.6. Public Availability

CWC Section 10645

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

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

CWC Section 10645 requires that the UWMP and WSCP be made available for public review within 30 days of submittal. The City will make the adopted 2025 UWMP available:

- At City Hall during normal business hours.
- On the City's website for public access.

10.7. Notification to Public Utilities Commission

CWC Section 10621 (c)

An urban water supplier regulated by the Public Utilities Commission shall include its most recent plan and water shortage contingency plan as part of the supplier's general rate case filings.

The City is not regulated by the CPUC; therefore, this requirement does not apply.

10.8. Plan Implementation

CWC Section 10643

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

The City will implement the 2025 UWMP through ongoing operational practices, capital improvement planning, demand management measures, and water supply management strategies described

throughout this document. The City will monitor system performance and update programs as necessary to ensure continued compliance with State requirements and long-term water supply reliability.

10.9. Amending an Adopted UWMP or WSCP

CWC Section 10621

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

CWC Section 10644

(a)(1) Copies of amendments or changes to the plans shall be submitted to the department, the California State Library, and any city or county within which the supplier provides water supplies within 30 days after adoption.

The City's amendment process for the 2025 UWMP and WSCP is detailed below.

10.9.1. Amending a UWMP

In accordance with CWC Sections 10621(d) and 10644(a)(1), any amendments to the UWMP will be adopted by the City Council of the City of Coalinga and submitted to DWR, the California State Library, and affected cities and counties within 30 days of adoption.

10.9.2. Amending a Water Shortage Contingency Plan

Section 10644 (b)

If an urban water supplier revises its water shortage contingency plan, the supplier shall submit to the department a copy of its water shortage contingency plan prepared…no later than 30 days after adoption, in accordance with protocols for submission and using electronic reporting tools developed by the department.

CWC Section 10644(b) requires that revisions to the WSCP be submitted to DWR within 30 days of adoption. If the City amends the WSCP, the revised plan will be adopted by the City Council and submitted electronically to DWR using the required reporting tools within the prescribed timeframe.

APPENDIX A
LEGISLATIVE REQUIREMENTS

WATER CODE - WAT

DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES [10000 - 12999] *(Heading of Division 6 amended by Stats. 1957, Ch. 1932.)*

PART 2.55. SUSTAINABLE WATER USE AND DEMAND REDUCTION [10608 - 10609.42] *(Part 2.55 added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1.)*

CHAPTER 1. General Declarations and Policy [10608 - 10608.8] *(Chapter 1 added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1.)*

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

(a) Water is a public resource that the California Constitution protects against waste and unreasonable use.

(b) Growing population, climate change, and the need to protect and grow California's economy while protecting and restoring our fish and wildlife habitats make it essential that the state manage its water resources as efficiently as possible.

(c) Diverse regional water supply portfolios will increase water supply reliability and reduce dependence on the Delta.

(d) Reduced water use through conservation provides significant energy and environmental benefits, and can help protect water quality, improve streamflows, and reduce greenhouse gas emissions.

(e) The success of state and local water conservation programs to increase efficiency of water use is best determined on the basis of measurable outcomes related to water use or efficiency.

(f) Improvements in technology and management practices offer the potential for increasing water efficiency in California over time, providing an essential water management tool to meet the need for water for urban, agricultural, and environmental uses.

(g) The Governor has called for a 20 percent per capita reduction in urban water use statewide by 2020.

(h) The factors used to formulate water use efficiency targets can vary significantly from location to location based on factors including weather, patterns of urban and suburban development, and past efforts to enhance water use efficiency.

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

(Added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1. (SB 7 7x) Effective February 3, 2010.)

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

(a) Require all water suppliers to increase the efficiency of use of this essential resource.

(b) Establish a framework to meet the state targets for urban water conservation identified in this part and called for by the Governor.

(c) Measure increased efficiency of urban water use on a per capita basis.

(d) Establish a method or methods for urban retail water suppliers to determine targets for achieving increased water use efficiency by the year 2020, in accordance with the Governor's goal of a 20-percent reduction.

(e) Establish consistent water use efficiency planning and implementation standards for urban water suppliers and agricultural water suppliers.

(f) Promote urban water conservation standards that are consistent with the California Urban Water Conservation Council's adopted best management practices and the requirements for demand management in Section 10631.

(g) Establish standards that recognize and provide credit to water suppliers that made substantial capital investments in urban water conservation since the drought of the early 1990s.

(h) Recognize and account for the investment of urban retail water suppliers in providing recycled water for beneficial uses.

(i) Require implementation of specified efficient water management practices for agricultural water suppliers.

(j) Support the economic productivity of California's agricultural, commercial, and industrial sectors.

(k) Advance regional water resources management.

(Added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1. (SB 7 7x) Effective February 3, 2010.)

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

(2) Because an urban agency is not required to meet its urban water use target until 2020 pursuant to subdivision (b) of Section 10608.24, an urban retail water supplier's failure to meet those targets shall not establish a violation of law for purposes of any state administrative or judicial proceeding prior to January 1, 2021. Nothing in this paragraph limits the use of data reported to the department or the board in litigation or an administrative proceeding. This paragraph shall become inoperative on January 1, 2021.

(3) To the extent feasible, the department and the board shall provide for the use of water conservation reports required under this part to meet the requirements of Section 1011 for water conservation reporting.

(b) This part does not limit or otherwise affect the application of Chapter 3.5 (commencing with Section 11340), Chapter 4 (commencing with Section 11370), Chapter 4.5 (commencing with Section 11400), and Chapter 5 (commencing with Section 11500) of Part 1 of Division 3 of Title 2 of the Government Code.

(c) This part does not require a reduction in the total water used in the agricultural or urban sectors, because other factors, including, but not limited to, changes in agricultural economics or population growth may have greater effects on water use. This part does not limit the economic productivity of California's agricultural, commercial, or industrial sectors.

(d) The requirements of this part do not apply to an agricultural water supplier that is a party to the Quantification Settlement Agreement, as defined in subdivision (a) of Section 1 of Chapter 617 of the Statutes of 2002, during the period within which the Quantification Settlement Agreement remains in effect. After the expiration of the Quantification Settlement Agreement, to the extent conservation water projects implemented as part of the Quantification Settlement Agreement remain in effect, the conserved water created as part of those projects shall be credited against the obligations of the agricultural water supplier pursuant to this part.

(Added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1. (SB 7 7x) Effective February 3, 2010.)

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PART 2.55. SUSTAINABLE WATER USE AND DEMAND REDUCTION [10608 - 10609.42] *(Part 2.55 added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1.)*

CHAPTER 2. Definitions [10608.12- 10608.12.] *(Chapter 2 added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1.)*

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

(a) "Affordable housing" has the same meaning as defined in Section 34191.30 of the Health and Safety Code.

(b) "Agricultural water supplier" means a water supplier, either publicly or privately owned, providing water to 10,000 or more irrigated acres, excluding recycled water. "Agricultural water supplier" includes a supplier or contractor for water, regardless of the basis of right, that distributes or sells water for ultimate resale to customers. "Agricultural water supplier" does not include the department.

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

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

(2) For an urban retail water supplier that meets at least 10 percent of its 2008 measured retail water demand through recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier, the urban retail water supplier may extend the calculation described in paragraph (1) up to an additional five years to a maximum of a continuous 15-year period ending no earlier than December 31, 2004, and no later than December 31, 2010.

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

(d) "Baseline commercial, industrial, and institutional water use" means an urban retail water supplier's base daily per capita water use for commercial, industrial, and institutional users.

(e) "CII water use" means water used by commercial water users, industrial water users, institutional water users, and large landscape water users.

(f) "Commercial water user" means a water user that provides or distributes a product or service.

(g) "Common area" means that portion of a common interest development or of a property owned or managed by a homeowners' association or a community service organization or similar entity that is not assigned or allocated to the exclusive use of the occupants of an individual dwelling unit within the property.

(h) "Common interest development" has the same meaning as in Section 4100 of the Civil Code.

(i) "Community service organization or similar entity" has the same meaning as in Section 4110 of the Civil Code.

(j) "Community space" means an area designated by a property owner or a governmental agency to accommodate human foot traffic for civic, ceremonial, or other community events or social gatherings.

(k) "Compliance daily per capita water use" means the gross water use during the final year of the reporting period, reported in gallons per capita per day.

(l) "Disadvantaged community" means a community with an annual median household income that is less than 80 percent of the statewide annual median household income.

(m) "Functional turf" means a ground cover surface of turf located in a recreational use area or community space. Turf enclosed by fencing or other barriers to permanently preclude human access for recreation or assembly is not functional turf.

(n) "Gross water use" means the total volume of water, whether treated or untreated, entering the distribution system of an urban retail water supplier, excluding all of the following:

(1) Recycled water that is delivered within the service area of an urban retail water supplier or its urban wholesale water supplier.

(2) The net volume of water that the urban retail water supplier places into long-term storage.

(3) The volume of water the urban retail water supplier conveys for use by another urban water supplier.

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

(o) "Homeowners' association" means an "association" as defined in Section 4080 of the Civil Code.

(p) "Industrial water user" means a water user that is primarily a manufacturer or processor of materials as defined by the North American Industry Classification System code sectors 31 to 33, inclusive, or an entity that is a water user primarily engaged in research and development.

(q) "Institutional water user" means a water user dedicated to public service. This type of user includes, among other users, higher education institutions, schools, courts, churches, hospitals, government facilities, and nonprofit research institutions.

(r) "Interim urban water use target" means the midpoint between the urban retail water supplier's base daily per capita water use and the urban retail water supplier's urban water use target for 2020.

(s) "Large landscape" means a nonresidential landscape as described in the performance measures for CII water use adopted pursuant to Section 10609.10.

(t) "Locally cost effective" means that the present value of the local benefits of implementing an agricultural efficiency water management practice is greater than or equal to the present value of the local cost of implementing that measure.

(u) "Nonfunctional turf" means any turf that is not functional turf, and includes turf located within street rights-of-way and parking lots.

(v) "Performance measures" means actions to be taken by urban retail water suppliers that will result in increased water use efficiency by CII water users. Performance measures may include, but are not limited to, educating CII water users on best management practices, conducting water use audits, and preparing water management plans. Performance measures do not include process water.

(w) "Potable reuse" means direct potable reuse, indirect potable reuse for groundwater recharge, and reservoir water augmentation as those terms are defined in Section 13561.

(x) "Potable water" means water that is suitable for human consumption.

(y) "Process water" means water used by industrial water users for producing a product or product content or water used for research and development. Process water includes, but is not limited to, continuous manufacturing processes, and water used for testing, cleaning, and maintaining equipment. Water used to cool machinery or buildings used in the manufacturing process or necessary to maintain product quality or chemical characteristics for product manufacturing or control rooms, data centers, laboratories, clean rooms, and other industrial facility units that are integral to the manufacturing or research and development process is process water. Water used in the manufacturing process that is necessary for complying with local, state, and federal health and safety laws, and is not incidental water, is process water. Process water does not mean incidental water uses.

(z) "Public water system" has the same meaning as defined in Section 116275 of the Health and Safety Code.

(aa) "Recreational use area" means an area designated by a property owner or a governmental agency to accommodate human foot traffic for recreation, including, but not limited to, sports fields, golf courses, playgrounds, picnic grounds, or pet exercise areas. This recreation may be either formal or informal.

(ab) "Recycled water" means recycled water, as defined in subdivision (n) of Section 13050.

(ac) "Regional water resources management" means sources of supply resulting from watershed-based planning for sustainable local water reliability or any of the following alternative sources of water:

(1) The capture and reuse of stormwater or rainwater.

(2) The use of recycled water.

(3) The desalination of brackish groundwater.

(4) The conjunctive use of surface water and groundwater in a manner that is consistent with the safe yield of the groundwater basin.

(ad) "Reporting period" means the years for which an urban retail water supplier reports compliance with the urban water use targets.

(ae) "Turf" has the same meaning as defined in Section 491 of Title 23 of the California Code of Regulations.

(af) "Urban retail water supplier" means a water supplier, either publicly or privately owned, that directly provides potable municipal water to more than 3,000 end users or that supplies more than 3,000 acre-feet of potable water annually at retail for municipal purposes.

(ag) "Urban water supplier" has the same meaning as defined in Section 10617.

(ah) "Urban water use objective" means an estimate of aggregate efficient water use for the previous year based on adopted water use efficiency standards and local service area characteristics for that year, as described in Section 10609.20.

(ai) "Urban water use target" means the urban retail water supplier's targeted future daily per capita water use.

(aj) "Urban wholesale water supplier" means a water supplier, either publicly or privately owned, that provides more than 3,000 acre-feet of water annually at wholesale for potable municipal purposes.

(Amended by Stats. 2023, Ch. 849, Sec. 3. (AB 1572) Effective January 1, 2024.)

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CHAPTER 2.5. Nonfunctional Turf [10608.14- 10608.14.] *(Chapter 2.5 added by Stats. 2023, Ch. 849, Sec. 4.)*

10608.14. (a) The use of potable water for the irrigation of nonfunctional turf located on commercial, industrial, and institutional properties, other than a cemetery, and on properties of homeowners' associations, common interest developments, and community service organizations or similar entities is prohibited as of the following dates:

(1) All properties owned by the Department of General Services, beginning January 1, 2027.

(2) All properties owned by local governments, local or regional public agencies, and public water systems, except those specified in paragraph (5), beginning January 1, 2027.

(3) All other institutional properties and all commercial and industrial properties, beginning January 1, 2028.

(4) All common areas of properties of homeowners' associations, common interest developments, and community service organizations or similar entities, beginning January 1, 2029.

(5) All properties owned by local governments, local public agencies, and public water systems in a disadvantaged community, beginning January 1, 2031, or the date upon which a state funding source is made available to fund conversion of nonfunctional turf on these properties to climate-appropriate landscapes, whichever is later.

(b) Notwithstanding subdivision (a), the use of potable water is not prohibited by this section to the extent necessary to ensure the health of trees and other perennial nonturf plantings, or to the extent necessary to address an immediate health and safety need.

(c) The board may, upon a showing of good cause for reasons including economic hardship, critical business need, and potential impacts to human health or safety, postpone a compliance deadline in subdivision (a) by up to three years for certain persons, institutions, and businesses, and may create a form to be used for compliance certification to the board by property owners.

(d) Public water systems shall, by no later than January 1, 2027, revise their regulations, ordinances, or policies governing water service to include the requirements of subdivisions (a) and (b), as revised by the board pursuant to subdivision (c), and shall communicate the requirements to their customers on or before that date.

(e) (1) An owner of commercial, industrial, or institutional property with more than 5,000 square feet of irrigated area other than a cemetery shall certify to the board, commencing June 30, 2030, and every three years thereafter through 2039, that their property is in compliance with the requirements of this chapter.

(2) An owner of a property with more than 5,000 square feet of irrigated common area that is a homeowners' association, common interest development, or community service organization or similar entity shall certify to the board, commencing June 30, 2031, and every three years thereafter through 2040, that their property is in compliance with the requirements of this chapter.

(f) Noncompliance by a person or entity with this chapter or regulations adopted thereunder shall be subject to civil liability and penalties set forth in Section 1846, or to civil liability and penalties imposed by an urban retail water

supplier pursuant to a locally adopted ordinance or policy.

(g) (1) A public water system, city, county, or city and county may enforce the provisions of this chapter.

(2) To avoid duplication of enforcement, any entity identified in paragraph (1) that is not a retail public water system shall notify the retail public water system 30 days prior to enforcement of the provisions of this chapter against a property served by such system.

(3) Nothing in paragraph (2) shall preclude enforcement by any entity identified in paragraph (1) once adequate notice is given.

(h) The department shall, when using funds appropriated for water conservation for turf replacement, prioritize financial assistance for nonfunctional turf replacement to public water systems serving disadvantaged communities and to owners of affordable housing.

(i) The department shall utilize the saveourwater.com internet website and outreach campaign to provide information and resources on converting nonfunctional turf to native vegetation.

(j) The Governor's Office of Business and Economic Development shall support small and minority-owned businesses that provide services that advance compliance with this chapter.

(Added by Stats. 2023, Ch. 849, Sec. 4. (AB 1572) Effective January 1, 2024.)

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CHAPTER 3. Urban Retail Water Suppliers [10608.16 - 10608.44] *(Chapter 3 added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1.)*

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

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

(Added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1. (SB 7 7x) Effective February 3, 2010.)

10608.20. (a) (1) Each urban retail water supplier shall develop urban water use targets and an interim urban water use target by July 1, 2011. Urban retail water suppliers may elect to determine and report progress toward achieving these targets on an individual or regional basis, as provided in subdivision (a) of Section 10608.28, and may determine the targets on a fiscal year or calendar year basis.

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

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

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

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

(A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard. Upon completion of the department's 2017 report to the Legislature pursuant to Section 10608.42, this standard may be adjusted by the Legislature by statute.

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

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

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

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

(A) Consider climatic differences within the state.

(B) Consider population density differences within the state.

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

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

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

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

(c) If the department adopts a regulation pursuant to paragraph (4) of subdivision (b) that results in a requirement that an urban retail water supplier achieve a reduction in daily per capita water use that is greater than 20 percent by December 31, 2020, an urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may limit its urban water use target to a reduction of not more than 20 percent by December 31, 2020, by adopting the method described in paragraph (1) of subdivision (b).

(d) The department shall update the method described in paragraph (4) of subdivision (b) and report to the Legislature by December 31, 2014. An urban retail water supplier that adopted the method described in paragraph (4) of subdivision (b) may adopt a new urban daily per capita water use target pursuant to this updated method.

(e) An urban retail water supplier shall include in its urban water management plan due in 2010 pursuant to Part 2.6 (commencing with Section 10610) the baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.

(f) When calculating per capita values for the purposes of this chapter, an urban retail water supplier shall determine population using federal, state, and local population reports and projections.

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

(h) (1) The department, through a public process and in consultation with the California Urban Water Conservation Council, shall develop technical methodologies and criteria for the consistent implementation of this part, including, but not limited to, both of the following:

(A) Methodologies for calculating base daily per capita water use, baseline commercial, industrial, and institutional water use, compliance daily per capita water use, gross water use, service area population, indoor residential water use, and landscaped area water use.

(B) Criteria for adjustments pursuant to subdivisions (d) and (e) of Section 10608.24.

(2) The department shall post the methodologies and criteria developed pursuant to this subdivision on its internet website, and make written copies available, by October 1, 2010. An urban retail water supplier shall use the methods developed by the department in compliance with this part.

(i) (1) The department shall adopt regulations for implementation of the provisions relating to process water in accordance with Section 10608.12, subdivision (e) of Section 10608.24, and subdivision (d) of Section 10608.26.

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

(j) (1) An urban retail water supplier is granted an extension to July 1, 2011, for adoption of an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) due in 2010 to allow the use of technical

methodologies developed by the department pursuant to paragraph (4) of subdivision (b) and subdivision (h). An urban retail water supplier that adopts an urban water management plan due in 2010 that does not use the methodologies developed by the department pursuant to subdivision (h) shall amend the plan by July 1, 2011, to comply with this part.

(2) An urban wholesale water supplier whose urban water management plan prepared pursuant to Part 2.6 (commencing with Section 10610) was due and not submitted in 2010 is granted an extension to July 1, 2011, to permit coordination between an urban wholesale water supplier and urban retail water suppliers.

(Amended by Stats. 2019, Ch. 497, Sec. 286. (AB 991) Effective January 1, 2020.)

10608.22. Notwithstanding the method adopted by an urban retail water supplier pursuant to Section 10608.20, an urban retail water supplier's per capita daily water use reduction shall be no less than 5 percent of base daily per capita water use as defined in paragraph (3) of subdivision (c) of Section 10608.12. This section does not apply to an urban retail water supplier with a base daily per capita water use at or below 100 gallons per capita per day.

(Amended by Stats. 2023, Ch. 849, Sec. 5. (AB 1572) Effective January 1, 2024.)

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

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

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

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

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

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

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

(2) If the urban retail water supplier elects to adjust its estimate of compliance daily per capita water use due to one or more of the factors described in paragraph (1), it shall provide the basis for, and data supporting, the adjustment in the report required by Section 10608.40.

(e) When developing the urban water use target pursuant to Section 10608.20, an urban retail water supplier that has a substantial percentage of industrial water use in its service area may exclude process water from the calculation of gross water use to avoid a disproportionate burden on another customer sector.

(f) (1) An urban retail water supplier that includes agricultural water use in an urban water management plan pursuant to Part 2.6 (commencing with Section 10610) may include the agricultural water use in determining gross water use. An urban retail water supplier that includes agricultural water use in determining gross water use and develops its urban water use target pursuant to paragraph (2) of subdivision (b) of Section 10608.20 shall use a water efficient standard for agricultural irrigation of 100 percent of reference evapotranspiration multiplied by the crop coefficient for irrigated acres.

(2) An urban retail water supplier, that is also an agricultural water supplier, is not subject to the requirements of Chapter 4 (commencing with Section 10608.48), if the agricultural water use is incorporated into its urban water use target pursuant to paragraph (1).

(Amended by Stats. 2010, Ch. 328, Sec. 234. (SB 1330) Effective January 1, 2011.)

10608.26. (a) In complying with this part, an urban retail water supplier shall conduct at least one public hearing to accomplish all of the following:

(1) Allow community input regarding the urban retail water supplier's implementation plan for complying with this part.

(2) Consider the economic impacts of the urban retail water supplier's implementation plan for complying with this part.

(3) Adopt a method, pursuant to subdivision (b) of Section 10608.20, for determining its urban water use target.

(b) In complying with this part, an urban retail water supplier may meet its urban water use target through efficiency improvements in any combination among its customer sectors. An urban retail water supplier shall avoid placing a disproportionate burden on any customer sector.

(c) For an urban retail water supplier that supplies water to a United States Department of Defense military installation, the urban retail water supplier's implementation plan for complying with this part shall consider the conservation of that military installation under federal Executive Order 13514.

(d) (1) Any ordinance or resolution adopted by an urban retail water supplier after the effective date of this section shall not require existing customers as of the effective date of this section, to undertake changes in product formulation, operations, or equipment that would reduce process water use, but may provide technical assistance and financial incentives to those customers to implement efficiency measures for process water. This section shall not limit an ordinance or resolution adopted pursuant to a declaration of drought emergency by an urban retail water supplier.

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

(Amended by Stats. 2010, Ch. 257, Sec. 1. (AB 2277) Effective January 1, 2011.)

10608.28. (a) An urban retail water supplier may meet its urban water use target within its retail service area, or through mutual agreement, by any of the following:

(1) Through an urban wholesale water supplier.

(2) Through a regional agency authorized to plan and implement water conservation, including, but not limited to, an agency established under the Bay Area Water Supply and Conservation Agency Act (Division 31 (commencing with Section 81300)).

(3) Through a regional water management group as defined in Section 10537.

(4) By an integrated regional water management funding area.

(5) By hydrologic region.

(6) Through other appropriate geographic scales for which computation methods have been developed by the department.

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

(Added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1. (SB 7 7x) Effective February 3, 2010.)

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

(Added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1. (SB 7 7x) Effective February 3, 2010.)

10608.34. (a) (1) On or before January 1, 2017, the department shall adopt rules for all of the following:

(A) The conduct of standardized water loss audits by urban retail water suppliers in accordance with the method adopted by the American Water Works Association in the third edition of Water Audits and Loss Control Programs, Manual M36 and in the Free Water Audit Software, version 5.0.

(B) The process for validating a water loss audit report prior to submitting the report to the department. For the purposes of this section, "validating" is a process whereby an urban retail water supplier uses a technical expert to confirm the basis of all data entries in the urban retail water supplier's water loss audit report and to appropriately characterize the quality of the reported data. The validation process shall follow the principles and terminology laid out by the American Water Works Association in the third edition of Water Audits and Loss Control Programs, Manual M36 and in the Free Water Audit Software, version 5.0. A validated water loss audit report shall include the name and technical qualifications of the person engaged for validation.

(C) The technical qualifications required of a person to engage in validation, as described in subparagraph (B).

(D) The certification requirements for a person selected by an urban retail water supplier to provide validation of its own water loss audit report.

(E) The method of submitting a water loss audit report to the department.

(2) The department shall update rules adopted pursuant to paragraph (1) no later than six months after the release of subsequent editions of the American Water Works Association's Water Audits and Loss Control Programs, Manual M36. Except as provided by the department, until the department adopts updated rules pursuant to this paragraph, an urban retail water supplier may rely upon a subsequent edition of the American Water Works Association's Water Audits and Loss Control Programs, Manual M36 or the Free Water Audit Software.

(b) (1) On or before October 1 of each year until October 1, 2023, each urban retail water supplier reporting on a calendar year basis shall submit a completed and validated water loss audit report for the previous calendar year or the previous fiscal year as prescribed by the department pursuant to subdivision (a).

(2) On or before January 1 of each year until January 1, 2024, each urban retail water supplier reporting on a fiscal year basis shall submit a completed and validated water loss audit report for the previous fiscal year as prescribed by the department pursuant to subdivision (a).

(3) On or before January 1, 2024, and on or before January 1 of each year thereafter, each urban retail water supplier shall submit a completed and validated water loss audit report for the previous calendar year or previous fiscal year as part of the report submitted to the department pursuant to subdivision (a) of Section 10609.24 and as prescribed by the department pursuant to subdivision (a).

(4) Water loss audit reports submitted on or before October 1, 2017, may be completed and validated with assistance as described in subdivision (c).

(c) Using funds available for the 2016–17 fiscal year, the board shall contribute up to four hundred thousand dollars ($400,000) towards procuring water loss audit report validation assistance for urban retail water suppliers.

(d) Each water loss audit report submitted to the department shall be accompanied by information, in a form specified by the department, identifying steps taken in the preceding year to increase the validity of data entered into the final audit, reduce the volume of apparent losses, and reduce the volume of real losses.

(e) At least one of the following employees of an urban retail water supplier shall attest to each water loss audit report submitted to the department:

(1) The chief financial officer.

(2) The chief engineer.

(3) The general manager.

(f) The department shall deem incomplete and return to the urban retail water supplier any final water loss audit report found by the department to be incomplete, not validated, unattested, or incongruent with known characteristics of water system operations. A water supplier shall resubmit a completed water loss audit report within 90 days of an audit being returned by the department.

(g) The department shall post all validated water loss audit reports on its internet website in a manner that allows for comparisons across water suppliers. The department shall make the validated water loss audit reports available for public viewing in a timely manner after their receipt.

(h) Using available funds, the department shall provide technical assistance to guide urban retail water suppliers' water loss detection programs, including, but not limited to, metering techniques, pressure management techniques, condition-based assessment techniques for transmission and distribution pipelines, and utilization of portable and permanent water loss detection devices.

(i) No earlier than January 1, 2019, and no later than July 1, 2020, the board shall adopt rules requiring urban retail water suppliers to meet performance standards for the volume of water losses. In adopting these rules, the board shall employ full life-cycle cost accounting to evaluate the costs of meeting the performance standards. The board may consider establishing a minimum allowable water loss threshold that, if reached and maintained by an urban water supplier, would exempt the urban water supplier from further water loss reduction requirements.

(Amended by Stats. 2019, Ch. 239, Sec. 1. (AB 1414) Effective January 1, 2020.)

10608.35. (a) The department, in coordination with the board, shall conduct necessary studies and investigations and make a recommendation to the Legislature, by January 1, 2020, on the feasibility of developing and enacting water loss reporting requirements for urban wholesale water suppliers.

(b) The studies and investigations shall include an evaluation of the suitability of applying the processes and requirements of Section 10608.34 to urban wholesale water suppliers.

(c) In conducting necessary studies and investigations and developing its recommendation, the department shall solicit broad public participation from stakeholders and other interested persons.

(Added by Stats. 2018, Ch. 14, Sec. 7. (SB 606) Effective January 1, 2019.)

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

(Added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1. (SB 7 7x) Effective February 3, 2010.)

10608.40. Urban water retail suppliers shall report to the department on their progress in meeting their urban water use targets as part of their urban water management plans submitted pursuant to Section 10631. The data shall be reported using a standardized form developed pursuant to Section 10608.52.

(Added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1. (SB 7 7x) Effective February 3, 2010.)

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

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

(Amended by Stats. 2014, Ch. 463, Sec. 1. (AB 2067) Effective January 1, 2015.)

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

(a) Appropriate metrics for evaluating commercial, industrial, and institutional water use.

(b) Evaluation of water demands for manufacturing processes, goods, and cooling.

(c) Evaluation of public infrastructure necessary for delivery of recycled water to the commercial, industrial, and institutional sectors.

(d) Evaluation of institutional and economic barriers to increased recycled water use within the commercial, industrial, and institutional sectors.

(e) Identification of technical feasibility and cost of the best management practices to achieve more efficient water use statewide in the commercial, industrial, and institutional sectors that is consistent with the public interest and reflects past investments in water use efficiency.

(Added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1. (SB 7 7x) Effective February 3, 2010.)

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

(Amended by Stats. 2010, Ch. 328, Sec. 235. (SB 1330) Effective January 1, 2011.)

WATER CODE - WAT

DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES [10000 - 12999] *(Heading of Division 6 amended by Stats. 1957, Ch. 1932.)*

PART 2.55. SUSTAINABLE WATER USE AND DEMAND REDUCTION [10608 - 10609.42] *(Part 2.55 added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1.)*

CHAPTER 4. Agricultural Water Suppliers [10608.48- 10608.48.] *(Chapter 4 added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1.)*

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

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

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

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

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

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

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

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

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

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

(B) Conjunctive use of groundwater.

(C) Appropriate increase of groundwater recharge.

(D) Reduction in problem drainage.

(E) Improved management of environmental resources.

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

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

(6) Increase flexibility in water ordering by, and delivery to, water customers within operational limits.

(7) Construct and operate supplier spill and tailwater recovery systems.

(8) Increase planned conjunctive use of surface water and groundwater within the supplier service area.

(9) Automate canal control structures.

(10) Facilitate or promote customer pump testing and evaluation.

(11) Designate a water conservation coordinator who will develop and implement the water management plan and prepare progress reports.

(12) Provide for the availability of water management services to water users. These services may include, but are not limited to, all of the following:

(A) On-farm irrigation and drainage system evaluations.

(B) Normal year and real-time irrigation scheduling and crop evapotranspiration information.

(C) Surface water, groundwater, and drainage water quantity and quality data.

(D) Agricultural water management educational programs and materials for farmers, staff, and the public.

(13) Evaluate the policies of agencies that provide the supplier with water to identify the potential for institutional changes to allow more flexible water deliveries and storage.

(14) Evaluate and improve the efficiencies of the supplier's pumps.

(d) Agricultural water suppliers shall include in the agricultural water management plans required pursuant to Part 2.8 (commencing with Section 10800) a report on which efficient water management practices have been implemented and are planned to be implemented, an estimate of the water use efficiency improvements that have occurred since the last report, and an estimate of the water use efficiency improvements estimated to occur five and 10 years in the future. If an agricultural water supplier determines that an efficient water management practice is not locally cost effective or technically feasible, the supplier shall submit information documenting that determination.

(e) The department shall require information about the implementation of efficient water management practices to be reported using a standardized form developed pursuant to Section 10608.52.

(f) An agricultural water supplier may meet the requirements of subdivisions (d) and (e) by submitting to the department a water conservation plan submitted to the United States Bureau of Reclamation that meets the requirements described in Section 10828.

(g) On or before December 31, 2013, December 31, 2016, and December 31, 2021, the department, in consultation with the board, shall submit to the Legislature a report on the agricultural efficient water management practices that have been implemented and are planned to be implemented and an assessment of the manner in which the implementation of those efficient water management practices has affected and will affect agricultural operations, including estimated water use efficiency improvements, if any.

(h) The department may update the efficient water management practices required pursuant to subdivision (c), in consultation with the Agricultural Water Management Council, the United States Bureau of Reclamation, and the board. All efficient water management practices for agricultural water use pursuant to this chapter shall be adopted or revised by the department only after the department conducts public hearings to allow participation of the diverse geographical areas and interests of the state.

(i) (1) The department shall adopt regulations that provide for a range of options that agricultural water suppliers may use or implement to comply with the measurement requirement in paragraph (1) of subdivision (b).

(2) The initial adoption of a regulation authorized by this subdivision is deemed to address an emergency, for purposes of Sections 11346.1 and 11349.6 of the Government Code, and the department is hereby exempted for that purpose from the requirements of subdivision (b) of Section 11346.1 of the Government Code. After the initial adoption of an emergency regulation pursuant to this subdivision, the department shall not request approval from the Office of Administrative Law to readopt the regulation as an emergency regulation pursuant to Section 11346.1 of the Government Code.

(Amended by Stats. 2018, Ch. 15, Sec. 6. (AB 1668) Effective January 1, 2019.)

WATER CODE - WAT

DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES [10000 - 12999] *(Heading of Division 6 amended by Stats. 1957, Ch. 1932.)*

PART 2.55. SUSTAINABLE WATER USE AND DEMAND REDUCTION [10608 - 10609.42] *(Part 2.55 added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1.)*

CHAPTER 5. Sustainable Water Management [10608.50- 10608.50.] *(Chapter 5 added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1.)*

10608.50. (a) The department, in consultation with the board, shall promote implementation of regional water resources management practices through increased incentives and removal of barriers consistent with state and federal law. Potential changes may include, but are not limited to, all of the following:

(1) Revisions to the requirements for urban and agricultural water management plans.

(2) Revisions to the requirements for integrated regional water management plans.

(3) Revisions to the eligibility for state water management grants and loans.

(4) Revisions to state or local permitting requirements that increase water supply opportunities, but do not weaken water quality protection under state and federal law.

(5) Increased funding for research, feasibility studies, and project construction.

(6) Expanding technical and educational support for local land use and water management agencies.

(b) No later than January 1, 2011, and updated as part of the California Water Plan, the department, in consultation with the board, and with public input, shall propose new statewide targets, or review and update existing statewide targets, for regional water resources management practices, including, but not limited to, recycled water, brackish groundwater desalination, and infiltration and direct use of urban stormwater runoff.

(Added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1. (SB 7 7x) Effective February 3, 2010.)

WATER CODE - WAT

DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES [10000 - 12999] *(Heading of Division 6 amended by Stats. 1957, Ch. 1932.)*

PART 2.55. SUSTAINABLE WATER USE AND DEMAND REDUCTION [10608 - 10609.42] *(Part 2.55 added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1.)*

CHAPTER 6. Standardized Data Collection [10608.52- 10608.52.] *(Chapter 6 added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1.)*

10608.52. (a) The department, in consultation with the board, the California Bay-Delta Authority or its successor agency, the State Department of Public Health, and the Public Utilities Commission, shall develop a single standardized water use reporting form to meet the water use information needs of each agency, including the needs of urban water suppliers that elect to determine and report progress toward achieving targets on a regional basis as provided in subdivision (a) of Section 10608.28.

(b) At a minimum, the form shall be developed to accommodate information sufficient to assess an urban water supplier's compliance with conservation targets pursuant to Section 10608.24 and an agricultural water supplier's compliance with implementation of efficient water management practices pursuant to subdivision (a) of Section 10608.48. The form shall accommodate reporting by urban water suppliers on an individual or regional basis as provided in subdivision (a) of Section 10608.28.

(Added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1. (SB 7 7x) Effective February 3, 2010.)

WATER CODE - WAT

DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES [10000 - 12999] *(Heading of Division 6 amended by Stats. 1957, Ch. 1932.)*

PART 2.55. SUSTAINABLE WATER USE AND DEMAND REDUCTION [10608 - 10609.42] *(Part 2.55 added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1.)*

CHAPTER 7. Funding Provisions [10608.56 - 10608.60] *(Chapter 7 added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1.)*

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

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

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

(d) Notwithstanding subdivision (b), the department shall determine that an agricultural water supplier is eligible for a water grant or loan even though the supplier is not implementing all of the efficient water management practices described in Section 10608.48, if the agricultural water supplier has submitted to the department for approval a schedule, financing plan, and budget, to be included in the grant or loan agreement, for implementation of the efficient water management practices. The supplier may request grant or loan funds to implement the efficient water management practices to the extent the request is consistent with the eligibility requirements applicable to the water funds.

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

(f) The department shall not deny eligibility to an urban retail water supplier or agricultural water supplier in compliance with the requirements of this part and Part 2.8 (commencing with Section 10800), that is participating in a multiagency water project, or an integrated regional water management plan, developed pursuant to Section 75026 of the Public Resources Code, solely on the basis that one or more of the agencies participating in the project or plan is not implementing all of the requirements of this part or Part 2.8 (commencing with Section 10800).

(Added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1. (SB 7 7x) Effective February 3, 2010.)

10608.60. (a) It is the intent of the Legislature that funds made available by Section 75026 of the Public Resources Code should be expended, consistent with Division 43 (commencing with Section 75001) of the Public Resources Code and upon appropriation by the Legislature, for grants to implement this part. In the allocation of funding, it is the intent of the Legislature that the department give consideration to disadvantaged communities to assist in implementing the requirements of this part.

(b) It is the intent of the Legislature that funds made available by Section 75041 of the Public Resources Code, should be expended, consistent with Division 43 (commencing with Section 75001) of the Public Resources Code

and upon appropriation by the Legislature, for direct expenditures to implement this part.

(Added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1. (SB 7 7x) Effective February 3, 2010.)

WATER CODE - WAT

DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES [10000 - 12999] *(Heading of Division 6 amended by Stats. 1957, Ch. 1932.)*

PART 2.55. SUSTAINABLE WATER USE AND DEMAND REDUCTION [10608 - 10609.42] *(Part 2.55 added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1.)*

CHAPTER 8. Quantifying Agricultural Water Use Efficiency [10608.64- 10608.64.] *(Chapter 8 added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1.)*

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

(Added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1. (SB 7 7x) Effective February 3, 2010.)

WATER CODE - WAT

DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES [10000 - 12999] *(Heading of Division 6 amended by Stats. 1957, Ch. 1932.)*

PART 2.55. SUSTAINABLE WATER USE AND DEMAND REDUCTION [10608 - 10609.42] *(Part 2.55 added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1.)*

CHAPTER 9. Urban Water Use Objectives and Water Use Reporting [10609 - 10609.38] *(Chapter 9 added by Stats. 2018, Ch. 15, Sec. 7.)*

10609. (a) The Legislature finds and declares that this chapter establishes a method to estimate the aggregate amount of water that would have been delivered the previous year by an urban retail water supplier if all that water had been used efficiently. This estimated aggregate water use is the urban retail water supplier's urban water use objective. The method is based on water use efficiency standards and local service area characteristics for that year. By comparing the amount of water actually used in the previous year with the urban water use objective, local urban water suppliers will be in a better position to help eliminate unnecessary use of water; that is, water used in excess of that needed to accomplish the intended beneficial use.

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

(1) This chapter establishes standards and practices for the following water uses:

(A) Indoor residential use.

(B) Outdoor residential use.

(C) CII water use.

(D) Water losses.

(E) Other unique local uses and situations that can have a material effect on an urban water supplier's total water use.

(2) This chapter further does all of the following:

(A) Establishes a method to calculate each urban water use objective.

(B) Considers recycled water quality in establishing efficient irrigation standards.

(C) Requires the department to provide or otherwise identify data regarding the unique local conditions to support the calculation of an urban water use objective.

(D) Provides for the use of alternative sources of data if alternative sources are shown to be as accurate as, or more accurate than, the data provided by the department.

(E) Requires annual reporting of the previous year's water use with the urban water use objective.

(F) Provides a bonus incentive for the amount of potable recycled water used the previous year when comparing the previous year's water use with the urban water use objective, of up to 10 percent of the urban water use objective.

(3) This chapter requires the department and the board to solicit broad public participation from stakeholders and other interested persons in the development of the standards and the adoption of regulations pursuant to this chapter.

(4) This chapter preserves the Legislature's authority over long-term water use efficiency target setting and ensures appropriate legislative oversight of the implementation of this chapter by doing all of the following:

(A) Requiring the Legislative Analyst to conduct a review of the implementation of this chapter, including compliance with the adopted standards and regulations, accuracy of the data, use of alternate data, and other issues the Legislative Analyst deems appropriate.

(B) Stating legislative intent that the director of the department and the chairperson of the board appear before the appropriate Senate and Assembly policy committees to report on progress in implementing this chapter.

(C) Providing one-time-only authority to the department and board to adopt water use efficiency standards, except as explicitly provided in this chapter. Authorization to update the standards shall require separate legislation.

(c) It is the intent of the Legislature that the following principles apply to the development and implementation of long-term standards and urban water use objectives:

(1) Local urban retail water suppliers should have primary responsibility for meeting standards-based water use targets, and they shall retain the flexibility to develop their water supply portfolios, design and implement water conservation strategies, educate their customers, and enforce their rules.

(2) Long-term standards and urban water use objectives should advance the state's goals to mitigate and adapt to climate change.

(3) Long-term standards and urban water use objectives should acknowledge the shade, air quality, and heat-island reduction benefits provided to communities by trees through the support of water-efficient irrigation practices that keep trees healthy.

(4) The state should identify opportunities for streamlined reporting, eliminate redundant data submissions, and incentivize open access to data collected by urban and agricultural water suppliers.

(Amended by Stats. 2019, Ch. 497, Sec. 287. (AB 991) Effective January 1, 2020.)

10609.2. (a) The board, in coordination with the department, shall adopt long-term standards for the efficient use of water pursuant to this chapter on or before June 30, 2022.

(b) Standards shall be adopted for all of the following:

(1) Outdoor residential water use.

(2) Outdoor irrigation of landscape areas with dedicated irrigation meters in connection with CII water use.

(3) A volume for water loss.

(c) When adopting the standards under this section, the board shall consider the policies of this chapter and the proposed efficiency standards' effects on local wastewater management, developed and natural parklands, and urban tree health. The standards and potential effects shall be identified by May 30, 2022. The board shall allow for public comment on potential effects identified by the board under this subdivision.

(d) The long-term standards shall be set at a level designed so that the water use objectives, together with other demands excluded from the long-term standards such as CII indoor water use and CII outdoor water use not connected to a dedicated landscape meter, would exceed the statewide conservation targets required pursuant to Chapter 3 (commencing with Section 10608.16).

(e) The board, in coordination with the department, shall adopt by regulation variances recommended by the department pursuant to Section 10609.14 and guidelines and methodologies pertaining to the calculation of an urban retail water supplier's urban water use objective recommended by the department pursuant to Section 10609.16.

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

10609.4. (a) (1) Until January 1, 2025, the standard for indoor residential water use shall be 55 gallons per capita daily.

(2) Beginning January 1, 2025, and until January 1, 2030, the standard for indoor residential water use shall be 47 gallons per capita daily.

(3) Beginning January 1, 2030, the standard for indoor residential water use shall be 42 gallons per capita daily.

(b) (1) The department, in coordination with the board, shall conduct necessary studies and investigations to assess and quantify the economic benefits and impacts of the 2030 indoor residential use standard on water, wastewater, and recycled water systems and shall include saturation end-use studies. The studies and investigations shall build on the standards and potential effects identified pursuant to subdivision (c) of Section 10609.2 and shall also consider, and as appropriate incorporate, other regional and statewide studies that quantify the impacts on water, wastewater, and recycled water systems, and evaluate the long-term effects of telework. To facilitate these studies and investigations, the board may request necessary and relevant information from wastewater agencies, including monthly influent flow, actions taken to reassess treatment processes, and the impact of the implementation of this chapter on wastewater operations, maintenance, and capital investment. The department, in coordination with the board, shall summarize the findings of these studies and investigations in a report to the Legislature on or before October 1, 2028. The report shall be submitted in compliance with Section 9795 of the Government Code.

(2) If the department, in coordination with the board, determines that the 2030 indoor residential use standard is likely to unduly impact affordability of water and wastewater services, the department and the board may jointly recommend to the Legislature an alternate date on which the 2030 indoor residential use standard shall take effect. This determination shall be made using at least two years of data reflecting application of the 2025 indoor residential use standard.

(3) Based upon the studies and investigations conducted pursuant to paragraph (1), the department shall consider whether to recommend, for adoption by the board, additional variances to accommodate unique challenges related to residential indoor water use pursuant to Section 10609.2. Variance options may include, but are not limited to, stranded assets, impacts on disadvantaged communities, impacts to environmental flows, or adverse impacts to wastewater or recycled water operations.

(4) The studies, investigations, and report described in paragraph (1) shall include timely and inclusive collaboration with, and input from, a broad group of stakeholders, including, but not limited to, environmental groups, experts in indoor plumbing, water, wastewater, and recycled water agencies.

(c) An urban retail water supplier shall not be subject to enforcement pursuant to this chapter solely for failing to meet the indoor residential use standard.

(Amended by Stats. 2022, Ch. 679, Sec. 1. (SB 1157) Effective January 1, 2023.)

10609.6. (a) (1) The department, in coordination with the board, shall conduct necessary studies and investigations and recommend, no later than October 1, 2021, standards for outdoor residential use for adoption by the board in accordance with this chapter.

(2) (A) The standards shall incorporate the principles of the model water efficient landscape ordinance adopted by the department pursuant to the Water Conservation in Landscaping Act (Article 10.8 (commencing with Section 65591) of Chapter 3 of Division 1 of Title 7 of the Government Code).

(B) The standards shall apply to irrigable lands.

(C) The standards shall include provisions for swimming pools, spas, and other water features. Ornamental water features that are artificially supplied with water, including ponds, lakes, waterfalls, and fountains, shall be analyzed separately from swimming pools and spas.

(b) The department shall, by January 1, 2021, provide each urban retail water supplier with data regarding the area of residential irrigable lands in a manner that can reasonably be applied to the standards adopted pursuant to this section.

(c) The department shall not recommend standards pursuant to this section until it has conducted pilot projects or studies, or some combination of the two, to ensure that the data provided to local agencies are reasonably accurate

for the data's intended uses, taking into consideration California's diverse landscapes and community characteristics.

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

10609.8. (a) The department, in coordination with the board, shall conduct necessary studies and investigations and recommend, no later than October 1, 2021, standards for outdoor irrigation of landscape areas with dedicated irrigation meters or other means of calculating outdoor irrigation use in connection with CII water use for adoption by the board in accordance with this chapter.

(b) The standards shall incorporate the principles of the model water efficient landscape ordinance adopted by the department pursuant to the Water Conservation in Landscaping Act (Article 10.8 (commencing with Section 65591) of Chapter 3 of Division 1 of Title 7 of the Government Code).

(c) The standards shall include an exclusion for water for commercial agricultural use meeting the definition of subdivision (b) of Section 51201 of the Government Code.

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

10609.9. For purposes of Sections 10609.6 and 10609.8, "principles of the model water efficient landscape ordinance" means those provisions of the model water efficient landscape ordinance applicable to the establishment or determination of the amount of water necessary to efficiently irrigate both new and existing landscapes. These provisions include, but are not limited to, all of the following:

(a) Evapotranspiration adjustment factors, as applicable.

(b) Landscape area.

(c) Maximum applied water allowance.

(d) Reference evapotranspiration.

(e) Special landscape areas, including provisions governing evapotranspiration adjustment factors for different types of water used for irrigating the landscape.

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

10609.10. (a) The department, in coordination with the board, shall conduct necessary studies and investigations and recommend, no later than October 1, 2021, performance measures for CII water use for adoption by the board in accordance with this chapter.

(b) Prior to recommending performance measures for CII water use, the department shall solicit broad public participation from stakeholders and other interested persons relating to all of the following:

(1) Recommendations for a CII water use classification system for California that address significant uses of water.

(2) Recommendations for setting minimum size thresholds for converting mixed CII meters to dedicated irrigation meters, and evaluation of, and recommendations for, technologies that could be used in lieu of requiring dedicated irrigation meters.

(3) Recommendations for CII water use best management practices, which may include, but are not limited to, water audits and water management plans for those CII customers that exceed a recommended size, volume of water use, or other threshold.

(c) Recommendations of appropriate performance measures for CII water use shall be consistent with the October 21, 2013, report to the Legislature by the Commercial, Industrial, and Institutional Task Force entitled "Water Use Best Management Practices," including the technical and financial feasibility recommendations provided in that report, and shall support the economic productivity of California's commercial, industrial, and institutional sectors.

(d) (1) The board, in coordination with the department, shall adopt performance measures for CII water use on or before June 30, 2022.

(2) Each urban retail water supplier shall implement the performance measures adopted by the board pursuant to paragraph (1).

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

10609.12. The standards for water loss for urban retail water suppliers shall be the standards adopted by the board pursuant to subdivision (i) of Section 10608.34.

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

10609.14. (a) The department, in coordination with the board, shall conduct necessary studies and investigations and, no later than October 1, 2021, recommend for adoption by the board in accordance with this chapter appropriate variances for unique uses that can have a material effect on an urban retail water supplier's urban water use objective.

(b) Appropriate variances may include, but are not limited to, allowances for the following:

(1) Significant use of evaporative coolers.

(2) Significant populations of horses and other livestock.

(3) Significant fluctuations in seasonal populations.

(4) Significant landscaped areas irrigated with recycled water having high levels of total dissolved solids.

(5) Significant use of water for soil compaction and dust control.

(6) Significant use of water to supplement ponds and lakes to sustain wildlife.

(7) Significant use of water to irrigate vegetation for fire protection.

(8) Significant use of water for commercial or noncommercial agricultural use.

(c) The department, in recommending variances for adoption by the board, shall also recommend a threshold of significance for each recommended variance.

(d) Before including any specific variance in calculating an urban retail water supplier's water use objective, the urban retail water supplier shall request and receive approval by the board for the inclusion of that variance.

(e) The board shall post on its Internet Web site all of the following:

(1) A list of all urban retail water suppliers with approved variances.

(2) The specific variance or variances approved for each urban retail water supplier.

(3) The data supporting approval of each variance.

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

10609.15. To help streamline water data reporting, the department and the board shall do all of the following:

(a) Identify urban water reporting requirements shared by both agencies, and post on each agency's Internet Web site how the data is used for planning, regulatory, or other purposes.

(b) Analyze opportunities for more efficient publication of urban water reporting requirements within each agency, and analyze how each agency can integrate various data sets in a publicly accessible location, identify priority actions, and implement priority actions identified in the analysis.

(c) Make appropriate data pertaining to the urban water reporting requirements that are collected by either agency available to the public according to the principles and requirements of the Open and Transparent Water Data Act (Part 4.9 (commencing with Section 12400)).

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

10609.16. The department, in coordination with the board, shall conduct necessary studies and investigations and recommend, no later than October 1, 2021, guidelines and methodologies for the board to adopt that identify how an urban retail water supplier calculates its urban water use objective. The guidelines and methodologies shall address, as necessary, all of the following:

(a) Determining the irrigable lands within the urban retail water supplier's service area.

(b) Updating and revising methodologies described pursuant to subparagraph (A) of paragraph (1) of subdivision (h) of Section 10608.20, as appropriate, including methodologies for calculating the population in an urban retail water supplier's service area.

(c) Using landscape area data provided by the department or alternative data.

(d) Incorporating precipitation data and climate data into estimates of a urban retail water supplier's outdoor irrigation budget for its urban water use objective.

(e) Estimating changes in outdoor landscape area and population, and calculating the urban water use objective, for years when updated landscape imagery is not available from the department.

(f) Determining acceptable levels of accuracy for the supporting data, the urban water use objective, and compliance with the urban water use objective.

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

10609.18. The department and the board shall solicit broad public participation from stakeholders and other interested persons in the development of the standards and the adoption of regulations pursuant to this chapter. The board shall hold at least one public meeting before taking any action on any standard or variance recommended by the department.

(Added by Stats. 2018, Ch. 15, Sec. 7. (AB 1668) Effective January 1, 2019.)

10609.20. (a) Each urban retail water supplier shall calculate its urban water use objective no later than January 1, 2024, and by January 1 every year thereafter.

(b) The calculation shall be based on the urban retail water supplier's water use conditions for the previous calendar or fiscal year.

(c) Each urban water supplier's urban water use objective shall be composed of the sum of the following:

(1) Aggregate estimated efficient indoor residential water use.

(2) Aggregate estimated efficient outdoor residential water use.

(3) Aggregate estimated efficient outdoor irrigation of landscape areas with dedicated irrigation meters or equivalent technology in connection with CII water use.

(4) Aggregate estimated efficient water losses.

(5) Aggregate estimated water use in accordance with variances, as appropriate.

(d) (1) An urban retail water supplier that delivers water from a groundwater basin, reservoir, or other source that is augmented by potable reuse water may adjust its urban water use objective by a bonus incentive calculated pursuant to this subdivision.

(2) The water use objective bonus incentive shall be the volume of its potable reuse delivered to residential water users and to landscape areas with dedicated irrigation meters in connection with CII water use, on an acre-foot basis.

(3) The bonus incentive pursuant to paragraph (1) shall be limited in accordance with one of the following:

(A) The bonus incentive shall not exceed 15 percent of the urban water supplier's water use objective for any potable reuse water produced at an existing facility.

(B) The bonus incentive shall not exceed 10 percent of the urban water supplier's water use objective for any potable reuse water produced at any facility that is not an existing facility.

(4) For purposes of this subdivision, "existing facility" means a facility that meets all of the following:

(A) The facility has a certified environmental impact report, mitigated negative declaration, or negative declaration on or before January 1, 2019.

(B) The facility begins producing and delivering potable reuse water on or before January 1, 2022.

(C) The facility uses microfiltration and reverse osmosis technologies to produce the potable reuse water.

(e) (1) The calculation of the urban water use objective shall be made using landscape area and other data provided by the department and pursuant to the standards, guidelines, and methodologies adopted by the board. The department shall provide data to the urban water supplier at a level of detail sufficient to allow the urban water supplier to verify its accuracy at the parcel level.

(2) Notwithstanding paragraph (1), an urban retail water supplier may use alternative data in calculating the urban water use objective if the supplier demonstrates to the department that the alternative data are equivalent, or superior, in quality and accuracy to the data provided by the department. The department may provide technical assistance to an urban retail water supplier in evaluating whether the alternative data are appropriate for use in calculating the supplier's urban water use objective.

(Amended by Stats. 2019, Ch. 239, Sec. 2. (AB 1414) Effective January 1, 2020.)

10609.21. (a) For purposes of Section 10609.20, and notwithstanding paragraph (4) of subdivision (d) of Section 10609.20, "existing facility" also includes the North City Project, phase one of the Pure Water San Diego Program, for which an environmental impact report was certified on April 10, 2018.

(b) This section shall become operative on January 1, 2019.

(Added by Stats. 2018, Ch. 453, Sec. 4. (SB 875) Effective September 17, 2018. Section operative January 1, 2019, by its own provisions.)

10609.22. (a) An urban retail water supplier shall calculate its actual urban water use no later than January 1, 2024, and by January 1 every year thereafter.

(b) The calculation shall be based on the urban retail water supplier's water use for the previous calendar or fiscal year.

(c) Each urban water supplier's urban water use shall be composed of the sum of the following:

(1) Aggregate residential water use.

(2) Aggregate outdoor irrigation of landscape areas with dedicated irrigation meters in connection with CII water use.

(3) Aggregate water losses.

(Amended by Stats. 2019, Ch. 239, Sec. 3. (AB 1414) Effective January 1, 2020.)

10609.24. (a) An urban retail water supplier shall submit a report to the department no later than January 1, 2024, and by January 1 every year thereafter. The report shall include all of the following:

(1) The urban water use objective calculated pursuant to Section 10609.20 along with relevant supporting data.

(2) The actual urban water use calculated pursuant to Section 10609.22 along with relevant supporting data.

(3) Documentation of the implementation of the performance measures for CII water use.

(4) A description of the progress made towards meeting the urban water use objective.

(5) The validated water loss audit report conducted pursuant to Section 10608.34.

(b) The department shall post the reports and information on its internet website.

(c) The board may issue an information order or conservation order to, or impose civil liability on, an entity or individual for failure to submit a report required by this section.

(Amended by Stats. 2019, Ch. 239, Sec. 4. (AB 1414) Effective January 1, 2020.)

10609.25. As part of the first report submitted to the department by an urban retail water supplier no later than January 1, 2024, pursuant to subdivision (a) of Section 10609.24, each urban retail water supplier shall provide a narrative that describes the water demand management measures that the supplier plans to implement to achieve its urban water use objective by January 1, 2027.

(Added by Stats. 2019, Ch. 239, Sec. 5. (AB 1414) Effective January 1, 2020.)

10609.26. (a) (1) On and after January 1, 2024, the board may issue informational orders pertaining to water production, water use, and water conservation to an urban retail water supplier that does not meet its urban water use objective required by this chapter. Informational orders are intended to obtain information on supplier activities, water production, and conservation efforts in order to identify technical assistance needs and assist urban water suppliers in meeting their urban water use objectives.

(2) In determining whether to issue an informational order, the board shall consider the degree to which the urban retail water supplier is not meeting its urban water use objective, information provided in the report required by Section 10609.24, and actions the urban retail water supplier has implemented or will implement in order to help meet the urban water use objective.

(3) The board shall share information received pursuant to this subdivision with the department.

(4) An urban water supplier may request technical assistance from the department. The technical assistance may, to the extent available, include guidance documents, tools, and data.

(b) On and after January 1, 2025, the board may issue a written notice to an urban retail water supplier that does not meet its urban water use objective required by this chapter. The written notice may warn the urban retail water supplier that it is not meeting its urban water use objective described in Section 10609.20 and is not making adequate progress in meeting the urban water use objective, and may request that the urban retail water supplier address areas of concern in its next annual report required by Section 10609.24. In deciding whether to issue a written notice, the board may consider whether the urban retail water supplier has received an informational order, the degree to which the urban retail water supplier is not meeting its urban water use objective, information provided in the report required by Section 10609.24, and actions the urban retail water supplier has implemented or will implement in order to help meet its urban water use objective.

(c) (1) On and after January 1, 2026, the board may issue a conservation order to an urban retail water supplier that does not meet its urban water use objective. A conservation order may consist of, but is not limited to, referral to the department for technical assistance, requirements for education and outreach, requirements for local enforcement, and other efforts to assist urban retail water suppliers in meeting their urban water use objective.

(2) In issuing a conservation order, the board shall identify specific deficiencies in an urban retail water supplier's progress towards meeting its urban water use objective, and identify specific actions to address the deficiencies.

(3) The board may request that the department provide an urban retail water supplier with technical assistance to support the urban retail water supplier's actions to remedy the deficiencies.

(d) A conservation order issued in accordance with this chapter may include requiring actions intended to increase water-use efficiency, but shall not curtail or otherwise limit the exercise of a water right, nor shall it require the imposition of civil liability pursuant to Section 377.

(Amended by Stats. 2019, Ch. 239, Sec. 6. (AB 1414) Effective January 1, 2020.)

10609.27. Notwithstanding Section 10609.26, the board shall not issue an information order, written notice, or conservation order pursuant to Section 10609.26 if both of the following conditions are met:

(a) The board determines that the urban retail water supplier is not meeting its urban water use objective solely because the volume of water loss exceeds the urban retail water supplier's standard for water loss.

(b) Pursuant to Section 10608.34, the board is taking enforcement action against the urban retail water supplier for not meeting the performance standards for the volume of water losses.

(Added by Stats. 2019, Ch. 203, Sec. 1. (SB 134) Effective January 1, 2020.)

10609.28. The board may issue a regulation or informational order requiring a wholesale water supplier, an urban retail water supplier, or a distributor of a public water supply, as that term is used in Section 350, to provide a monthly report relating to water production, water use, or water conservation.

(Added by Stats. 2018, Ch. 14, Sec. 12. (SB 606) Effective January 1, 2019.)

10609.30. On or before January 10, 2024, the Legislative Analyst shall provide to the appropriate policy committees of both houses of the Legislature and the public a report evaluating the implementation of the water use efficiency

standards and water use reporting pursuant to this chapter. The board and the department shall provide the Legislative Analyst with the available data to complete this report.

(a) The report shall describe all of the following:

(1) The rate at which urban retail water users are complying with the standards, and factors that might facilitate or impede their compliance.

(2) The accuracy of the data and estimates being used to calculate urban water use objectives.

(3) Indications of the economic impacts, if any, of the implementation of this chapter on urban water suppliers and urban water users, including CII water users.

(4) The frequency of use of the bonus incentive, the volume of water associated with the bonus incentive, value to urban water suppliers of the bonus incentive, and any implications of the use of the bonus incentive on water use efficiency.

(5) The early indications of how implementing this chapter might impact the efficiency of statewide urban water use.

(6) Recommendations, if any, for improving statewide urban water use efficiency and the standards and practices described in this chapter.

(7) Any other issues the Legislative Analyst deems appropriate.

(Added by Stats. 2018, Ch. 14, Sec. 13. (SB 606) Effective January 1, 2019.)

10609.32. It is the intent of the Legislature that the chairperson of the board and the director of the department appear before the appropriate policy committees of both houses of the Legislature on or around January 1, 2026, and report on the implementation of the water use efficiency standards and water use reporting pursuant to this chapter. It is the intent of the Legislature that the topics to be covered include all of the following:

(a) The rate at which urban retail water suppliers are complying with the standards, and factors that might facilitate or impede their compliance.

(b) What enforcement actions have been taken, if any.

(c) The accuracy of the data and estimates being used to calculate urban water use objectives.

(d) Indications of the economic impacts, if any, of the implementation of this chapter on urban water suppliers and urban water users, including CII water users.

(e) The frequency of use of the bonus incentive, the volume of water associated with the bonus incentive, value to urban water suppliers of the bonus incentive, and any implications of the use of the bonus incentive on water use efficiency.

(f) An assessment of how implementing this chapter is affecting the efficiency of statewide urban water use.

(Added by Stats. 2018, Ch. 14, Sec. 14. (SB 606) Effective January 1, 2019.)

10609.33. (a) On or before January 1, 2028, the department, in coordination with the board, shall submit a report to the Legislature on the progress of urban retail water suppliers towards achieving their urban water use objective pursuant to Section 10609.2.

(b) (1) The requirement for submitting a report imposed under subdivision (a) is inoperative on January 1, 2032, pursuant to Section 10231.5 of the Government Code.

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

(Added by Stats. 2022, Ch. 679, Sec. 2. (SB 1157) Effective January 1, 2023.)

10609.34. Notwithstanding Section 15300.2 of Title 14 of the California Code of Regulations, an action of the board taken under this chapter shall be deemed to be a Class 8 action, within the meaning of Section 15308 of Title 14 of the California Code of Regulations, provided that the action does not involve relaxation of existing water conservation or water use standards.

(Added by Stats. 2018, Ch. 14, Sec. 15. (SB 606) Effective January 1, 2019.)

10609.36. (a) Nothing in this chapter shall be construed to determine or alter water rights. Sections 1010 and 1011 apply to water conserved through implementation of this chapter.

(b) Nothing in this chapter shall be construed to authorize the board to update or revise water use efficiency standards authorized by this chapter except as explicitly provided in this chapter. Authorization to update the standards beyond that explicitly provided in this chapter shall require separate legislation.

(c) Nothing in this chapter shall be construed to limit or otherwise affect the use of recycled water as seawater barriers for groundwater salinity management.

(Added by Stats. 2018, Ch. 14, Sec. 16. (SB 606) Effective January 1, 2019.)

10609.38. The board may waive the requirements of this chapter for a period of up to five years for any urban retail water supplier whose water deliveries are significantly affected by changes in water use as a result of damage from a disaster such as an earthquake or fire. In establishing the period of a waiver, the board shall take into consideration the breadth of the damage and the time necessary for the damaged areas to recover from the disaster.

(Added by Stats. 2018, Ch. 14, Sec. 17. (SB 606) Effective January 1, 2019.)

WATER CODE - WAT

DIVISION 6. CONSERVATION, DEVELOPMENT, AND UTILIZATION OF STATE WATER RESOURCES [10000 - 12999] *(Heading of Division 6 amended by Stats. 1957, Ch. 1932.)*

PART 2.55. SUSTAINABLE WATER USE AND DEMAND REDUCTION [10608 - 10609.42] *(Part 2.55 added by Stats. 2009, 7th Ex. Sess., Ch. 4, Sec. 1.)*

CHAPTER 10. Countywide Drought and Water Shortage Contingency Plans [10609.40 - 10609.42] *(Chapter 10 added by Stats. 2018, Ch. 15, Sec. 8.)*

10609.40. The Legislature finds and declares both of the following:

(a) Small water suppliers and rural communities are often not covered by established water shortage planning requirements. Currently, most counties do not address water shortages or do so minimally in their general plan or the local hazard mitigation plan.

(b) The state should provide guidance to improve drought planning for small water suppliers and rural communities.

(Added by Stats. 2018, Ch. 15, Sec. 8. (AB 1668) Effective January 1, 2019.)

10609.42. (a) No later than January 1, 2020, the department, in consultation with the board and other relevant state and local agencies and stakeholders, shall use available data to identify small water suppliers and rural communities that may be at risk of drought and water shortage vulnerability. The department shall notify counties and groundwater sustainability agencies of those suppliers or communities that may be at risk within its jurisdiction, and may make the information publicly accessible on its Internet Web site.

(b) The department shall, in consultation with the board, by January 1, 2020, propose to the Governor and the Legislature recommendations and guidance relating to the development and implementation of countywide drought and water shortage contingency plans to address the planning needs of small water suppliers and rural communities. The department shall recommend how these plans can be included in county local hazard mitigation plans or otherwise integrated with complementary existing planning processes. The guidance from the department shall outline goals of the countywide drought and water shortage contingency plans and recommend components including, but not limited to, all of the following:

(1) Assessment of drought vulnerability.

(2) Actions to reduce drought vulnerability.

(3) Response, financing, and local communication and outreach planning efforts that may be implemented in times of drought.

(4) Data needs and reporting.

(5) Roles and responsibilities of interested parties and coordination with other relevant water management planning efforts.

(c) In formulating the proposal, the department shall utilize a public process involving state agencies, cities, counties, small communities, small water suppliers, and other stakeholders.

(Added by Stats. 2018, Ch. 15, Sec. 8. (AB 1668) Effective January 1, 2019.)

APPENDIX B

NOTICE OF PLAN PREPARATION

CITY OF COALINGA
The Sunny Side of the Valley

May 19, 2026

Rain Emerson, Area Manager
U.S. Bureau of Reclamation
South-Central California Area Office
1243 N Street
Fresno, CA 93721

Subject: City of Coalinga 2025 Urban Water Management Plan Preparation

Dear Ms. Emerson,

State law requires each urban water supplier to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The City of Coalinga (City) is currently preparing its 2025 UWMP in accordance with the California Water Code and the 2025 UWMP Guidebook issued by the California Department of Water Resources.

The UWMP documents City's plans to ensure adequate and reliable water supplies to meet existing and projected water demands under a range of water supply conditions. As part of the UWMP preparation process, the City is coordinating with regional agencies and water suppliers to support consistent and informed water resources planning.

Pursuant to California Water Code Section 10621(b), the City is notifying agencies and jurisdictions within the region of the preparation of its 2025 UWMP and invites your agency to participate in this process. A Notice of Public Hearing will be provided at least 14 days prior to consideration of adoption of the 2025 UWMP by the City Council.

If you have any comments, questions, or information you would like the City to consider during preparation of the UWMP, please feel free to our consultant Mr. Alfonso Manrique at 559-473-1371 or email at alfonso.manrique@am-ce.com.

Sincerely,

Jesse Barron
Assistant City Manager
City of Coalinga
155 West Durian
Coalinga, CA 93210
jbarron@coalinga.com

CITY OF COALINGA
The Sunny Side of the Valley

May 26, 2026

County of Fresno
Bernard Jimenez
Assistant Director of Public Works and Planning
2220 Tulare Street, 7th Floor
Fresno, CA 93721

Subject: City of Coalinga 2025 Urban Water Management Plan Preparation

Dear Mr. Jimenez,

State law requires each urban water supplier to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The City of Coalinga (City) is currently preparing its 2025 UWMP in accordance with the California Water Code and the 2025 UWMP Guidebook issued by the California Department of Water Resources.

The UWMP documents City's plans to ensure adequate and reliable water supplies to meet existing and projected water demands under a range of water supply conditions. As part of the UWMP preparation process, the City is coordinating with regional agencies and water suppliers to support consistent and informed water resources planning.

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Sincerely,

Jesse Barron
Assistant City Manager
City of Coalinga
155 West Durian
Coalinga, CA 93210
jbarron@coalinga.com

CITY OF COALINGA
The Sunny Side of the Valley

May 26, 2026

Westlands Water District
Allison Febbo
General Manager
PO Box 5199
Fresno, CA 93755

Subject: City of Coalinga 2025 Urban Water Management Plan Preparation

Dear Ms. Febbo,

State law requires each urban water supplier to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The City of Coalinga (City) is currently preparing its 2025 UWMP in accordance with the California Water Code and the 2025 UWMP Guidebook issued by the California Department of Water Resources.

The UWMP documents City's plans to ensure adequate and reliable water supplies to meet existing and projected water demands under a range of water supply conditions. As part of the UWMP preparation process, the City is coordinating with regional agencies and water suppliers to support consistent and informed water resources planning.

Pursuant to California Water Code Section 10621(b), the City is notifying agencies and jurisdictions within the region of the preparation of its 2025 UWMP and invites your agency to participate in this process. A Notice of Public Hearing will be provided at least 14 days prior to consideration of adoption of the 2025 UWMP by the City Council.

If you have any comments, questions, or information you would like the City to consider during preparation of the UWMP, please feel free to our consultant Mr. Alfonso Manrique at 559-473-1371 or email at alfonso.manrique@am-ce.com.

Sincerely,

Jesse Barron
Assistant City Manager
City of Coalinga
155 West Durian
Coalinga, CA 93210
jbarron@coalinga.com

CITY OF COALINGA
The Sunny Side of the Valley

May 19, 2026

Coalinga-Huron Unified School District
Dr. David Moore, Superintendent
657 Sunset St.
Coalinga, CA 93210

Subject: City of Coalinga 2025 Urban Water Management Plan Preparation

Dear Dr. Moore,

State law requires each urban water supplier to prepare and adopt an Urban Water Management Plan (UWMP) at least once every five years. The City of Coalinga (City) is currently preparing its 2025 UWMP in accordance with the California Water Code and the 2025 UWMP Guidebook issued by the California Department of Water Resources.

The UWMP documents City's plans to ensure adequate and reliable water supplies to meet existing and projected water demands under a range of water supply conditions. As part of the UWMP preparation process, the City is coordinating with regional agencies and water suppliers to support consistent and informed water resources planning.

Pursuant to California Water Code Section 10621(b), the City is notifying agencies and jurisdictions within the region of the preparation of its 2025 UWMP and invites your agency to participate in this process. A Notice of Public Hearing will be provided at least 14 days prior to consideration of adoption of the 2025 UWMP by the City Council.

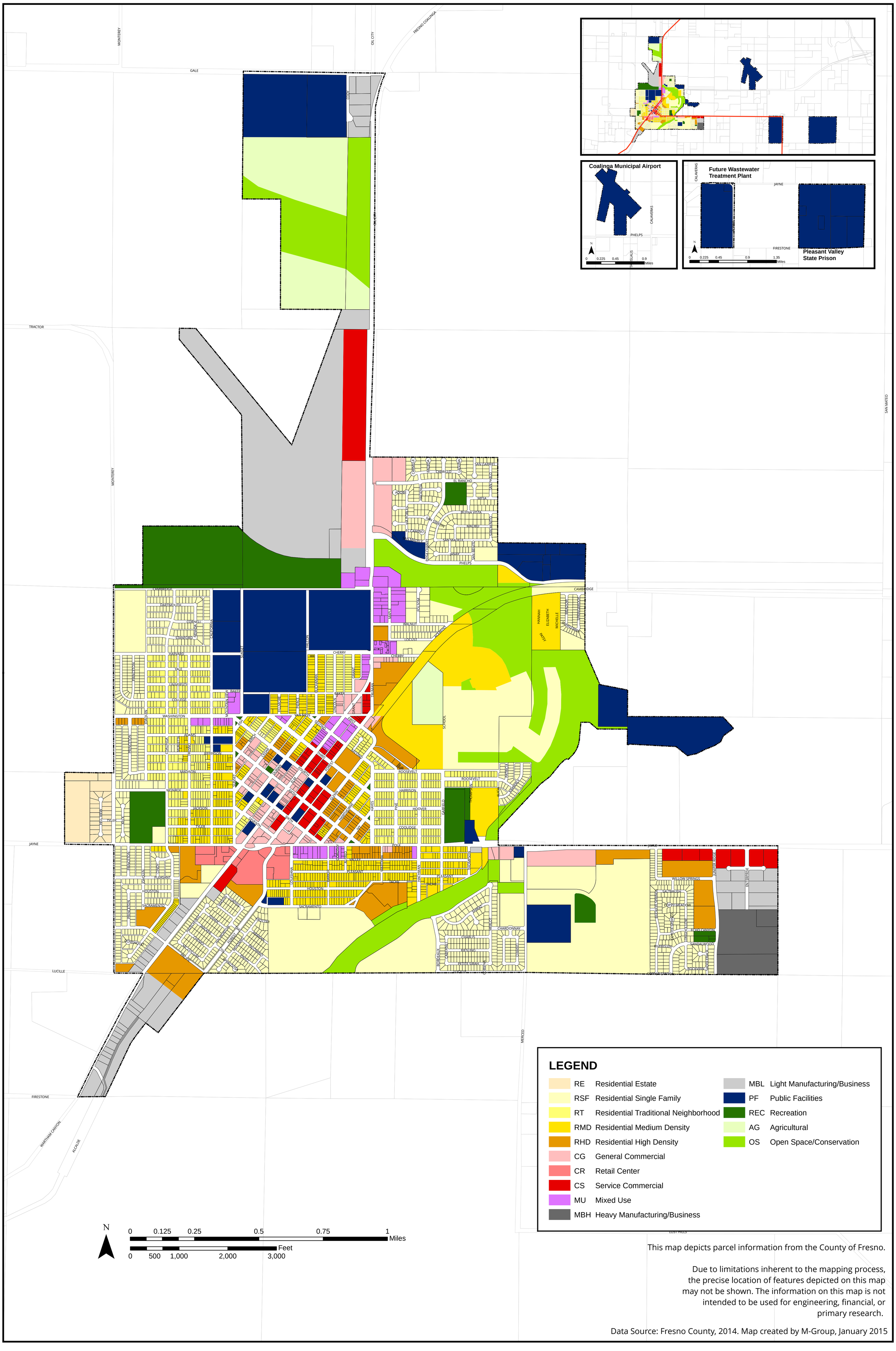
If you have any comments, questions, or information you would like the City to consider during preparation of the UWMP, please feel free to our consultant Mr. Alfonso Manrique at 559-473-1371 or email at alfonso.manrique@am-ce.com.

Sincerely,

Jesse Barron
Assistant City Manager
City of Coalinga
155 West Durian
Coalinga, CA 93210
jbarron@coalinga.com

APPENDIX C
ZONING MAP

City of Coalinga Zoning Map



This map depicts parcel information from the County of Fresno.

Due to limitations inherent to the mapping process, the precise location of features depicted on this map may not be shown. The information on this map is not intended to be used for engineering, financial, or primary research.

Data Source: Fresno County, 2014. Map created by M-Group, January 2015

APPENDIX D

SB X7-7 COMPLIANCE FORM

SB X7-7 Table 0: Units of Measure Used in UWMP **Water Code Section 10608.20 (e) and 10608.20(h)(1)(2)** (select one from the drop down list)
Million Gallons
The unit of measure must be consistent throughout the UWMP, as reported in Submittal Table 2-3.
NOTES:

SB X7-7 Table 2: Method for Population Estimate Water Code Section 10608.20 (e) and 10608.20(h)(1)(2)	
Method Used to Determine 2025 Population (may check more than one)	
☑	**1. Department of Finance** (DOF) or **American Community Survey** (ACS)
☐	**2. Persons-per-Connection Method**
☐	**3. DWR Population Tool**
☐	**4. Other** DWR recommends pre-review
NOTES:	

SB X7-7 Table 3: Service Area Population Water Code Section 10608.20 (e) and 10608.20(h)(1)(2)	
2025 Compliance Year Population	
2025	17,622
NOTES:	

SB X7-7 Table 4: Gross Water Use Water Code Section 10608.20 (e) and 10608.20(h)(1)(2)							
Compliance Year 2025	2025 Volume Into Distribution System This column will remain blank until SB X7-7 Table 4-A is completed.	2025 Deductions					2025 Gross Water Use
		Exported Water	Change in Dist. System Storage (+/-)	Indirect Recycled Water This column will remain blank until SB X7-7 Table 4-B is completed.	Water Delivered for Agricultural Use	Process Water This column will remain blank until SB X7-7 Table 4-D is completed.	
	1,282	-	-	-	-	-	**1,282**
DWR NOTES: Units of measure (AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.							
NOTES:							

SB X7-7 Table 4-A: Volume Entering the Distribution System(s), Meter Error Adjustment
Water Code Section 10608.20 (e) and 10608.20(h)(1)(2)
Complete one table for each source.

Name of Source	Coalinga Water Treatment Plant
This water source is (check one)**:**	
☐	The supplier's own water source
☑	A purchased or imported source

Compliance Year 2025	Volume Entering Distribution System	Meter Error Adjustment Optional (+/-)	Corrected Volume Entering Distribution System
	1,282	-	1,282

DWR NOTES: Units of measure (AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.
Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document

NOTES

SB X7-7 Table 4-A: 2025 Volume Entering the Distribution System(s), Meter Error Adjustment
Water Code Section 10608.20 (e) and 10608.20(h)(1)(2)
Complete one table for each source.

Name of Source	Enter Name of Source 2
This water source is (check one)**:**	
☐	The supplier's own water source
☐	A purchased or imported source

Compliance Year 2025	Volume Entering Distribution System	Meter Error Adjustment Optional (+/-)	Corrected Volume Entering Distribution System
			0

DWR NOTES: Units of measure (AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.
Meter Error Adjustment - See guidance in Methodology 1, Step 3 of Methodologies Document

NOTES:

SB X7-7 Table 4-B: Indirect Recycled Water Use Deduction (For use only by agencies that are deducting indirect recycled water)
Water Code Section 10608.20 (e) and 10608.20(h)(1)(2)

2025 Compliance Year	2025 Surface Reservoir Augmentation					2025 Groundwater Recharge					Total Deductible Volume of Indirect Recycled Water Entering the Distribution System
	Volume Discharged from Reservoir for Distribution System Delivery	Percent Recycled Water	Recycled Water Delivered to Treatment Plant	Transmission/ Treatment Loss	Recycled Volume Entering Distribution System from Surface Reservoir Augmentation	Volume Pumped from Groundwater for Distribution System Delivery	Percent Recycled Water	Recycled Water Delivered to Treatment Plant	Transmission/ Treatment Loss	Recycled Volume Entering Distribution System from Ground Water Recharge	
			-		-			-		-	-

DWR NOTES:
Units of measure (AF, MG , or CCF) must remain consistent throughout the UWMP, as reported in SB X7-7 Table 0 and Submittal Table 2-3.
Suppliers will provide documentation to support the percentage of recycled water reported in this table.

NOTES:

SB X7-7 Table 4-C: Process Water Deduction Eligibility Water Code Section 10608.20(i) and Title 23 Section 596 (For use only by agencies that are deducting process water) Choose Only One	
☐	**Criteria 1**- Industrial water use is equal to or greater than 12% of gross water use. Complete SB X7-7 Table 4-C.1
☐	**Criteria 2** - Industrial water use is equal to or greater than 15 GPCD. Complete SB X7-7 Table 4-C.2
☐	**Criteria 3** - Non-industrial use is equal to or less than 120 GPCD. Complete SB X7-7 Table 4-C.3
☑	**Criteria 4** - Disadvantaged Community. Complete SB X7-7 Table 4-C.4
NOTES:	

SB X7-7 Table 4-C.1: Process Water Deduction Eligibility **Water Code Section 10608.20(i) and Title 23 Section 596** (For use only by agencies that are deducting process water using Criteria 1)				
Criteria 1 Industrial water use is equal to or greater than 12% of gross water use				
2025 Compliance Year	2025 Gross Water Use Without Process Water Deduction	2025 Industrial Water Use	Percent Industrial Water	**Eligible for Exclusion Y/N**
	1,282	33	3%	NO
NOTES:				

SB X7-7 Table 4-C.2: Process Water Deduction Eligibility
Water Code Section 10608.20(i) and Title 23 Section 596
(For use only by agencies that are deducting process water using Criteria 2)

Criteria 2
Industrial water use is equal to or greater than 15 GPCD

2025 Compliance Year	2025 Industrial Water Use	2025 Population	2025 Industrial GPCD	**Eligible for Exclusion Y/N**
	33	17,622	5	NO

NOTES:

SB X7-7 Table 4-C.3: Process Water Deduction Eligibility
Water Code Section 10608.20(i) and Title 23 Section 596
(For use only by agencies that are deducting process water using Criteria 3)

Criteria 3
Non-industrial use is equal to or less than 120 GPCD

2025 Compliance Year	2025 Gross Water Use Without Process Water Deduction (Fm SB X7-7 Table 4)	2025 Industrial Water Use	2025 Non-industrial Water Use	2025 Population *Fm SB X7-7 Table 3*	Non-Industrial GPCD	**Eligible for Exclusion Y/N**
	1,282	33	1,249	17,622	194	NO

NOTES:

SB X7-7 Table 4-C.4: Process Water Deduction Eligibility
Water Code Section 10608.20(i) and Title 23 Section 596
(For use only by agencies that are deducting process water using Criteria 4)

Criteria 4
Disadvantaged Community. A "Disadvantaged Community" (DAC) is a community with a median household income less than 80 percent of the statewide average.

SELECT ONE
"Disadvantaged Community" status was determined using one of the methods listed below:

1. IRWM DAC Mapping tool https://gis.water.ca.gov/app/dacs/

☐	If using the IRWM DAC Mapping Tool, include a screen shot from the tool showing that the service area is considered a DAC.

2. California Median Income

	California Median Household Income	Service Area Median Household Income	Percentage of Statewide Average	**Eligible for Exclusion? Y/N**
☐	$100,149	$75,451	75%	YES
	DWR NOTES: California median household income for 2024 as reported in US Census Bureau.			

NOTES

SB X7-7 Table 5: Gallons Per Capita Per Day (GPCD) Water Code Section 10608.20 (e) and 10608.20 (h)(1)(2)		
2025 Gross Water **Fm SB X7-7 Table 4**	**2025 Population Fm** **SB X7-7 Table 3**	**2025 GPCD**
1,282	17,622	**199**
NOTES:		

SB X7-7 Table 9: 2025 Compliance Water Code Section 10608.24(d)							
Actual 2025 GPCD	Optional Adjustments to 2025 GPCD					2020 Target	**Did Supplier Achieve Targeted Reduction for 2025?**
	Enter "0" if Adjustment Not Used			TOTAL Adjustments	Adjusted 2025 GPCD (Adjusted if applicable)		
	Extraordinary Events (GPCD)	Weather Normalization (GPCD)	Economic Adjustment (GPCD)				
199	-	-	-	-	199	273	**YES**

DWR NOTES: All values are reported in GPCD

Suppliers that had a merger or consolidation since 2020 may use a population weighted average 2020 target. See Section P.1.2.1 of Appendix P.

NOTES:

APPENDIX E

ENERGY INTENSITY TABLES

Energy Usage (kWh)

Month	Water Management Processes	Wastewater Management Processes				
	WTP Total	WWTP Total	Sandlewood	Creekside	Hwy 33	Posa
Jan-25	170,644.96	66,162.04	16.13	130.61	340.29	283.18
Feb-25	161,900.00	64,858.92	15.64	118.89	260.00	278.92
Mar-25	188,724.64	59,094.04	167.67	116.09	348.10	280.90
Apr-25	221,407.36	61,397.98	905.48	103.99	318.56	248.15
May-25	268,964.32	65,804.64	927.00	101.28	548.66	250.50
Jun-25	334,316.48	65,721.00	966.96	113.38	546.45	258.23
Jul-25	328,217.12	71,285.96	891.54	103.12	505.20	230.86
Aug-25	327,008.96	73,965.70	869.44	98.17	467.14	234.41
Sep-25	343,224.64	79,706.72	971.65	107.57	314.60	269.73
Oct-25	278,026.72	68,191.40	943.25	100.68	348.53	270.37
Nov-25	223,731.52	81,085.04	1,072.69	143.63	368.64	322.70
Dec-25	171,624.16	71,782.68	921.89	120.71	353.68	313.76
Total	**3,017,790.88**	**829,056.12**	**8,669.34**	**1,358.12**	**4,719.85**	**3,241.71**

Optional Submittal 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 recommend using Table O-1C)	Retail Potable Deliveries	**Only for Water Delivery Products Under the Urban Water Supplier's 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	MG	**Total Utility** See DWR NOTES	**Hydropower**	**Net Utility**
Volume of Water Entering Process		1,282	-	1,282
Energy Consumed (kWh)		3,017,791	-	3,017,791
Energy Intensity (kWh/vol. converted to MG)		2,354	-	2,354

DWR NOTES:
Total Utility: The volume of water entered in the "Total Utility" column should equal the volume of water entering the distribution system (excluding recycled water); in most cases, this is the total volume calculated in UWMP Table 4-1: 2025 Actual Total Uses for Potable and Non-Potable Water. Note if recycled water is included in your Submittal Table 4-1, you must exclude it from your volume in this table.

Quantity of Self-Generated Renewable Energy

0 kWh

Data Quality (Estimate, Metered Data, Combination of Estimates and Metered Data)

Metered Data

Data Quality Narrative:

Energy consumption values are based on metered electrical usage for the City's Water Treatment Plant (WTP) obtained from monthly utility billing records for the January 1, 2025 through December 31, 2025 reporting period. Monthly energy consumption values were summed to determine the total annual energy use of 3,017,791 kWh. The reported water volume of 1,282 MG represents the total volume of potable water treated at the WTP and entering the distribution system during the reporting period. Energy intensity was calculated by dividing the total annual energy consumption by the annual potable water volume entering the distribution system, resulting in an energy intensity of approximately 2,354 kWh per million gallons (kWh/MG). No upstream embedded energy or self-generated renewable energy is included in the reported values.

Narrative:

This energy reporting summarizes the electrical energy required to treat and deliver the City's retail potable water supply during calendar year 2025 using the Total Utility reporting approach recommended by the DWR. The reported energy consumption includes electricity used for operation of the City's WTP and associated potable water delivery facilities under the City's operational control. Upstream embedded energy, non-consequential hydropower, and self-generated renewable energy are not included in the reported values. The reported energy intensity of 2,354 kWh per million gallons represents the average amount of electrical energy required to treat and deliver potable water entering the City's distribution system during the reporting period.

NOTES:

10631.2. (a) In addition to the requirements of Section 10631, an urban water management plan shall include any of the following information that the urban water supplier can readily obtain:
(1) An estimate of the amount of energy used to extract or divert water supplies.
(2) An estimate of the amount of energy used to convey water supplies to the water treatment plants or distribution systems.
(3) An estimate of the amount of energy used to treat water supplies.
(4) An estimate of the amount of energy used to distribute water supplies though its distribution systems.

(5) An estimate of the amount of energy used for treated water supplies in comparison to the amount used for nontreated water supplies.
(6) An estimate of the amount of energy used to place water into or withdraw from storage.

(7) Any other energy-related information the urban water supplier deems appropriate.

10631.2 (b) The Department shall include in its guidance for the preparation of urban water management plans a methodology for the voluntary calculation or estimation of the energy intensity of urban water systems.

Optional Submittal Table O-2: Recommended Energy Reporting - WASTEWATER AND RECYCLED WATER					
Start Date of Reporting Period	1/1/2025	Only for Water Delivery Products Under the Urban Water Supplier's Operational Control			
End Date of Reporting Period	12/31/2025				
Is upstream embedded energy in the values reported?	Yes	Water Management Process			
Units of Measure for Water	MG	Collection / Conveyance	Treatment	Discharge / Distribution	Total
Volume of Wastewater Entering Process (volume units selected above)		314	314	-	628
Wastewater Energy Consumed (kWh)		17989.02	829056.12	-	847045.14
Wastewater Energy Intensity (kWh/volume converted to MG)		57.3	2640.3	0.0	1348.8
Volume of Recycled Water Entering Process (volume units selected above)		0	0	0	0
Recycled Water Energy Consumed (kWh)		0	0	0	0
Recycled Water Energy Intensity (kWh/volume converted to MG)		0.0	0.0	0.0	0.0

Quantity of Self-Generated Renewable Energy related to recycled water and wastewater operations

0 kWh

Data Quality (drop down)

Metered Data

Data Quality Narrative:

Wastewater energy consumption values are based on metered electrical usage obtained from monthly utility billing records for the City's wastewater treatment plant (WWTP) and wastewater collection system lift stations for the January 1, 2025 through December 31, 2025 reporting period. Monthly electrical consumption values for the WWTP and each lift station were summed to determine the total annual wastewater energy use of 847,045 kWh. The reported wastewater volume of 314 MG represents the total volume of wastewater entering the collection and treatment processes during the reporting period. Energy intensity values were calculated by dividing the annual energy consumption for each wastewater management process by the corresponding wastewater volume entering that process. The City did not produce recycled water or self-generated renewable energy during the reporting period. Upstream embedded energy associated with purchased electricity is included in the reported values.

Narrative:

This energy reporting summarizes the electrical energy associated with the City's wastewater collection and treatment operations during calendar year 2025, using the methodology recommended by DWR. The reported energy consumption includes electricity used to operate the wastewater collection system lift stations and the WWTP. No recycled water was produced during the reporting period; therefore, no recycled water energy consumption is reported. The City did not generate renewable energy associated with its wastewater operations. Reported energy intensity values represent the average electrical energy required to collect and treat wastewater based on the annual wastewater volume entering each process during the reporting period.

NOTES:

APPENDIX F

MUNICIPAL CODE CHAPTER 4C WATER CONSERVATION

CHAPTER 4C. WATER CONSERVATION

Sec. 6-4C.01. Findings of necessity.

It is necessary to minimize the potential for water shortage through the practice of water conservation pursuant to the provisions of California Water Code § 375 et seq. It is further necessary to reduce the potential effect of a water shortage on the residents, businesses and visitors of Coalinga and to adopt provisions that will significantly reduce the inefficient consumption of water, thereby extending the available water resources necessary for the domestic, sanitation, and fire protection of the community to the greatest extent possible. Nothing in this chapter shall prevent the City from also declaring a water emergency pursuant to California Water Code Section 350, if circumstances warrant such a declaration.

(Ord. No. 746, § 1, eff. March 19, 2009)

Sec. 6-4C.02. Water Customer.

Water customer for the purposes of this chapter, shall mean any person, partnership, business, corporation, special district, public agency, or association or legal entity to which the City of Coalinga (City) supplies water or "user" of water supplied by the City as defined in Subsection 6-4.01(s).

(Ord. No. 746, § 1, eff. March 19, 2009)

Sec. 6-4C.03. Application.

This chapter shall be applicable to all water customers.

(Ord. No. 746, § 1, eff. March 19, 2009)

Sec. 6-4C.04. Exceptions and exemptions.

(a) *Exceptions:* The City Manager or his or her designee shall grant an exception from the requirements of this chapter for any of the following reasons:

(1) Water use is necessary to public health and safety or for essential government services; or

(2) Recycled water is being used; or

(3) Water use is necessary due to the medical needs of the water customer.

(4) An alternative water source/supply is available for use.

(b) *Exemptions:* The City Council may grant an exemption to the requirements of this chapter, with or without conditions, if it determines that a water customer would otherwise experience extreme financial hardship that cannot be mitigated. The City Council shall review any requests for an exemption from compliance with this chapter. A written request for an exemption must be submitted to the City Clerk a minimum of two (2) weeks prior to the regularly scheduled Council meeting at which the exemption is to be considered. If appropriate, the City Council may require the customer granted an exemption to reduce water use by other appropriate alternative methods. Notwithstanding any other provision of this Code, there shall be no right to further administrative review or appeal of the determination of exemption of the City Council. The City Council may establish an "exemption processing fee" by resolution.

(Ord. No. 746, § 1, eff. March 19, 2009)

Sec. 6-4C.05. Authorization

The City Council may declare the conservation stage based on a determination made by the City Manager in conjunction with the Chief Plant Operator of the water treatment plant, or based upon any interruption in water supply or delivery that the City Council determines in its sole discretion necessitates water conservation pursuant to this chapter. The City Council may determine and order water prohibitions and restrictions as outlined herein in the three (3) stages:

Stage 1. Standard Conservation Alert

Stage 2. High Conservation Alert

Stage 3. Emergency Conservation Alert

(Ord. No. 746, § 1, eff. March 19, 2009)

Sec. 6-4C.06. Stage I Prohibitions and restrictions—Standard conservation alert.

The following restrictions shall be applicable throughout the year unless the City Council determines that an increased conservation effort shall be implemented (stage 2 or 3):

(a) There shall be no hose washing of sidewalks, walkways, driveways, parking areas, patios, porches or verandas.

(b) No water shall be used to clean, fill, operate or maintain levels in decorative fountains unless such water is part of a recirculation system.

(c) No water customer shall permit water to leak on his or her premises. Such leak shall be repaired in a timely manner after written notification by the City, but in no case in excess of seventy-two (72) hours after notification.

(d) Designated times and days of irrigation:

(1) No water customer shall sprinkle, water, or irrigate any shrubbery, trees, lawns, grass, groundcovers, plants, vines, gardens, vegetables, flowers, or any other landscaped or vegetated areas between the hours of 10:00 a.m. and 6:00 p.m. This provision shall not apply to equestrian and livestock businesses, dairies, nurseries, athletic fields, golf courses, or other water dependent industries.

(2) The use of a hand held hose with a shut-off valve shall be permitted at any time.

(e) The use of water from fire hydrants shall be limited to fire fighting and related activities necessary to maintain the public health, safety, and welfare. An exception may be made for construction use through a proper city-designated meter where recycled water is not available.

(Ord. No. 746, § 1, eff. March 19, 2009; Ord. No. 750, § 1, eff. 9-6-2009; Ord. No. 801, § 1, eff. 6-17-2017)

Sec. 6-4C.07. Stage II Prohibitions and restrictions—High water conservation alert.

The following restrictions shall be applicable during a high water conservation alert as declared by the City Council and whenever a recommendation has been made by the City Manager in conjunction with the Chief Plant Operator of the water treatment plant based upon a significant reduction or interruption in water supply or delivery that necessitates increased water conservation efforts:

(a) All prohibitions and restrictions in Stage I shall be in effect.

(b) Commercial nurseries, golf courses, and other water-dependent industries shall be prohibited from watering lawn, landscape, or other turf areas more than every other day. Irrigation shall occur between the hours of 6:00 p.m. and 6:00 a.m. only, with the exception of usage of recycled water.

(c) Designated times and days of irrigation:

(1) No water customer shall sprinkle, water, or irrigate any shrubbery, trees, lawns, grass, groundcovers, plants, vines, gardens, vegetables, flowers, or any other landscaped or vegetated areas on between the hours of 9:00 a.m. and 6:00 p.m. This provision shall not apply to equestrian and livestock businesses, dairies, nurseries, golf courses, or other water-dependent industries.

(2) Residential addresses ending in an even number may use water on Tuesday, and Friday. Residential addresses ending in an odd numbers and nonresidential (irrespective of address) may use water on Wednesday and Saturday.

(3) No irrigation shall occur on Sundays, Mondays and Thursdays.

(d) Swimming pool refilling or new construction swimming pool filling shall not occur without permission from the City Manager or his or her designee. The replenishment of swimming pools shall be limited to the same days as set forth in subsections (a) through (c) above for outdoor use of water.

(e) No restaurants or other public place which serves food shall serve drinking water to any customer unless expressly requested by the customer.

(Ord. No. 746, § 1, eff. March 19, 2009)

Sec. 6-4C.08. Stage III Prohibitions and restrictions—Emergency water conservation alert.

In the event of a major earthquake, large-scale fire, or other so called "act of nature" which has or could have serious impacts on the city's total available water storage or delivery capacity, whether storage capacities have been reduced or not, or in the case of an unanticipated significant reduction in City water supply, an emergency water conservation alert shall be declared by the City Council.

(a) All previous restrictions noted above in Stage I and Stage II shall be in effect.

(b) There shall be no outdoor use of water at any time except the minimal amount by handheld hose equipped with a shut-off nozzle.

(c) Commercial nurseries, golf courses, and other water-dependent industries shall be prohibited from the outdoor use of water except by a hand-held hose equipped with a shut-off nozzle.

(d) All nonessential uses of water shall be prohibited including the filling, or refilling of swimming pools, spas, jacuzzis, or other like devices beyond what is necessary for maintenance.

(Ord. No. 746, § 1, eff. March 19, 2009)

Sec. 6-4C.09. Penalties.

(a) No water customer of the City shall knowingly use, or permit the use of, water in a manner contrary to any provisions of this chapter, or in an amount in excess of that use permitted by the provisions of this chapter.

(b) Unless otherwise provided, any water customer violating any provision of this chapter shall be guilty of an infraction, and each day or portion thereof such violation is in existence shall be a new and separate offense.

(c) Any water customer determined to be guilty of a first time violation shall be given a written reminder for compliance. Second and subsequent violations shall be punishable as follows:

(1) For a second violation during any period of declared water conservation alert: As an infraction, punishable by a fine of not more than fifty dollars ($50.00).

(2) For a third violation during any period of declared water conservation alert: As an infraction, punishable by a fine not more than one hundred dollars ($100.00).

(3) For a fourth violation during any period of declared water conservation alert: As an infraction, punishable by a fine not more than two hundred fifty dollars ($250.00), and placement of a flow restrictor. In addition, the City may discontinue water services.

(d) Notwithstanding the above, the City Attorney or Deputy City Attorney may charge and prosecute second and subsequent offenses as misdemeanors at the City's sole discretion pursuant to California Water Code § 377. In addition to the above penalties, the City may file an action for civil abatement and, at the discretion of the court, be entitled to reimbursement for all necessary costs and Attorneys fees incurred through investigation, discovery, analysis, inspection, abatement and other actual costs incurred by the City or its agents pertaining to the violation.

(e) The court shall fix the amount of any such reimbursements upon submission of proof of such costs by the City. Payment of any penalty provided in this section shall not relieve a person, firm or corporation, or other entity from the responsibility of correcting the condition resulting from the violation.

(f) In addition to the above remedies, the City Manager or his or her designee is empowered, to enforce any or all of the following penalties:

(1) Place a flow restricting device upon the water service;

(2) Lock off of a water meter;

(3) Remove a water meter;

(4) Shut off the service connection.

(g) All costs or expenses incurred by the City for enforcement of this section shall be borne by the water customer. No water service shall be limited or discontinued until the City Manager or his or her designee provides a written notice of intent to so limit or discontinue such service and the reasons for such decision, and further, provides such water customer notice of the right to request an administrative review and hearing pursuant to the procedures set forth in Section 6-4.26 of this Code, except that any reference to "citation" in that section shall instead be deemed a reference to a "notice of intent" as described in this section. A written notice of intent shall be provided either by first class mail, by personal service on the water customer, or by posting said notice in a conspicuous place on the property wherein the violation occurred. Notwithstanding any other provision of this Code, there shall be no right to further administrative review or appeal.

(Ord. No. 746, § 1, eff. March 19, 2009)

Sec. 6-4C.10. Compliance.

The City Code Enforcement Officer and designee from the Community Development Department shall enforce the provisions of this chapter.

(Ord. No. 746, § 1, eff. March 19, 2009)

Sec. 6-4C.11. Drought and water shortage regulations.

Notwithstanding anything to the contrary in this chapter, and in addition to anything set forth in this chapter, during any declared State of Emergency by the State or City related to drought or potable water conditions that mandate water conservation in the City, State or Federal regulations that mandate water conservation in the City, or during local water shortages, the City Council may by resolution adopt additional water restrictions, including mandatory water usage limits, and impose penalties on the customer for violations of those additional restrictions. The penalties shall be added to the customer's account. A violation of the additional restrictions shall also be deemed a violation of the Municipal Code.

(Ord. No. 780, § 2, eff. 5-7-2015; Ord. No. 781, § 1, eff. 6-6-2015)

APPENDIX G

PUBLICATION OF NOTICE OF PUBLIC HEARING

APPENDIX H
NOTICE OF PUBLIC HEARING

APPENDIX I

2025 UWMP AND WSCP ADOPTION RESOLUTION

(NOT INCLUDED IN DRAFT VERSION)

APPENDIX J
2025 UWMP CHECKLIST
(NOT INCLUDED IN DRAFT VERSION)

STAFF REPORT - CITY COUNCIL/SUCCESSOR AGENCY/PUBLIC FINANCE AUTHORITY

Subject:	Public Hearing and Adoption of the City of Coalinga's Mitigated Negative Declaration Prepared for the Sanitary Sewer Collection System and WWTP Improvements Project
Meeting Date:	Thursday, September 3, 2026
From:	Sean Brewer, City Manager
Prepared by:	Jesse Barron, Assistant City Manager

I. RECOMMENDATION:

Staff recommends that the City Council conduct a public hearing to receive and consider public comments regarding the Mitigated Negative Declaration (MND) prepared for the Sanitary Sewer Collection System and WWTP Improvements Project. Following the public hearing, if no substantive changes are required, adopt Resolution No. 4356 approving the MND.

II. BACKGROUND:

The City owns and operates a citywide sewer collection system and a WWTP under Waste Discharge Requirements (WDR) No. 94-184. The current WDRs limit the volume of average monthly discharge to 1.34 million gallons per day. The sewer collection system currently serves 3,369 residences and 318 businesses. The WWTP site is located approximately one mile east of the City. The WWTP consists of screening, primary clarification, and secondary treatment (aerated facultative lagoons followed by stabilization lagoons). Undisinfected secondary effluent is pumped year-round to irrigate fodder crops such as alfalfa, Sudan grass, oat hay and pasture. The City maintains sewer assets in accordance with industry standard practices by performing preventive Maintenance on mechanical equipment and pipelines.

The City's sewer collection system is aged and some of the older portions of the system experience frequent blockages, overflows and require cleaning or removal of roots. The physical condition of some of these sewer lines is believed to be very poor, likely beyond their life expectancy, and needs to be replaced. Beyond the required Maintenance and repair activities, there has not been any major replacement or rehabilitation of the City's sewer collection system to date.

A condition survey of the sewer collection system was conducted to document the system's existing condition, identify deficiencies, and estimate the useful life of the sewer mains. The current physical condition of the system's components was assessed through site visits, discussion with City staff, and a comprehensive closed-circuit television (CCTV) inspection. As part of this PER, the City conducted a comprehensive CCTV inspection on the older portions of the sewer collection system.

The City proposes to rehabilitate approximately 30,815 LF of gravity sewer mains using trenchless construction methods, replace approximately 19,801 LF of gravity sewer mains via conventional construction methods, and provide miscellaneous repairs and improvements to the City's Wastewater Treatment Plant (WWTP). This Project will involve construction and operation of the following components:

1. Sewer Main Replacement: For this proposed Project, it is recommended that approximately 19,801 LF

of gravity sewer mains be replaced with new sewer pipes before failure occurs. These replacements are recommended where the sags are greater than 60 percent of pipe diameter, broken pipe sections with visible voids and blockages, and severe pipe offsets. Where possible, replacements are limited to only those sections of pipe where the defects are found rather than replacing the entire stretch of pipe between two manholes.

2. Sewer Main Rehabilitation: Trenchless sewer rehabilitation is recommended for approximately 30,815 LF of sewer mains where applicable in order to reduce surface disturbance over traditional dig and replace methods, reduce the number of traffic and pedestrian detours, spare tree removal, decrease construction noise, and reduce air pollution from construction equipment. Cured-in-Place Pipe (also known as CIPP) rehabilitation is proposed for the pipe stretches that have mild defects and sag less than 60% of pipe diameter.

3. Improvements to Wastewater Treatment Plant: The City's WWTP will be upgraded to an extended aeration system with biological nutrient removal with filtration and disinfection. The improvements will include a new aeration tank, two clarifiers, and five percolation ponds. The percolation ponds will be developed within the footprints of the facility's existing ponds, which comprise two aerated lagoons and three stabilization ponds. The existing ponds will be decommissioned and dewatered, following which heavy equipment will be used to remove the clay liners from the bottom of each pond, converting their function to evaporation/percolation. The upgraded WWTP will not require off-site effluent disposal; therefore, current effluent disposal practices on adjacent City-owned property would be discontinued following project implementation. The purpose of upgrading the existing WWTP to an extended aeration activated system with biological nutrient removal facility is to lower the nitrogen concentration of the effluent before it is discharged to percolate the underground aquifer. Currently, the existing WWTP is not protective of the current beneficial use of the groundwater and is not consistent with RWQCB's policy of beneficial reuse. By upgrading the WWTP to include secondary/tertiary treatment and discharging the higher effluent quality to percolation ponds on site, the City will provide an incidental recharge of the groundwater aquifer, which will ultimately help demonstrate groundwater sustainability. By removing nitrogen, treated effluent will be allowed to percolate and be protective of the groundwater's beneficial uses.

III. DISCUSSION:

The Project is subject to the requirements of the California Environmental Quality Act (CEQA) and other regulatory environmental requirements. The City's Project Engineer (AM Consulting Engineers) retained the services of Crawford & Bowen Planning, Inc. to prepare the required CEQA documentation and associated studies.
The MND analyzed all environmental topics from the CEQA Guidelines Appendix G checklist and included specialized studies for biological and cultural resources. It was determined that all impacts were either less than significant or could be mitigated to a less than significant level.

The Project CEQA document will require a public hearing (tonight) and review/approval of a MND. The MND was noticed in the Business Journal and circulated to the State Clearinghouse and other agencies. The MND was circulated for 30 days public review from August 3, 2026 – September 2, 2026.

The Project is expected to be funded by the Clean Water State Revolving Fund (CWSRF) funds administered through the California State Water Resources Control Board (Water Board). One requirement of CWSRF funding is that the City will be required to comply with the Water Board's environmental requirements including CEQA-Plus. CEQA-Plus involves additional environmental analysis of certain topics to include federal thresholds, rules and regulations (for topics such as air, biology, cultural, etc.). In addition to this MND, the City is preparing a separate Environmental Package for submittal to the Water Board which includes the CEQA-Plus analysis.
Once the public hearing occurs and the MND is adopted, the City's consultants will submit an Environmental

Package to the State Water Board which contains all of the documents needed to satisfy the Boards environmental requirements.

IV. ALTERNATIVES:

The City Council may elect not to adopt the MND at this time and may direct staff to make revisions or conduct additional environmental analysis, as appropriate. If substantive revisions are required, consideration of the MND may be continued to a subsequent City Council meeting to allow the necessary revisions to be completed in accordance with CEQA requirements.

V. FISCAL IMPACT:

There is no fiscal impact associated with adoption of Resolution No. 4356. The estimated project cost is approximately $29,812,488.00, and the City is pursuing grant funding through the SWRCB Clean Water State Revolving Fund (CWSRF) Program. The SWRCB has not yet determined whether a loan component will be required. Any required loan component would be administered through a funding agreement with the SWRCB. The $3,093.75 CEQA Department of Fish and Wildlife and Fresno County filing fees will be funded through the CWSRF Planning Grant.

ATTACHMENTS:

File Name	Description
Resolution_No._4356_Adopt_Sewer_CEQA_Draft.pdf	Resolution No. 4356
Coalinga_Sewer_CEQA_7-30-26.pdf	Mitigated Negative Declaration

RESOLUTION NO. 4356

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF COALINGA ADOPTING THE COALINGA SANITARY SEWER COLLECTION SYSTEM AND WWTP IMPROVEMENTS PROJECT MITIGATED NEGATIVE DECLARATION

WHEREAS, the City Council of the City of Coalinga (the " City Council" and "City", respectively) has received and reviewed the proposed Mitigated Negative Declaration, including the draft Initial Study/Mitigated Negative Declaration with appendices, and supporting information sources (collectively, the "draft MND"), together with the staff report and any comments received and responded to during the public review and hearing process (collectively, the "Environmental Record") for the proposed sewer system improvements project (the "Project"), as described in the draft MND; and

WHEREAS, the City is the lead agency for purposes of environmental review of the Project under the California Environmental Quality Act ("CEQA"), pursuant to Public Resources Code § 21000 et seq., and the State "Guidelines for Implementation of the California Environmental Quality Act"; and

WHEREAS, the Project could, without mitigation, have resulted in a potential impact to certain areas of environmental concern, including Biological and Cultural Resources; and

WHEREAS, the City has prepared mitigation measures to address and mitigate all potential environmental impacts to a "less than significant" level, which is a part of the Environmental Record reviewed and considered by the City; and

WHEREAS, the City has incorporated the mitigation measures described in the Mitigation, Monitoring and Reporting Program (MMRP) of the draft MND as conditions of approval by the City; and

WHEREAS, with the exception of the potential impacts stated above, there are no other potentially significant environmental impacts resulting from the Project; and

WHEREAS, the City submitted a Notice of Intent to Adopt a Mitigated Negative Declaration to the State Clearinghouse and distributed it to those agencies which have jurisdiction by law with respect to the Project; and placed the Notice of Intent to Adopt a Mitigated Negative Declaration concerning the Project in the Business Journal for publication; and

WHEREAS, the draft Initial Study/Mitigated Negative Declaration with appendices and supporting information sources were duly noticed for public review and comment from August 3, 2026, to September 2, 2026, as provided by law; and

WHEREAS, the City Council received no written comments in response to the draft MND; and

WHEREAS, a hearing concerning the City's intent to adopt a final MND and MMRP was duly noticed and held on September 3, 2026, at which time any interested parties were afforded an opportunity to be heard in addition to the public review and comment period referenced above as part of the Environmental Record; and

WHEREAS, the City has considered, prior to adoption of the final MND, the Environmental Record in support of the final MND.

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

1. The City Council adopts the foregoing recitals as true and correct.
2. The City Council finds that the Initial Study and Mitigated Negative Declaration reflect the independent judgment of the City as the lead agency for the Project.
3. The City Council finds that it has independently reviewed and considered the Environmental Record, including the Initial Study and proposed Mitigated Negative Declaration, as a final Mitigated Negative Declaration, prior to adopting the final Mitigated Negative Declaration.
4. On the basis of the Environmental Record as the whole record before the City Council, including the Initial Study and any comments received, the City Council finds, in its independent judgment and analysis, that there is no substantial evidence the Project will have a significant effect on the environment.
5. The City Council confirms that the mitigation measures described in the Initial Study, have been incorporated into the Project and adopts a Mitigated Negative Declaration, as the final Mitigated Negative Declaration, which documents are a part of the Environmental Record before the City Council for the Project.
6. The City Council approves and adopts the findings set forth herein, and the Mitigated Negative Declaration, based on the Environmental Record.
7. City staff is authorized and directed to cause a Notice of Determination concerning the adoption of the Mitigated Negative Declaration for the Project to be filed in the office of the Fresno County Clerk and with the Office of Planning and Research in accordance with CEQA and State CEQA Guidelines.

The foregoing resolution was introduced and adopted at a regular meeting of the City Council of the City of Coalinga held on the 3rd day of September 2026, by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

APPROVED:

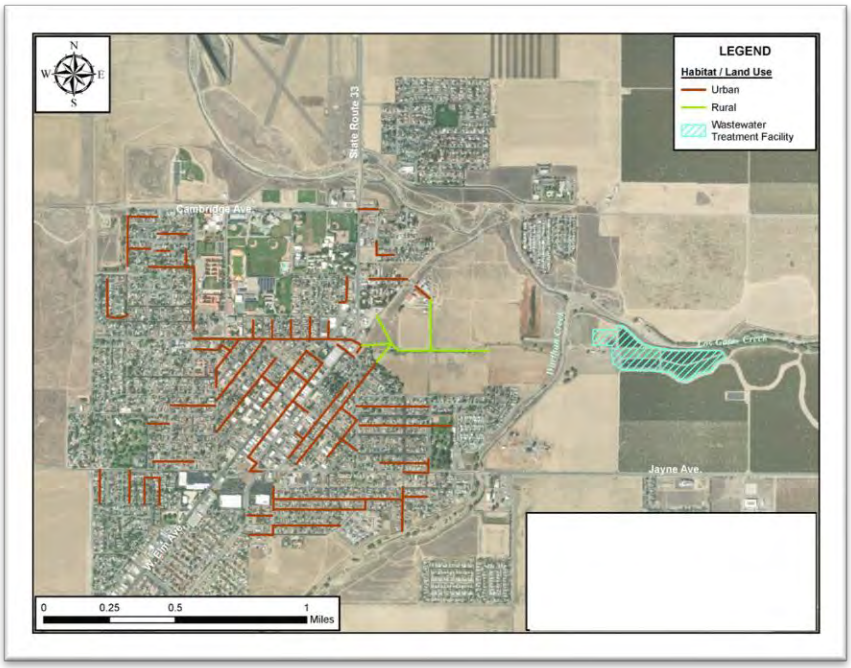
_____

Nathan Vosburg, Mayor

ATTEST:

_____

Shannon Jensen, City Clerk



MITIGATED NEGATIVE DECLARATION

City of Coalinga Sanitary Sewer Collection System and Wastewater Treatment Plant Improvements Project

August 2026

PREPARED FOR:

City of Coalinga
155 W. Durian
Coalinga, CA 93210

PREPARED BY:

Crawford & Bowen Planning, Inc.
113 N. Church Street, Suite 310
Visalia, CA 93291

Initial Study/Mitigated Negative Declaration

City of Coalinga – Sanitary Sewer Collection System and Wastewater Treatment Plant Improvements Project

Prepared for:

City of Coalinga
155 W. Durian
Coalinga, CA 93210

Contact: Anthony Uribe
Phone: (559) 935-1533 ext. 181

Prepared by:

Crawford & Bowen Planning, Inc.
113 N. Church Street, Suite 310
Visalia, CA 93291

Contact: Travis Crawford, AICP
(559) 840-4414

August 2026

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Chapter 1

INTRODUCTION

INTRODUCTION

1.1 Project Summary

This document is the Initial Study/Mitigated Negative Declaration describing the potential environmental effects of a sanitary sewer collection system and WWTP improvements Project, which will replace or rehabilitate deteriorated gravity sewer mains throughout the City in order to provide adequate sewer services to all customers within the City's service area. More specifically, the proposed Project intends to rehabilitate approximately 30,815 LF (linear feet) of gravity sewer mains using trenchless construction methods, replace approximately 19,801 LF of gravity sewer mains via conventional construction methods, and make miscellaneous repairs and improvements to the City's Wastewater Treatment Plant (WWTP). Refer to Chapter Two – Project Description for more information.

The City of Coalinga (City) will act as the Lead Agency for this project pursuant to the *California Environmental Quality Act (CEQA)* and the *CEQA Guidelines.*

The Project is expected to be funded with Clean Water State Revolving Fund (CWSRF) funds administered through the California State Water Resources Control Board (Water Board). One requirement of CWSRF funding is that the CSD will be required to comply with the Water Board's environmental requirements, including CEQA-Plus. CEQA-Plus involves additional environmental analysis of certain topics to include federal thresholds, rules and regulations (for topics such as air, biology, cultural, etc.). In addition to this Mitigated Negative Declaration, the CSD is preparing a separate Environmental Package for submittal to the Water Board which includes the CEQA-Plus analysis.

1.2 Document Format

This IS/MND contains five chapters, and appendices. Section 1, Introduction, provides an overview of the project and the CEQA environmental documentation process. Chapter 2, Project Description, provides a detailed description of project objectives and components. Chapter 3, Initial Study Checklist, presents the CEQA checklist and environmental analysis for all impact areas, mandatory findings of significance, and feasible mitigation measures. If the proposed Project does not have the potential to significantly impact a given issue area, the relevant section provides a brief discussion of the reasons why no impacts are expected. If the Project could have a potentially significant impact on a resource, the issue area discussion provides a description of potential impacts, and appropriate mitigation measures and/or permit requirements that would

reduce those impacts to a less than significant level. Chapter 4, Mitigation Monitoring and Reporting Program, provides the proposed mitigation measures, completion timeline, and person/agency responsible for implementation and Chapter 5, List of Preparers, provides a list of key personnel involved in the preparation of the IS/MND.

Environmental impacts are separated into the following categories:

Potentially Significant Impact. This category is applicable if there is substantial evidence that an effect may be significant, and no feasible mitigation measures can be identified to reduce impacts to a less than significant level. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

Less Than Significant After Mitigation Incorporated. This category applies where the incorporation of mitigation measures would reduce an effect from a "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measure(s), and briefly explain how they would reduce the effect to a less than significant level (mitigation measures from earlier analyses may be cross-referenced).

Less Than Significant Impact. This category is identified when the project would result in impacts below the threshold of significance, and no mitigation measures are required.

No Impact. This category applies when a project would not create an impact in the specific environmental issue area. "No Impact" answers do not require a detailed explanation if they are adequately supported by the information sources cited by the lead agency, which show that the impact does not apply to the specific project (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis.)

Regardless of the type of CEQA document that must be prepared, the basic purpose of the CEQA process as set forth in the CEQA Guidelines Section 15002(a) is to:

(1) Inform governmental decision makers and the public about the potential, significant environmental effects of proposed activities.
(2) Identify ways that environmental damage can be avoided or significantly reduced.
(3) Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.

(4) Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

According to Section 15070(b), a Mitigated Negative Declaration is appropriate if it is determined that:

(1) Revisions in the project plans or proposals made by or agreed to by the applicant before a proposed mitigated negative declaration and initial study are released for public review would avoid the effects or mitigate the effects to a point where clearly no significant effects would occur, and

(2) There is no substantial evidence, in light of the whole record before the agency, that the project as revised may have a significant effect on the environment.

The Initial Study contained in Section Three of this document has determined that with mitigation measures and features incorporated into the Project design and operation, the environmental impacts are less than significant and therefore a Mitigated Negative Declaration will be adopted.

Chapter 2

PROJECT DESCRIPTION

Project Description

2.1 Project Background

The City of Coalinga (City) is located near the eastern foothills of the Diablo Range and to the west of the Central San Joaquin Valley in western Fresno County. The City is generally bounded by Lucile Avenue to the south, West Gale Avenue to the north, Monterey Street to the west and Springbrook Street to the East. The City of Fresno is located approximately 60 miles to the northeast and the City of Avenal is located approximately 18 miles to the southeast.

As a public agency, the City provides sewer service to residential, commercial, and industrial customers within their service area. The City's boundary encompasses approximately 6 square miles, of which 2.1 square miles are urbanized. The Sphere of Influence (SOI) encompasses 3.6 square miles.

The City owns and operates a citywide sewer collection system and a WWTP under Waste Discharge Requirements (WDR) No. 94-184. The current WDRs limit the volume of average monthly discharge to 1.34 million gallons per day. The sewer collection system currently serves 3,369 residences and 318 businesses. The WWTP site is located approximately one mile east of the City. The WWTP consists of screening, primary clarification, and secondary treatment (aerated facultative lagoons followed by stabilization lagoons). Undisinfected secondary effluent is pumped year-round to irrigate fodder crops such as alfalfa, Sudan grass, oat hay and pasture. The City maintains sewer assets in accordance with industry standard practices by performing preventive Maintenance on mechanical equipment and pipelines.

The City's sewer collection system is aged and some of the older portions of the system experience frequent blockages, overflows and require cleaning or removal of roots. The physical condition of some of these sewer lines is believed to be very poor, likely beyond their life expectancy, and needs to be replaced. Beyond the required Maintenance and repair activities, there has not been any major replacement or rehabilitation of the City's sewer collection system to date.

A condition survey of the sewer collection system was conducted to document the system's existing condition, identify deficiencies, and estimate the useful life of the sewer mains. The current physical condition of the system's components was assessed through site visits, discussion with City staff, and a comprehensive closed-circuit television (CCTV) inspection. As part of this PER, the City conducted a comprehensive CCTV inspection on the older portions of the sewer collection system.

The Project is being partially funded by the Clean Water State Revolving Fund (CWSRF).

2.2 Location

Coalinga is located near the eastern foothills of the Diablo Range and to the west of the Central San Joaquin Valley in western Fresno County (See Figure 1). The City is generally bounded by Lucile Avenue to the south, West Gale Avenue to the north, Monterey Street to the west and Springbrook Street to the East. The City of Fresno is located approximately 60 miles to the northeast and the City of Avenal is located approximately 18 miles to the southeast. The sewer pipeline improvements will occur within the City boundaries.

The segments of the sewer collection system recommended for replacement have been selected based on sorted NASSCO ratings and the condition of the existing sewer mains. It is recommended that the City rehabilitate approximately 30,815 LF of gravity sewer mains using trenchless construction methods, replace approximately 19,801 LF of gravity sewer mains via conventional construction methods before failure occurs. See Figure 2 for the specific locations of the sewer pipe segment replacements and rehabilitation.

In addition to the sewer collection system, several miscellaneous improvements and repairs are needed at the City's WWTP in order to improve treatment operations. Existing WWTP facilities are located approximately one mile east of the City at 30500 Jayne Avenue, Coalinga, CA 93210.

2.3 Setting and Surrounding Land Use

The Project site related to sewer pipe improvements consists of the City's existing public right-of-way, which are primarily paved streets throughout the residential neighborhoods, commercial and industrial areas of Coalinga. The Project site related to existing WWTP improvements consists of agriculture to the east, south and west, and Los Gatos Creek to the north.

Figure 1 – Regional Location Map

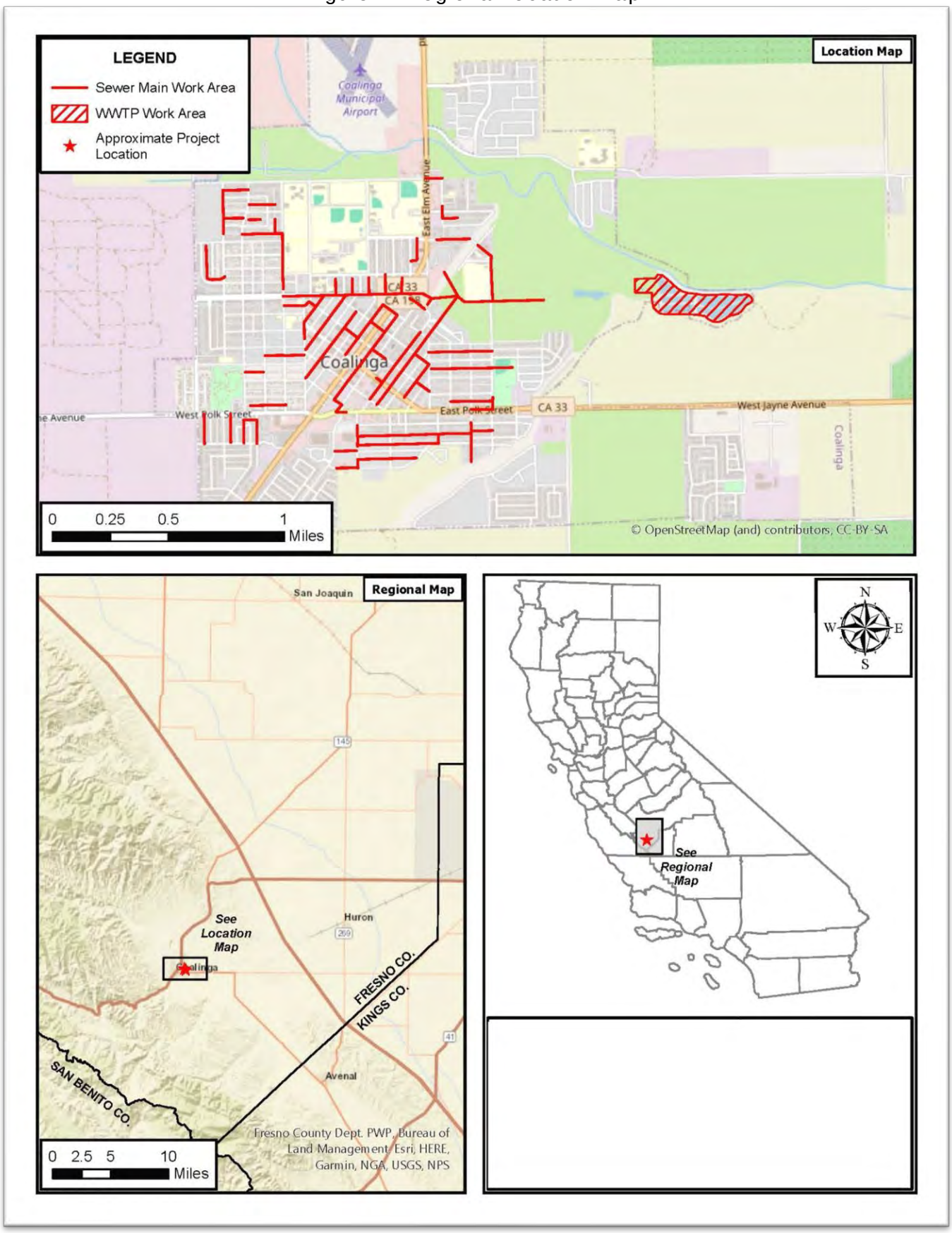
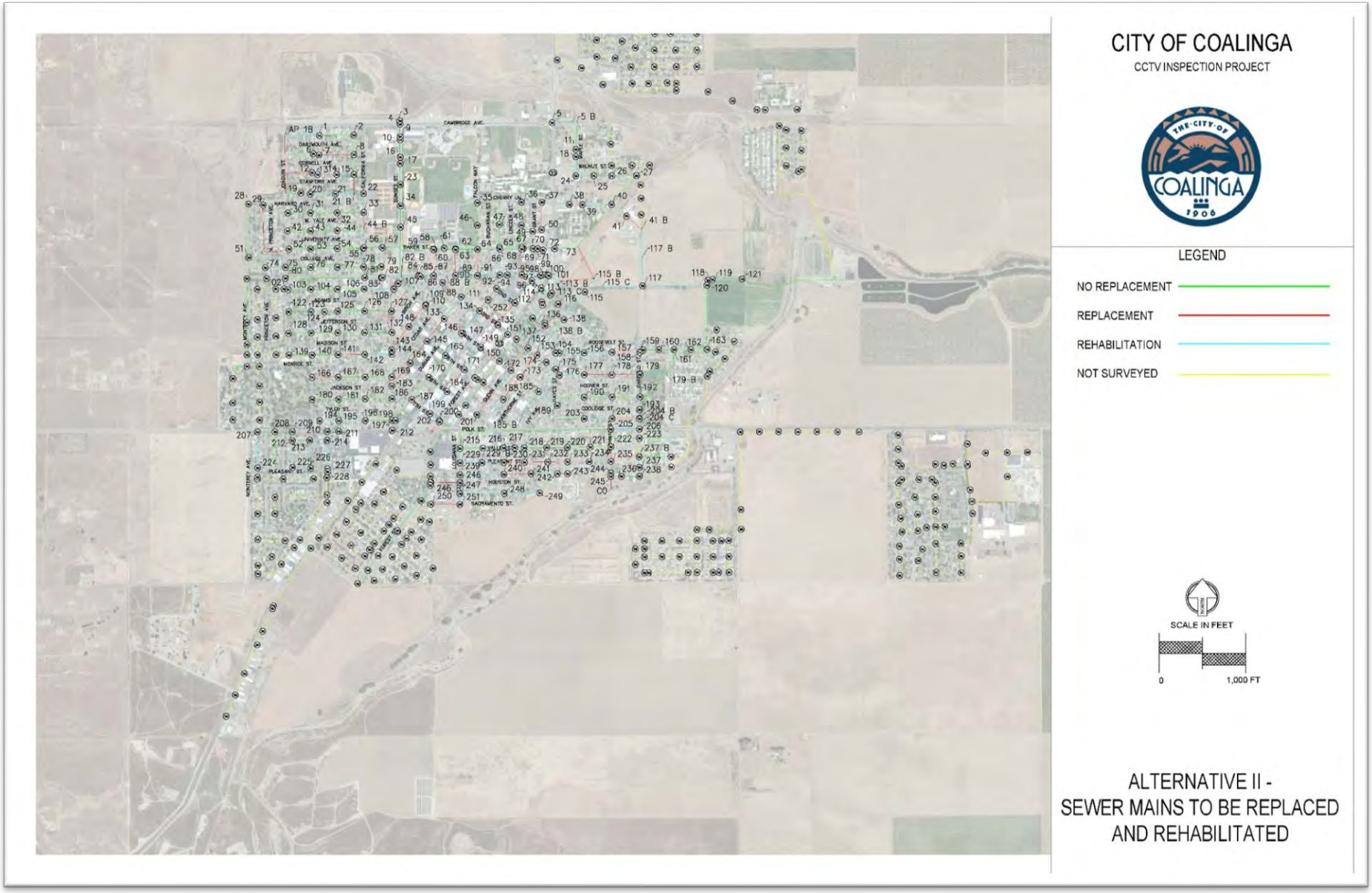


Figure 2 – Project Site Map
Proposed Sewer Collection System Improvements to be Replaced and Rehabilitated



2.4 Project Description

AM Consulting Engineers, Inc. prepared the *City of Coalinga – Sanitary Sewer Collection System and Wastewater Treatment Plant Improvements* Preliminary Engineering Report (December 2023) to provide a comprehensive evaluation of the Coalinga existing sewer collection system and provide recommendations that will address the needed sewer and WWTP improvements for the City. Please refer to that document, in Appendix A for specific project characteristics. A summary of Project activities is included herein.

The City proposes to rehabilitate approximately 30,815 LF of gravity sewer mains using trenchless construction methods, replace approximately 19,801 LF of gravity sewer mains via conventional construction methods, and provide miscellaneous repairs and improvements to the District's Wastewater Treatment Plant (WWTP). This Project will involve construction and operation of the following components:

1. **Sewer Main Replacement**: For this proposed Project, it is recommended that approximately 19,801 LF of gravity sewer mains be replaced with new sewer pipes before failure occurs. These replacements are recommended where the sags are greater than 60 percent of pipe diameter, broken pipe sections with visible voids and blockages, and severe pipe offsets. Where possible, replacements are limited to only those sections of pipe where the defects are found rather than replacing the entire stretch of pipe between two manholes. See Figure 2 for locations of pipe replacement.

2. **Sewer Main Rehabilitation**: Trenchless sewer rehabilitation is recommended for approximately 30,815 LF of sewer mains where applicable in order to reduce surface disturbance over traditional dig and replace methods, reduce the number of traffic and pedestrian detours, spare tree removal, decrease construction noise, and reduce air pollution from construction equipment. Cured-in-Place Pipe (also known as CIPP) rehabilitation is proposed for the pipe stretches that have mild defects and sag less than 60% of pipe diameter. See Figure 2 for locations of pipe rehabilitation.

3. **Improvements to Wastewater Treatment Plant:** The City's WWTP will be upgraded to an extended aeration system with biological nutrient removal with filtration and disinfection. The improvements will include a new aeration tank, two clarifiers, and five percolation ponds. The percolation ponds will be developed within the footprints of the facility's existing ponds, which comprise two aerated lagoons and three stabilization ponds. The existing ponds will be decommissioned and dewatered, following which heavy equipment will be used to remove

the clay liners from the bottom of each pond, converting their function to evaporation/percolation. The upgraded WWTP will not require off-site effluent disposal; therefore, current effluent disposal practices on adjacent City-owned property would be discontinued following project implementation. The purpose of upgrading the existing WWTP to an extended aeration activated system with biological nutrient removal facility is to lower the nitrogen concentration of the effluent before it is discharged to percolate the underground aquifer. Currently, the existing WWTP is not protective of the current beneficial use of the groundwater and is not consistent with RWQCB's policy of beneficial reuse. By upgrading the WWTP to include secondary/tertiary treatment and discharging the higher effluent quality to percolation ponds on site, the City will provide an incidental recharge of the groundwater aquifer, which will ultimately help demonstrate groundwater sustainability. By removing nitrogen, treated effluent will be allowed to percolate and be protective of the groundwater's beneficial uses.

Project Schedule

Approval of the CWSRF construction application is expected to take at nine months after submission to the SWRCB. After approval, the Project engineer can begin the Project design. Once the plans and specifications and construction documents have been prepared, bidding can begin, followed by construction. Construction time is expected to be one year.

2.5 Objectives

The primary objectives of the proposed Project are as follows:

- To provide adequate and safe sewer services to its customers.
- To prevent system failures and potential contamination associated with significant deterioration of the existing sewer infrastructure.
- To improve existing wastewater treatment abilities in the City's system with the most cost-effective methods available that meet the City's overall system performance and regulatory compliance requirements, but also to accommodate potential population growth in the Coalinga area.

2.6 Other Required Approvals

The proposed Project will include, but not be limited to, the following regulatory requirements:

- The adoption of a Mitigated Negative Declaration by the City of Coalinga.
- Regional Water Quality Control Board approval.
- State Water Board approval.

Chapter 3

IMPACT ANALYSIS

Initial Study Checklist

3.1 Environmental Checklist Form

Project title:

City of Coalinga – Sanitary Sewer Collection System and Wastewater Treatment Plant Improvements Project

Lead agency name and address:

City of Coalinga
155 W. Durian
Coalinga, CA 93210

Contact person and phone number:

Anthony Uribe
(559) 935-1533 ext. 181

Project location:

See Section 2.1

Project sponsor's name/address:

City of Coalinga
155 W. Durian
Coalinga, CA 93210

General plan designation:

Various, area-wide sewer improvement project

Zoning:

Various, area-wide sewer improvement project

Description of project:

See Section 2.3

Surrounding land uses/setting:

See Section 2.2

Other public agencies whose approval or consultation is required (e.g., permits, financing approval, participation agreements):

See Section 2.5

California Native American Tribal Consultation:

Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, has consultation begun or is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

In accordance with Assembly Bill (AB) 52, potentially affected Tribes were formally notified of this Project and were given the opportunity to request consultation on the Project. The Native American Heritage Commission was contacted, requesting a contact list of applicable Native American Tribes, which was provided. Letters were provided to the listed Tribes, notifying them of the Project and requesting consultation, if desired. See Section 3.17 – Tribal Cultural Resources for more information.

3.2 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" as indicated by the checklist on the following pages.

☐ Aesthetics	☐ Agriculture Resources and Forest Resources	☐ Air Quality
☐ Biological Resources	☐ Cultural Resources	☐ Energy
☐ Geology / Soils	☐ Greenhouse Gas Emissions	☐ Hazards & Hazardous Materials
☐ Hydrology / Water Quality	☐ Land Use / Planning	☐ Mineral Resources
☐ Noise	☐ Population / Housing	☐ Public Services
☐ Recreation	☐ Transportation	☐ Tribal Cultural Resources
☐ Utilities / Service Systems	☐ Wildfire	☐ Mandatory Findings of Significance

3.3 Determination

Based on this initial evaluation:

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

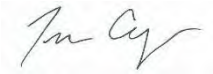
☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the

project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.



July 31, 2026

Travis Crawford, AICP

Date

Crawford & Bowen Planning, Inc.

Environmental Consultant for the City of Coalinga

I. AESTHETICS

Except as provided in Public Resources Code Section 21099, would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c. In non-urbanized areas, ssubstantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and regulations governing scenic quality?	☐	☐	☒	☐
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

RESPONSES

a. Have a substantial adverse effect on a scenic vista?
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Less Than Significant Impact. A scenic vista is defined as a viewpoint that provides expansive views of highly valued landscape for the benefit of the general public. The Coastal Range and foothills are the primary natural and visual resources in the proposed Project region. Views of the mountains and hills are afforded only during clear conditions due to poor air quality in the valley. Distant views of the mountains and hills would largely be unaffected by the development of the Project because of the

nature of the Project, distance and limited visibility of these features from the Project site. The Project will not impact views of a protected scenic vista or resource from surrounding vantage points.

The proposed Project would not damage any trees, rock outcroppings or historic buildings within a State scenic highway corridor. Therefore, there is a ***less than significant impact.***

Mitigation Measures: None are required.

c. In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and regulations governing scenic quality?

Less than Significant Impact. Improvements proposed by the City consist of the rehabilitation of approximately 30,815 linear feet (LF) of gravity sewer mains using trenchless construction methods, replacement of approximately 19,801 LF of gravity sewer mains via conventional construction methods, and provision of miscellaneous repairs and improvements to the City's Wastewater Treatment Plant (WWTP), see Chapter Two – Project Description. Views of surrounding areas associated with the sewer mains will not be impacted by the Project, since all of the finished work will be below grade or at-grade. The proposed WWTP improvements will be constructed or implemented on the current WWTP site, which is surrounded by fencing. There are no residences or businesses adjacent to the site, however, the WWTP will be viewable from travelers on surrounding roadways. Implementation of the proposed Project will alter the visual character of the existing WWTP site through the construction of additional buildings or structures as proposed by the City. The previously described improvements to the WWTP are not expected to create a visually degraded character or quality to the Project site or to the properties near and around the Project site, as the site has previously been developed with WWTP structures.

Construction activities will be seen by the residences and businesses within the immediate vicinity and by vehicles driving in the City; however, construction activities will be temporary.

As such, the proposed Project will not substantially degrade the existing visual character or quality of the area or its surroundings and will not conflict with applicable zoning and regulations governing scenic quality. The impact will be ***less than significant***.

Mitigation Measures: None are required.

d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Less Than Significant Impact. Currently the sources of light in the Project area are from security lights and vehicles traveling along surrounding roads. The Project will not introduce new lighting beyond the lighting types that currently exist at the WWTP. Additional night lighting sources on the Project site, especially any unshielded light, would result in spillover light that could impact surrounding adjacent uses. The City will require lighting systems to be shielded to direct light to ground surfaces and orient light away from adjacent properties. Accordingly, the proposed Project would not create substantial new sources of light or glare. There is a ***less than significant impact.***

Mitigation Measures: None are required.

II. AGRICULTURE AND FOREST RESOURCES

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d. Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

RESPONSES

a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?

b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?

c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?

d. Result in the loss of forest land or conversion of forest land to non-forest use?

e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?

No Impact. Improvements proposed by the City consist of the rehabilitation of approximately 30,815 linear feet (LF) of gravity sewer mains using trenchless construction methods, replacement of approximately 19,801 LF of gravity sewer mains via conventional construction methods, and provision of miscellaneous repairs and improvements to the City's WWTP. The sewer mains and associated infrastructure will largely occur within the existing right of way and will be installed underground. The Project areas where the sewer main replacements and repairs will occur are characterized as Urban / Built Up Land by the Department of Conservation's Farmland Mapping & Monitoring Program (FMMP). The area associated with the proposed WWTP improvements is also characterized as Urban / Built Up Land by the FMMP. There are no farmlands on or adjacent to the site that would be impacted and no Williamson Act parcels will be affected. No conversion of forestland, as defined under Public Resource Code or General Code, as referenced above, would occur as a result of the proposed Project.

All improvements will take place within an area that is built up with rural and urban uses or is otherwise not characterized as farmland. As such, the proposed Project does not have the potential to result in the conversion of Farmland to non-agricultural uses or forestland uses to non-forestland. There is ***no impact***.

Mitigation Measures: None are required.

III. AIR QUALITY

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c. Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d. Result in other emissions (such as those leading to odors or adversely affecting a substantial number of people)?	☐	☐	☒	☐

RESPONSES

a. Conflict with or obstruct implementation of the applicable air quality plan?

b. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?

c. Expose sensitive receptors to substantial pollutant concentrations?

Less than Significant Impact. The San Joaquin Valley Air Basin (SJVAB) is designated nonattainment of state and federal health-based air quality standards for ozone and $PM_{2.5}$. The SJVAB is designated nonattainment of state PM_{10}.[1] To meet Federal Clean Air Act (CAA) requirements, the SJVAPCD has multiple air quality attainment plan (AQAP) documents, including:

[1] San Joaquin Valley Air Pollution Control District. Ambient Air Quality Standards & Attainment Status. https://www.valleyair.org/air-quality-information/ambient-air-quality-standards-valley-attainmnet-status/. Accessed July 2026.

Ozone Plans such as 2022 Ozone Plan for the San Joaquin Valley, 2016 Plan for the 2008 8-Hour Ozone Standard, 1-Hour Ozone Attainment Request, 2013 Plan for the Revoked 1-Hour Ozone Standard, 2007 Plan for the 1997 8-Hour Ozone Standard, and 2004 Extreme Ozone Attainment Demonstration Plan.

As well as Particulate Matter Plans such as, Particulate Matter (PM) Sources, 2024 Plan for the 2012 PM2.5 Standard, 2018 PM2.5 Plan for the San Joaquin Valley, 2016 Moderate Area Plan for the 2012 PM2.5 Standard, 2015 Plan for the 1997 PM2.5 Standard, 2012 PM2.5 Plan, 2008 PM2.5 Plan, 2006 PM2.5 Plan and 2003 PM2.5 Plan.

Because of the region's non-attainment status for ozone, $PM_{2.5}$, and PM_{10}, if the project-generated emissions of either of the ozone precursor pollutants (ROG or NOx), PM_{10}, or $PM_{2.5}$ were to exceed the SJVAPCD's significance thresholds, then the project uses would be considered to conflict with the attainment plans. In addition, if the project uses were to result in a change in land use and corresponding increases in vehicle miles traveled, they may result in an increase in vehicle miles traveled that is unaccounted for in regional emissions inventories contained in regional air quality control plans.

As discussed below, predicted construction and operational emissions would not exceed the SJVAPCD's significance thresholds for ROG, NOx, PM_{10}, and $PM_{2.5}$. As a result, the Project uses would not conflict with emissions inventories contained in regional air quality attainment plans, and would not result in a significant contribution to the region's air quality non-attainment status. Additionally, the Project would comply with all applicable rules and regulations.

The nonattainment pollutants for the SJVAPCD are ozone, PM_{10} and $PM_{2.5}$. Therefore, the pollutants of concern for this impact are ozone precursors, regional PM_{10}, and $PM_{2.5}$. Ozone is a regional pollutant formed by chemical reactions in the atmosphere, and the Project's incremental increase in ozone precursor generation is used to determine the potential air quality impacts, as set forth in the GAMAQI. The annual significance thresholds to be used for the Project emissions are as follows[2]:

Pollutant/ Precursor	Construction Emissions (tpy)	Operational Emissions (permitted) (tpy)	Operational Emissions (non-permitted) (tpy)
CO	100	100	100
NOx	10	10	10
ROG	10	10	10
SOx	27	27	27
PM_{10}	15	15	15
$PM_{2.5}$	15	15	15

[2] San Joaquin Valley Air Pollution Control District. March 19, 2015. Guide for Assessing and Mitigating Air Quality Impacts. https://www.valleyair.org/media/g4nl3p0g/gamaqi.pdf. Page 80. Accessed March 2026.

The proposed WWTP and sewer main improvements will generate minimal emissions once they are constructed. The estimated annual construction emissions are shown below. The Sacramento Metropolitan Air Quality Management District's Road Construction Emissions Model was utilized to estimate emissions generated from Project construction. Modeling results are summarized in Table 1 and the full Road Construction Emissions Model output files are provided in Appendix B.

Table 1
Proposed Project Construction Emissions

Pollutant/ Precursor	Construction Emissions (tpy)	Threshold/ Exceed?
CO	2.00	100/N
NOx	1.41	10/N
ROG	0.19	10/N
SOx	0.01	27/N
PM_{10}	0.09	15/N
$PM_{2.5}$	0.06	15/N
CO_2e	372.73	n/a

As shown in Table 1, construction emissions would be below the SJVAPCD's threshold for annual construction emissions. However, the SJVAPCD has implemented Regulation VIII measures for dust control related to construction projects, which are applicable to the Project and will be enforced by the City and the City's contractor.

The nearest sensitive receptors to the proposed Project site are the residential houses located along the proposed pipeline alignments. Construction would take place within the vicinity of sensitive receptors, however, construction emissions would be below SJVAPCD thresholds and would be temporary in nature. Therefore, the relatively small amount of emissions generated and the short duration of the construction period would not expose sensitive receptors to substantial pollutant concentrations.

Because the Project will not exceed any established air emission thresholds, does not result in a cumulatively considerable net increase of any criteria pollutant, and does not significantly impact sensitive receptors, the impact is determined to be ***less than significant.***

Mitigation Measures: None are required.

d. <u>Result in other emissions (such as those leading to odors adversely affecting a substantial number of people?</u>

Less Than Significant Impact. During construction, the various diesel-powered vehicles and equipment in use on-site could create localized odors. These odors would be temporary and are not likely to be

noticeable for extended periods of time beyond the Project site. In addition, once the Project is operational, there would be no new source of odors from the Project since all sewer disposal will occur via underground pipelines. Therefore, the impact is ***less than significant.***

Mitigation Measures: None are required.

IV. BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c. Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☒	☐	☐

IV. BIOLOGICAL RESOURCES

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

RESPONSES

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less Than Significant Impact With Mitigation. A Biological Evaluation (BE) was prepared for the proposed Project in May 2026 by Live Oak Associates, Inc. (LOA). The BE is included as Appendix C. As part of the BE, the California Natural Diversity Data Base (CNDDB), the California Native Plant Society's Inventory of Rare and Endangered Plants, and the USFWS special status species lists were queried for records of special-status plant and animal species in the Project area. In addition, field surveys were conducted as described herein. The results of the BE are summarized as follows:

Environmental Setting

Urban

The sewer main work area is largely confined to municipal Coalinga and includes portions of streets, alleys, parking lots, residential and commercial properties, ruderal areas, and park lands that are collectively classified as "urban." The streets, alleys, and parking lots are developed features that are in most cases paved and entirely barren of vegetation. The residential properties are characterized by homes, outbuildings, and ornamental vegetation including trees, shrubs, turf, and other landscaping features. The project site's one commercial property is a motel; the portion of the property that falls within project boundaries is a landscaped strip with densely-spaced ornamental trees. The ruderal areas are disturbed roadside habitats that, at the time of LOA's survey, were characterized by unmaintained turf and/or common weeds. The park land is a portion of George E. Olsen Memorial Park that, at the time of the survey, contained maintained turf, ornamental trees, and fencing.

The project site's urban lands are of low habitat value for most native wildlife, given high levels of ambient disturbance and, in most areas, a lack of vegetative cover. Wildlife species expected to be found here would be those that are attracted to urban areas and/or tolerate disturbance, and those that are associated with adjacent lands and use or pass through urban areas incidentally.

Reptiles that could be found in the project site's urban lands include the western fence lizard (*Sceloporus occidentalisi*), California alligator lizard (*Elgaria multicarinata multicarinata*), and gopher snake (*Pituophis melanoleucus*). Amphibians are unlikely due to an absence of nearby breeding habitat.

A number of disturbance-tolerant avian species are likely to forage and nest in the site's urban lands. Trees and shrubs could support nesting by American robins (*Turdus migratorius*), Anna's hummingbirds (*Calypte anna*), northern mockingbirds (*Mimus polyglottos*), and mourning doves (*Zenaida macroura*), among other species. Mourning doves may also nest in ground vegetation. The site's residential structures could potentially be used for nesting by the house finch (*Haemorhous mexicanus*). All of the aforementioned birds may also forage in the site's urban lands, as could winter migrants such as the savannah sparrow (*Passerculus sandwichensis*) and yellow-rumped warbler (*Dendroica coronata*).

Small mammal species likely to occur in the project site's urban lands include the deer mouse (*Peromyscus maniculatus),* house mouse (*Mus musculus*), and Norway rat (*Rattus norvegicus*), among others. Burrowing rodent activity is expected to be limited due to the preponderance of pavement in this land use type, as well as regular maintenance practices in most of the unpaved areas. Less-maintained areas could support California ground squirrels (*Otospermophilus beecheyi*) and Botta's pocket gophers (*Thomomys bottae*).

Disturbance-tolerant mammalian predators such as raccoons (*Procyon lotor*) and striped skunks (*Mephitis mephitis*) are expected to occasionally forage on or pass through the site's urban lands. Various bat species may roost in trees and buildings within this land use type and may forage on or over these areas.

Rural

The sewer main work area also includes lands outside of municipal Coalinga that, while all human-altered in some form, experience lower levels of ambient disturbance than the urban land use type and are of higher value for native wildlife species. These include portions of ruderal or fallow fields, unpaved roads, an irrigation ditch, and the minimally maintained margins of these uses. While the roads were barren of vegetation, the fields and margins were characterized by sparse to dense growth of common weeds such as foxtail barley (*Hordeum murinum*), ripgut brome (*Bromus diandrus*), red-stemmed filaree (*Erodium cicutarium*), and cheeseweed (*Malva parviflora*), among others. Where the sewer main alignment crossed and then paralleled an irrigation ditch between urban Coalinga and the WWTP, several native trees including valley oak (*Quercus lobata*) and willow (*Salix* sp.) overhung the work area.

The project site's rural lands may be used by a variety of native wildlife species associated with agricultural and other open habitats. Reptiles that could be found in the project site's rural areas include the side-blotched lizard (*Uta stansburiana*), western whiptail (*Aspidoscelis tigris*), common kingsnake (*Lampropeltis californiae*), and gopher snake. Common amphibians such as the Sierran treefrog (*Pseudacris sierra*) and western toad (*Anaxyrus boreas*) may breed in nearby irrigation ditches and subsequently disperse through the site's rural lands.

Birds expected to nest within the project site's rural lands include common ground-nesting species such as the western meadowlark (*Sturnella neglecta*), killdeer (*Charadrius vociferus*), and mourning dove. Foraging species would include the western kingbird (*Tyrannus verticalis*) in the summer, savannah sparrow and American pipit (*Anthus rubescens*) in the winter, and American crow (*Corvus brachyrhynchos*), and Brewer's blackbird (*Euphagus cyanocephalus*) throughout the year. The site's rural lands are also likely to be used for foraging by open country raptors such as the red-tailed hawk (*Buteo jamaicensis*) and American kestrel (*Falco sparverius*). Trees within which these raptors could nest, while absent from the site's rural lands, are found immediately outside of project boundaries in some of these areas.

Small mammal species likely to occur in the site's rural lands include the deer mouse, California ground squirrel, Botta's pocket gopher, California vole (*Microtus californicus*), and Audubon's cottontail (*Sylvilagus audubonii*). Raccoons, striped skunks, and coyotes (*Canis latrans*) are likely to occur here from time to time. Various bat species may forage on or over the site's rural lands; however, roosting habitat is absent.

Wastewater Treatment Plant

The WWTP work area consists of lands and facilities used for wastewater treatment. It includes two aerated lagoons, each approximately 3 acres in size; three stabilization ponds collectively encompassing approximately 13 acres; two asphalt-bottomed sludge drying beds; a network of access roads around the pond perimeters; and other ruderal upland areas. At the time of LOA's field survey, most of these lands were highly maintained and barren of vegetation. Where present, vegetation consisted of patches of bermudagrass (*Cynodon dactylon*) and other non-native grasses and forbs. A small portion of the work area is outside of the fenced facility and appears infrequently maintained; this area, located immediately to the west of the aerated lagoons, supported dense cover of non-native grasses and forbs including ripgut brome, foxtail barley, and Russian thistle (*Salsola tragus*).

The WWTP's stabilization ponds are perennially inundated and support various wildlife species associated with aquatic environments. At the time of LOA's field survey, southwestern pond turtles (*Actinemys pallida*) were detected in all three stabilization ponds; this is a California Species of Special Concern that is also proposed for federal listing as threatened. Several amphibian species are likely to occur in the stabilization ponds; these include the Sierran treefrog, western toad, and American bullfrog (*Lithobates catesbeianus*). The stabilization ponds support both waterfowl and shorebirds. Examples of the former observed during LOA's survey include the ruddy duck (*Oxyura amicensis*), green-winged teal (*Anas crecca*), and mallard (*Anas platyrhynchos*), while examples of the latter include the great egret (*Ardea alba*), greater yellowlegs (*Tringa melanoleuca*), and black-necked stilt (*Himantopus mexicanus*). The ponds may serve as a source of mud for black phoebes and cliff swallows (*Petrochelidon pyrrhonata*) during nest-building, and black phoebes may also forage in flight over the ponds.

Upland areas of the WWTP may be utilized by basking turtles of the aforementioned species. Killdeer and black-necked stilts could nest on the ground in these areas. California ground squirrels were observed in upland areas of the WWTP at the time of LOA's survey, and other small mammals such as Botta's pocket gophers, deer mice, and California voles may also occur here. Raccoons and striped skunks are likely to use or pass through these areas from time to time.

Desktop Review

Many species of plants and animals within the state of California have low populations, limited distributions, or both. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.0, state and federal laws have provided California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A

sizable number of native plants and animals have been formally designated as threatened or endangered under state and federal endangered species legislation. Others have been designated as "candidates" for such listing. Still others have been designated as "species of special concern" by the CDFW. The California Native Plant Society (CNPS) has developed its own set of lists (i.e., California Rare Plant Ranks, or CRPR) of native plants considered rare, threatened, or endangered (CNPS 2025). Collectively, these plants and animals are referred to as "special status species."

The California Natural Diversity Data Base (CNDDB) was queried for special status plant and animal occurrences in the nine USGS 7.5-minute quadrangles containing and surrounding the project site (*Joaquin Rocks, Domengine Ranch, Harris Ranch, Alcalde Hills, Coalinga, Guijarral Hills, Curry Mountain, Kreyenhagen Hills,* and *Avenal*). A number of special status plants and animals were returned in the query and are summarized below in Table 1. Sources of information for this table included *California's Wildlife, Volumes I, II, and III* (Zeiner et. al 1988-1990), *California Natural Diversity Data Base* (CDFW 2025), *The Jepson Manual: Vascular Plants of California, second edition* (Baldwin et al 2012), the *California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2025), *Calflora.org, iNaturalist.org*, and *eBird.org*.

Reconnaissance Survey

A reconnaissance-level field survey of the project site was conducted on March 20 and 21, 2025 by LOA biologist Natalie Neff. The survey consisted of a meandering walk and drive through the project site while identifying its principal land uses and the constituent plants and animals of each land use. The field survey conducted for this study was sufficient to assess the significance of possible biological impacts associated with the development plans for the project site.

LOA conducted an analysis of potential project impacts based on the known and potential biotic resources of the project site. Sources of information used in the preparation of this analysis included: (1) results of the March 2025 reconnaissance-level surveys, (2) the *California Natural Diversity Data Base* (CDFW 2025), (3) the *Online Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2025), and (4) manuals, reports, and references related to plants and animals of the San Joaquin Valley region.

LOA's field investigation did not include an aquatic resources delineation or focused surveys for special status species. The field survey was sufficient to generally describe those features of the project site that could be subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), and/or the Regional Water Quality Control Board (RWQCB), and to assess the significance of possible biological impacts associated with development of the project site.

Effects Determinations

Critical Habitat

Critical habitat is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection.

Designated critical habitat is absent from the project site and surrounding lands. The nearest units of critical habitat are located some 30 miles from project boundaries in the Inner Coast Range, and are designated for the protection of the vernal pool fairy shrimp (*Branchinecta lynchi*) and California red-legged frog (*Rana draytonii*).

Special-Status Species

As identified in the BE, the Project may affect but is not likely to adversely affect protected species consisting of Monarch Butterfly, Southwestern Pond Turtle, Temblor Legless Lizard, California Glossy Snake, San Joaquin Coachwhip, Swainson's Hawk, Burrowing Owl, San Joaquin Kit Fox, American Badger, and Nesting Migratory Birds and Raptors. The Project is not expected to affect any other special-status species due to the lack of habitat or known occurrence records for those species near the Project site.

Migratory Birds

The BE concludes the Project may affect but is not likely to adversely affect nesting migratory birds.

Regulated Habitats

The BE concludes the Project will have **no effect** on regulated habitats as no impacts to such habitats are expected.

Direct and Indirect Impacts

The Project could adversely affect, either directly or through habitat modifications, several special-status animal species that occurs or may occur on or near the Project site. Construction activities such as excavating, trenching, or using other heavy equipment that disturbs or harms a special-status species or substantially modifies its habitat could constitute a significant impact. Therefore, Mitigation Measures identified below will be included in the conditions of approval to reduce the potential impacts to less-than-significant levels. A brief description of each potentially impacted protected species, followed by the corresponding mitigation is provided below.

Project Impacts to Monarch Butterfly

Potential Impacts. As discussed, the monarch butterfly (*Danaus plexippus*) has some potential to reproduce, forage, and roost within the project site (see Table 2). Reproduction takes place solely on milkweed (*Asclepias* sp.) plants, which could conceivably be found in those portions of the sewer main work area that pass through residential yards or park land (urban land use type) or ruderal/fallow fields (rural land use type). Milkweed, and by extension breeding, is not expected in the highly degraded habitats of the WWTP work area. Foraging may take place in any vegetated portion of the project site; this includes portions of the WWTP work area that do not experience regular vegetation management. Finally, roosting is a possibility in the few trees of the sewer main work area.

If milkweed occurs in portions of the project site that are planned for impact, the project may result in mortality of monarch eggs, larvae, and pupae, as well as loss of monarch reproductive habitat. These are considered potentially significant impacts under CEQA and NEPA.

Project construction is not expected to adversely affect foraging or roosting monarchs. Monarchs are highly mobile while foraging and would presumably have the ability to avoid active construction zones. After construction, any habitats that provide nectar resources for monarchs under existing conditions would be expected to naturally revegetate and return to their pre-project level of suitability for this species. Because the project will not remove any trees, it will not impact any monarchs that happen to be roosting on site at the time of construction and will not result in loss of monarch roosting habitat.

Mitigation. The following measures will be implemented to reduce the magnitude of potential project impacts to the monarch butterfly.

> ***Mitigation Measure BIO – 1A (Milkweed Survey).*** Prior to the start of construction, a qualified biologist will conduct a survey for milkweed plants in any portion of the sewer main work area that passes through residential yards, park land, ruderal/fallow fields, or other potentially suitable habitats. The survey will be conducted at a time of year when milkweed is readily identifiable. The objective of the survey will be to tally and map all milkweed plants that could potentially be impacted by project activities.
>
> ***Mitigation Measure BIO – 1B (Construction Timing).*** If feasible, no milkweed plants will be removed during the period when monarchs may be breeding in the project vicinity, March 15-October 31 (The Xerces Society 2019).
>
> ***Mitigation Measure BIO – 1C (Compensatory Mitigation).*** Any milkweed plants located within areas proposed for impact will be replaced at a 3:1 ratio in accordance with a revegetation plan prepared by a qualified biologist. The planting site(s) must be in similar or higher quality habitat to the habitat that was impacted, in area(s) that will not be treated with pesticides or herbicides.

Implementation of the above measures will reduce impacts to the monarch butterfly to a less than significant level under CEQA and NEPA.

Potential Project Impacts to the Southwestern Pond Turtle

Potential Impacts. As discussed, the southwestern pond turtle (*Actinemys pallida*) is present at the WWTP. At the time of LOA's survey, 36 individuals of this species were observed, evenly distributed among the three stabilization ponds. The turtles were of various growth stages, indicating that this is a breeding population. No turtles were observed in the aerated lagoons, and these features are presumably not suitable for this species due to surface turbulence and reduced water quality; the aerated lagoons represent an earlier stage of water treatment than the stabilization ponds. Pond turtles are likely to regularly bask in upland areas surrounding the three occupied ponds and may even nest within the fenced facility, as has been documented at wastewater treatment facilities elsewhere in California (Davidson and Alvarez 2020; M. Jennings, Rana Resources, pers. comm.). Water temperatures at the WWTP are likely warm enough that pond turtles would be able to remain active through much of the winter; however, during the coldest periods individuals may brumate underwater (M. Jennings, Rana Resources, pers. comm.).

During construction activities at the WWTP, resident pond turtles will be at considerable risk of direct injury or mortality, as well as disturbance leading to indirect mortality. Direct injury or mortality may result from heavy equipment operation in and around the occupied ponds. Subterranean eggs or hatchlings may be crushed, and migrating turtles may be struck and killed. Turtles may also respond to pond dewatering and construction-related noise and vibration by attempting to leave the area, making them vulnerable to predation and vehicle strikes. Construction-related injury and mortality of southwestern pond turtles, both direct and indirect, is a potentially significant impact of this project under CEQA and NEPA.

During operation of the upgraded WWTP, pond turtles would not be at heightened risk of direct injury or mortality because operational activities will be similar to existing. However, indirect mortality is likely to be higher than under baseline conditions due to periodic dry-down of the percolation ponds. Following construction, any given percolation pond will receive treated effluent until percolation rates drop, at which point the pond will be allowed to dry down and will be disked prior to being placed back in service. Pond dry-down will force turtles on to land and potentially out of the WWTP facility altogether, increasing their vulnerability to predation and vehicle strikes. Indirect mortality of southwestern pond turtles during the operations phase is also a potentially significant impact of the project under CEQA and NEPA.

Proposed WWTP upgrades will increase the extent of potential aquatic habitat for the western pond turtle while decreasing its habitat value. Specifically, the project will convert approximately 12.5 acres of suitable, occupied ponds and approximately 6 acres of unsuitable, unoccupied ponds to approximately 18.5 acres of ponds with fluctuating suitability for southwestern pond turtles. On the one hand, the percolation ponds will have higher water quality than existing, with lower levels of biochemical oxygen demand (BOD), total suspended solids (NSS), and nitrogen. Improved water quality in the future percolation ponds may boost invertebrate prey populations (M. Jennings, Rana Resources, pers. comm.) and otherwise benefit pond turtle fitness. On the other hand, unlike the stabilization ponds, the percolation ponds will not have a perennial inundation regime, but will cycle through inundated and dry periods based on percolation rates. At present, it is unknown how many months of the year any given pond will retain water. Habitat impacts are expected to have a net negative effect on southwestern pond turtles and are potentially significant under CEQA and NEPA.

Mitigation. The following measures will be implemented to reduce the magnitude of project-related impacts to the southwestern pond turtle.

Mitigation Measure BIO – 2A (Construction Timing). Construction activities at the WWTP will take place entirely between the months of November and March to avoid the typical timeframe for southwestern pond turtle nesting and egg incubation in this locality.

Mitigation Measure BIO – 2B (Preconstruction Survey). Within 24 hours prior to the start of construction at the WWTP, a qualified biologist will survey the WWTP work area to identify any locations of possible underground nests, as would be indicated by eggshells on the surface from predation. Because hatchlings sometimes overwinter underground in their nests, this survey is required even with the implementation of Mitigation Measure 4.1.2a above.

Mitigation Measure BIO – 2C (Environmental Awareness Training). Prior to the start of construction at the WWTP, construction personnel will be trained on the identification, behavior, and ecology of the southwestern pond turtle, and the project-specific measures adopted for its protection. Attendees will be given a handout that summarizes the training material and provides a photographic key to differentiating between the southwestern pond turtle and the common non-native red-eared slider. Attendance at all training sessions will be documented on sign-in sheets.

Mitigation Measure BIO – 2D (Refuge Ponds). Construction activities at the WWTP will be staged so that, at any given time, at least two ponds suitable for the southwestern pond turtles will be inundated to their full operational depth ("refuge ponds"). In the first stage, at least two of the existing stabilization ponds will remain inundated, as these (and not the aerated lagoons) are presently occupied by pond turtles. Construction activities may proceed at the remaining features. As any given feature is converted to a percolation pond and inundated to its full

operational depth, it will become a refuge pond and one of the previous refuge ponds may be released for dewatering and construction.

Mitigation Measure BIO – 2D (Construction Monitoring). One or more qualified biologists will continuously monitor construction activities at the WWTP for the protection of southwestern pond turtles. The biologist(s) will look for pond turtles attempting to leave the ponds or otherwise traveling through upland areas of the WWTP, and will hand-capture and relocate these individuals to the nearest refuge pond. Any red-eared sliders or other introduced turtles that are discovered during this effort will be removed from the WWTP and either permanently rehomed or humanely dispatched. The biologist(s) will monitor all ground-disturbing activities in upland areas, looking for any subterranean nests or hatchlings that may be unearthed. The biologist(s) will have the authority to stop work if any nests or hatchlings are detected, and will appropriately secure the area before construction resumes. The number of biologists on site at any given time will be determined by the scope and extent of construction activities.

Mitigation Measure BIO – 2E (WWTP Operational Practices to Ensure No Net Loss of Aquatic Habitat). During operation of the upgraded WWTP, periodic dry-down and disking of the percolation ponds will be staged so that, at any given time, at least three ponds encompassing a minimum of 12.5 acres will be inundated to their full operational depth.

Mitigation Measure BIO – 2F (Habitat Enhancement). When inundated, each percolation pond will be equipped with at least three turtle basking structures. Such devices may consist of logs or floating boards, anchored with chains and weights, that can be removed during periods of dry-down and reinstalled once the pond is ready to be placed back in service.

Mitigation Measure BIO – 2G (Annual Monitoring). For the first five years post-construction, a qualified biologist will conduct annual monitoring of the WWTP's southwestern pond turtle population. Monitoring surveys will be conducted between May and July, when pond turtles are most active, and will target favorable weather conditions for basking. The biologist will assess aquatic habitat suitability by noting inundation levels, recording the species composition and cover of any emergent vegetation, conducting a dipnet survey for invertebrate food sources, and evaluating other parameters as appropriate. The biologist will record the number of all turtles observed by species and age class. An attempt will be made to capture any red-eared sliders or other introduced turtles that are discovered during annual monitoring; captured individuals will be removed from the WWTP and either permanently rehomed or humanely dispatched. The biologist will document their findings in an annual report, to be submitted to the City of Coalinga and other agencies as necessary. If any corrective actions are needed, they will be identified in the annual report and promptly implemented by the City.

Implementation of the above measures will reduce potential project impacts to the southwestern pond turtle to a less than significant level under CEQA and NEPA.

Potential Project Impacts to the Temblor Legless Lizard, California Glossy Snake, and San Joaquin Coachwhip

Potential Impacts. As discussed, three special status terrestrial reptiles, the Temblor legless lizard (*Anniella alexanderae*), California glossy snake (*Arizona elegans occidentalis*), and San Joaquin coachwhip (*Masticophis flagellum ruddocki*), have some potential to occur along the Warthan and Los Gatos Creek corridors in the immediate project vicinity, and to wander onto the WWTP work area and/or rural portions of the sewer main work area from time to time. If any individuals of these species are present at the time of construction, they could be injured or killed by project activities. Construction-related injury or mortality of these three species is a potentially significant impact under CEQA and NEPA.

The project will not adversely affect the Temblor legless lizard, California glossy snake, or San Joaquin coachwhip through loss of habitat. The site consists of highly modified lands that do not constitute habitat for these special status reptiles but may nevertheless experience occasional use based on these species' potential presence along the adjoining creek corridors. Nearly all project impacts will be temporary, with the sewer mains located belowground and any disturbed surface habitats expected to return to their pre-project level of suitability following project implementation. Considerable habitat of similar or higher quality for these species will remain available in the project vicinity. Project-related loss of habitat for the Temblor legless lizard, California glossy snake, and San Joaquin coachwhip is not considered a significant impact under CEQA and NEPA.

Mitigation. The following measures will be implemented to avoid and minimize construction-related impacts to the Temblor legless lizard, California glossy snake, and San Joaquin coachwhip.

> ***Mitigation Measure BIO – 3A (Preconstruction Surveys).*** Within 24 hours prior to the start of construction activities at the WWTP and in rural portions of the sewer main work area, a qualified biologist will conduct preconstruction surveys for the Temblor legless lizard, California glossy snake, and San Joaquin coachwhip. The biologist will make an attempt to hand-capture any individuals of these species that are found and relocate them to suitable alternative habitat away from the work area.
>
> ***Mitigation Measure BIO – 3B (Environmental Awareness Training).*** Prior to the start of construction at the WWTP and in rural portions of the sewer main work area, construction personnel will be trained on the identification, behavior, and ecology of the Temblor legless lizard, California glossy snake, and San Joaquin coachwhip, and the project-specific measures adopted for its protection. Attendees will be given a handout that summarizes the training material. Attendance at all training sessions will be documented on sign-in sheets.
>
> ***Mitigation Measure BIO – 3C (Protective Measures During Construction).*** Workers will regularly inspect the work area for reptiles. At a minimum, this will include (1) checking for reptiles under and around any parked vehicles or equipment prior to their operation, (2) scanning

the ground for reptiles while operating vehicles or equipment, and (3) checking any open trenches or other excavations for trapped reptiles at the beginning and end of each work day. Any reptiles found during these inspections will be allowed to leave the area of their own volition, or will be captured and relocated out of harm's way.

Implementation of these measures will reduce project-related impacts to the Temblor legless lizard, California glossy snake, and San Joaquin coachwhip to a less than significant level under CEQA and NEPA.

Potential Project Impacts to the Swainson's Hawk

Potential Impacts. The Swainson's hawk, a California Threatened species, is likely to forage in rural portions of the project site from time to time, and may also nest in mature trees on or near the site, particularly outside of the urban core of Coalinga. No trees will be removed by the project; therefore, there is no appreciable potential for direct injury or mortality of nesting Swainson's hawks or their young. However, construction activities proximate to active nests may disturb the nests to the extent that the nests could fail or have reduced success. Project activities that injure, kill, or reduce the nesting success of Swainson's hawks would violate state and federal laws and be considered a significant impact under CEQA and NEPA.

Swainson's hawks would not be vulnerable to construction-related injury or mortality while foraging because they are highly mobile during this activity and are expected to avoid active work areas. The project is not expected to adversely affect this species through loss of foraging habitat. All impacts to potential Swainson's hawk foraging habitat will be temporary, as the sewer mains will be buried and surface habitats will be allowed to return to pre-project conditions. Loss of habitat for the Swainson's hawk is considered a less than significant impact of the project under CEQA and NEPA.

Mitigation. The following measures will be implemented to avoid and minimize construction-related impacts to Swainson's hawk.

***Mitigation Measure BIO – 4A* (*Construction Timing*).** If feasible, project construction will occur entirely outside of the March -September 15 Swainson's hawk nesting season.

***Mitigation Measure BIO – 4B* (*Protocol Nesting Surveys*).** If construction activities must occur between March 1 and September 15, then a qualified biologist will conduct protocol nesting surveys in accordance with the Swainson's Hawk Technical Advisory Committee (SHTAC) 2000 *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*. Surveys will be conducted in at least the two SHTAC-defined survey periods immediately preceding construction. The survey periods are Period 1: January-March 20, Period II: March 20-April 5, Period III: April 5-20, Period IV: April 21-June 10, Period V: June 10-July 30.

Mitigation Measure BIO – 4C (Avoidance of Active Nests). Should any active nests be discovered within the survey area, an appropriate disturbance-free buffer will be established by the biologist based on local conditions and agency guidelines. Disturbance free buffers will be identified on the ground with flagging, fencing, or by other easily visible means and will be maintained until a qualified biologist has determined that the young have fledged and are capable of foraging independently.

Implementation of these measures will reduce project-related impacts to the Swainson's hawk to a less than significant level under CEQA and NEPA and facilitate compliance with state and federal laws protecting this species.

Potential Project Impacts to the Burrowing Owl

Potential Impacts. Although LOA is not aware of any recent, nearby sightings of the burrowing owl, rural portions of the sewer main work area could potentially be used by individuals of this species if it occurs in the vicinity. Burrowing owls are particularly vulnerable to construction-related impacts while occupying underground burrows, either for nesting or roosting. In the unlikely event that one or more burrowing owls were to be occupying burrows within the project site at the time of construction, they could be injured or killed by construction activities, or, if nesting, could be disturbed such that they would abandon their eggs or young. Such an event would constitute a violation of the Migratory Bird Treaty Act and California Endangered Species Act, and would represent a significant impact of the project under CEQA and NEPA. Individuals of this species would not be vulnerable to construction-related injury or mortality while foraging because they are highly mobile foragers and would presumably avoid active work areas.

The project will not result in the loss of burrowing owl nesting or foraging habitat. All impacts to such habitats will be temporary, as the sewer mains will be buried and surface habitats will be allowed to return to pre-project conditions. Loss of habitat for the burrowing owl is considered a less than significant impact of the project under CEQA and NEPA.

Mitigation. The following measures will be implemented to avoid and minimize construction-related impacts to burrowing owls.

Mitigation Measure BIO – 5A (Take Avoidance Survey). A take avoidance survey for burrowing owls will be conducted by a qualified biologist within 14 days prior to the start of construction, following methods described in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). The survey area will include all potential roosting and nesting habitat on or within 200 meters of the project site.

Mitigation Measure BIO – 5B (Avoidance of Active Burrows). If project activities are undertaken during the breeding season (February 1-August 31) and active nest burrows are identified within

or near project impact areas, a 200-meter disturbance-free buffer will be established around these burrows. The buffers will be enclosed with temporary fencing to prevent construction equipment and workers from entering the setback area. Buffers will remain in place for the duration of the breeding season. During the non-breeding season (September 1-January 31), active burrowing owl burrows will be avoided by a minimum distance of 50 meters.

Mitigation Measure BIO – 5C (CDFW Consultation). If it is not feasible to avoid burrows by the setback distances specified above, the applicant will develop other measures to fully avoid take of burrowing owls in consultation with CDFW. If full take avoidance is not possible, the applicant will obtain a Section 2081 Incidental Take Permit (ITP) for this species. If an ITP is required, it would include minimization and mitigation measures including a passive relocation effort, construction monitoring, replacement burrow creation/enhancement, and/or other forms of compensatory mitigation.

Implementation of these measures will reduce potential project impacts to the burrowing owl to a less than significant level under CEQA and NEPA and facilitate compliance with state and federal laws protecting this species.

Potential Project Impacts to the San Joaquin Kit Fox

Potential Impacts. Coalinga is known to support an urban-adapted population of the SJKF (Cypher et al. 2012). Individuals of this species have some potential to forage and den in both urban and rural portions of the sewer main work area, particularly outside of residential neighborhoods. SJKF are unlikely to occur within the fenced WWTP, but may occur within those portions of the WWTP work area outside of the fenceline. In the event that one or more SJKF individuals were to be occupying the project site at the time of construction, they could be injured or killed by construction activities. Such an event would constitute a violation of federal and state law and would represent a significant impact of the project under CEQA and NEPA.

The project will not result in the loss of denning or foraging habitat for this species. All impacts to such habitats will be temporary, as the sewer mains will be buried and surface habitats will be allowed to return to pre-project conditions. Loss of habitat for the SJKF is considered a less than significant impact of the project under CEQA and NEPA.

Mitigation. The applicant will implement the following measures derived from the USFWS 2011 *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance*.

Mitigation Measure BIO – 6A (Pre-construction Surveys). Between 14 and 30 days prior to the start of any project activity that could potentially affect the SJKF, a qualified biologist will conduct preconstruction surveys for this species following the USFWS 2011 *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or during Ground Disturbance*

("Standardized Recommendations"). The primary objective will be to identify potential SJKF habitat features and evaluate their use by kit foxes.

Mitigation Measure BIO – 6B (Avoidance). Should one or more active kit fox dens be detected during preconstruction surveys, the USFWS and CDFW will be notified immediately. A disturbance-free buffer will be established around the dens in consultation with the USFWS and CDFW, to be maintained until an agency-approved biologist has determined that the dens have been abandoned.

Mitigation Measure BIO – 6C (Minimization). The applicant will implement all minimization measures presented in the *USFWS Standardized Recommendations*. Such measures include, but are not limited to: restriction of project-related vehicle traffic to established roads, construction areas, and other designated areas; measures to prevent the inadvertent entrapment of kit foxes in holes, trenches, and pipes; restriction of rodenticide and herbicide use; and proper disposal of food items and trash.

Mitigation Measure BIO – 6D (Environmental Awareness Training). A qualified biologist will provide training to all personnel who will be working on site. The training will include a description of the kit fox and its habitat needs; a report of the occurrence of kit fox in the project vicinity; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of the measures being taken to reduce impacts to the species during project construction and implementation. A handout will be provided to all attendees that summarizes the information presented in the training and presents the contact name and number of a designated representative to contact in case SJKF individuals are observed in or near the work area during construction.

Implementation of these measures will reduce potential project impacts to the SJKF to a less than significant level under CEQA and NEPA and facilitate compliance with state and federal laws protecting this species.

Potential Project Impacts to the American Badger

Potential Impacts. Although badgers do not appear to be regularly sighted in the project vicinity, this wide-ranging species has some potential to pass through the area from time to time. If present in the vicinity, then individuals could potentially forage and den in rural portions of the sewer main work area and/or in that portion of the WWTP work area outside of the fenceline. Badgers are particularly vulnerable to construction-related impacts while in their dens. In the unlikely event that one or more badgers were to be occupying dens within the project site at the time of construction, they could be injured or killed by construction activities. Construction mortality of denning badgers is considered a potentially significant impact of the project under CEQA and NEPA. Individuals of this species would not be vulnerable to construction-related injury or mortality while foraging because they would

presumably avoid foraging within active work areas, and because their nocturnal foraging behavior should prevent them from overlapping temporally with construction activities.

The project will not result in the loss of American badger denning or foraging habitat. All impacts to such habitats will be temporary, as the sewer mains will be buried and surface habitats will be allowed to return to pre-project conditions. Loss of habitat for the badger is considered a less than significant impact of the project under CEQA and NEPA.

Mitigation. The following measures will be implemented to avoid and minimize construction-related impacts to American badgers.

> ***Mitigation Measure BIO – 7A (Preconstruction Surveys).*** A preconstruction survey for American badgers will be conducted by a qualified biologist within 7 days prior to the start of construction activities in rural portions of the sewer main work area and at the WWTP. The surveys will target all potential denning habitat on or within 50 feet of these areas.
>
> ***Mitigation Measure BIO – 7B (Avoidance).*** Should an active sleeping den be identified during the preconstruction surveys, the den shall be identified in the field with brightly-colored fencing or flagging, and avoided until a qualified biologist has determined that it has been abandoned. Should an active natal den be identified during the preconstruction surveys, a suitable disturbance-free buffer will be established around the den and maintained until a qualified biologist has determined that the cubs have dispersed or the den has been abandoned.

Implementation of the above measures will reduce potential project impacts to the American badger to a less than significant level under CEQA and NEPA.

c. <u>Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?</u>

No Impact. No wetlands were present in the proposed Project area and as such, there would be ***no impacts*** associated with the proposed improvements.

Mitigation Measures: None are required.

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Less Than Significant with Mitigation. No marine or estuarine fishery resources or migratory routes to and from anadromous fish spawning grounds were present in the survey area. In addition, no EFH, defined by the Magnuson-Stevens Act as those resources necessary for fish spawning, breeding, feeding, or growth to maturity, were present in the survey area.

The project site and adjoining lands have the potential to be used for nesting by a variety of migratory birds and raptors protected by the federal Migratory Bird Treaty Act and related state laws. This includes common species such as the mourning dove, killdeer, and American robin, but may also include several uncommon species. An example of the latter is the special status long-eared owl (*Asio otus*), which could nest immediately adjacent to the WWTP work area along the riparian corridor associated with Los Gatos Creek. If project construction takes place during the nesting season, birds nesting on the site could be injured or killed by construction activities, while birds nesting on or adjacent to the site could be disturbed such that they would abandon their nests. Construction-related mortality of nesting birds and disturbance leading to nest abandonment would violate state and federal laws and be considered a significant impact of the project under CEQA and NEPA.

The special status long-eared owl also has the potential to forage in rural portions of the project site. Individuals of this species would not be vulnerable to construction-related injury or mortality while foraging because they are highly mobile during this activity and because their nocturnal foraging behavior should prevent them from overlapping temporally with construction. The project is not expected to adversely affect this species through loss of foraging habitat. All impacts to such habitats will be temporary, as the sewer mains will be buried and surface habitats will be allowed to return to pre-project conditions. Loss of habitat for the long-eared owl is considered a less than significant impact of the project under CEQA and NEPA.

Mitigation. The following measures will be implemented to avoid and minimize construction-related impacts to nesting migratory birds and raptors including the long-eared owl.

> ***Measure BIO – 8A (Construction Timing).*** If feasible, project construction will occur entirely outside of the February 1-August 31 general avian nesting season.
>
> ***Measure BIO – 8B (Preconstruction Surveys*).** If construction must occur between February 1 and August 31, a qualified biologist will conduct pre-construction surveys for active bird nests within 7 days prior to the start of any work within this period. The survey area will encompass the work area and surrounding lands within 250 feet for nesting migratory birds and 500 feet for raptors.

Measure BIO – 8C (Avoidance of Active Nests). Should any active nests be discovered in or near proposed construction zones, the biologist will identify a suitable construction-free buffer around the nest. The buffer distance will be determined based on species biology, site-specific conditions, and the level of project-related disturbance that is anticipated near the nest(s) in question. Buffers will be identified on the ground with flagging or fencing and will be maintained until the biologist has determined that the young have fledged and are capable of foraging independently.

Implementation of the above measures will reduce project impacts to nesting migratory birds and raptors, including the special status long-eared owl, to a less than significant level under CEQA and NEPA and facilitate compliance with state and federal laws.

e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

No Impact. There are no local policies or ordinances that the Project will conflict with. Additionally, there are no adopted local, regional, or state habitat conservation plans adopted for the area. As such, there is ***no impact.***

Mitigation Measures: None are required.

V. CULTURAL RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☒	☐	☐
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☒	☐	☐
c. Disturb any human remains, including those interred outside of formal cemeteries?	☐	☐	☒	☐

RESPONSES

The Project is subject to CEQA, which holds municipal and state agencies accountable for impacts to the cultural environment. If a project has the potential to cause substantial adverse change in the characteristics of an important cultural resource, known as a "historical resource" under CEQA—either through demolition, destruction, relocation, alteration, or other means—then the project is judged to have a significant impact on the environment (CEQA Guidelines, Section 15064.5[b]). Given that the project will involve ground-disturbing activities and demolition, it has the potential to impact historical resources, if present, within the Project area.

In addition, because the proposed Project will be funded through the State Water Resources Control Board's Clean Water State Revolving Fund, a joint federal-state program, it is federal undertaking per Title 36, Code of Federal Regulations, Section 800.16(y) subject to Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended (Title 54, U.S. Code, Section 306108). As such, the lead federal agency must consider whether a project will have an adverse effect on historic properties (i.e., resources that are eligible for inclusion on the National Register of Historic Places) within the Project Area of Potential Effects (APE).

Human Remains

Section 7050.5 of the California Health and Safety Code states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the remains are discovered has determined whether or not the remains are subject to the coroner's authority. If the human remains are of Native American origin, the coroner must notify the Native American Heritage Commission within 24 hours of this identification. The Native American Heritage Commission will identify a Native American Most Likely Descendant (MLD) to inspect the site and provide recommendations for the proper and dignified treatment of the remains and associated grave artifacts.

Paleontological Resources

Paleontological resources are the fossilized remains of plants and animals and associated deposits. The Society of Vertebrate Paleontology has identified vertebrate fossils, their taphonomic and associated environmental indicators, and fossiliferous deposits as significant nonrenewable paleontological resources. Botanical and invertebrate fossils and assemblages may also be considered significant resources.

CEQA requires that a determination be made as to whether a project would directly or indirectly destroy a unique paleontological resource or site or unique geological feature (CEQA Appendix G(v)(c)). If an impact is significant, CEQA requires feasible measures to minimize the impact (CCR Title 14(3) §15126.4 (a)(1)). California Public Resources Code §5097.5 (see above) also applies to paleontological resources.

Methodology

To meet State and federal requirements, the City retained ASM Affiliates, Inc. to conduct background research, complete a records search, request a search of the Native American Heritage Commission's Sacred Lands File and reach out to appropriate Native American contacts, conduct a cultural resources survey, and prepare a technical report, dated July 2026. The *Class III Inventory / Phase I Survey, Coalinga Sewer Collection System and Wastewater Treatment Plant Improvements Project* (Cultural Study) is included as Appendix D. The results of the Cultural Study are summarized herein and were used to support the determinations made in this CEQA document.

<u>Native American Outreach</u>

As part of the CEQA process, a search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed on May 9, 2024. Based on the NAHC records, the APE is negative for sacred sites or traditional cultural places. Outreach letters were sent on July 23, 2024, to tribal organizations on the NAHC contact list. Follow-up emails were sent on August 30, 2024. On August 12, 2024, Table Mountain Rancheria responded stating the Project was out of their area of interest. No other responses

were received as a result of this outreach. NAHC requests, NAHC results, Tribal outreach letters, and Tribal responses can be found in Confidential Appendix B of Appendix D.

Records Search and Site-Specific Research

To determine whether the Project APE had been previously surveyed for cultural resources, and/or whether any such resources were known to exist within or near to it, staff of the Southern San Joaquin Valley Information Center (SSJVIC) conducted an archival records search on May 29, 2024. The records search was completed to determine: (i) if pre-contact or historic-era cultural resources had previously been recorded within the Project APE; (ii) if the Project APE had been systematically surveyed by archaeologists prior to the initiation of this fieldwork; and/or (iii) whether the area surrounding the proposed Project was known to contain archaeological sites or built environment resources and to thereby be culturally sensitive. Records examined included archaeological site files and maps, the NRHP, Historic Property Data File, California Inventory of Historic Resources, and the California Points of Historic Interest. The records search included the Project APE and a 0.5-mi. buffer.

According to the SSJVIC, six previous studies have been conducted within the Project APE, and 31 previous studies were identified within the 0.5-mi. buffer (Table 4 of Appendix D). Based on SSJVIC data, approximately 30 percent of the Project APE has been previously surveyed. Dates for previous studies in the APE range from 1974 to 2021.

The SSJVIC results identified a single previously recorded cultural resource (P-10-003930) within the APE (Table 5). An additional 17 resources were identified within the 0.5-mi. buffer. The results of the SSJVIC records search are available in Confidential Appendix A of Appendix D.

Pedestrian Survey

The Class III inventory/Phase I survey of the Project APE was conducted from August to September 2024. ASM Associate Archaeologist Robert Azpitarte, BA, conducted the survey with assistance from Assistant Archaeologist Margarita Medina Lemus, BA. Parallel survey transects spaced at maximum intervals of 15 meters (m) apart were employed for pedestrian survey. The Class III inventory/Phase I survey included a review of the Project APE for the presence of built environment features. The field methods employed also included intensive pedestrian examination of the ground surface for evidence of archaeological sites in the form of artifacts, surface features (such as bedrock mortars or historical mining equipment), and archaeological indicators (e.g., organically enriched midden soil or burnt animal bone); the identification and location of any discovered sites, should they be present; tabulation and recording of surface diagnostic artifacts; site sketch mapping; preliminary evaluation of site integrity; and site recording, following the California Office of Historic Preservation (OHP) Instructions for Recording Historic Resources using California Department of Parks and Recreation (DPR) 523 forms. Parallel

survey transects spaced at maximum intervals of 15 m. apart were employed for pedestrian survey of the 174.7 ac. Project APE.

Effects Determinations

a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5?

Less than Significant Impact with Mitigation. A Class III inventory/Phase I survey was conducted for the Coalinga Sanitary Sewer Collection System and WWTP Improvements Project, Fresno County, California. A records search was conducted at the SSJVIC. This search indicated that the portions of the Project APE had been previously surveyed, and a single previously recorded cultural resource (P-10-003930) was observed within the Project APE; however, there are no extant features related to the resource within the current Project APE. An NAHC SLF search was conducted for the Project APE and the NAHC responded with negative SLF results. Geoarchaeological review of the project APE indicates that the pipeline portion of the APE is potentially likely to contain buried deposits; however, historic aerial and topographic map review indicates the APE has been heavily disturbed by development as far back as the mid-twentieth century.

A Class III inventory/Phase I survey fieldwork of the Project APE was conducted in August and September 2024, with parallel transects spaced at 15-m intervals. A single refuse scatter was observed along the northwestern edges of the existing aerator ponds. This refuse scatter was recommended not eligible for the NRHP/CRHR. No other archaeological resources of any kind were identified within the Project APE.

ASM considered the potential for a historic district associated the Coalinga WWTP with six primary buildings and structures, and additional ponds, lagoons, and sludge beds associated with the operations of Coalinga WWTP identified within the APE. ASM evaluated Coalinga WWTP for eligibility for listing in the NRHP/CRHR as a potential historic district and evaluated all buildings and structures associated with the WWTP within the APE. ASM recommended that a potential Coalinga WWTP historic district within the APE is not eligible for listing in the NRHP/CRHR under any criteria. ASM also recommended that none of the buildings, structures, lagoons, or ponds associated with the WWTP are individually eligible for listing in the NRHP/CRHR under any criteria.

A single previously recorded historic-era archaeological site and an unrecorded historic-era archaeological site and a historic-era built structure were recorded during the Class III inventory/Phase I survey. All 3 have been evaluated for eligibility to the NRHP/CRHR as a result of this study and previous studies and are recommended not eligible for inclusion in the NRHP/CRHR. As such, none of these resources are considered historic properties under NHPA nor historical resources under CEQA. and there will be no adverse effect or significant impact.

No cultural resources identified within the APE were recommended eligible for inclusion in the NRHP/CRHR under any criteria. Therefore, ASM recommends that there are no adverse effects or significant impacts as a result of the Project.

Unidentified cultural or historical resources could be uncovered during proposed Project construction which could result in a potentially significant impact; however, implementation of Mitigation Measure CUL-1 would ensure that significant impacts remain ***less than significant with mitigation incorporation.***

Mitigation Measures:

CUL – 1 In the event that archaeological remains are encountered at any time during development or ground-moving activities within the entire Project area, all work in the vicinity of the find should be halted until a qualified archaeologist can assess the discovery and take appropriate actions as necessary.

b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?

Less than Significant Impact with Mitigation. The possibility exists that subsurface construction activities may encounter undiscovered archaeological resources. This would be a potentially significant impact. Implementation of Mitigation Measure CUL-1 would require inadvertently discovery practices to be implemented should previously undiscovered archeological resources be located. As such, impacts to undiscovered archeological resources would be ***less than significant with mitigation incorporation.***

Mitigation Measures: None are required.

c. Disturb any human remains, including those interred outside of formal cemeteries?

Less than Significant Impact. Although unlikely given the highly disturbed nature of the site and the records search did not indicate the presence of such resources, subsurface construction activities associated with the proposed Project could potentially disturb previously undiscovered human burial sites. Accordingly, this is a potentially significant impact. The California Health and Safety Code Section 7050.5 states that if human remains are discovered on-site, no further disturbance shall occur until the Fresno County Coroner has made a determination of origin and disposition. If the Coroner determines that the remains are not subject to his or her authority and if the Coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he

or she shall contact, by telephone within 24 hours, the NAHC. The NAHC shall identify the person or persons it believes to be the "most likely descendant" (MLD) of the deceased Native American. The MLD may make recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resource Code Section 5097.98.

Although considered unlikely subsurface construction activities could cause a potentially significant impact to previously undiscovered human burial sites, however compliance with regulations would reduce this impact to ***less than significant***.

Mitigation Measures: None are required.

VI. ENERGY

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☒	☐
b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☒	☐

RESPONSES

a. Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

b. Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Less Than Significant Impact. Improvements proposed by the City consist of the rehabilitation of approximately 30,815 linear feet (LF) of gravity sewer mains using trenchless construction methods, replacement of approximately 19,801 LF of gravity sewer mains via conventional construction methods, and provision of miscellaneous repairs and improvements to the City's WWTP. During construction, the Project would consume energy in two general forms: (1) the fuel energy consumed by construction vehicles and equipment; and (2) bound energy in construction materials, such as asphalt, steel, concrete, pipes, and manufactured or processed materials such as lumber and glass. Title 24 Building Energy Efficiency Standards would provide guidance on construction techniques for the plant house to maximize energy conservation and it is expected that contractors and the City have a strong financial incentive to use recycled materials and products originating from nearby sources in order to reduce materials costs. As such, it is anticipated that materials used in construction and construction vehicle fuel energy would not involve the wasteful, inefficient, or unnecessary consumption of energy.

Operational Project energy consumption would be minimal, as the sewer mains do not require energy once they are installed. Operational energy would also be consumed during the WWTP processing and during each vehicle trip associated with the proposed use for maintenance or otherwise.

As discussed in Impact XVII – Transportation/Traffic, the proposed Project would not generate on-going daily vehicle trips, other than for maintenance. The length of these trips and the individual vehicle fuel efficiencies are not known; therefore, the resulting energy consumption cannot be accurately calculated. Adopted federal vehicle fuel standards have continually improved since their original adoption in 1975 and assists in avoiding the inefficient, wasteful, and unnecessary use of energy by vehicles.

As discussed previously, the proposed Project would be required to implement and be consistent with existing energy design standards at the local and state level, such as Title 24. The Project would also be subject to energy conservation requirements in the California Energy Code and CALGreen for the new structures associates with the WWTP improvements. Adherence to state code requirements would ensure that the Project would not result in wasteful and inefficient use of non-renewable resources due to operation.

Therefore, any impacts are ***less than significant***.

Mitigation Measures: None are required.

VII. GEOLOGY AND SOILS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☒	☐
ii. Strong seismic ground shaking?	☐	☐	☒	☐
iii. Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv. Landslides?	☐	☐	☒	☐
b. Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d. Be located on expansive soil, as defined in Table 18-1-B of the most recently	☐	☐	☒	☐

VII. GEOLOGY AND SOILS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
adopted Uniform Building Code creating substantial direct or indirect risks to life or property?				
e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☐	☒	☐

RESPONSES

a-i. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

Less Than Significant Impact. Coalinga is located in a seismically active area. According to the Fault Rupture Zones Map prepared by the California Department of Conservation in 2018, the Project site is not located within a Fault-Rupture Hazard Area. Moreover, no active faults have been identified within Coalinga. The nearest fault to Coalinga is a portion of the San Andreas Fault, located approximately 15-20 miles east of Coalinga. The Project Area could be subjected to strong ground shaking during an earthquake on a nearby fault. However, the proposed Project does not include the installation of any habitable structures. The Project will be required to adhere to all relevant building codes, including the California Building Code (CBC) requirements. Adherence to local and State regulations would result in a l***ess than significant impact.***

Mitigation Measures: None are required.

a (ii-iv). Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic ground shaking, liquefaction or landslides?

Less than Significant Impact. It is anticipated that the proposed Project site would be subject to some ground acceleration and ground shaking associated with seismic activity during its design life. However, the Project is not proposing any habitable structures that would be subject to risk of injury from strong seismic ground shaking or liquefaction. In addition, the site is relatively flat, which precludes the risk of landslides. The Project will be required to adhere to all relevant building codes, including the California Building Code (CBC) requirements. Adherence to local and State regulations would result in a l***ess than significant impact.***

Mitigation Measures: None are required.

b. Result in substantial soil erosion or the loss of topsoil?

Less than Significant Impact. The proposed Project site has relatively flat topography and does not include any Project features that would result in substantial soil erosion or loss of topsoil. Most of the Project components will be located below grade. Once construction is completed, the sewer main trenches will be returned to pre-construction conditions and will not result in soil erosion greater than existing conditions. Therefore, the impact is ***less than significant***.

Mitigation Measures: None are required.

c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less than Significant Impact. As described in Impact VI (aii-aiv), the potential for landslides, liquefaction, settlement or other seismically related hazards is less than significant. As such, the Project will not be constructed on unstable soil and any impacts will be ***less than significant.***

Mitigation Measures: None are required.

d. Be located on expansive soil, as defined in Table 18-1-B of the most recently adopted Uniform Building Code creating substantial risks to life or property?

Less than Significant Impact. As described above, the potential for hazards from landslide and liquefaction in the Project area is less than significant. Therefore, the potential for liquefaction induced lateral spreading is also less than significant. Causes of soil instability include, but are not limited to, withdrawal of groundwater, pumping of oil and gas from underground, liquefaction, and hydro-compaction.[3] The proposed Project does not include the on-site withdrawal of groundwater and the Project site is not located in an area that has been subjected to activities that might cause soil instability. Because the Project site has not been subject to activities that may cause soil instability, the risk of subsidence or collapse is expected to be low. Any impacts would be ***less than significant.***

Mitigation Measures: None are required.

e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?

Less Than Significant Impact. The Project itself is a sewer main rehabilitation and replacement and WWTP improvement Project in the Project Area. No septic tanks or alternative waste water disposal systems are included in the proposed Project. The Project has been designed to work with the soil types in the City. Therefore, there would be a ***less than significant impact.***

Mitigation Measures: None are required.

f. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Less Than Significant Impact. Paleontological resources are the fossilized remains of plants and animals and associated deposits. The Society of Vertebrate Paleontology has identified vertebrate fossils, their taphonomic and associated environmental indicators, and fossiliferous deposits as significant nonrenewable paleontological resources. Botanical and invertebrate fossils and assemblages may also be considered significant resources.

[3] USGS. California Water Science Center. Land Subsidence: Cause & Effect. https://ca.water.usgs.gov/land_subsidence/california-subsidence-cause-effect.html. Accessed March 2026.

CEQA requires that a determination be made as to whether a project would directly or indirectly destroy a unique paleontological resource or site or unique geological feature (CEQA Appendix G(v)(c)). If an impact is significant, CEQA requires feasible measures to minimize the impact (CCR Title 14(3) §15126.4 (a)(1)). California Public Resources Code §5097.5 (see above) also applies to paleontological resources.

There are no unique geological features or known fossil-bearing sediments in the vicinity of the proposed Project site. However, there remains the possibility for previously unknown, buried paleontological resources or unique geological sites to be uncovered during subsurface construction activities. Implementation of Mitigation Measure CUL-1 (See Section V – Cultural Resources) would require inadvertently discovery practices to be implemented should previously undiscovered paleontological resources be located. As such, impacts to undiscovered paleontological resources would be ***less than significant.***

Mitigation Measures: Implement Mitigation Measure CUL – 1.

VIII. GREENHOUSE GAS EMISSIONS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐

RESPONSES

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

b. Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact. The proposed Project would generate exhaust-related GHG emissions during construction resulting from construction equipment operation, material haul and delivery trucks, and by trips by construction worker vehicles. Construction-related GHG emissions are estimated to begin in Year 2027 and end in 2028. Emissions would cease following completion of the Project. The proposed Project is not a land-use development project that would generate vehicle trips and is not a roadway capacity increasing project that could carry additional VMT. Therefore, the proposed Project would not result in a net increase in operational GHG emissions. As such, the proposed Project would not interfere or obstruct implementation of an applicable GHG emissions reduction plan. The proposed Project would be consistent with all applicable local plans, policies, and regulations for reducing GHG emissions. Any impacts related to GHG emissions would be ***less than significant.***

Mitigation Measures: None are required.

IX. HAZARDS AND HAZARDOUS MATERIALS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☒	☐
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☐	☒
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f. Impair implementation of or physically interfere with an adopted emergency	☐	☐	☒	☐

IX. HAZARDS AND HAZARDOUS MATERIALS

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
response plan or emergency evacuation plan?				
g. Expose people or structures either directly or indirectly to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☐	☒

RESPONSES

a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Less than Significant Impact. While trenching, grading and construction activities may involve the limited transport, storage, use or disposal of hazardous materials, such as the fueling/servicing of construction equipment onsite, the activities would be short-term or one-time in nature and would be subject to federal, state, and local health and safety regulations.

Long-term operation of the proposed Project would involve transport, storage, use or disposal of hazardous materials. Water treatment chemicals may be utilized at the WWTP treatment site. Small quantities of petroleum products, thinners, and paints would also likely be used on-site. There are several federal, state and local requirements and regulations that are designed to minimize risks from accidental releases of hazardous materials and the proposed Project will be in compliance with all applicable requirements and regulations. Hazardous material storage and use areas at the WWTP will be built and operated in compliance with the minimum requirements of the Uniform Fire Code and the California Fire Code. Additionally, improvements to the WWTP will be constructed in compliance with the California Building Code, which requires design features to resist forces generated by a major earthquake with limited architectural or structural damage and to provide adequate fire protection that precludes accidental releases of hazardous chemicals due to fire. The WWTP improvements are also subject to review and approval by the Regional Water Quality Control Board (RWQCB). Since the

Project is intended to improve the existing deteriorated sewer system, it is assumed to have a positive impact by reducing the number of sewer breaks/leaks or other issues that may result in the release of hazardous materials.

With implementation of the proposed Project, there are no reasonably foreseeable upset and accident conditions that would create a significant hazard to the public due to the release of hazardous materials. Impacts are considered ***less than significant***.

Mitigation Measures: None are required.

c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Less Than Significant Impact. There are several schools within ¼ mile of the proposed pipelines including elementary schools, a middle school, a high school and a community college.. As previously described, long-term operation of the proposed Project would involve little or no hazardous materials (see previous responses). Once operational, the sewer mains are sealed and will not emit hazardous materials. The WWTP is located more than ¼ mile from the school. Since the Project is intended to improve the existing deteriorated sewer system, it is assumed to have a positive impact by reducing the number of sewer breaks/leaks or other issues that may result in the release of hazardous materials. Therefore, there is a ***less than significant impact.***

Mitigation Measures: None are required.

d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

Less Than Significant Impact. The proposed Project would occur throughout the City of Coalinga. There are five sites on a list of hazardous materials sites complied pursuant to Government Code Section 65962.5.[4] These sites consist of two Historical Sites, a School Cleanup Site, a Voluntary Cleanup Site and an Evaluation Site. The proposed Project will not impede on these sites and none

[4] California Department of Toxic Substance Control. EnviroStor. https://www.envirostor.dtsc.ca.gov/public/map/?myaddress=delrey. Accessed July 2026.

of the sites are considered a Federal Superfund or State Response site. As such, there is a ***less than significant impact.***

Mitigation Measures: None are required.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?

Less Than Significant Impact. There are no airports or airstrips within two miles of the Project. The nearest airport is the Coalinga Municipal Airport located approximately 2 ¼ miles northeast of the Project sites. Therefore, the Project has ***no impact*** on any airport operations.

Mitigation Measures: None are required.

f. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Less Than Significant Impact. Sewer main replacement and rehabilitation will be temporary in nature and will not cause any road closures that could interfere with any adopted emergency response or evacuation plan. Construction schedules pertaining to pipelines within roadways will be coordinated with police/fire/emergency services. Adequate emergency access will be maintained at all times. As such, any impacts will be ***less than significant***.

Mitigation Measures: None are required.

g. Expose people or structures either directly or indirectly to a significant risk of loss, injury or death involving wildland fires?

No Impact. Implementation of the Project would not change the degree of exposure to wildfires because no new housing or businesses or other habitable structures will be constructed. Therefore, there is ***no impact.***

Mitigation Measures: None are required.

X. HYDROLOGY AND WATER QUALITY

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☒	☐
i. Result in substantial erosion or siltation on- or off- site;	☐	☐	☒	☐
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv. impede or redirect flood flows?	☐	☐	☒	☐

X. HYDROLOGY AND WATER QUALITY

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
d. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

RESPONSES

a. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Less than Significant Impact. Improvements proposed by the City consist of the rehabilitation of approximately 30,815 linear feet (LF) of gravity sewer mains using trenchless construction methods, replacement of approximately 19,801 LF of gravity sewer mains via conventional construction methods, and provision of miscellaneous repairs and improvements to the City's WWTP.

The primary need for a sewer collection system improvement project is due to the significant deterioration of the sewer infrastructure in the current City area. Inspection revealed poor condition of some of the City's older sewer lines. Defects observed included deformation, root intrusion, cracked pipes, collapsed and broken pipes, sags, intruding laterals, defective lateral break-ins, attached deposits, and medium to large joint displacements. There have been no formal Notices of Violation (NOV) from regulatory agencies concerning the City's sewer collection system; however, numerous health and safety threats may arise from sewer system overflows because of sewer line disrepair, which would ultimately result in dangerous conditions on the City's streets and residential properties.

Construction

Excavation, trenching and soil-impacting activities associated with construction of the Project could temporarily increase runoff, erosion, and sedimentation. Construction activities also could result in soil compaction and wind erosion effects that could adversely affect soils and reduce the revegetation potential at construction sites and staging areas.

Three general sources of potential short-term construction-related stormwater pollution associated with the proposed Project are: 1) the handling, storage, and disposal of construction materials containing pollutants; 2) the maintenance and operation of construction equipment; and 3) earth moving activities which, when not controlled, may generate soil erosion and transportation, via storm runoff or mechanical equipment. Generally, routine safety precautions for handling and storing construction materials may effectively mitigate the potential pollution of stormwater by these materials. These same types of common sense, "good housekeeping" procedures can be extended to non-hazardous stormwater pollutants such as sawdust and other solid wastes.

Poorly maintained vehicles and heavy equipment leaking fuel, oil, antifreeze, or other fluids on the construction site are also common sources of stormwater pollution and soil contamination. In addition, grading activities can greatly increase erosion processes. Two general strategies are recommended to prevent construction silt from entering local storm drains. First, erosion control procedures should be implemented for those areas that must be exposed. Secondly, the area should be secured to control offsite migration of pollutants. These best management practices (BMPs) would be required in the Storm Water Pollution Prevention Plan (SWPPP) to be prepared prior to commencement of Project construction activities. When properly designed and implemented, these "good-housekeeping" practices are expected to reduce short-term construction-related impacts to less than significant.

In accordance with the National Pollutant Discharge Elimination System (NPDES) Stormwater Program, the Project will be required to comply with existing regulatory requirements to prepare a Storm Water Pollution Prevention Plan (SWPPP) designed to control erosion and the loss of topsoil to the extent practicable using BMPs that the RWQCB has deemed effective in controlling erosion, sedimentation, runoff during construction activities. The specific controls are subject to the review and approval by the RWQCB and are an existing regulatory requirement. Preparation of a SWPPP is a regulatory requirement of the Project and thus is not listed as a mitigation measure. Compliance with the NPDES and SWPPP would ensure that the proposed Project would have a less than significant impact relative to this topic.

Operation

The proposed Project includes several miscellaneous improvements to the existing City-operated WWTP. The WWTP improvements and implementation will be performed under the regulatory requirements of the County of Fresno, the State Water Resources Control Board, and the Regional Water Quality Control Board. Compliance with such regulations will ensure that water quality and waste discharge standards are met. The wastewater characteristics will be typical of urban development and will not result in any additional water releases that could potentially impact groundwater or water quality. Because the Project provides long-needed upgrades to sewer mains currently experiencing blockages and leaks, the Project will likely have a beneficial impact on water quality because of the

elimination of existing leaking or damaged sewer pipelines that currently exist. Compliance with the regulatory requirements of the County of Fresno, the State Water Resources Control Board, and the Regional Water Quality Control Board would result in a ***less than significant impact***.

Mitigation Measures: None are required.

b. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?

Less Than Significant Impact. Improvements proposed by the City consist of the rehabilitation of and replacement of gravity sewer mains and improvements to the City's WWTP. The Project will not use additional groundwater beyond what is already being used in the Project Area. Additionally, the proposed Project will not significantly interfere with groundwater recharge as it will not introduce significant new impermeable surfaces. As such, any impacts to groundwater supplies will be ***less than significant***.

Mitigation Measures: None are required.

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

i. result in substantial erosion or siltation on- or offsite;
ii. substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
iii. create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or
iv. impede or redirect flood flows?

Less than Significant Impact. The proposed upgrades to the sewer collection system will introduce a minimal amount of new non-permeable surfaces. The pipelines and other improvements will be installed within the existing road right-of-way, or other easements and will not alter any existing drainage patterns. All areas where the improvements are made will be restored to pre-construction conditions. There are no waterways that will be impacted in the immediate vicinity of the proposed Project. Any impacts would be ***less than significant.***

Mitigation Measures: None are required.

d. In flood hazard, tsunami or seiche zones, risk release of pollutants due to project inundation?

e. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

No Impact. The Project is not within a regulatory floodway or within a base floodplain (100 year) elevation. In addition, the Project does not include any housing or structures that would be subject to flooding either from a watercourse or from dam inundation. There are no bodies of water near the site that would create a potential risk of hazards from seiche, tsunami or mudflow. The Project will not conflict with any water quality control plans or sustainable groundwater management plan. Therefore, there are ***no impacts.***

Mitigation Measures: None are required.

XI. LAND USE AND PLANNING

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Physically divide an established community?	☐	☐	☐	☒
b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

RESPONSES

a. Physically divide an established community?

b. Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

No Impact. Improvements proposed by the City consist of the rehabilitation and replacement of gravity sewer mains and provision of miscellaneous repairs and improvements to the City's WWTP. The proposed Project pipelines are located largely within the existing streetscape within the City as presented in Figure 2 in Chapter Two – Project Description. The rehabilitation and replacement of the sewer mains would not cause any land use changes in the surrounding vicinity nor would it divide an established community. Once construction is completed, disturbed ground around the pipelines will be restored to pre-construction conditions. The WWTP improvements would be located on-site where the current WWTP has been constructed. This area is not surrounded by any urban uses and thus would not cause an established community to divide. The proposed Project involves improvements to the existing sewer infrastructure system and does not conflict with any land use plans, policies or regulations. ***No impacts*** would occur as a result of Project implementation.

Mitigation Measures: None are required.

XI. MINERAL RESOURCES

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

RESPONSES

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

No Impact. Improvements proposed by the City consist of the rehabilitation and replacement of gravity sewer mains and provision of miscellaneous repairs and improvements to the City's WWTP. Construction will primarily take place within the existing streetscape and on the existing WWTP site and not in an area with known mineral resources. Therefore, there is ***no impact***.

Mitigation Measures: None are required.

XII. NOISE

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b. Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c. For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☒	☐

RESPONSES

a. Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

b. Generation of excessive groundborne vibration or groundborne noise levels?

Less than Significant Impact. The nearest sensitive receptors to the proposed Project would be the residences along the existing pipeline alignment, as presented in Figure 2. Project construction would involve temporary, short-term noise sources including site preparation and installation of the sewer mains. Construction-related short-term, temporary noise levels would be higher than existing ambient noise levels in the Project area, but is temporary and would not occur after construction is completed.

Operations-related noise would be similar to existing conditions. The pipelines themselves do not emit noise, nor do the related improvements. The proposed WWTP improvements would be located on the existing WWTP site, in an area without adjacent residences or businesses. As such, any on-going noise impacts to sensitive receptors would be less than significant.

During the proposed Project construction, noise from construction related activities will contribute to the noise environment in the immediate vicinity. Activities involved in construction will generate maximum noise levels, as indicated in Table 2, ranging from 79 to 91 dBA at a distance of 50 feet, without feasible noise control (e.g., mufflers) and ranging from 75 to 80 dBA at a distance of 50 feet, with feasible noise controls.

Table 2
Typical Construction Noise Levels

Type of Equipment	dBA at 50 ft	
	Without Feasible Noise Control	With Feasible Noise Control
Dozer or Tractor	80	75
Excavator	88	80
Scraper	88	80
Front End Loader	79	75
Backhoe	85	75
Grader	85	75
Truck	91	75

The distinction between short-term construction noise impacts and long-term operational noise impacts is a typical one in both CEQA documents and local noise ordinances, which generally recognize the reality that short-term noise from construction is inevitable and cannot be mitigated beyond a certain level. Thus, local agencies frequently tolerate short-term noise at levels that they would not accept for permanent noise sources. A more severe approach would be impractical and might preclude the kind of construction activities that are to be expected from time to time. Most residents recognize this reality and expect to hear construction activities on occasion.

The City's General Plan states that noise associated with construction shall be exempted, as long as construction activities take place between 7:00 a.m. and 9:00 p.m. on any day except Saturday or Sunday, or between the hours of 8:00 a.m. or after 5:00 p.m. on Saturday or Sunday. Adherence to the City's Noise Ordinance will result in less than significant impacts associated with this topic.

Vibration

Typical outdoor sources of perceptible ground borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. Construction vibrations can be transient, random, or continuous. Construction associated with the proposed Project is earthmoving activities associated with the replacement and rehabilitation of the sewer mains.

The approximate threshold of vibration perception is 65 VdB, while 85 VdB is the vibration acceptable only if there are an infrequent number of events per day.[5] Table 3 describes the typical construction equipment vibration levels.

Table 3
Typical Construction Vibration Levels

Equipment	VdB at 25 ft
Small Bulldozer	58
Jackhammer	79

Vibration from construction activities will be temporary and not exceed the Federal Transit Authority threshold for the nearest sensitive receptors. As such, any impacts resulting from an increase in noise levels or from groundborne noise levels is ***less than significant.***

Mitigation Measures: None are required.

c. For a project located within the vicinity of a private airstrip or an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

Less Than Significant Impact. As there are no airports or airstrips in the vicinity, there is ***no impact***.

Mitigation Measures: None are required.

[5] Transit Noise and Vibration Impact Assessment. Final Report No. FTA-VA-90-1003 prepared for the U.S. Federal Transit Administration by Harris Miller Miller & Hanson Inc., May 2006. Page 7-5. https://www.transit.dot.gov/research-innovation/transit-noise-and-vibration-impact-assessment-manual-report-0123. Accessed March 2026.

XIV. POPULATION AND HOUSING

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐

RESPONSES

a. Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

b. Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

Less Than Significant Impact. There are no new homes or businesses associated with the proposed Project, nor would Project implementation displace people or housing. The proposed Project is needed to improve existing sewer infrastructure. There is a ***less than significant impact***.

Mitigation Measures: None are required.

XV. PUBLIC SERVICES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
Fire protection?	☐	☐	☒	☐
Police protection?	☐	☐	☒	☐
Schools?	☐	☐	☒	☐
Parks?	☐	☐	☒	☐
Other public facilities?	☐	☐	☒	☐

RESPONSES

a. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

Fire Protection?

No Impact. The proposed Project would improve the existing Project Area sewer system. The proposed Project would not directly or indirectly induce population growth and the City's fire suppression services would continue to provide service to the site. There is ***no impact.***

Police Protection?

No Impact. The proposed Project would improve the existing Project Area sewer system. The proposed Project would not directly or indirectly induce population growth and the City's Police Department would continue to provide service to the site. There is ***no impact.***

Schools, Parks, Other Public Facilities?

No Impact. The proposed Project would not increase the number of residents in the City, as the Project does not include residential units. Because the demand for schools, parks, and other public facilities is driven by population, the proposed Project would not increase demand for those services. As such, the proposed Project would result in ***no impacts.***

Mitigation Measures: None are required.

XVI. RECREATION

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

RESPONSES

a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

b. Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

No Impact. The proposed Project does not include the construction of residential uses and would not directly or indirectly induce population growth. Therefore, the proposed Project would not cause physical deterioration of existing recreational facilities from increased usage or result in the need for new or expanded recreational facilities. The Project would have ***no impact*** to existing parks.

Mitigation Measures: None are required.

XVII. TRANSPORTATION/ TRAFFIC

Would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☒	☐
c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
d. Result in inadequate emergency access?	☐	☐	☒	☐

RESPONSES

a. Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

b. Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

c. Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

d. Result in inadequate emergency access?

Less Than Significant Impact. The proposed Project would not cause a substantial increase in traffic, reduce the existing level of service, create any additional congestion at any intersections, or be inconsistent with CEQA Guidelines Section 15064.3. Once completed, the replaced and rehabilitated sewer mains, as well as the necessary WWTP upgrades, will not generate any substantial additional daily traffic (beyond routine maintenance traffic trips) and as such, level of service standards would not be

exceeded. There are no components of the proposed Project that would increase hazards due to a geometric design feature. As traffic due to construction activities would be temporary in nature, the proposed Project would not cause a substantial increase in traffic or result in inadequate emergency access. Construction schedules pertaining to pipelines within roadways will be coordinated with police/fire/emergency services. Adequate emergency access will be maintained at all times.

Once installed, the proposed Project would not generate significant additional traffic trips per day, other than as needed for periodic maintenance. The Project would not conflict with a program plan, ordinance, or policy addressing the circulation system and as such, impacts would be ***less than significant.***

Mitigation Measures: None are required.

XVIII. TRIBAL CULTURAL RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☒	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☒	☐

RESPONSES

a). Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:

i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or

ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Less Than Significant Impact. In accordance with Assembly Bill (AB) 52, potentially affected Tribes were formally notified of this Project and were given the opportunity to request consultation on the Project.

As part of the CEQA process, a search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed on May 9, 2024. Based on the NAHC records, the APE is negative for sacred sites or traditional cultural places. Outreach letters were sent on July 23, 2024, to tribal organizations on the NAHC contact list. Follow-up emails were sent on August 30, 2024. On August 12, 2024, Table Mountain Rancheria responded stating the Project was out of their area of interest. No other responses were received as a result of this outreach. NAHC requests, NAHC results, Tribal outreach letters, and Tribal responses can be found in Confidential Appendix B of Appendix D. Therefore, there is a ***less than significant impact***.

Mitigation Measures: None are required.

XIX. UTILITIES AND SERVICE SYSTEMS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	☒
c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☒	☐
d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☒	☐
e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐

RESPONSES

a. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less Than Significant Impact. Improvements proposed by the City consist of the rehabilitation and replacement of gravity sewer mains and provision of miscellaneous repairs and improvements to the City's WWTP.

The primary need for a sewer collection system improvement project is due to the significant deterioration of the sewer infrastructure in the current City area. Inspection revealed poor condition of some of the City's older sewer lines. Defects observed included deformation, root intrusion, cracked pipes, collapsed and broken pipes, sags, intruding laterals, defective lateral break-ins, attached deposits, and medium to large joint displacements. There have been no formal Notices of Violation (NOV) from regulatory agencies concerning the City's sewer collection system; however, numerous health and safety threats may arise from sewer system overflows because of sewer line disrepair, which would ultimately result in dangerous conditions on the City's streets and residential properties.

The proposed Project includes several miscellaneous improvements to the existing City-operated WWTP. The WWTP improvements and implementation will be performed under the regulatory requirements of the County of Fresno, the State Water Resources Control Board, and the Regional Water Quality Control Board. Compliance with such regulations will ensure that water quality and waste discharge standards are met. The wastewater characteristics will be typical of urban development and will not result in any additional water releases that could potentially impact groundwater or water quality. Because the Project provides long-needed upgrades to sewer mains currently experiencing blockages and leaks, the Project will likely have a beneficial impact on water quality because of the elimination of existing leaking or damaged sewer pipelines that currently exist. Compliance with the regulatory requirements of the County of Fresno, the State Water Resources Control Board, and the Regional Water Quality Control Board would result in a ***less than significant impact***. There are no other utility expansions that would be needed for the Project.

Mitigation Measures: None are required.

b. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

No Impact. Improvements proposed by the City consist of the rehabilitation and replacement of gravity sewer mains and provision of miscellaneous repairs and improvements to the City's WWTP. No new water supplies would be required as a result of this Project. There is ***no impact.***

Mitigation Measures: None are required.

c. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less Than Significant Impact. See Response XIX (a) above. The Project itself consists of improvements to the City's sewer system and WWTP. The City's existing commitments to its users will remain unaffected. Compliance with the regulatory requirements of the County of Fresno, the State Water Resources Control Board, and the Regional Water Quality Control Board would result in a ***less than significant impact***.

Mitigation Measures: None are required.

d. Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

e. Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less Than Significant Impact. Proposed Project construction and operation will generate minimal amounts of solid waste. The proposed Project will not generate waste on an on-going basis and will comply with all federal, state and local statutes and regulations related to solid waste. Any impacts will be ***less than significant.***

Mitigation Measures: None are required.

XX. WILDFIRE

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

RESPONSES

a. Substantially impair an adopted emergency response plan or emergency evacuation plan?

b. Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

c. Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

d. Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?

Less Than Significant Impact. The proposed Project is located in areas that have been developed with urban uses/agricultural and there are no areas within or adjacent to the Project Area that have a significant wildfire risk. The Project will include WWTP improvements, underground sewer mains and minor related improvements. There is no increased risk or on-going risk of wildfire beyond existing conditions associated with the Project.

As such, any wildfire risk to the project structures or people would be ***less than significant.***

Mitigation Measures: None are required.

XXI. MANDATORY FINDINGS OF SIGNIFICANCE

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporation	Less than Significant Impact	No Impact
a. Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

RESPONSES

a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Less than Significant Impact With Mitigation. The analyses of environmental issues contained in this Initial Study indicate that the proposed Project is not expected to have substantial impact on the environment or on any resources identified in the Initial Study. Mitigation measures have been incorporated in the Project to reduce all potentially significant impacts to ***less than significant***.

b. Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Less than Significant Impact. CEQA Guidelines Section 15064(i) states that a Lead Agency shall consider whether the cumulative impact of a project is significant and whether the effects of the project are cumulatively considerable. The assessment of the significance of the cumulative effects of a project must, therefore, be conducted in connection with the effects of past projects, other current projects, and probable future projects. Due to the nature of the Project and consistency with environmental policies, incremental contributions to impacts are considered less than cumulatively considerable. The proposed Project would not contribute substantially to adverse cumulative conditions, or create any substantial indirect impacts (i.e., increase in population could lead to an increase need for housing, increase in traffic, air pollutants, etc.). The impact is ***less than significant***.

c. Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Less than Significant Impact With Mitigation. The analyses of environmental issues contained in this Initial Study indicate that the project is not expected to have substantial impact on human beings, either directly or indirectly. Mitigation measures have been incorporated in the Project to reduce all potentially significant impacts to ***less than significant.***

Chapter 4

MITIGATION MONITORING & REPORTING PROGRAM

MITIGATION MONITORING AND REPORTING PROGRAM

This Mitigation Monitoring and Reporting Program (MMRP) has been formulated based upon the findings of the Initial Study/Mitigated Negative Declaration (IS/MND) for the City of Coalinga – Sanitary Sewer Collection System and WWTP Improvements Project. The MMRP lists mitigation measures recommended in the IS/MND for the proposed Project and identifies monitoring and reporting requirements as well as conditions recommended by responsible agencies who commented on the project.

The first column of the Table identifies the mitigation measure. The second column, entitled "Party Responsible for Implementing Mitigation," names the party responsible for carrying out the required action. The third column, "Implementation Timing," identifies the time the mitigation measure should be initiated. The fourth column, "Party Responsible for Monitoring," names the party ultimately responsible for ensuring that the mitigation measure is implemented. The last column will be used by the City to ensure that individual mitigation measures have been monitored.

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
Biological Resources				
Protection of Monarch Butterfly *Mitigation Measure BIO – 1A (Milkweed Survey).* Prior to the start of construction, a qualified biologist will conduct a survey for milkweed plants in any portion of the sewer main work area that passes through residential yards, park land, ruderal/fallow fields, or other potentially suitable habitats. The survey will be conducted at a time of year when milkweed is readily identifiable. The objective of the survey will be to tally and map all milkweed plants that could potentially be impacted by project activities. *Mitigation Measure BIO – 1B (Construction Timing).* If feasible, no milkweed plants will be removed during the period when monarchs may be breeding in the project vicinity, March 15-October 31 (The Xerces Society 2019). *Mitigation Measure BIO – 1C (Compensatory Mitigation).* Any milkweed plants located within areas proposed for impact will be replaced at a 3:1 ratio in accordance with a revegetation plan prepared by a qualified biologist. The planting site(s) must be in similar or higher quality habitat to the	City of Coalinga	Prior to and/or during construction	City of Coalinga and construction contractor	

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
habitat that was impacted, in area(s) that will not be treated with pesticides or herbicides. **Protection of Southwestern Pond Turtle** *Mitigation Measure BIO – 2A (Construction Timing).* Construction activities at the WWTP will take place entirely between the months of November and March to avoid the typical timeframe for southwestern pond turtle nesting and egg incubation in this locality. *Mitigation Measure BIO – 2B (Preconstruction Survey).* Within 24 hours prior to the start of construction at the WWTP, a qualified biologist will survey the WWTP work area to identify any locations of possible underground nests, as would be indicated by eggshells on the surface from predation. Because hatchlings sometimes overwinter underground in their nests, this survey is required even with the implementation of Mitigation Measure 4.1.2a above. *Mitigation Measure BIO – 2C (Environmental Awareness Training).* Prior to the start of construction at the WWTP, construction personnel will be trained on the identification, behavior, and ecology of the southwestern pond turtle, and the project-specific measures adopted for its protection.				

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
Attendees will be given a handout that summarizes the training material and provides a photographic key to differentiating between the southwestern pond turtle and the common non-native red-eared slider. Attendance at all training sessions will be documented on sign-in sheets. *Mitigation Measure BIO – 2D (Refuge Ponds).* Construction activities at the WWTP will be staged so that, at any given time, at least two ponds suitable for the southwestern pond turtles will be inundated to their full operational depth ("refuge ponds"). In the first stage, at least two of the existing stabilization ponds will remain inundated, as these (and not the aerated lagoons) are presently occupied by pond turtles. Construction activities may proceed at the remaining features. As any given feature is converted to a percolation pond and inundated to its full operational depth, it will become a refuge pond and one of the previous refuge ponds may be released for dewatering and construction. *Mitigation Measure BIO – 2D (Construction Monitoring).* One or more qualified biologists will continuously monitor construction activities at the WWTP for the protection of southwestern pond turtles. The biologist(s) will look for pond turtles				

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
attempting to leave the ponds or otherwise traveling through upland areas of the WWTP, and will hand-capture and relocate these individuals to the nearest refuge pond. Any red-eared sliders or other introduced turtles that are discovered during this effort will be removed from the WWTP and either permanently rehomed or humanely dispatched. The biologist(s) will monitor all ground-disturbing activities in upland areas, looking for any subterranean nests or hatchlings that may be unearthed. The biologist(s) will have the authority to stop work if any nests or hatchlings are detected, and will appropriately secure the area before construction resumes. The number of biologists on site at any given time will be determined by the scope and extent of construction activities. *Mitigation Measure BIO – 2E (WWTP Operational Practices to Ensure No Net Loss of Aquatic Habitat).* During operation of the upgraded WWTP, periodic dry-down and disking of the percolation ponds will be staged so that, at any given time, at least three ponds encompassing a minimum of 12.5 acres will be inundated to their full operational depth. *Mitigation Measure BIO – 2F (Habitat Enhancement).* When inundated, each percolation pond will be equipped with at least three turtle basking				

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
structures. Such devices may consist of logs or floating boards, anchored with chains and weights, that can be removed during periods of dry-down and reinstalled once the pond is ready to be placed back in service. *Mitigation Measure BIO – 2G (Annual Monitoring).* For the first five years post-construction, a qualified biologist will conduct annual monitoring of the WWTP's southwestern pond turtle population. Monitoring surveys will be conducted between May and July, when pond turtles are most active, and will target favorable weather conditions for basking. The biologist will assess aquatic habitat suitability by noting inundation levels, recording the species composition and cover of any emergent vegetation, conducting a dipnet survey for invertebrate food sources, and evaluating other parameters as appropriate. The biologist will record the number of all turtles observed by species and age class. An attempt will be made to capture any red-eared sliders or other introduced turtles that are discovered during annual monitoring; captured individuals will be removed from the WWTP and either permanently rehomed or humanely dispatched. The biologist will document their findings in an annual report, to be submitted to the City of Coalinga and other agencies as necessary. If				

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
any corrective actions are needed, they will be identified in the annual report and promptly implemented by the City. **Protection of Temblor Legless Lizard, California Glossy Snake, and San Joaquin Coachwhip** *Mitigation Measure BIO – 3A* (*Preconstruction Surveys*). Within 24 hours prior to the start of construction activities at the WWTP and in rural portions of the sewer main work area, a qualified biologist will conduct preconstruction surveys for the Temblor legless lizard, California glossy snake, and San Joaquin coachwhip. The biologist will make an attempt to hand-capture any individuals of these species that are found and relocate them to suitable alternative habitat away from the work area. *Mitigation Measure BIO – 3B (Environmental Awareness Training).* Prior to the start of construction at the WWTP and in rural portions of the sewer main work area, construction personnel will be trained on the identification, behavior, and ecology of the Temblor legless lizard, California glossy snake, and San Joaquin coachwhip, and the project-specific measures adopted for its protection. Attendees will be given a handout that summarizes				

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
the training material. Attendance at all training sessions will be documented on sign-in sheets. *Mitigation Measure BIO – 3C* (*Protective Measures During Construction*). Workers will regularly inspect the work area for reptiles. At a minimum, this will include (1) checking for reptiles under and around any parked vehicles or equipment prior to their operation, (2) scanning the ground for reptiles while operating vehicles or equipment, and (3) checking any open trenches or other excavations for trapped reptiles at the beginning and end of each work day. Any reptiles found during these inspections will be allowed to leave the area of their own volition, or will be captured and relocated out of harm's way. **Protection of Swainson's Hawk** *Mitigation Measure BIO – 4A* (*Construction Timing*). If feasible, project construction will occur entirely outside of the March -September 15 Swainson's hawk nesting season. *Mitigation Measure BIO – 4B* (*Protocol Nesting Surveys*). If construction activities must occur between March 1 and September 15, then a qualified biologist will conduct protocol nesting surveys in accordance with the Swainson's Hawk Technical				

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
Advisory Committee (SHTAC) 2000 *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*. Surveys will be conducted in at least the two SHTAC-defined survey periods immediately preceding construction. The survey periods are Period 1: January-March 20, Period II: March 20-April 5, Period III: April 5-20, Period IV: April 21-June 10, Period V: June 10-July 30. *Mitigation Measure BIO – 4C* (*Avoidance of Active Nests*). Should any active nests be discovered within the survey area, an appropriate disturbance-free buffer will be established by the biologist based on local conditions and agency guidelines. Disturbance free buffers will be identified on the ground with flagging, fencing, or by other easily visible means and will be maintained until a qualified biologist has determined that the young have fledged and are capable of foraging independently. **Protection of Burrowing Owl** *Mitigation Measure BIO – 5A (Take Avoidance Survey).* A take avoidance survey for burrowing owls will be conducted by a qualified biologist within 14 days prior to the start of construction, following methods described in the *Staff Report on Burrowing Owl*				

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
Mitigation (CDFG 2012). The survey area will include all potential roosting and nesting habitat on or within 200 meters of the project site. *Mitigation Measure BIO – 5B (Avoidance of Active Burrows).* If project activities are undertaken during the breeding season (February 1-August 31) and active nest burrows are identified within or near project impact areas, a 200-meter disturbance-free buffer will be established around these burrows. The buffers will be enclosed with temporary fencing to prevent construction equipment and workers from entering the setback area. Buffers will remain in place for the duration of the breeding season. During the non-breeding season (September 1-January 31), active burrowing owl burrows will be avoided by a minimum distance of 50 meters. *Mitigation Measure BIO – 5C (CDFW Consultation)*. If it is not feasible to avoid burrows by the setback distances specified above, the applicant will develop other measures to fully avoid take of burrowing owls in consultation with CDFW. If full take avoidance is not possible, the applicant will obtain a Section 2081 Incidental Take Permit (ITP) for this species. If an ITP is required, it would include minimization and mitigation measures including a passive relocation effort, construction				

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
monitoring, replacement burrow creation/enhancement, and/or other forms of compensatory mitigation. **Protection of San Joaquin Kit Fox** *Mitigation Measure BIO – 6A (Pre-construction Surveys).* Between 14 and 30 days prior to the start of any project activity that could potentially affect the SJKF, a qualified biologist will conduct preconstruction surveys for this species following the USFWS 2011 *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or during Ground Disturbance* ("Standardized Recommendations"). The primary objective will be to identify potential SJKF habitat features and evaluate their use by kit foxes. *Mitigation Measure BIO – 6B (Avoidance).* Should one or more active kit fox dens be detected during preconstruction surveys, the USFWS and CDFW will be notified immediately. A disturbance-free buffer will be established around the dens in consultation with the USFWS and CDFW, to be maintained until an agency-approved biologist has determined that the dens have been abandoned.				

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
Mitigation Measure BIO – 6C (Minimization). The applicant will implement all minimization measures presented in the *USFWS Standardized Recommendations*. Such measures include, but are not limited to: restriction of project-related vehicle traffic to established roads, construction areas, and other designated areas; measures to prevent the inadvertent entrapment of kit foxes in holes, trenches, and pipes; restriction of rodenticide and herbicide use; and proper disposal of food items and trash. *Mitigation Measure BIO – 6D (Environmental Awareness Training)*. A qualified biologist will provide training to all personnel who will be working on site. The training will include a description of the kit fox and its habitat needs; a report of the occurrence of kit fox in the project vicinity; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of the measures being taken to reduce impacts to the species during project construction and implementation. A handout will be provided to all attendees that summarizes the information presented in the training and presents the contact name and number of a designated representative to				

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
contact in case SJKF individuals are observed in or near the work area during construction. **Protection of American Badger** *Mitigation Measure BIO – 7A (Preconstruction Surveys).* A preconstruction survey for American badgers will be conducted by a qualified biologist within 7 days prior to the start of construction activities in rural portions of the sewer main work area and at the WWTP. The surveys will target all potential denning habitat on or within 50 feet of these areas. *Mitigation Measure BIO – 7B (Avoidance).* Should an active sleeping den be identified during the preconstruction surveys, the den shall be identified in the field with brightly-colored fencing or flagging, and avoided until a qualified biologist has determined that it has been abandoned. Should an active natal den be identified during the preconstruction surveys, a suitable disturbance-free buffer will be established around the den and maintained until a qualified biologist has determined that the cubs have dispersed or the den has been abandoned.				

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
Protection of Nesting Migratory Birds Including Long-Eared Owl *Measure BIO – 8A (Construction Timing).* If feasible, project construction will occur entirely outside of the February 1-August 31 general avian nesting season. *Measure BIO – 8B (Preconstruction Surveys*). If construction must occur between February 1 and August 31, a qualified biologist will conduct pre-construction surveys for active bird nests within 7 days prior to the start of any work within this period. The survey area will encompass the work area and surrounding lands within 250 feet for nesting migratory birds and 500 feet for raptors. *Measure BIO – 8C (Avoidance of Active Nests*). Should any active nests be discovered in or near proposed construction zones, the biologist will identify a suitable construction-free buffer around the nest. The buffer distance will be determined based on species biology, site-specific conditions, and the level of project-related disturbance that is anticipated near the nest(s) in question. Buffers will be identified on the ground with flagging or fencing and will be maintained until the biologist has				

Mitigation Measure	Party responsible for Implementing Mitigation	Implementation Timing	Party responsible for Monitoring	Verification (name/date)
determined that the young have fledged and are capable of foraging independently.				
Cultural Resources				
Measure CUL – 1 (Protect Undiscovered Cultural Resources) In the event that archaeological remains are encountered at any time during development or ground-moving activities within the entire Project area, all work in the vicinity of the find should be halted until a qualified archaeologist can assess the discovery and take appropriate actions as necessary.	City of Coalinga	Prior to and/or during construction	City of Coalinga and construction contractor	

Chapter 5

PREPARERS

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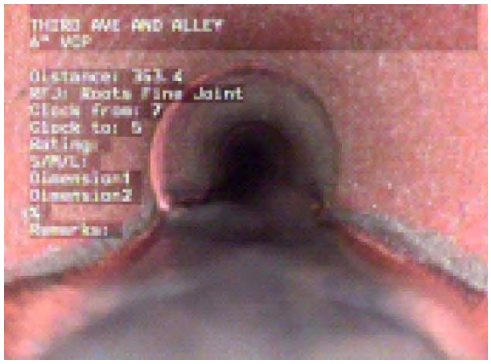
Appendices

Appendix A

Preliminary Engineering Report

CITY OF COALINGA

SANITARY SEWER COLLECTION SYSTEM AND WASTEWATER TREATMENT PLANT IMPROVEMENTS



DRAFT PRELIMINARY ENGINEERING REPORT

December 2023

Prepared by:

AM Consulting Engineers, Inc. – 5150 N Sixth Street, Suite 124 – Fresno, CA 93711 – P: 559.473.1371 – F: 559.513.8449

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ABBREVIATIONS

ac-ft	Acre-Feet
ACS	American Community Survey
AFL	Aerated Facultative Lagoons
BOD	Biochemical Oxygen Demand
CDC	California Department of Corrections
CIMIS	California Irrigation Management Information System
City	City of Coalinga
CVP	Central Valley Project
CWSRF	Clean Water State Revolving Fund
CCTV	Closed-Circuit Television
CIPP	Cured-In-Place
EC	Electric Conductivity
ET_o	Evapotranspiration
ft	Feet
gpcd	Gallons per Capita Day
in	Inch
LF	Linear Feet
MHI	Median Household Income
µmhos/cm	Micromhos per Centimeter
MG	Million Gallons
MGD	Million Gallons per Day
mg/L	Milligrams per Liter
MLSS	Mixed Liquor Suspended Solids
NASSCO	National Association of Sewer Service Companies
VIS	Video Inspection Specialists, Inc.
NRCS	Natural Resources Conservation Service
NOV	Notices of Violation
O&M	Operation and Maintenance
PACP	Pipeline Assessment Conditions Program
PER	Preliminary Engineering Report

Prison	Coalinga State Prison
PV	Photovoltaic
RAS	Recirculated Activated Sludge
RWQCB	Regional Water Quality Control Board
ROW	Right-of-Way
RAS	Recirculating Activated Sludge
SDAC	Severely Disadvantaged Community
SSO	Sewer System Overflow
SOI	Sphere of Influence
SWRCB	State Water Resource Control Board
SP	Stabilization Ponds
SSO	Sewer System Overflows
TSS	Total Suspended Solids
USBR	U.S. Bureau of Reclamation
VSS	Volatile Suspended Solids
VFD	Variable Frequency Drive
WAS	Wasted Activated Sludge
WDR	Waste Discharge Requirements
WWTP	Wastewater Treatment Plant
WRCC	Western Regional Climate Center

SECTION 1 - INTRODUCTION

1.1. Purpose

The purpose of this Preliminary Engineering Report (PER) is to provide a comprehensive evaluation of the City of Coalinga's (City) existing sewer collection system and wastewater treatment plant (WWTP) and recommend the most viable and sustainable sewer service alternative that will result in the least cost to City customers. This PER will assess the condition of the collection system's existing pipelines and manholes, correct existing deficiencies, and prioritize the replacement of sewer lines based on their estimated remaining useful life. This PER will also provide recommendations that will correct system deficiencies at the existing WWTP to improve treatment operations.

The preparation of this PER is being funded by the State Water Resources Control Board (SWRCB) through the Clean Water State Revolving Fund (CWSRF). The contents of this Report are intended to meet the requirements of the SWRCB and can be utilized to submit a CWSRF construction funding application for the implementation of the proposed project. This PER will include an overview of the City of Coalinga, description of the City's existing water sources, evaluation of the existing sewer collection system and WWTP, and necessary improvement needed to provide adequate sewer service to residents within the City's service area.

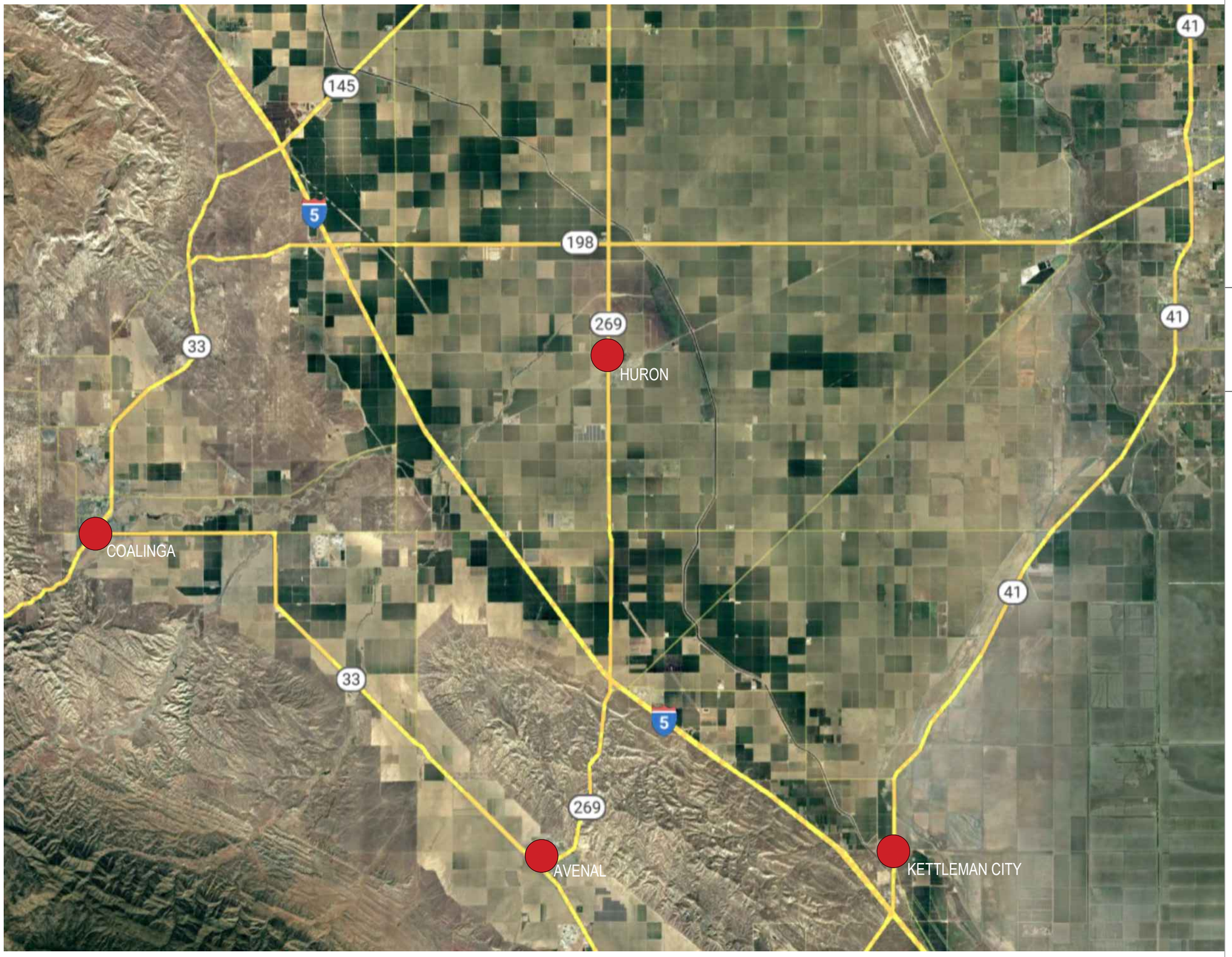
1.2. Study Area Characteristics

1.2.1. Location

The City of Coalinga is located near the eastern foothills of the Diablo Range and to the west of the Central San Joaquin Valley in western Fresno County. Figure 1-1 displays the City's regional location and vicinity, including its relation to some of the surrounding communities in the area. The City is generally bounded by Lucile Avenue to the south, West Gale Avenue to the north, Monterey Street to the west and Springbrook Street to the East. The City of Fresno is located approximately 60 miles to the northeast, the city of Avenal is located approximately 18 miles to the southeast, and the city of Huron is located approximately 19 miles to the northeast. The primary access routes to Coalinga include California State Route 33 and California State Route 198 from the north and south. Interstate 5 is approximately 13 miles to the east.

The City's boundary encompasses approximately 6 square miles, of which 2.1 square miles are urbanized. The Sphere of Influence (SOI) encompasses 3.6 square miles. Figure 1-2 displays the City's current service area and SOI. The City has primary authority over land use and other governmental actions within this area.

The City owns and operates a citywide sewer collection system and a WWTP under Waste Discharge Requirements (WDR) No. 94-184. The current WDRs limit the volume of average monthly discharge to 1.34 million gallons per day. The sewer collection system currently serves 3,369 residences and 318 businesses. The WWTP site is located approximately one mile east of the City. The WWTP consists of screening, primary clarification, and secondary treatment (aerated facultative lagoons followed by stabilization lagoons). Undisinfected secondary effluent is pumped year-round to irrigate fodder crops such as alfalfa, Sudan grass, oat hay and pasture. The City Maintenanceains sewer assets in accordance with industry standard practices by performing preventive Maintenance on mechanical equipment and pipelines.



CITY OF COALINGA

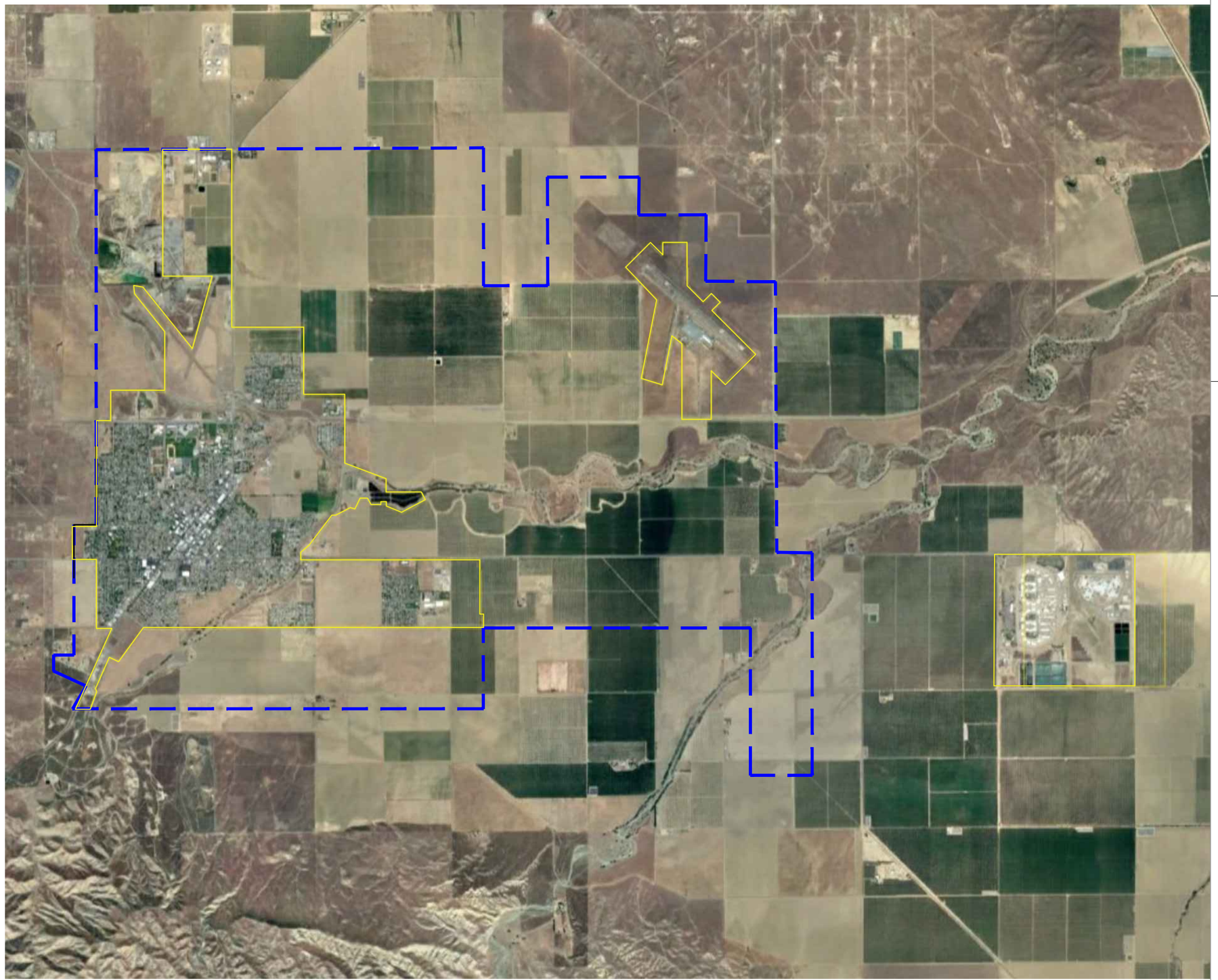
SANITARY SEWER COLLECTION SYSTEM
PRELIMINARY ENGINEERING REPORT

LEGEND

ROADS

NORTH
SCALE: 1" = 10 MI

FIGURE 1-1
REGIONAL LOCATION AND VICINITY MAP



CITY OF COALINGA

SANITARY SEWER COLLECTION SYSTEM
PRELIMINARY ENGINEERING REPORT

LEGEND

CITY LIMITS (SERVICE AREA BOUNDARY)

SPHERE OF INFLUENCE

NORTH
SCALE: 1" = 4000'

FIGURE 1-2 SERVICE BOUNDARY

1.2.2. Environmental Resources

The proposed sewer collection system improvements evaluated in this Report will primarily consist of the replacement and/or rehabilitation of public sewer mains in the City's existing public right-of-way (ROW). Little or no construction will occur on land which is not currently developed within those ROW. It is not anticipated that impacts to floodplains, farmland, historic resources, or endangered species will be part of the project.

1.2.3. Land Use and Population

Land use within the City's service area consists mainly of residential properties, commercial businesses, and the Pleasant Valley State Prison. According to the 2017-2021 U.S. Census American Community Survey (ACS), the City's median household income (MHI) is $65,180. The current residential sewer rate is $23.29 per month ($279.48 per year), which is approximately 0.43 percent of the MHI.

According to the 2020 U.S. Census, the population of the City was 17,590, which was up from 13,380 at the 2010 Census and up from 11,668 at the 2000 Census. According to the U.S. Census Population Estimates Program, population within the City has decreased to approximately 17,560 in 2021. This represents an average growth rate of approximately 2.30 percent from 1990 to 2022.

Population projection for the City through 2045 is presented in Table 1-1 below. A long-term growth of 2.30 percent has been used in those projections. The City provides sewer service to 3,148 connections and receives an average daily flow of approximately 0.9 million gallons per day (MGD). The City of Coalinga is responsible for providing current as well as projected sewer service needs to customers within its service area.

Table 1-1 City of Coalinga Projected Population

	2022	2024	2030	2035	2040	2045
Service Area Population	17,024	17,818	20,428	22,893	25,655	28,750

Notes:
(1) Projected estimates are based on population growth from 1990 to 2022. An annual growth rate of 2.30 percent is used.

1.2.4. Soils

The City of Coalinga has a relatively flat topography. According to the Custom Soil Resources Report for Fresno County, California, published by the Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), the most prevalent soils series in the City of Coalinga service area are Excelsior sandy loam, Westhaven loam and Posochanet clay loam. A copy of this soils report is attached in Appendix A.

1.2.5. Climate

The Western Regional Climate Center (WRCC) has maintained climate records for the past 100 years for areas within Fresno County. Average annual temperature and precipitation data is provided in Table 1-2.

Similar to the Western Regional Climate Center, the California Irrigation Management Information System (CIMIS) tracks and Maintenanceains records of evapotranspiration (ETo) for select cities only. Table 1-2 provides ETo statistics were obtained from the City of Coalinga

The City is characterized as having a semiarid climate, which occurs on the periphery of deserts in low latitude. The Köppen Climate Classification subtype for this climate is "BSk" (Tropical and Subtropical Steppe Climate). Summers are typically hot and dry, while winters are cool with an average precipitation of about 7.7 inches per year. Most of the annual precipitation occurs during the period from November and March. Table 1-2 below shows the average monthly precipitation, maximum and minimum average temperatures, and evapotranspiration within the City.

Table 1-2 City of Coalinga Average Perception

Month	Average Precipitation (in)	Average Temperature (°F)		Evapotranspiration, Et_o (in)
		Maximum	Minimum	
January	1.60	57.8	35.8	1.98
February	1.51	63.6	39.2	2.93
March	1.21	69.2	41.8	4.49
April	0.55	76.0	45.9	6.43
May	0.25	84.9	52.5	8.37
June	0.04	92.7	59.2	9.66
July	0.01	99.4	65.3	10.01
August	0.02	97.8	63.2	8.99
September	0.19	92.7	58.6	6.94
October	0.31	81.8	49.7	4.88
November	0.72	67.6	40.6	2.64
December	1.20	58.2	35.7	1.72
Total/Average	**7.61**	**78.5**	**49.0**	**69.04**

SECTION 2 - MUNICIPAL WATER SUPPLY

2.1. Water Supply Source

The City of Coalinga imports its water through the federal Central Valley Project (CVP) supervised by the U.S. Bureau of Reclamation (USBR). Due to the poor groundwater quality in the area, the City does not pump groundwater to supplement the water supply due to its poor quality and high concentrations of sulfates, total dissolved solids (TDS), and sodium. On October 28, 1968, the City entered a 40-year contract with the US Bureau of Reclamation for up to 10,000 acre-feet (ac-ft) of CVP water on an annual basis. This contract expired on December 31, 2008. On January 22, 2021, a long-term contract was signed between the City and the USBR (Contract No. 14-06-200-4173A-IR1-P) that established new rates and extended the City's right to pump up to 10,000 AF of water per year.

Raw water for the City flows from the Sacramento-San Joaquin Delta to the south into either the Delta-Mendota Canal or the CVP California Aqueduct, which discharges in the O'Neil Forebay. From the O'Neil Forebay, water continues to flow south into the California Aqueduct to the point of origination of the Coalinga Canal, approximately 15 miles northeast of the City where Highway 145 crosses over the California Aqueduct. After leaving the California Aqueduct, water is carried in the Coalinga Canal approximately 12 miles south to the City of Coalinga WTP intake. A raw water pump station then lifts the water from the Coalinga Canal to the City's conventional surface WTP.

2.2. Water Facilities

Surface water from the Coalinga Canal is treated at the City's Water Treatment Plant, which is located approximately 7 miles outside of city limits. The City's surface WTP originally came online in April 1972 with an average daily flow capacity of 8 million gallons per day (MGD) and maximum daily flow capacity of 12 MGD. In anticipation of the increased demands resulting from the construction of the Pleasant Valley State Prison, the capacity of the WTP was increased to receive an average daily flow of 12 MGD and a maximum daily flow of 16 MGD. The Plant provides conventional surface water treatment, with processes that include chemical pretreatment, chlorine disinfection, corrosion control, filtration, flocculation, and sedimentation. As a secondary disinfection, chlorination is used to maintain chlorine residual in the distribution system while reducing further production of disinfection byproducts. Treated water is pumped by a filtered-water pump station into a 27-inch diameter pipeline in Palmer Avenue.

Treated water is pumped by a filtered-water pump station into a 27-inch diameter pipeline on Palmer Avenue. Approximately two miles west of the WTP, the flow tees at Calaveras Avenue. Water flowing west continues for another mile and a half to the Palmer Avenue Reservoir. Water going to the Pleasant Valley State Prison travels south in the 12-inch Calaveras Avenue pipeline to the Calaveras Avenue Reservoir. After flowing through the Calaveras Reservoir, it continues south along Calaveras Avenue another 3.5 miles to Jayne Avenue and then east to the prison. Water can potentially travel from the Calaveras Reservoir westerly into the City; however, this seldom occurs due to the hydraulic conditions. Water leaving the Palmer Reservoir flows through approximately eight miles of 24 and 27-inch transmission mains to the Derrick Avenue Reservoir. Water travels primarily from the Derrick Avenue Reservoir through 18, 24, and 30-inch transmission mains into the City's water distribution system. The distribution system consists of a network of water mains ranging in size from 4 to 14 inches in diameter. The system can supply peak hour needs without excessive losses and can deliver fire flows to main lines.

The City's existing storage reservoirs all consist of steel tanks resting on reinforced concrete ring wall foundations. The following is a description of each of the City's treated water storage reservoirs:

- Palmer Avenue Reservoir – This reservoir is located on the south side of Palmer Avenue and has a capacity of 2.8 MG. This reservoir receives pumped treated water from the WTP.
- Calaveras Avenue Reservoir – This reservoir is located on the east side of Calaveras Avenue and has a capacity of 5.0 MG. Water flows from the WTP to the Calaveras Reservoir and then to the Pleasant Valley State Prison.
- Derrick Avenue Reservoir – This reservoir is located west of the City, on the east side of Derrick Avenue. This reservoir has a capacity of 7.6 MG. Water from the Palmer Reservoir flows to the Derrick Reservoir and then into the City.
- Oil King Reservoir – This reservoir is located west of Highway 33/198, approximately three miles north of Palmer Avenue. The reservoir has a capacity of 0.5 MG and exclusively serves the City's oil company customers.
- Northwest Reservoir – This reservoir is located east of Derrick Avenue, approximately three miles north of Gale Avenue. This reservoir has a capacity of 0.2 MG. Like the Oil King Reservoir, this reservoir is also used exclusively for the City's oil company customers.

Since the Oil King and Northwest reservoirs' sole function is to provide water to oil companies, they are excluded from the evaluation of the City's available storage. The existing combined storage capacity of the Palmer, Derrick and Calaveras reservoirs is 15.4 million gallons (MG).

SECTION 3 - WASTEWATER FLOWS AND CHARACTERISTICS

3.1. Wastewater Flows

The City of Coalinga (City) owns and operates a WWTP under Regional Water Quality Control Board (RWQCB) Waste Discharge Requirements (WDR) Order No. 94-184. The current WDRs limit the volume of the average monthly discharge to 1.34 million gallons per day (MGD). The WWTP consists of screening, primary clarification, and secondary treatment (aerated facultative lagoons followed by stabilization lagoons). Undisinfected secondary effluent is pumped year-round to irrigate fodder crops such as alfalfa, Sudan grass, oat hay and pasture.

Based on Records from January 1, 2018, through December 31, 2022, the City's WWTP received an average daily flow of approximately 0.857 MGD. The maximum daily flow for the same period is approximately 1.014 MGD. Table 3-1 displays the average daily flow and maximum daily flows from January 1, 2018, through December 31, 2022.

Table 3-1 Average and Maximum Daily Wastewater Flows

	2018	2019	2020	2021	2022	Average
Average Daily Flow (MGD)	0.824	0.838	0.864	0.877	0.880	0.857
Maximum Daily Flow (MGD)	0.925	0.908	0.957	1.014	1.005	0.962

Figure 3-1 displays the monthly average daily flow and maximum daily flow for each month between 2018 and 2022. The maximum daily flow peaks at an average of 1.003 MGD in June, while the average daily flow peaks at an average of 0.895 in February.

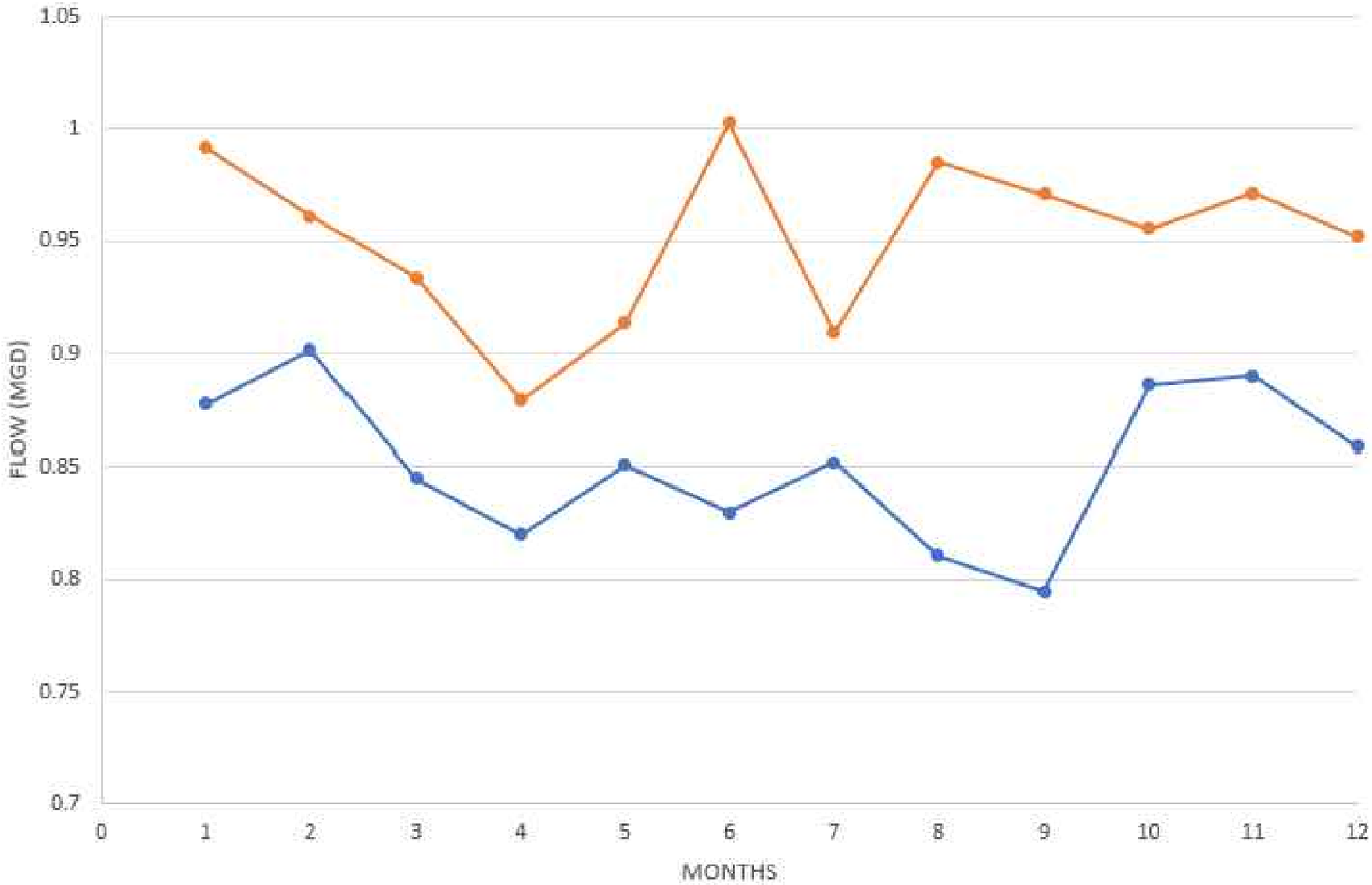
Using population data and influent wastewater presented in Table 3-1, the average wastewater generation per capita is approximately 51.690 gallons per capita day (gpcd). The maximum per capita wastewater generation for the same period is approximately 59.003 gpcd. Table 3-2 provides projected values for the influent wastewater flows through 2045. As previously stated in Section 1 of this Report, population within the City has increased approximately 2.30 percent per year. As shown in Table 3-2, the WWTP's current design flow of 1.34 MGD does not appear to provide adequate capacity through 2045.

Table 3-2 Projected Wastewater Flows

	2024	2030	2035	2040	2045
Service Area Population	17,818	20,428	22,893	25,655	28,750
Estimated Average Daily Flows (MGD)	0.921	1.056	1.183	1.326	1.486
Estimated Average Maximum Flows (MGD)	1.051	1.205	1.351	1.514	1.696
Average Per Capita Consumption (gpcd)	51.690	51.690	51.689	51.690	51.690
Max Per Capita Consumption (gpcd)	59.004	59.003	59.003	59.003	59.003

	2024	2030	2035	2040	2045
Service Area Population	17,818	20,428	22,893	25,655	28,750
Estimated Average Daily Flows (MGD)	0.921	1.056	1.183	1.326	1.486
Estimated Average Maximum Flows (MGD)	1.051	1.205	1.351	1.514	1.696
Average Per Capita Consumption (gpcd)	51.690	51.690	51.689	51.690	51.690
Max Per Capita Consumption (gpcd)	59.004	59.003	59.003	59.003	59.003

The City owns and operates a citywide sewer collection system and a wastewater treatment plant (WWTP), which provides sewer service to approximately 3,687 connections, of which 3,369 are residential dwellings. The sewer collection system includes approximately 14 miles of sewer mains ranging in 6-inch to 24-inch in diameter. All of the homes currently receive water and wastewater services from the City of Coalinga.



CITY OF COALINGA

SANITARY SEWER COLLECTION SYSTEM
PRELIMINARY ENGINEERING REPORT

LEGEND

MAXIMUM DAILY FLOW (MGD)

AVERAGE DAILY FLOW (MGD)

DRAWING NOT TO SCALE

FIGURE 3-1
MONTHLY WASTEWATER FLOWS

3.2. Wastewater Flow Characteristics

As stated above, influent wastewater flow to the City of Coalinga WWTP is comprised of primarily residential wastewater. The WWTP discharges undisinfected secondary effluent to adjacent land. According to WDR Order No. 94-184, the WWTP is not required to monitor TSS. Table 3-3 summarizes the results of WWTP influent and effluent monitoring of BOD from the period of January 2018 through December 2022.

Table 3-3 Average Influent and Effluent BOD

Year	Influent	Effluent
	BOD (mg/L)	BOD (mg/L)
2018	196	42
2019	273	55
2020	264	41
2021	213	25
2022	225	31
90th Percentile	**303**	**-**

The City's WWTP is currently regulated by the Central Valley Regional Water Quality Control Board (RWQCB). Discharge from the WWTP is required to meet all limits set forth in WDR Order No. 94-184. According to WDR Order No. 94-184, the monthly average effluent BOD shall not exceed 40 milligrams per liter (mg/l) and the daily maximum shall not exceed 80 mg/l.

For design purposes, the 90th percentile is typically used in place of average values for BOD. The 90th percentile of past influent data represents the value that is exceeded 10 percent of the time. Figure 3-2 displays the frequency diagrams for BOD from January 2018 through December 2022.

3.3. Salinity

Treated wastewater contains higher concentrations of total dissolved solids (salinity) than that of the sources water. The increase in salinity is a result of domestic and commercial use of the water. The City currently monitors salinity by measuring the electrical conductivity of the WWTP effluent. The City's source water, raw water from the Coalinga Canal, is currently monitored on an annual basis by the SWRCB. Table 3-4 shows the average EC levels in the City's wastewater effluent during the period of January 2018 through December 2022. EC levels in the City's source water are not available prior to 2023.

Table 3-4 Specific Conductivity

Month-Year	Specific Conductivity (µmhos/cm)	
	Source Water [1]	Effluent
Jan-18	NA	840
Feb-18	NA	NA
Mar-18	NA	NA
Apr-18	NA	NA
May-18	NA	1,000
Jun-18	NA	930
Jul-18	NA	1,000
Aug-18	NA	1,000
Sep-18	NA	1,030
Oct-18	NA	989
Nov-18	NA	1,090
Dec-18	NA	1,060
Jan-19	NA	1,060
Feb-19	NA	1,050
Mar-19	NA	1,150
Apr-19	NA	1,080
May-19	NA	984
Jun-19	NA	1,010
Jul-19	NA	953
Aug-19	NA	866
Sep-19	NA	899
Oct-19	NA	899
Nov-19	NA	889
Dec-19	NA	929
Jan-20	NA	923
Feb-20	NA	NA
Mar-20	NA	1,000
Apr-20	NA	1,000
May-20	NA	1,000
Jun-20	NA	1,100
Jul-20	NA	1100
Aug-20	NA	1,100
Sep-20	NA	920
Oct-20	NA	960
Nov-20	NA	1,100
Dec-20	NA	1,100

Month-Year	Specific Conductivity (µmhos/cm)	
	Source Water (1)	Effluent
Jan-21	NA	1,400
Feb-21	NA	1,100
Mar-21	NA	NA
Apr-21	NA	1,300
May-21	NA	1,300
Jun-21	NA	1,300
Jul-21	NA	1,100
Aug-21	NA	1,100
Sep-21	NA	1,200
Oct-21	NA	1,100
Nov-21	NA	1,300
Dec-21	NA	1,200
Jan-22	NA	1,200
Feb-22	NA	1,200
Mar-22	NA	1,500
Apr-22	NA	1,300
May-22	NA	1,300
Jun-22	NA	1,200
Jul-22	NA	1,200
Aug-22	NA	1,100
Sep-22	NA	1,200
Oct-22	NA	NA
Nov-22	NA	1,200
Dec-22	NA	NA

Notes:
(1) Source water EC is not available prior to 2023.
(2) Based on EC sample results from October 2018.
(3) Based on EC sample results from October 2019.
(4) Based on EC sample results from October 2020.
(5) Based on EC sample results from October 2021.
(6) Based on EC sample results from October 2022.

3.4. Effluent Quality Requirements

As previously stated, the City's WWTP is regulated by the RWQCB and treated effluent discharges from the plant are required to meet all limits set forth WDR Order No. 94-184. A copy of this Order is provided in Appendix B. WDR Order No. 94-184 requires the City to monitor biological oxygen demand (BOD_5) weekly and settleable solids (SS) daily. Total suspended solids (TSS) were measured prior to issuance of the current WDRs. The City does not monitor TSS. Table 3-5 displays the current limits set by the Order.

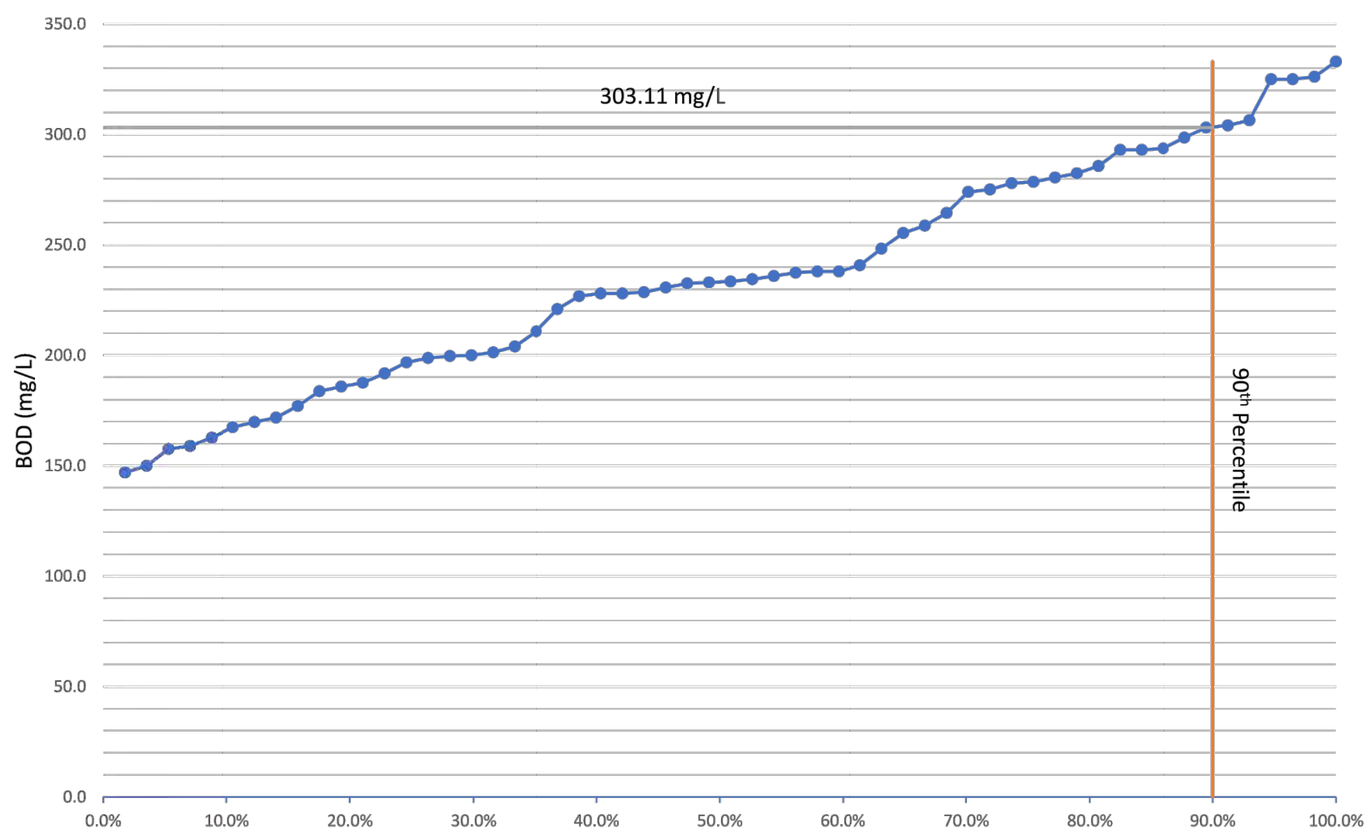
Table 3-5 WWTP Discharge Constituents and Limits

Constituent	Units	Monthly Average	Daily Maximum
BOD	mg/l	40	80
Settleable Solids	mg/l	0.2	0.5

The current WDR does not place a limit on total nitrogen, and it is not measured at the plant. Treated effluent is discharged to approximately 325 acres of agricultural land located on several parcels adjacent to the WWTP site to grow non-human consumption crops. The parcels are leased by User. One of the goals of this PER is to determine improvements to the WWTP to be able to match the facility's wastewater treatment and disposal capacities. However, nitrogen reduction will also be considered in the upgrade of the WWTP in preparation for a likely future requirement to reduce nitrogen.

3.5. Discharge Violations

Currently, the WWTP is meeting all limits outlined in the WDR Order No. 94-184 and no discharge violations have been issued by the RWQCB.



CITY OF COALINGA

SANITARY SEWER COLLECTION SYSTEM
PRELIMINARY ENGINEERING REPORT

LEGEND

90th Percentile BOD Value

FIGURE 3-2
INFLUENT BOD
FREQUENCY DIAGRAM

SECTION 4 - EXISTING FACILITIES AND PROJECT NEED

4.1. Overview

The City owns and operates a wastewater collection and treatment system that provides sewer service to the City's urbanized areas. The sewer collection system consists of over 42 miles of sewer pipelines with sizes ranging from 6 to 24-inches in diameter and a Wastewater treatment plant that currently serves 3,369 residences and 318 businesses.

4.2. Existing Wastewater Treatment Plant

The City owns and operates the WWTP under the current Waste Discharge Requirements (WDRs) Order No. 94-184. The WWTP is located at the confluence of Los Gatos Creek and Warthan Creek, approximately one mile east of the City. More specifically, the WWTP is located on Assessor's Parcel Nos. 070-070-023, 071-020-026.

The WWTP treats and discharges the municipal wastewater generated by residences and businesses within the City. The treatment process at the City's WWTP consists of screening, primary clarification, and secondary treatment (aerated facultative lagoons followed by stabilization lagoons). Treated effluent quality is undisinfected secondary effluent as described in Section 30301.900 of Title 22 of the California Code of Regulations (CCR).

4.2.1. Background

The City's WWTP has undergone two major modifications and additions over the last 40 years. According to WDR Order No. 76-180, the WWTP originally consisted of a primary clarifier followed by three oxidation ponds in series. The final disposal consisted of irrigating land controlled by the City and West Hills Community College for agricultural reclamation. At that time, the WWTP's treatment capacity was 0.6 MGD.

In 1980 the City submitted a Report of Waste Discharge for the expansion of the existing treatment capacity from 0.6 MGD to 0.93 MGD. The modifications consisted of influent screening followed by two aerated facultative lagoons and three stabilization ponds. Final effluent disposal was consistent with previous practices on City-owned land and West Hills College grounds. These modifications and additions were implemented in 1982. WDR Order No. 80-064 was adopted on May 26, 1980.

In 1991, the City submitted a Report of Waste Discharge in support of a change in operation and an increase in quantity of discharge from its municipal WWTP. The treatment capacity was increased from 0.93 MGD to the current 1.34 MGD. The City completed the rehabilitation of the primary clarifier and aerobic digester, which were removed from service during the previous plant modification. Effluent is pumped from one of the stabilization ponds to 30 acres of farmland owned by the Discharger (leased and operated by West Hills Community College District) and 102 acres of farmland owned by West Hills Community College (User) for crop irrigation and percolation disposal. The User grows alfalfa, hay, cotton, pasture, and sugar beets (for research only) with reclaimed wastewater. The Discharger owns an additional 96.7 acres of land in the immediate area, which could be used for reclamation if needed.

The Wastewater Treatment Plant relied on land owned by the City and nearby West Hills Community College Farm (College) for the disposal of its treated wastewater effluent until 2003. In 2003, the College announced its plans to relocate their facility and develop the land where effluent was being disposed of. Without the College, the City did not have an effluent disposal method and began investigating alternative disposal methods.

The City found HCM Farms, a landowner adjacent to the WWTP site who was interested in accepting recycled water. HCM Farms owned and operated about 448 acres of agricultural land and was interested in using the City's treated effluent to irrigate agricultural crops, primarily cotton. In 2010, HCM Farms was sold to Mouren Farms. Mouren Farms continued using recycled water from the City's WWTP until March 31, 2014. In 2014, The City found Jeff Brooks, another farmer who was interested in using the City's recycled water temporarily until the City secures a long-term disposal method. Mr. Brooks leases 325 acres around the WWTP including the West-Hills college reclamation areas permitted under the current WDRs. The City also owns approximately 470 acres on the southwest corner of Jayne Avenue and Alpine Avenue. The City purchased that land in 2006 with the intent of relocating its WWTP and disposal areas. The economic downturn has delayed the completion of that project. The use of recycled water by User is considered to be only temporary until the construction of infrastructure needed to convey the reclaimed water to the City-owned land is complete. Currently, treated effluent is pumped from one of the stabilization ponds to adjacent land, where it either evaporates or percolates into the soil and is used to recharge the groundwater table. By way of this process, most of the treated domestic wastewater is recycled as groundwater recharge.

4.2.2. Existing Treatment

The existing WWTP was constructed in 1982 and has a permitted capacity of 1.34 MGD. The City's WWTP produces undisinfected secondary effluent suitable for irrigation of non-human consumption crops. The treatment process consists of screening, primary clarification, and secondary treatment (aerated facultative lagoons followed by stabilization lagoons). Treated effluent quality is undisinfected secondary effluent as described in Section 30301.900 of Title 22 of the California Code of Regulations (CCR). The treatment process is comprised of the following unit processes:

4.2.2.1. Screening

Wastewater flows by gravity throughout the City's sewer collection system and enters the WWTP at the headworks. At this point, the wastewater undergoes preliminary treatment, which consists of trash screening for removal of rags, sticks, and other large objects that could damage downstream equipment processes. Wastewater then flows through a Parshall flume equipped with an ultrasonic level transducer that continuously monitors the level and records the corresponding plant flow data.

4.2.2.2. Primary Treatment

Pretreated effluent from the headworks flows through a 24-inch gravity line into a clarifier center feed well. The purpose of the feed well baffle is to disperse the incoming wastewater without disturbing the settled sludge in the bottom of the clarifier. As wastewater flows through the clarifier, heavy solids settle to the bottom and are removed as primary sludge. The clarified effluent is collected by a peripheral overflow launder protected by a submerged baffle that retains floatable from entering the effluent channel. Floating material is removed by a surface skimmer that pushes the material into a

scum beach. From there, the scum is pumped to the digester. Settled solids, primarily inorganic, and some large organic particles constitute the primary settled sludge. This sludge is scraped and pushed into the center sludge hopper by rotating rake arms. Scum is scraped by a rotating skimmer and deposited into a scum box. Eight spray nozzles are mounted along the clarifier walkway to aid in scum removal. Two 6-inch lines carry sludge from the sludge hopper and scum from the scum box to the primary pump station. From the primary pump station, the sludge is pumped to an aerobic digester by two separate plunger pumps. Both pumps are actuated either manually or automatically from a local control panel at the pump station. The piping is arranged in a way that both pumps are capable of pumping sludge.

4.2.2.3. Aerated Facultative Lagoons

Aerated facultative lagoons (AFLs) are the main treatment process responsible for the reduction of the soluble BOD. These lagoons, in conjunction with the downstream stabilization ponds, achieve high removal of organic materials, solids that are not removed in primary treatment, and pathogen bacteria.

The AFLs are equipped with surface aerators to supply the required oxygen for treatment and provide mixing of the surface zone. Eight aerators are installed, four in each lagoon. The aerators are driven by constant-speed electric motors. The aerators are controlled where they can be started and stopped to maintain a minimum dissolved oxygen concentration of 1 mg/L in the top layer of the lagoons.

The AFLs are designed to operate in parallel to better distribute the wastewater. The first aerator in each lagoon is a 20 HP unit while the remaining three are 10 HP. This design provides increased aeration in the zones of high oxygen demand at the beginning of the AFLs and inhibits uneven deposition or mounding of sludge.

4.2.2.4. Stabilization Ponds

Wastewater effluent from the AFLs flows into an effluent control box and then through three stabilization ponds (SPs) operated in series. The main purpose of these stabilization ponds is to provide secondary treatment or further removal of the remaining BOD and TSS not removed in primary treatment and aerated facultative lagoons. The stabilization ponds also act as seasonal storage facilities for the treated wastewater prior to effluent disposal. The water surface elevation in the first two stabilization ponds is controlled by a downstream weir at the end of the second pond. The water level at the third stabilization pond is controlled by the effluent pumping rate used at a given time to meet irrigation needs.

4.2.2.5. Aerobic Digester

Sludge collected at the primary clarifiers is regularly pumped into the aerobic digester. The aerobic digester provides an anoxic environment where the organic matter contained in the sludge is decomposed and transformed into stable material that can be air dried without causing objectionable odors. The aerobic digestion process decomposes the organic matter in water and C02, reducing the strength or volatile suspended solids (VSS) in the sludge collected by the primary clarifier. Aeration in the aerobic digester is provided by two positive displacement blowers that feed coarse bubble diffusers located near the bottom of the digester. The aerators are located at the side to impart turnover and mixing in the digester.

4.2.2.6. Sludge Drying Beds

Digested sludge leaving the aerobic digesters is fed to one of two asphalt-bottom sludge drying beds. These beds provide enough air-sludge surface contact to enhance the evaporation of the water contained in the sludge. The sludge is first allowed to settle at the beds, after which the supernatant is decanted by telescopic valves and returned to the headworks. The remaining sludge is allowed to dry before it is scraped and stockpiled on-site. The sludge is then tested for regulated heavy metals before it is transported off-site by truck to a sludge composting facility for final disposal.

4.2.3. Existing Effluent Disposal

Currently, the City's wastewater effluent is transported to adjacent land and used for irrigation of non-food crops such as cotton, alfalfa, and feed grains. Technically, all of Coalinga's wastewater can be said to be recycled since it is used to irrigate crops and a portion of the irrigation water percolates beyond the crop root zone ultimately to become groundwater. However, since groundwater is not a source of drinking water supply, it cannot be considered as offsetting potable water demand.

4.3. Project Need

The primary need for the City’s wastewater treatment facility improvement is due to the lack of effluent disposal alternatives. Currently, treated effluent is pumped from one of the stabilization ponds to adjacent land owned by the City and leased by Mr. Brooks. This effluent disposal method is a temporary solution to the City's effluent disposal needs.

4.3.1. System O&M

The City’s limited resources make it difficult to address the deficiencies in the wastewater treatment facility. This planning study has provided a comprehensive evaluation of the wastewater treatment facility. The City would like to correct the identified deficiencies in the wastewater treatment facility and is applying to the Clean Water State Revolving Fund to fund the recommended improvements.

4.3.2. Current O&M Expenses

Currently, operation and Maintenance (O&M) costs for the wastewater treatment facility include the cost labor, equipment, supplies, consulting fees, Maintenance, construction costs, equipment, and operational transfers. Table 4-4 displays the City’s actual O&M cost for the 2022-2023 fiscal year.

CITY OF COALINGA

SANITARY SEWER COLLECTION SYSTEM
PRELIMINARY ENGINEERING REPORT

LEGEND

NORTH
SCALE: 1"=250'

FIGURE 4-1
WWTP SITE LAYOUT

4.4. Sewer Collection System

The City owns and operates a citywide sewer collection system which provides sewer service to approximately 3,687 connections, of which 3,369 are residential dwellings. The sewer collection system includes approximately 14 miles of sewer mains ranging in 6-inch to 24-inch in diameter. All the homes currently receive water and wastewater services from the City of Coalinga. The overall condition of the sewer collection system is unknown. The older areas are believed to be in poor condition and in need of substantial repairs. The City's Maintenance staff regularly respond to problems with the collection system and spend a great deal of their time locating and/or repairing the system in response to emergency calls from the City's residents. Table 4-1 provides a summary of the existing sewer pipelines within the City's collection system and a map of the system is shown in Figure 4-2.

Table 4-1 Summary of Sewer Pipelines

Diameter (in)	Length (ft)
6	±72,732
8	±23,462
10	±4,031
12	±1,105
15	±1,364
18	±5,987
24	±2,499
Total	**±111,180**

CITY OF COALINGA

CCTV INSPECTION PROJECT

LEGEND

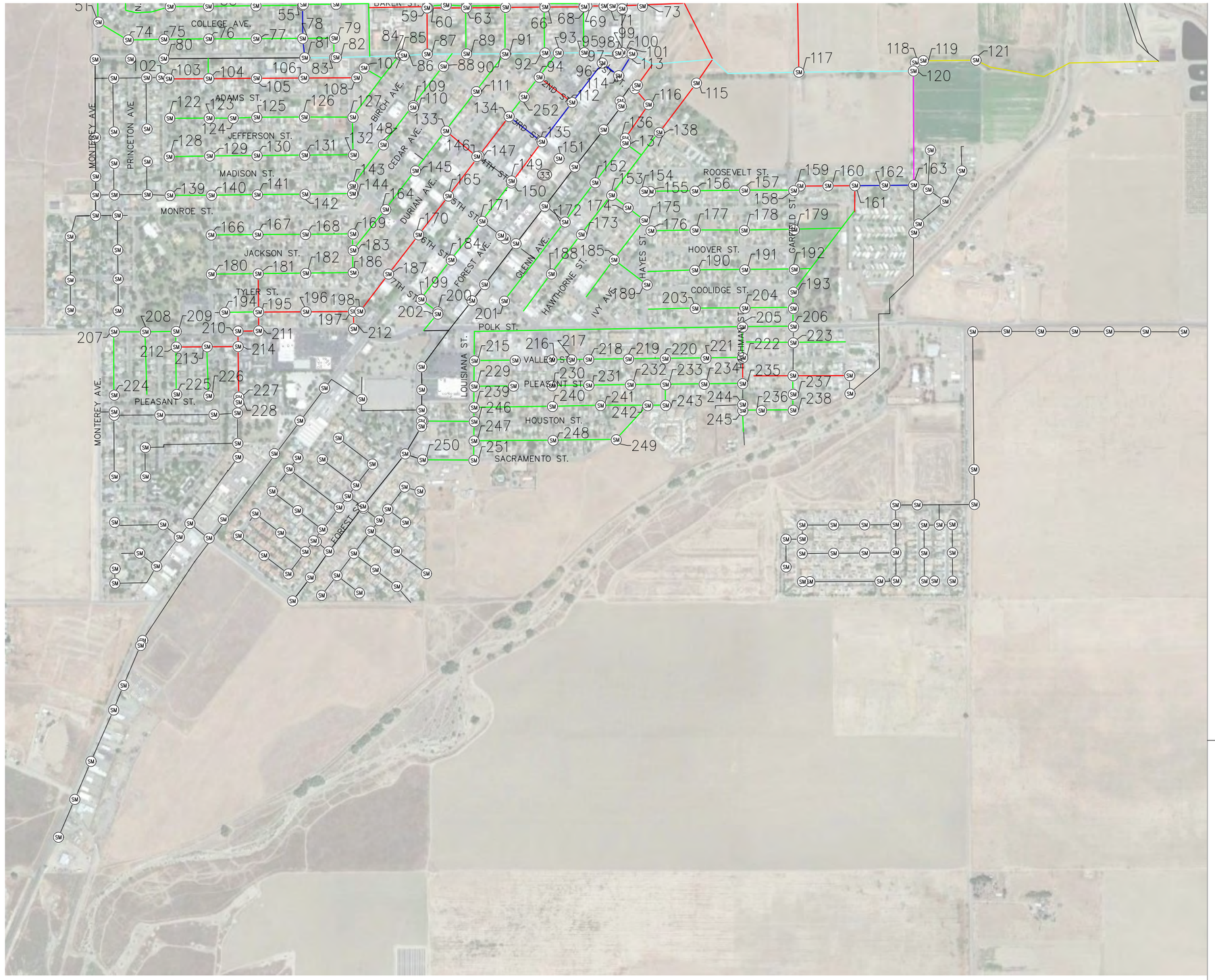
6 IN LINE	
8" LINE	
10" LINE	
12" LINE	
15" LINE	
18" LINE	
24" LINE	
MAINS NOT INCLUDED IN SURVEY	
MANHOLES INCLUDED IN SURVEY	SM
MANHOLES NOT INCLUDED IN SURVEY	SM

NORTH

SCALE IN FEET

0 1,000 FT

FIGURE 4-2 SEWER MAINS TO BE INSPECTED VIA CCTV SURVEY



CITY OF COALINGA

CCTV INSPECTION PROJECT

LEGEND

6 IN LINE	
8" LINE	
10" LINE	
12" LINE	
15" LINE	
18" LINE	
24" LINE	
MAINS NOT INCLUDED IN SURVEY	
MANHOLES INCLUDED IN SURVEY	SM
MANHOLES NOT INCLUDED IN SURVEY	SM

NORTH

SCALE IN FEET

0 1,000 FT

FIGURE 4-2 SEWER MAINS TO BE INSPECTED VIA CCTV SURVEY

4.5. Condition of Sewer Collection System

The City's sewer collection system is aged and some of the older portions of the system experience frequent blockages, overflows and require cleaning or removal of roots. The physical condition of some of these sewer lines is believed to be very poor, likely beyond their life expectancy, and needs to be replaced. Beyond the required Maintenance and repair activities, there has not been any major replacement or rehabilitation of the City's sewer collection system to date.

A condition survey of the sewer collection system was conducted to document the system's existing condition, identify deficiencies, and estimate the useful life of the sewer mains. The current physical condition of the system's components was assessed through site visits, discussion with City staff, and a comprehensive closed-circuit television (CCTV) inspection. As part of this PER, the City conducted a comprehensive CCTV inspection on the older portions of the sewer collection system. The results of the CCTV inspection are described below.

4.5.1. CCTV Inspection

Video Inspection Services (VIS) was retained by the City to perform hydro-flushing and a CCTV inspection assessment on approximately 111,180 LF of gravity sanitary sewer mains. The condition of the sewer mains was rated using the National Association of Sewer Service Companies (NASSCO) Pipeline Assessment Conditions Program (PACP) standardized rating. NASSCO PACP provides a standardized system for the consistent assessment of sanitary sewer conditions. PACP provides the capability to benchmark sewer conditions to track deterioration over time.

Table 4-2 NASSCO PACP Ratings

Rating	Importance	Likelihood of Failure
5 – Immediate Attention	Defects require immediate action	Pipe has failed or will likely fail within the next 5 years
4 – Poor	Severe defects	Pipe will probably fail in 5 to 10 years
3 – Fair	Moderate defect that will continue to deteriorate	Pipe may fail in 10 to 20 years
2 – Good	Defects that have not begun to deteriorate	Pipe unlikely to fail for at least 20 years
1 - Excellent	Minor or no defects	Failure unlikely in the foreseeable future

The PACP process identifies major deterioration factors and assigns a rating that is related to the likelihood of failure or collapse. Deterioration factors include surrounding soil condition, position of groundwater table, frequency of sewer surcharging, above ground traffic loading, methods and materials used in construction, third party damages and defects such as roots, grease, and debris causing more frequent cleaning. It is important to note that the condition of the sewer involves many deterioration factors, both internal and external. A CCTV inspection can only determine the internal defects that affect the sewer condition. PACP defects are assigned a grade of 1 to 5 in order of increasing severity. Table 4-3 shows the criteria of NASSCP PACP ratings.

Table 4-4 provides a summary of the ratings observed in the 104,618 LF of CCTV video evaluated.

Table 4-3 Summary of PACP Defects

Rating	Diameter (in)	Total Length Surveyed (ft)
5	6, 8 & 10	5,182
4	6, 8, 10, 15 & 18	21,497
3	6, 8, 10, 15 & 18	26,351
2	6, 8, 10, 15, 18 & 24	10,067
1	6, 8, 10, 15, 18 & 24	41,522
	Total Length Surveyed	**104,618**

Figure 4-4 displays the map of the sewer collection system with the overall ratings of the pipes that were included in the CCTV inspection. Ratings are based on the structural integrity of the pipes and the operation and Maintenance issues such as changes in pipe alignment.

The CCTV inspection revealed the poor conditions of some of the City's older lines. Defects found in the sewer lines include deformation, root intrusion, cracked pipe, collapsed and broken pipe, sags, intruding laterals, defective lateral break-ins, attached deposits (grease and concrete), and medium to large joint displacements.

4.6. Project Need

The primary need for a sewer collection system improvement project is due to the significant deterioration of the sewer infrastructure. The City's Maintenance staff regularly response to problems with the collection system as back-ups and overflows/spills and spend a great deal of their time locating and/or repairing the system in response to emergency calls from the City's residents. According to the results of the CCTV inspection, approximately 50 percent of the sewer lines inspected require either replacement or rehabilitation.

CITY OF COALINGA

CCTV INSPECTION PROJECT

LEGEND

- NASSCO PACP RATING 1
- NASSCO PACP RATING 2
- NASSCO PACP RATING 3
- NASSCO PACP RATING 4
- NASSCO PACP RATING 5

NORTH

SCALE IN FEET

0 1,500 FT

FIGURE 4-3
SEWER COLLECTION SYSTEM CONDITION ASSESSMENT

4.6.1. Health and Safety

The major concerns related to health and safety are associated with the age and operating condition of the City's collection system. As stated above, the current state of the system is the cause of blockages and sewer system overflows (SSOs).

There have been no formal Notices of Violation (NOV) from regulatory agencies concerning the City's sewer collection system. The recent CCTV inspection provided the best evidence of the poor condition of some segments of the sewer collection system which are responsible for most of the SSOs in the City.

There are numerous public health and safety threats arising from SSOs onto the City's streets and residential properties. There are also significant health and safety risks for staff that are responsible for the cleanup and repair of the sewer lines.

4.6.2. System O&M

The City's limited resources make it difficult to address the deficiencies in the sewer collection system. This planning study has provided a comprehensive evaluation of the sewer collection system. The City would like to correct the identified deficiencies in the sewer collection system and is applying to the Clean Water State Revolving Fund to fund the recommended improvements.

4.6.2.1. Current O&M Expenses

Currently, operation and Maintenance (O&M) costs for the sewer collection system include the cost labor, equipment, supplies, consulting fees, Maintenance, construction costs, equipment, and operational transfers. Table 4-5 displays the City's actual O&M cost for the 2022-2023 fiscal year.

Table 4-4 Current O&M Expenses

Description	Costs
Salaries Regular	$ 124,053.00
Salaries Overtime	$ 3,900.00
Salaries Cash Outs	$ 2,377.00
Retirement CALPERS	$ 11,674.00
Medical/Life Insurance	$ 28,761.00
Social Security FICA	$ 7,753.00
Medicare Insurance	$ 1,799.00
Disability Income Insurance	$ 1,551.00
Deferred Comp - 457 Retirement	$ 5,250.00
Workers Comp. Insurance	$ 14,886.00
Uniform Allowance	$ 236.00
Retirement CalPERS UL	$ 1,997.00
Unemployment Insurance	$ 1,241.00
Personnel Cost	$ 205,478.00

Description	Costs
Office Supplies	$ 200.00
Postage & Freight Out	$ 50.00
Printing & Binding	$ 50.00
Uniforms	$ 2,500.00
Uniforms-Safety Equipment	$ 3,000.00
Street Materials	$ 4,500.00
Utility Parts & Supplies	$ 4,500.00
Gasoline & Diesel	$ 12,000.00
Miscellaneous Supplies	$ 2,000.00
Water, Gas, Sanitation & Sewer	$ 2,000.00
Electric	$ 10,000.00
Telephone	$ 5,000.00
Office Equip, Repairs & Maintenance	$ 500.00
Major Equip Repairs & Maintenance	$ 15,000.00
Buildings Repairs & Maintenance	$ 5,000.00
Vehicle Parts, Repairs & Maintenance	$ 20,000.00
Training, Travel, & Conference	$ 5,000.00
Subs., Dues, & Publications	$ 3,000.00
City Attorney Fees	$ 1,000.00
Computer Program & Consulting	$ 8,000.00
Medical - General	$ 100.00
Professional Services	$ 10,000.00
Geographic Information Systems	$ 1,000.00
Grant Writing/Application	$ 7,000.00
Physical w/Drug & Alcohol Test	$ 150.00
Fingerprinting	$ 15.00
Liability & Property Insurance	$ 16,000.00
Taxes, Licenses, & Fees	$ 1,200.00
Major Machinery & Equipment	$ 30,000.00
New Los Gatos Lift Station	$ 200,000.00
O&M Cost	$ 368,765.00
Wastewater Collection Total	$ 574,243.00

4.6.3. Growth

As described in Section 1.2.4, the City's population according to the 2000 U.S. Census was 11,668. According to the U.S. Census Population Estimates Program, population within the City has increased to approximately 17,024 in 2022. Therefore, the observed average annual growth rate from 1990 through 2022 is approximately 2.30 percent.

SECTION 5 - IMPROVEMENTS TO SEWER COLLECTION SYSTEM

5.1. Alternatives Considered

Three alternatives were considered for the improvement of the City of Coalinga's sewer collection system, including a no project alternative. Additionally, two construction alternatives are considered herein for the repair or replacement of damaged sewer mains. The first construction alternative consists of using only conventional construction methods, such as digging the damaged sewer main and replacing it with a new pipe. The second alternative consists of using both convention and trenchless construction methods. The trenchless construction method will consist of pipe bursting or cured-in-place (CIPP) where feasible. In summary, the three alternatives are as follows:

- Alternative No. I: No Project
- Alternative No. II: Convention Construction Method
- Alternative No. III: Conventional and Trenchless Construction Methods

The following sections contain a description of each alternative, including design parameters, purposed layouts, and an opinion of probable construction costs and operation and Maintenance (O&M) costs. The anticipated useful life of rehabilitated sewer pipe and replaced sewer pipe is the same and in excess of 50 years.

5.2. Alternative No. I: No Project

Under the "No Project" Alternative, the City's sewer collection systems would continue to operate under current conditions. This Alternative was dismissed due to not addressing concerns with the current condition of the sewer collection. As described in Section 4.4, the CCTV inspection of the sewer collection system revealed the severe condition of several pipe segments within the collection system. These pipe segments will require replacement in the future as they will continue to deteriorate.

5.3. Alternative No. II: Convention Construction Method

Alternative No. II involves replacing deteriorated sewer pipes with new pipes located along the same alignment as the existing. Under this Alternative, bypass pumping equipment and piping will be utilized on a temporary basis to convey wastewater around the construction zone while the existing pipe is excavated and removed. The new sanitary sewer will be installed in the existing pipe trench. Acquisition of new easements is not anticipated.

Conventional construction requires detailed geotechnical investigations and topographical surveys to locate existing utilities that may be impacted by the excavation of the sewer line. Conventional construction uses heavy equipment to dig the trenches and requires surface restoration of the excavated trench.

Conventional Construction is the recommended construction method under the following circumstances:

- where a portion of the existing pipe is collapsed; 0
- where there are multiple offset joints greater than 1-inch or if sealing rings protrude more than 1 inch;
- where the pipe is structurally deformed, and the profile of the pipe is lost;

- where heavy roots through pipe joints cannot be removed by interior cutting;
- where heavy roots have compromised the structural integrity of the pipe;
- where sags are greater than 60 percent of the pipe diameter.

5.3.1. Sewer Main Replacement

The segments of the City's sewer collection system recommended for replacement have been selected based on sorted NASSCO ratings. It is recommended that sewer mains with a NASSCO overall condition rating of 3 and above be replaced unless the NASSCO rating is the result of designate alignment changes to the sewer main. Additionally, sewer mains where sags are present are also recommended to be replaced. Table 5-1 shows a summary of the sewer lines that are recommended to be replaced under this Alternative.

Table 5-1 Sewer Mains Recommended to be Replaced

From MH	To MH	Reason(s)	Method	Length (ft)
AP 1 B	001	Survey abandoned due to obstruction	Replacement	530
AP 19 B	019	Broken Pipe, Hole Void Visible	Replacement	214
CO	245	Broken pipe, Hole Void Visible	Replacement	333
005	005 B	Survey abandoned due to Root Joint Fine and cannot pass, Material pipe change RCP to VCP	Replacement	411
5th	4th	Multiple Pipe Fractures, Broken Pipe, Hole Void Visible, Multiple Cracks, Tap Break-in Intruding	Replacement	401
007	008	Broken Pipe Soil Visible	Replacement	235
012	014	Multiple Cracks and Tap Break-in Intruding	Replacement	427
012	013	Broken Pipe, Multiple Fractures, Tap Intruding	Replacement	223
013	014	Multiple Fractures, Multiple Cracks, Tap Intruding	Replacement	201
014	015	Multiple Cracks	Replacement	300
015	021 B	Pipe Fractures, Hole Void Visible, Tap Intruding	Replacement	331
018	024	Sags 25%, Broken Pipe, Multiple Cracks, Joint Offset Medium, Material Pipe change VCP to PVC	Replacement	330
022	033	Broken Pipe, Multiple Fractures	Replacement	324
024	025	Multiple Cracks, Multiple Fractures, Sags 25% 25% 30%	Replacement	299
020	021	Multiple Cracks	Replacement	478
021	021 B	Multiple Cracks	Replacement	317
021 B	022	Multiple Cracks	Replacement	165
029	052	Joint Offset Medium - Large	Replacement	73
033	044 B	Multiple Fractures, Material Pipe Change PVC to VCP	Replacement	309
037	050	Survey abandoned due to debri and surface damage aggregate visible	Replacement	19
038	039	Hole Void Visible	Replacement	229
039	040	Broken Pipe	Replacement	499
040	040 B	Joint Offset Medium	Replacement	425
41 B	117 B	Broken Soil Visible, JOM	Replacement	196
044 B	055	Multiple Cracks, Multiple Fractures, Sag 45%, Material Pipe Change	Replacement	311

Table 5-1 Sewer Mains Recommended to be Replaced

From MH	To MH	Reason(s)	Method	Length (ft)
050	049	Survey abandoned due to deposits settled gravel, bend in pipe, Material change CP to Clay	Replacement	46
055	078	Multiple Cracks, Multiple Fractures, Joint Offset Medium, Root Joint Fine	Replacement	320
059	058	Broken pipe hole void visible	Replacement	6
059	087	Multiple Fractures, Broken Pipe, Hole Void Visible, Multiple Cracks	Replacement	448
064	091	Multiple Fractures, Hole Void Visible, Joint Offset Medium	Replacement	442
069	095	Multiple Fractures, Broken pipe soil visible, Tap Intruding	Replacement	166
73 C	113 C	Broken Soil Visible	Replacement	549
066	092	Multiple Fractures, Hole Void Visible, Sag 30%	Replacement	72
081	082	Multiple Fractures, Multiple Cracks	Replacement	305
082	082 B	Multiple Fractures, Multiple Cracks, Joint Offset Medium, Sags 50%	Replacement	639
084	090	Multiple Fractures, Multiple Cracks	Replacement	502
088	088 B	Survey abandoned due to Joint Offset Medium - Large	Replacement	41
089	063	Survey abandoned due to tap break in intruding	Replacement	90
091	093	Multiple Fractures	Replacement	505
093	098	Multiple Fractures, Multiple Cracks	Replacement	588
094	112	Survey abandoned, Broken Pipe	Replacement	338
095	068	Multiple Fractures, Broken Pipe, Hole Void Visible, Joint Offset Medium, Tap Intruding	Replacement	259
096	114	Multiple Cracks, Deposits Settled Gravel	Replacement	200
100	100 B	Multiple Fractures, Multiple Cracks Longitudinal, Gravel Deposits	Replacement	435
106	108	Multiple Cracks, Hole Void Visible	Replacement	303
106	108	Multiple Cracks, Hole Void Visible, Grease Deposits Attached	Replacement	322
106	108	Multiple Cracks, Multiple Fractures, Hole Void Visible, Sag 20%	Replacement	337
106	108	Joint Offset Medium - Large, Broken pipe, Hole Void Visible	Replacement	16
107	85	Multiple Cracks	Replacement	199
108	107	Multiple Cracks	Replacement	116
109	088	Multiple Fractures, Multiple Cracks, Tap Intruding, Material Pipe change PVC to VCP	Replacement	256
113	113 C	Multiple Fractures, Broken Pipe, Hole Void Visible	Replacement	446
113 C	113 B	Multiple Pipe Fractures, Broken Pipe and Material Pipe Change VCP to PVC	Replacement	154
114	114 B	Multiple Fractures, Sag 30%, Gravel deposits settled	Replacement	159
115 B	115 C	Multiple Fractures, Multiple Cracks, Sags 30%	Replacement	161
115 C	117 B	Multiple Fractures	Replacement	184
117	120	Pipe Fracture	Replacement	1,109
117 B	117	Multiple Fractures, Multiple Cracks, JOM, Material Pipe Change PVC to VCP	Replacement	1,240
127 B	85	Broken Pipe, Hole Void Visible	Replacement	439

Table 5-1 Sewer Mains Recommended to be Replaced

From MH	To MH	Reason(s)	Method	Length (ft)
132	127	Obstruction in pipe, Broken Pipe Soil Visible, Roots Joint Fine	Replacement	359
133	146	Broken pipe soil visible	Replacement	398
133	111	Multiple Fractures, Hole Void Visible, Joint Offset Medium	Replacement	364
134	135	Pipe Collapse, Broken Pipe, Multiple Fractures, Multiple Cracks, Grease Deposits attached	Replacement	401
135	112	Multiple Fractures, Joint Offset Medium, Sag 20%	Replacement	479
138 B	138 C	Multiple Cracks, Pipe Material Change	Replacement	176
138 D	138	Multiple Fractures, Hole Void Visible, Multiple Cracks, Joint Offset Medium, Sag 20% 20% 40%, Survey abandoned due to debris	Replacement	365
138	115 B	Multiple Cracks, Multiple Fractures, Sag 20%	Replacement	116
138 C	138 D	Hole Void Visible	Replacement	96
141	142	Pipe deformed (Cut in pipe)	Replacement	463
143	148	Multiple Cracks, Multiple Fractures, Hole Void Visible	Replacement	495
144	143	Multiple Cracks, Multiple Fractures	Replacement	83
145	133	Survey abandoned due to Joint Offset Medium, Debri under water, Broken Pipe, Hole Void Visible, Multiple Cracks	Replacement	105
147	134	Joint Offset Medium, Grease Deposits Attached	Replacement	481
148	110	Multiple Fractures, Broken Pipe, Multiple Cracks	Replacement	446
149	135	Broken Pipe, Multiple Fractures, Hole Void Visible, Sag 30%, 40%	Replacement	480
152	137	Pipe Fractures	Replacement	480
153	138 B	Broken Pipe, Hole Void Visible, Multiple Cracks	Replacement	235
155	154	Hole Void Visible, Pipe Surface Damage	Replacement	57
155	156	Survey abandoned due to holes getting larger, deposits settled and debris	Replacement	175
156	157	Broken Pipe Soil Visible, Survey abandoned due to surface damage aggregate visible	Replacement	239
157	158	Survey abandoned due to surface damage aggregate visible	Replacement	195
163	163 B	Joint Separated Medium, Surface Spalling Damage	Replacement	265
164	145	Multiple Fractures, Hole Void Visible, Multiple Cracks, Joint Offset Medium	Replacement	475
165	147	Joint Offset Medium, Grease Deposits Attached	Replacement	491
166	167	Broken pipe, Hole Void Visible	Replacement	454
171	149	Multiple Fractures, Multiple Cracks, Broken Pipe, Severe Grease Deposits Attached	Replacement	482
172	152	Pipe Fractures , Hole Void Visible	Replacement	479
173	153	Broken Pipe, Hole Void Visible, Multiple Cracks	Replacement	479
174	153	Multiple Cracks	Replacement	199
175	174	Hole Void Visible	Replacement	199
176	177	Pipe Fractures, Holes Void Visible, Survey abandoned due to Joint Offset Medium	Replacement	354
177	178	Pipe Fractures, Deposits settled survey abandoned	Replacement	162

Table 5-1 Sewer Mains Recommended to be Replaced

From MH	To MH	Reason(s)	Method	Length (ft)
178	179	Survey abandoned due to Joint Offset Medium, Pipe Fractures	Replacement	301
179	179 B	Survey abandoned due to debri under water	Replacement	147
183	164	Survey abandoned due to obstruction in pipe	Replacement	274
184	171	Pipe Fractures, Broken Pipe, Hole Void Visible, Joint Offset Medium, Tap Intruding	Replacement	481
185 C	185 B	Survey abandoned cannot continue	Replacement	307
185	175	Multiple Cracks, Broken Pipe Soil Visible	Replacement	479
185 B	185	Hole Void Visible, Multiple Cracks	Replacement	478
186	183	Multiple Cracks	Replacement	228
188 C	188 B	Multiple Cracks	Replacement	189
188	173	Hole in Pipe, Multiple Cracks, Survey abandoned due to obstruction in Pipe	Replacement	389
188 B	188	Broken Pipe, Hole Void Visible, Multiple Cracks	Replacement	478
189 B	189	Survey abandoned due to obstruction	Replacement	264
189	185	Multiple Cracks	Replacement	398
194	195	Survey abandoned due to pipe in line	Replacement	240
195	196	Survey abandoned due to Joint Offset Medium - Large	Replacement	461
199	184	Survey abandoned due to grease deposits attached, Broken Pipe, Multiple Cracks	Replacement	111
200	199	Pipe Fractures	Replacement	198
201	201 C	Pipe Fractures, Hole Void Visible, Joint Offset Medium	Replacement	484
201 B	201	Broken Pipe, Pipe Fractures, Hole Void Visible	Replacement	236
201 C	172	Survey abandoned due to deposits settled and debris	Replacement	108
202 B	202	Survey abandoned due to Joint Offset Medium	Replacement	163
203	204	Joint Offset Medium	Replacement	480
204 B	193	Multiple Fractures, Multiple Cracks	Replacement	150
204 C	204 B	Broken Pipe with crack and fracture	Replacement	7
205	206	Multiple Longitudinal Cracks, JOM - Large	Replacement	215
206	204 C	Multiple Fractures, Multiple Cracks, Pipe surface damage	Replacement	175
206	206 B	Multiple Longitudinal Cracks	Replacement	176
209	212	Broken Pipe	Replacement	150
210	211	Multiple Cracks, Roots Joint Fine	Replacement	200
213	214	Multiple Cracks	Replacement	300
224	207	Multiple Cracks, Broken Pipe with Pipe Fracture	Replacement	613
225	212	Multiple Cracks, Roots Joint Medium	Replacement	459
226	213	Multiple Cracks, Joint Offset Medium	Replacement	469
227	214	Multiple Cracks	Replacement	489
229	215	Multiple Fractures, Joint Offset Medium, Material Change VCP to PVC	Replacement	253

Table 5-1 Sewer Mains Recommended to be Replaced

From MH	To MH	Reason(s)	Method	Length (ft)
229 B	229	Broken Pipe Soil Visible, Multiple Cracks	Replacement	377
230	229 B	Broken Pipe Soil Visible, Multiple Cracks, Joint Offset Medium	Replacement	373
230	231	Broken Pipe Soil Visible	Replacement	355
231	232	Broken Pipe Soil Visible	Replacement	401
232	233	Soil Visible and Multiple Cracks	Replacement	339
233	234	Broken Pipe	Replacement	63
234	235	Hole Void Visible	Replacement	373
235	222	Pipe Fractures, Joint Offset Medium - Large, Material change VCP to PVC	Replacement	250
237	237 B	Joint Offset Medium	Replacement	177
239	229	Survey abandoned due to camera under water, Multiple fractures	Replacement	124
240	239	Multiple Cracks, Hole Void Visible	Replacement	756
240	241	Survey abandoned due to obstruction under water level, Pipe material change VCP to PVC	Replacement	146
241	242	Pipe Fracture, Joint Offset Medium	Replacement	157
242	243	Multiple Fractures Joint Offset Medium - Roots	Replacement	175
243	233	Pipe Fracture	Replacement	200
246 B	246	Broken Pipe Soil Visible, Multiple Cracks, Joint Offset Medium	Replacement	471
246 B	246	Survey abandoned due Infiltration Stain Joint, Multiple Holes Soil Visible, Multiple Fractures	Replacement	263
247	246	Pipe Fractures, Multiple Cracks, Hole Void Visible	Replacement	371
248	249	Pipe Fractures, Joint Offset Medium	Replacement	25
248	247	Sag, Multiple cracks, Multiple Fracture	Replacement	765
248	249	Survey abandoned due to line collapsing	Replacement	25
250	251	Broken Pipe Soil Visible, Multiple Cracks	Replacement	496
251	247	Pipe Fractures	Replacement	185
252	134	Broken pipe, hole void visible, Sag 10%	Replacement	239
252	094	Joint Offset Medium. Material Pipe change PVC to VCP	Replacement	242
252	134	Obstruction in pipe	Replacement	232
255	256	Broken Pipe, Soil Visible, Joint Offset Medium, Multiple Fractures	Replacement	329
256	257	Broken Pipe, Multiple Fractures, Joint Offset Medium, Hole Void Visible, Tap Intruding	Replacement	153
257	258	Broken Pipe, Multiple Fractures, Hole Void Visible, Multiple Cracks, Joint Offset Medium, Survey abandoned due to large offset	Replacement	180
258	259	Tap Break-in Intruding, Multiple Longitudinal Cracks, Joint Separated Medium	Replacement	243
259	260	Hole Void Visible, Tap Break-in Intruding	Replacement	7
259	260	Hole Void Visible, Multiple Cracks, Fracture Longitudinal, Tap Break-in Intruding	Replacement	271
260	261	Broken Pipe, Hole Void Visible, Multiple Cracks	Replacement	218

Table 5-1 Sewer Mains Recommended to be Replaced

From MH	To MH	Reason(s)	Method	Length (ft)
261	262	Broken Pipe Soil Visible, Multiple Cracks, JOM	Replacement	750
262	205	Deposits Grease attached, Multiple Cracks	Replacement	277
			Total Length to Be Replaced	**50,616**

Under this Alternative, approximately 50,616 LF of sewer mains will be replaced with new sewer pipes before failure occurs. Figure 5-1 displays the pipe segments that are recommended for replacement.

5.3.2. Probable Construction Costs

Table 5-2 provides an opinion of probable construction costs for the replacement of the deteriorated and/or sagging sewer mains.

Table 5-2 Alternative No. II Probable Construction Costs

Description	Quantity	Units	Unit Cost ($/Unit)	Total
Mobilization	1	LS	$240,000	$240,000
Traffic Control Plan	1	LS	$90,000	$90,000
New 6" PVC Pipe	29,751	LF	$215	$6,397,000
New 8" PVC Pipe	11,524	LF	$215	$2,478,000
New 10" PVC Pipe	3,809	LF	$240	$915,000
New 15" PVC Pipe	2,558	LF	$265	$678,000
New 18" PVC Pipe	2,975	LF	$265	$789,000
Excavation	31,130	CY	$9	$281,000
Backfill	43,582	TON	$6	$262,000
Surface Restoration	7,780	SY	$30	$234,000
Remove and Replace Sewer Lateral	40	EA	$4,800	$192,000
Bypass Pumping	140	Day	$1,200	$168,000
			Subtotal Construction Costs	**$12,724,000**
Contingency (15%)				$1,908,600
Engineering, Environmental, Construction Administration (12%)				$1,526,880
			Total Capital Construction Costs	**$16,159,480**
NOTE: All capital construction costs are rounded up to the nearest thousand.				

5.3.3. Annual O&M Costs

The annual operation and Maintenance (O&M) costs for Alternative No. II will consist of conventional Maintenance costs to operate the sewer collection system. Since this alternative only includes the replacement of existing sewer mains and laterals, no additional O&M costs are anticipated after construction concludes. The City's existing O&M costs for the sewer collection system are provided in Table 4-5 of this PER.

CITY OF COALINGA

CCTV INSPECTION PROJECT

LEGEND

NO REPLACEMENT

REPLACEMENT

NOT SURVEYED

NORTH

SCALE IN FEET

0 1,500 FT

ALTERNATIVE II - SEWER MAINS TO BE REPLACED

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5.4. Alternative No. III Conventional and Trenchless Construction Methods

Under this Alternative, both conventional and trenchless construction methods will be used to either replace or rehabilitate deteriorated sewer mains. Where applicable, Alternative No. III will utilize trenchless sewer rehabilitation techniques in lieu of conventional replacement methods. Trenchless sewer rehabilitation techniques offer a method of correcting pipe deficiencies that requires less restoration and causes less disturbance and environmental degradation than the conventional construction method. The most common trenchless sewer rehabilitation methods are Pipe Bursting and Cured-In-Place Pipe (CIPP).

5.4.1. Pipe Bursting

Pipe bursting is a method by which the existing pipe is forced outward and opened by a bursting tool. In pipe bursting the existing pipe is used as a guide for inserting the expansion head (part of the bursting tool). The expansion head, typically pulled by a cable rod and winch, increases the area available for the new pipe by pushing the existing pipe radially outward until it cracks. The bursting device pulls the new pipeline behind itself.

During the pipe bursting process, the rehabilitated pipe segment must be taken out of service by rerouting flows around it. After the pipe bursting is completed, laterals are re-connected, typically by conventional excavation methods.

Pipe Bursting is the recommended rehabilitation method under the following circumstances:

- when capacity of the existing line needs to be increased;
- when the number of lateral connections is limited;
- when the number of crossing utilities is limited and the clearance between utilities is greater than 3 ft;
- when the depth of the sewer lines is less than 12 ft;
- when sags in the line do not exceed 20 percent of the pipe diameter;
- when pipes are not encased in concrete.

5.4.2. CIPP

Cured-in-place pipe (CIPP) is a rehabilitation method that uses a flexible fabric liner coated with a thermosetting resin to form a new pipe inside the existing pipe. The liner is inserted into the existing pipeline and cured to form a new liner. The liner is typically inserted into the existing pipe through an existing manhole. The fabric tube holds the resin in place until the tube is inserted in the pipe and ready to be cured. Commonly manufactured resins include unsaturated polyester, vinyl ester, and epoxy, each having distinct chemical resistance to domestic wastewater.

The CIPP method can be applied to rehabilitate pipelines with defects such as cracks, small offset joints, and structurally deficient segments. The thermosetting resin material bonds with the existing pipe materials to form a tighter seal than most other trenchless techniques. The liner is typically applied using gravity and either water or air pressure to force the tube through the pipe and invert it or turn the tube inside out. This process presses the resin- coated tube against the walls of the existing pipe. Heat is used to cure the resin to form a strong bond between the tube and the existing pipe.

As the liner expands to fit the new pipe, dimples occur in the line where the laterals exist. Dimples in the line can be found by TV inspection or robotic equipment. Laterals are typically reinstated with robotic cutting devices, or, for large-diameter pipes, by manually cutting the liner.

CIPP is the recommended rehabilitation method under the following circumstances:

- where offset pipe joints are generally 1 inch or less;
- where longitudinal or circumferential cracking in the pipe has caused minimal structural deformation;
- where light to medium roots exist through the pipe joints and can be removed by interior cutting;
- where sags in the pipe are less than 60 percent of the pipe diameter;
- where debris can be removed from the pipe;
- where holes in the pipe don't have visible voids (i.e., no soil visible outside the hole); larger holes allow CIPP liners to deform and weaken near the edges of the hole.

5.4.3. Sewer Main Replacement and Rehabilitation

Alternative No. III consists of an "in-kind" rehabilitation and replacement of the City's gravity sewer mains. Where feasible, segments of the sewer collection system will be rehabilitated using trenchless construction methods. In order to ensure the structural integrity of the sewer system, conventional "open trench" construction methods will be used to replace the sewer mains that display pipe deformations, broken pipes, or sags greater than 60 percent of the pipe diameter. Table 5-3 displays the sewer mains that are recommended to be rehabilitated or replaced under this alternative. The proposed improvements are shown in Figure 5-2.

Table 5-3 Alternative No. III Sewer Mains Recommended to be Rehabilitated/Replaced

From MH	To MH	Reason(s)	Method	Length (ft)
AP 1 B	001	Survey abandoned due to obstruction	Trenchless	530
005	005 B	Survey abandoned due to Root Joint Fine and cannot pass	Trenchless	276
005	005 B	Material pipe change RCP to VCP, Lining damage, Roots Joint Fine	Trenchless	135
013	214	Multiple Cracks	Trenchless	300
014	015	Multiple Cracks	Trenchless	300
018	024	Sags 25%, Broken Pipe, Multiple Cracks, JOM, Material Pipe change VCP to PVC	Trenchless	330
020	021	Multiple Cracks	Trenchless	478
021	021 B	Multiple Cracks	Trenchless	317
021 B	022	Multiple Cracks	Trenchless	165
022	033	Broken Pipe, Multiple Fractures	Trenchless	324
024	025	Multiple Cracks, Multiple Fractures, Sags 25% 25% 30%	Trenchless	299
039	040	Broken Pipe	Trenchless	499
040	040 B	JOM	Trenchless	425
41 B	117 B	Broken Soil Visible, JOM	Trenchless	196

Table 5-3 Alternative No. III Sewer Mains Recommended to be Rehabilitated/Replaced

From MH	To MH	Reason(s)	Method	Length (ft)
044 B	055	Multiple Cracks, Multiple Fractures, Sag 45%, Material Pipe Change	Trenchless	311
055	078	Multiple Cracks, Multiple Fractures, JOM, Root Joint Fine	Trenchless	320
066	092	Multiple Fractures, Hole Void Visible, Sag 30%	Trenchless	72
081	082	Multiple Fractures, Multiple Cracks	Trenchless	305
082	082 B	Multiple Fractures, Multiple Cracks, JOM, Sags 50%	Trenchless	639
084	090	Multiple Fractures, Multiple Cracks	Trenchless	502
091	093	Multiple Fractures	Trenchless	505
093	098	Multiple Fractures, Multiple Cracks	Trenchless	588
094	112	Survey abandoned, Broken Pipe	Trenchless	338
096	114	Multiple Cracks, Deposits Settled Gravel	Trenchless	200
100	100 B	Multiple Fractures, Multiple Cracks Longitudinal, Gravel Deposits	Trenchless	436
106	108	Multiple Cracks, Multiple Fractures, Hole Void Visible, Sag 20%	Trenchless	337
107	85	Multiple Cracks	Trenchless	199
108	107	Multiple Cracks	Trenchless	116
109	088	Multiple Fractures, Hole Void Visible, Survey abandoned	Trenchless	121
113	113 C	Multiple Fractures, Broken Pipe, Hole Void Visible	Trenchless	445
113 C	113 B	Multiple Pipe Fractures, Broken Pipe and Material Pipe Change VCP to PVC	Trenchless	154
114	114 B	Multiple Fractures, Sag 30%, Gravel deposits settled	Trenchless	159
115 B	115 C	Multiple Fractures, Multiple Cracks, Sags 30%	Trenchless	161
115 C	117 B	Multiple Fractures	Trenchless	184
117	120	Pipe Fracture	Trenchless	1,109
117 B	117	Multiple Fractures and Cracks Longitudinal, JOM, Material Pipe Change PVC to VCP	Trenchless	1,241
133	111	Multiple Fractures, Hole Void Visible, JOM	Trenchless	364
138	115 B	Multiple Cracks, Multiple Fractures, Sag 20%	Trenchless	116
138 B	138	Multiple Fractures, Hole Void Visible, Multiple Cracks, JOM, Sag 20% 20% 40%, Survey abandoned due to debris	Trenchless	365
144	143	Multiple Cracks, Multiple Fractures	Trenchless	83
147	134	JOM, Grease Deposits Attached	Trenchless	481
152	137	Pipe Fractures	Trenchless	480
153	138 B	Broken Pipe, Hole Void Visible, Multiple Cracks	Trenchless	235
155	156	Survey abandoned due to deposits settled and debris	Trenchless	60
156	157	Survey abandoned due to surface damage aggregate visible	Trenchless	67
163	163 B	Joint Separated Medium, Surface Spalling Damage	Trenchless	265

Table 5-3 Alternative No. III Sewer Mains Recommended to be Rehabilitated/Replaced

From MH	To MH	Reason(s)	Method	Length (ft)
165	147	JOM, Grease Deposits Attached	Trenchless	491
171	149	Multiple Fractures, Multiple Cracks, Broken Pipe, Severe Grease Deposits Attached	Trenchless	482
174	153	Multiple Cracks	Trenchless	199
175	174	Hole Void Visible	Trenchless	199
176	177	Survey abandoned due to JOM	Trenchless	4
179	179 B	Survey abandoned due to debri under water	Trenchless	147
185	175	Multiple Cracks, Broken Pipe Soil Visible	Trenchless	479
185 B	185	Hole Void Visible, Multiple Cracks	Trenchless	478
186	183	Multiple Cracks	Trenchless	228
188 B	188	Broken Pipe, Hole Void Visible, Multiple Cracks	Trenchless	478
188 C	188 B	Multiple Cracks	Trenchless	189
189	185	Multiple Cracks	Trenchless	398
199	184	Survey abandoned due to grease deposits attached, Broken Pipe, Multiple Cracks	Trenchless	111
194	195	Survey abandoned due to pipe in line, Multiple Cracks	Trenchless	330
195	196	Survey abandoned due to JOM - Large	Trenchless	461
200	199	Pipe Fractures	Trenchless	198
201 C	172	Survey abandoned due to deposits settled and debris	Trenchless	108
202 B	202	Survey abandoned due to JOM	Trenchless	163
203	204	JOM	Trenchless	480
204 B	193	Multiple Fractures, Multiple Cracks	Trenchless	150
204 C	204 B	Broken Pipe with crack and fracture	Trenchless	7
205	206	Multiple Longitudinal Cracks, JOM - Large	Trenchless	215
206	204 C	Multiple Fractures, Multiple Cracks, Pipe surface damage	Trenchless	175
206	206 B	Multiple Longitudinal Cracks	Trenchless	176
209	212	Broken Pipe	Trenchless	150
210	211	Multiple Cracks, Roots Joint Fine	Trenchless	200
224	207	Multiple Cracks, Broken Pipe with Pipe Fracture	Trenchless	613
225	212	Multiple Cracks, Roots Joint Medium	Trenchless	459
226	213	Multiple Cracks, JOM	Trenchless	469
227	214	Multiple Cracks	Trenchless	489
229	215	Multiple Fractures, JOM, Material Change VCP to PVC	Trenchless	253
229 B	229	Broken Pipe Soil Visible, Multiple Cracks	Trenchless	377
230	229 B	Broken Pipe Soil Visible, Multiple Cracks, JOM	Trenchless	373
234	235	Hole Void Visible	Trenchless	373
237	237 B	JOM	Trenchless	177

Table 5-3 Alternative No. III Sewer Mains Recommended to be Rehabilitated/Replaced

From MH	To MH	Reason(s)	Method	Length (ft)
240	239	Multiple Cracks, Hole Void Visible	Trenchless	756
240	241	Survey abandoned due to obstruction under water level, Pipe material change VCP to PVC	Trenchless	146
241	242	Pipe Fracture, JOM	Trenchless	157
243	233	Pipe Fracture	Trenchless	200
247	246	Pipe Fractures	Trenchless	185
247	246	Multiple Cracks, Hole Void Visible	Trenchless	186
248	247	Sag, Multiple cracks and Fracture	Trenchless	765
248	249	Pipe Fractures, JOM	Trenchless	25
251	247	Pipe Fractures	Trenchless	185
252	134	Obstruction in pipe, Broken pipe, hole void visible, Sag 10%	Trenchless	471
252	094	JOM. Material Pipe change PVC to VCP	Trenchless	242
257	258	Broken Pipe, Multiple Fractures, Hole Void Visible, Multiple Cracks, JOM, Survey abandoned due to large offset	Trenchless	180
259	259	JOM	Trenchless	263
260	261	Broken Pipe, Hole Void Visible, Multiple Cracks	Trenchless	218
261	262	Broken Pipe Soil Visible, Multiple Cracks, JOM	Trenchless	750
262	205	Deposits Grease attached, Multiple Cracks	Trenchless	277
			Total Length to Be Rehabilitated	**30,816**
AP 19 B	019	Broken Pipe, Hole Void Visible	Conventional	214
CO	245	Broken pipe, Hole Void Visible	Conventional	333
5th	4th	Multiple Pipe Fractures, Broken Pipe, Hole Void Visible, Multiple Cracks, Tap Break-in Intruding	Conventional	401
007	008	Broken Pipe Soil Visible	Conventional	235
012	013	Broken Pipe, Multiple Fractures, Tap Intruding	Conventional	223
012	014	Multiple Cracks and Tap Break-in Intruding	Conventional	427
013	014	Multiple Fractures, Multiple Cracks, Tap Intruding	Conventional	201
015	021 B	Pipe Fractures, Hole Void Visible, Tap Intruding	Conventional	331
029	052	JOM - Large	Conventional	73
033	044 B	Multiple Fractures, Material Pipe Change PVC to VCP	Conventional	309
037	050	Survey abandoned due to debri and surface damage aggregate visible	Conventional	19
038	039	Hole Void Visible	Conventional	229
050	049	Survey abandoned due to deposits settled gravel, bend in pipe, Material change CP to Clay	Conventional	46
059	058	Broken pipe hole void visible	Conventional	6
059	087	Multiple Fractures, Broken Pipe, Hole Void Visible,	Conventional	448

Table 5-3 Alternative No. III Sewer Mains Recommended to be Rehabilitated/Replaced

From MH	To MH	Reason(s)	Method	Length (ft)
		Multiple Cracks		
064	091	Multiple Fractures, Hole Void Visible, JOM	Conventional	442
066	095	Multiple Fractures, Broken pipe soil visible, Tap Intruding	Conventional	166
73 C	113 C	Broken Soil Visible	Conventional	549
088	088 B	Broken pipe soil visible, JOM - Large, Survey abandoned	Conventional	41
089	063	Survey abandoned due to tap break in intruding	Conventional	90
095	068	Multiple Fractures, Broken Pipe, Hole Void Visible, JOM, Tap Intruding	Conventional	259
106	108	Multiple Cracks, Hole Void Visible, JOM - Large, Broken pipe	Conventional	319
106	108	Multiple Cracks, Hole Void Visible, Grease Deposits Attached	Conventional	322
109	088	Multiple Fractures, Multiple Cracks, Tap Intruding, Material Pipe change PVC to VCP	Conventional	135
127 B	85	Broken Pipe, Hole Void Visible	Conventional	439
132	127	Obstruction in pipe, Broken Pipe Soil Visible, Roots Joint Fine	Conventional	359
133	146	Broken pipe soil visible	Conventional	398
134	135	Pipe Collapse, Broken Pipe, Multiple Fractures, Multiple Cracks, Grease Deposits attached	Conventional	401
135	112	Multiple Fractures, JOM, Sag 20%	Conventional	479
138 C	138 D	Hole Void Visible	Conventional	96
138 B	138 C	Multiple Cracks, Pipe Material Change	Conventional	176
141	142	Pipe deformed (Cut in pipe)	Conventional	463
143	148	Multiple Cracks, Multiple Fractures, Hole Void Visible	Conventional	495
145	133	Survey abandoned due to JOM, Debri under water, Broken Pipe, Hole Void Visible, Multiple Cracks	Conventional	105
148	110	Multiple Fractures, Broken Pipe, Multiple Cracks	Conventional	446
149	135	Broken Pipe, Multiple Fractures, Hole Void Visible, Sag 30%, 40%	Conventional	480
155	156	Survey abandoned due to holes getting larger	Conventional	115
155	154	Hole Void Visible, Pipe Surface Damage	Conventional	57
156	157	Broken Pipe Soil Visible	Conventional	172
157	158	Survey abandoned due to surface damage aggregate visible	Conventional	195
164	145	Multiple Fractures, Hole Void Visible, Multiple Cracks, JOM	Conventional	475
166	167	Broken pipe, Hole Void Visible	Conventional	454
172	152	Pipe Fractures , Hole Void Visible	Conventional	479
173	153	Broken Pipe, Hole Void Visible, Multiple Cracks	Conventional	479
176	177	Pipe Fractures, Holes Void Visible	Conventional	350

Table 5-3 Alternative No. III Sewer Mains Recommended to be Rehabilitated/Replaced

From MH	To MH	Reason(s)	Method	Length (ft)
177	178	Pipe Fractures, Deposits settled survey abandoned	Conventional	162
178	179	Survey abandoned due to JOM, Pipe Fractures	Conventional	301
183	164	Survey abandoned due to obstruction in pipe	Conventional	274
184	171	Pipe Fractures, Broken Pipe, Hole Void Visible, JOM, Tap Intruding	Conventional	481
185 C	185 B	Survey abandoned cannot continue	Conventional	307
188	173	Hole in Pipe, Multiple Cracks, Survey abandoned due to obstruction in Pipe	Conventional	389
189 B	189	Survey abandoned due to obstruction	Conventional	264
201	201 C	Pipe Fractures, Hole Void Visible, JOM	Conventional	484
201 B	201	Broken Pipe, Pipe Fractures, Hole Void Visible	Conventional	236
201 C	172	Survey abandoned	Conventional	8
230	231	Broken Pipe Soil Visible	Conventional	355
231	232	Broken Pipe Soil Visible	Conventional	401
232	233	Soil Visible and Multiple Cracks	Conventional	339
233	234	Broken Pipe	Conventional	63
235	222	Pipe Fractures, JOM - Large, Material change VCP to PVC	Conventional	250
239	229	Survey abandoned due to camera under water, Multiple fractures	Conventional	124
242	243	Multiple Fractures, JOM - Roots	Conventional	175
246 B	246	Survey abandoned due Infiltration Stain Joint, Multiple Holes Soil Visible, Multiple Fractures	Conventional	263
246 B	246	Broken Pipe Soil Visible, Multiple Cracks, JOM	Conventional	472
248	249	Survey abandoned due to line collapsing	Conventional	25
250	251	Broken Pipe Soil Visible, Multiple Cracks	Conventional	496
255	256	Broken Pipe, Soil Visible, JOM, Multiple Fractures	Conventional	329
256	257	Broken Pipe, Multiple Fractures, JOM, Hole Void Visible, Tap Intruding	Conventional	153
258	259	Tap Break-in Intruding, Multiple Longitudinal Cracks, Joint Separated Medium	Conventional	243
259	260	Hole Void Visible, Multiple Cracks, Fracture Longitudinal, Tap Break-in Intruding	Conventional	271
259	260	Hole Void Visible, Tap Break-in Intruding	Conventional	7
			Total Length to Be Replaced	**19,801**

5.4.4. Probable Construction Costs

Table 5-4 provides an opinion of probable construction costs for the rehabilitation of approximately 30,816 LF of gravity sewer mains and the replacement of approximately 19,801 gravity sewer mains.

Table 5-4 Alternative No. III Probable Construction Costs

Description	Quantity	Units	Unit Cost ($/Unit)	Total
Mobilization	1	LS	$240,000	$240,000
Traffic Control Plan	1	LS	$90,000	$90,000
Rehabilitation 6" PVC Pipe	15,914	LF	$95	$1,511,783
Rehabilitation 8" PVC Pipe	7,297	LF	$105	$766,227
Rehabilitation 10" PVC Pipe	2,071	LF	$110	$227,832
Rehabilitation 15" PVC Pipe	2,558	LF	$120	$306,948
Rehabilitation 18" PVC Pipe	2,975	LF	$120	$356,964
New 6" PVC Pipe	13,838	LF	$215	$2,975,063
New 8" PVC Pipe	4,226	LF	$215	$908,676
New 10" PVC Pipe	1,738	LF	$240	$417,072
Excavation	9,933	CY	$9	$89,400
Backfill	13,907	TON	$6	$83,440
Surface Restoration	2,481	SY	$30	$74,426
Remove and Replace Sewer Lateral	40	EA	$4,800	$192,000
Bypass Pumping	70	Day	$1,200	$84,000
Subtotal Construction Costs				**$8,323,830**
Contingency (15%)				$1,248,574
Engineering, Environmental, Construction Administration (15%)				$998,860
Total Capital Construction Costs				**$10,571,264**
NOTE: All capital construction costs are rounded up to the nearest thousand.				

5.4.5. Annual O&M Costs

Similar to Alternative No. II, Alternative No. III includes only the rehabilitation or replacement of existing deteriorated gravity sewer mains and laterals and will consist of conventional Maintenance costs to operate the sewer collection system. Table 4-4 displays the annual O&M costs associated with the sewer collection system.

CITY OF COALINGA

CCTV INSPECTION PROJECT

LEGEND

- NO REPLACEMENT
- REPLACEMENT
- REHABILITATION
- NOT SURVEYED

NORTH

SCALE IN FEET

0 1,000 FT

ALTERNATIVE II - SEWER MAINS TO BE REPLACED AND REHABILITATED

AM Consulting Engineers • 5150 N. Sixth Street Suite 124 • Fresno, California 93710 • (559) 473-1371

5.5. Alternative Evaluation

As previously stated, the purpose of this PER is to provide a comprehensive evaluation of the City's existing sewer collection system and to recommend the replacement or rehabilitation of deteriorated gravity sewer mains through the City in order to prevent blockages, SSO's, and pipe failure. The anticipated useful life of rehabilitated sewer pipe and replaced sewer pipe is the same and in excess of 50 years. The three alternatives considered are as follows:

- Alternative I: No Project
- Alternative II: Convention Construction Method
- Alternative III: Conventional and Trenchless Construction Methods

Alternative I was eliminated from consideration as it does not address the long-term needs of the City. The sewer mains considered in this Section would still require replacement in the future as they begin to fail. It was deemed more practical to address these structural and performance issues prior to failure of the system. The following paragraphs provide an evaluation of the remaining two alternatives.

5.5.1. Design Criteria/Compliance Issues

Alternatives Nos. II and III would require the replacement or rehabilitation of the City's existing gravity sewer mains. There are no anticipated design issues, as both alternatives implement standard, common replacement, or rehabilitation methods. These alternatives may include excavation near trees and shrubs; however, Alternative No. III seeks to minimize the amount of excavation by using trenchless construction methods.

Replacing or rehabilitating the City's existing sewer collection system will address the State's planning priorities included in California Governmental Code Section 65041.1. Alternative Nos. II and III will both promote infill development by rehabilitating and improving existing infrastructure. The rehabilitated sewer collection system will protect environmental resources by reducing the likelihood of sewer collection system leaks and overflows. The improved system will also minimize costs to City residents by lowering repair and replacement costs.

5.5.2. Annual O&M Costs

For each alternative, the annual O&M cost associated with the improved sewer collection system would be similar to the existing O&M expenses. Table 5-5 displays the City's operating expenses for the sewer collection system and personnel for the past five fiscal years. According to the table, the City's average annual O&M costs for the sewer collection system are approximately $745,458.

Table 5-5 Average Annual O&M Costs

Fiscal Year	O & M Costs
2018/19	$590,760
2019/20	$515,807
2020/21	$814,221
2021/22	$1,232,257
2022/23	$574,243
Average	**$745,458**

Notes:
Source: City of Coalinga Adopted Budget for
FY 2018/19, 2019/20, 2020/21, 2021/22 , 2022/23

5.5.3. Life-Cycle Costs

The alternatives described above were evaluated to determine the most feasible, cost-effective alternative. A life cycle of 25 years was used to determine lifetime O&M costs. A summary of costs for Alternative Nos. II and III are shown below in Table 5-6.

Table 5-6 Life Cycle Cost Estimates

Alternative	Capital Cost	Lifetime O&M	Total Life-Time Cost
II – Conventional Construction Methods	$16,159,480	$18,636,440	$34,795,920
III – Trenchless & Conventional Construction Methods	$10,571,264	$18,636,440	$29,207,704

The table shows that Alternative III has the lowest life-time cost. As previously stated, it is anticipated that O&M will be the same regardless of if the sewer mains are replaced or rehabilitated, therefore both Alternatives have the same lifetime O&M.

5.6. Recommended Alternative

Based on each alternative's life-time cost, design criteria/compliance issues, and feasibility, it is recommended that the City proceed with Alternative No. III. As demonstrated above, Alternative III has the lowest capital cost and lifetime cost of the two feasible alternatives. This alternative also minimizes the amount of excavation required.

SECTION 6 - WASTEWATER TREATMENT PLANT IMPROVEMENTS

6.1. Alternatives Considered

This section describes the alternatives considered for the improvement of the existing Coalinga WWTP. The alternatives included in this section are intended for reuse or recycle treated effluent produced from the Coalinga WWTP to offset some of the non-potable water demands within the City's service area or to provide an incidental recharge of the groundwater basin. In summary, the four alternatives are as follows:

- Alternative I: No Project
- Alternative II: Existing Treatment with Offsite Disposal through Agricultural Irrigation (Non-Human Crops)
- Alternative III: Upgrade Treatment to an Extended Aeration with Biological Nutrient Removal and Onsite Disposal through percolation (Groundwater Recharge)
- Alternative IV: Upgrade Treatment to Tertiary
    - IV-A. Offsite Disposal through Agricultural Irrigation (Human crops)
    - IV-B. Offsite Disposal through Landscape Irrigation

The following sections briefly describe each alternative, including design parameters, proposed layouts, probable construction costs, and operation and Maintenance (O&M) costs.

6.2. Alternative I: No Project

Under the "No Project" alternative, Coalinga's WWTP would continue to operate under current conditions. This Alternative was dismissed due to not addressing concerns with the facility's limited disposal alternatives.

6.3. Alternative II: Existing Treatment with Offsite Disposal through Agricultural Irrigation (Non-Human Crops)

6.3.1. Overview

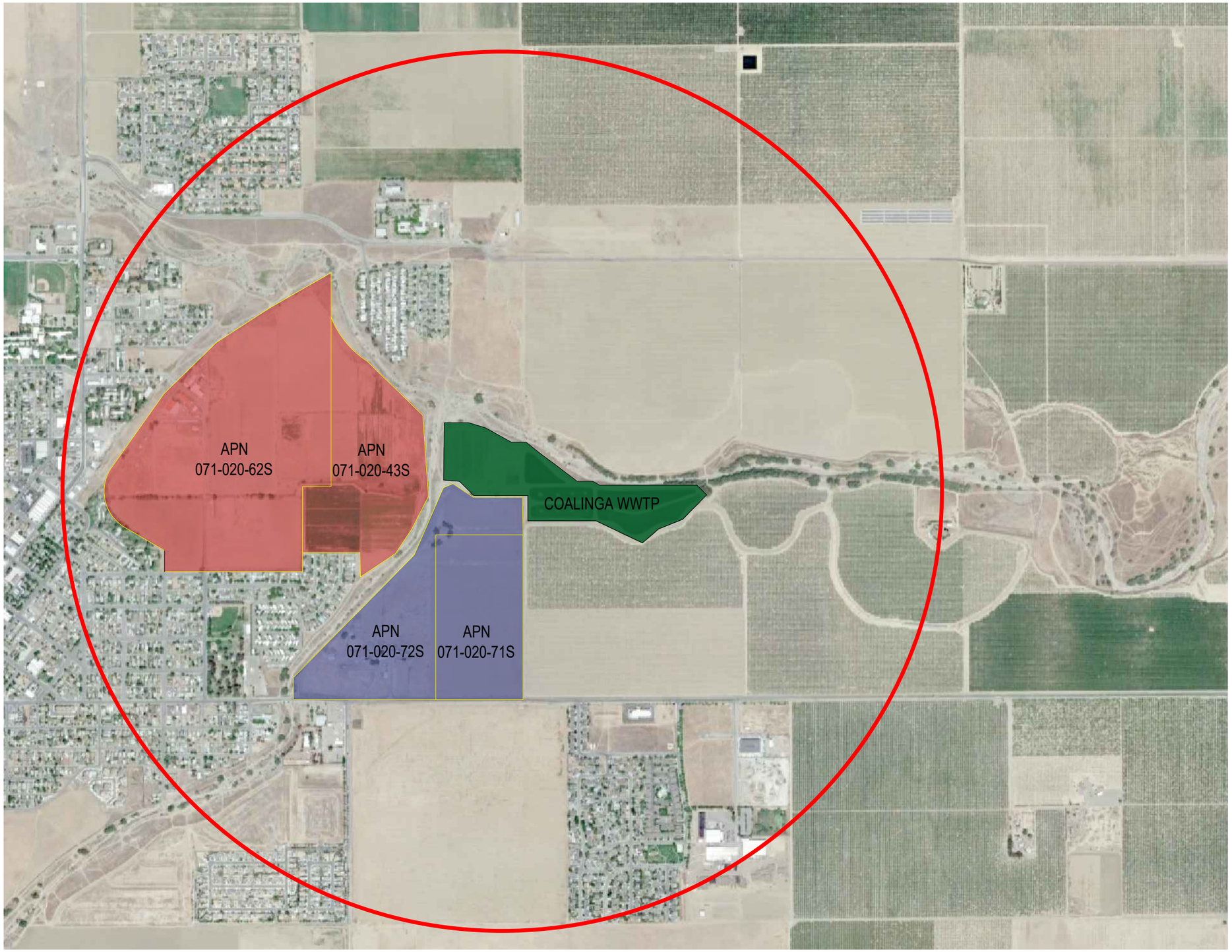
Alternative II would consist of disposing undisinfected secondary effluent to adjacent land through agricultural irrigation at agronomic rates.

6.3.2. Potential User Survey

For Alternative II, the city identified all parcels and property owners within a 2-mile radius of the WWTP as shown in Figure 6-1. Table 6-1 lists the owner of record and the acreage of each Assessor's Parcel Number (APN) within the recycled water user survey area.

Table 6-1 Potential Recycled Water Users

APN	Total Area (Acres)	Owner of Record
071-020-43S & 071-020-62S	225.95	Jeff S Brooks
071-020-71S & 071-020-72S	101.43	Michael T Canaday



CITY OF COALINGA

SANITARY SEWER COLLECTION SYSTEM
PRELIMINARY ENGINEERING REPORT

LEGEND

- 2 MILE RADIUS
- POTENTIAL USER
- WWTP

NORTH
SCALE: 1" = 1200'

FIGURE 6-1
RECYCLED WATER USER SURVEY

6.3.3. Water Balance

Water balance calculations are typically used to determine the area required to adequately dispose of the daily flow of recycled water and the volume of storage required. Table 6-2 summarizes the design data used in the water balance calculations for Alternative II. A copy of the water balance for this alternative is included in Appendix C.

Table 6-2 Alternative II – Water Balance Design Data

Parameter	Value
Average Design Flow, MGD	1.340
Irrigation Efficiency, %	70%
Treatment Pond Area, Acres	18.34
Effluent Reclamation Area, Acres	219
Percolation Rate, inch/day	0

The WWTP currently receives an average daily flow of approximately 0.857 MGD. The water balance calculations have been prepared for the facility's existing flow and the design flow of 1.34 MGD. Table 6-3 summarizes the water balance calculations for Alternative II.

Table 6-3 Alternative II – Water Balance Calculation Summary

	Current Flow 0.857 MGD	Design Flow 1.34 MGD
Reclamation Aera Required, Acres	325	219
Total Storage Volume Required, Acres-Feet	184.8	472

At current flows, the City can irrigate approximately 325 acres of land using approximately 2182 acre-feet of treated effluent on an annual basis. When the facility reaches its design flow conditions of 1.34 MGD, the City can irrigate 219 acres using approximately 1469 acre-feet of treated effluent on an annual basis.

6.3.4. Storage Requirements

When using recycled water for agricultural irrigation, a certain amount of effluent storage will be required to supply recycled water during the summer months. According to the water balance calculations provided in Appendix C, the maximum irrigation demand will occur during the month of July, during which approximately 242.5 acre-feet of recycled water will be used. For Alternative II, the City will need approximately 472 acres-feet of additional storage. Figure 6-2 displays the proposed site layout for this Alternative, including approximately 46 acres of additional storage.

6.3.5. Capital Construction Costs

Table 6-4 displays the total construction costs associated with constructing storage ponds and a delivery system to convey treated effluent for the use of agricultural irrigation.

Table 6-4 Alternative II – Capital Construction Costs

Description	Quantity	Units	Unit Cost ($/Unit)	Total
Mobilization	1	LS	$400,000	$400,000
Headworks	1	LS	$600,000	$600,000
Wastewater Facility Piping	1	LS	$2,000,000	$2,000,000
Storage Pond Excavation	959,160	CY	$2.5	$2,397,000
HDPE Storage Pond Liners	1,992,800	SF	$1.2	$2,391,000
Recycled Water Pump Station	1	LS	$1,200,000	$1,200,000
Recycled Water Piping	2,000	LF	$190	$285,000
Permitting	1	LS	$25,000	$25,000
Electrical & Instrumentation	1	LS	$800,000	$800,000
			Subtotal Construction Costs	**$9,993,000**
Contingency (15%)				$1,499,000
Engineering, Environmental, Construction Administration (12%)				$1,199,000
			TOTAL	**$12,691,000**
NOTE: All capital construction costs are rounded up to the nearest thousandth.				

The total project cost for Alternative II would be approximately $12.6 million. The City would apply for construction funding to the SWRCB CWSRF to fund this improvements project.

6.3.6. Estimated O&M Costs

The O&M cost provided in Table 6-5 is based on the City's current O&M costs for the WWTP.

Table 6-5 Alternative II – Estimated Annual O&M

Description	Costs
Salaries Regular	$229,773
Salaries Part Time	$19,124
Salaries Overtime	$16,000
Salaries Cash Outs	$4,670
Retirement CALPERS	$21,584
Medical/Life Insurance	$55,073
Social Security FICA	$15,556
Medicare Insurance	$3,609
Disability Income Insurance	$3,111
Deferred Comp - 457 Retirement	$8,422
Workers Comp. Insurance	$29,868
Safety Boot Allowance	$588
Retirement CalPERS UL	$2,640
Unemployment Insurance	$2,298
Personnel Cost	$412,316

Description	Costs
Office Supplies	$500
Postage & Freight Out	$250
Printing & Binding	$250
Small Tolls &Equipment	1000
Uniforms	$2,000
Utility Parts & Supplies	$10,000
Vehicle Parts & Supplies	$1,000
Gasoline & Diesel	$3,500
Water, Gas, Sanitation & Sewer	$18,000
Electric	$150,000
Telephone	$2,000
Equipment Rental	2000
Office Equip, Repairs & Maintenance	$3,000
Major Equip Repairs & Maintenance	$40,000
Buildings Repairs & Maintenance	$5,000
Grounds, Chemicals & Maintenance	5000
Vehicle Parts, Repairs & Maintenance	$2,000
Safety Equipment	$2,000
Training, Travel, & Conference	2000
Subs., Dues, & Publications	$2,000
Certifications, Renewals & Test	3500
City Attorney Fees	$2,000
Computer Program & Consulting	$4,500
Medical - General	$700
Laboratory	$5,000
Professional Services	$25,000
Sludge Removal Contract	$50,000
Grant Writing/Application	$10,000
Physical w/Drug & Alcohol Test	$300
Fingerprinting	$50
Liability & Property Insurance	$25,000
Taxes, Licenses, & Fees	$25,000
2021A Water/WW Rev Bonds Principal	$70,000
2021A Water/WW Rev Bonds Interest	$66,689
Sewer Plant Automation and Security Upgrades	$200,000
O&M Cost	$739,239
Wastewater Plant Total	$1,151,555

6.4. Alternative III: Upgrading WWTP to Extended Aeration with Biological Nutrient Removal and Onsite Disposal through percolation (Groundwater Recharge)

6.4.1. Overview

Alternative III would consist of upgrading the WWTP to an extended aeration system with biological nutrient removal and disposing treated effluent on the City's WWTP site through percolation ponds.

6.4.2. Improvements to WWTP

To recharge the groundwater, the effluent quality from the Coalinga WWTP will need to be upgraded to undisinfected secondary effluent with nitrogen removal.

6.4.2.1. Extended Aeration system

Under this alternative, the existing WWTP will be upgraded to an extended aeration system. The activated sludge system comprises of a basin for the wastewater to be aerated and suspended; a secondary clarifier; and a recirculation system for returning settled sludge to the basin. Extended aeration systems typically operate with a hydraulic retention time (HRT) that ranges from 18 to 36 hours. Extended aeration provides almost complete oxidation of organic material and nitrification. Extended aeration also Maintenanceains a high sludge age of 20-30 days. Biological nitrogen removal can occur within the aerated lagoon if adequate conditions are created. In extended aeration, wastewater will enter the aerated lagoon and mix with biological culture known as mixed liquor (ML). Mixed liquor from the aerated lagoon then flows into a secondary clarifier, where activated sludge settles to the bottom and clear treated effluent flows over a surface mount weir. The settled mixed liquor solids recirculate to the aerated lagoon, a process known as recirculating activated sludge (RAS). Periodically, some of the RAS solids are wasted and sent to dewatering, a process known as wasted activated sludge (WAS).

Table 6-6 Alternative III – Extended Aeration Activated Sludge Parameters

Item	Parameters	Design Value
Aeration Basin	Retention Time, hours	24
	Aeration Tank Volume, MG	1.34
	MCRT, days	24
	Wastewater Temperature, ^{o}C	15
Aerobic Digester	Volume, % of Aeration Tank	29
	Maximum Solids Conc., mg/l	12,000
	Digester Temperature, ^{o}C	15
Sludge Holding Tank	Volume, % of Aeration Tank	0
	Maximum Solids Conc., mg/l	25,000
Aeration Pond Blower	Motor, HP	125

For this alternative, two clarifiers will be utilized. A center-feed configuration is commonly used for influent entering the tank. Mixed liquor is carried to the center of the tank and enters a circular feed well designed to distribute the flow radially from the top of the basin. An influent baffle redirects the flow towards the bottom of the clarifier. A peripheral weir is used to collect effluent and a surface

skimmer is used to collect floating scum. Table 6-7 displays the preliminary design parameters used to size the clarifiers. As previously stated, two identical clarifiers will be constructed; one will be constructed to handle the facility's build-out flow of 1.34 MGD and one will be constructed for redundancy.

Table 6-7 Alternative III – Clarifier Design Parameters

Parameters	Design Value
Number of Tanks	2
Tank Water Depth, ft	14
Weir Length, ft	366
Weir Overflow Rate, gpd/linear ft	3661
Surface Overflow Rate, gpd/sf	349

The bottom scrapper of the clarifier will collect settled sludge into a return pipe to be withdrawn. Recirculated activated sludge or wasted activated sludge (RAS/WAS) will either be returned to inlet of the aeration basin (RAS) or wasted for dewatering (WAS). A sludge recirculation system will pump settled sludge from the bottom of the clarifiers to the head of aerated lagoon. The optimal recirculation ratio will be modified after the plant has been placed in operation. For extended aeration activated sludge systems, recirculation ratios typically range from 50 to 150 percent of the influent flow. One sludge pump will remove RAS/WAS from the secondary clarifier, with an additional pump for redundancy.

6.4.3. Improvements to Percolation Ponds

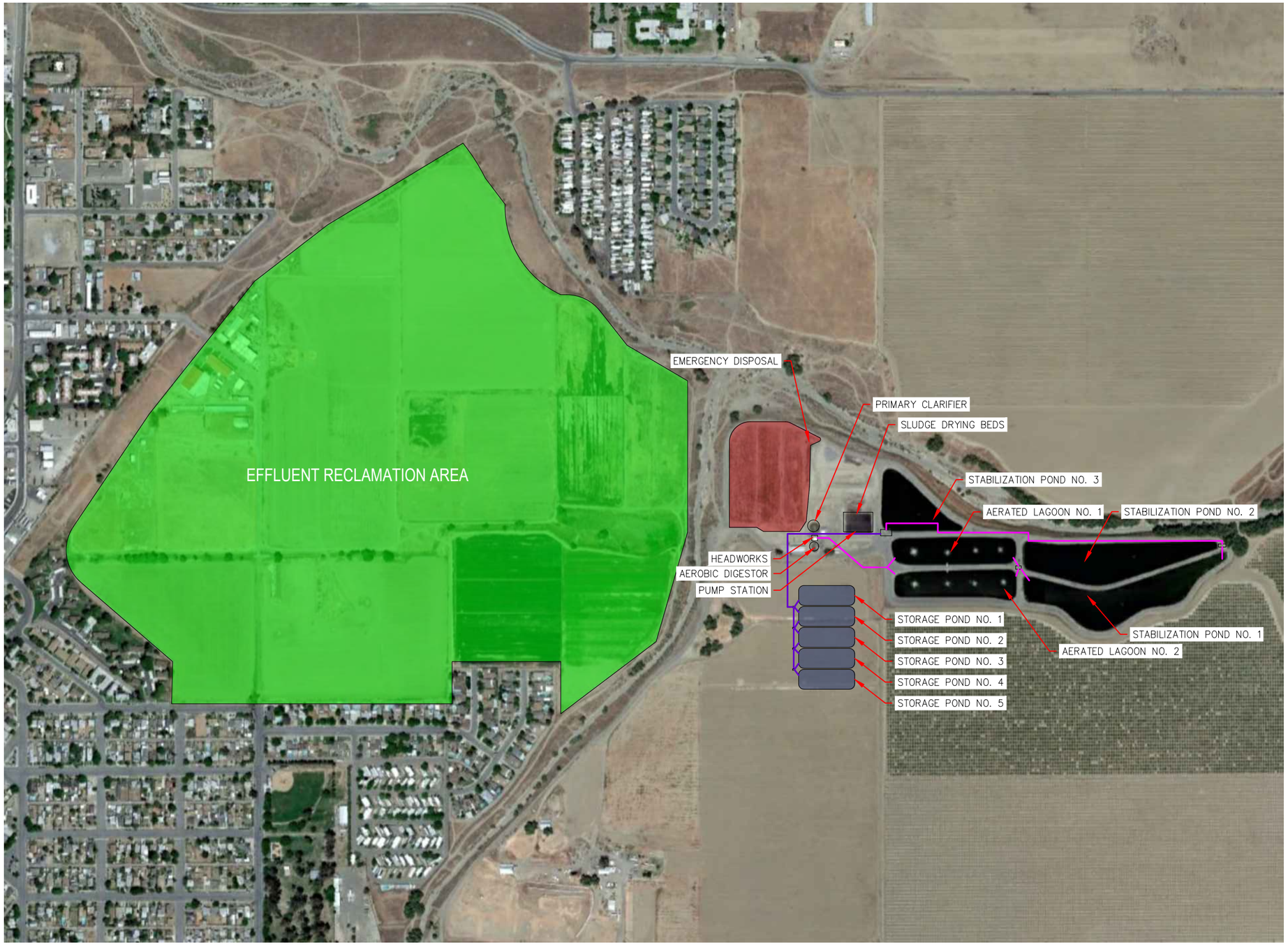
Under this alternative, the City needs to decommission the existing aerated lagoons and stabilization ponds to construct percolation ponds. Water balance calculations were used to determine the area required to adequately dispose of the City's treated effluent and volume required for the percolation ponds. The results of the water balance calculations are analyzed in detail in the following sections.

6.4.3.1. Water Balance

The City's WWTP currently receives an average daily flow of approximately 0.857; however, the facility's disposal capacity is limited to 1.34 MGD. A soil survey was done to determine an appropriate percolation rate. The soil in this area consists mainly of silty sand, which has a typical coefficient of permeability greater than 0.85 inch per day (in/day). For this alternative, a percolation rate of 2.8 in/day is used to evaluate the amount of percolation in the new ponds. Figure 6-3 displays the proposed site layout for Alternative III. As shown in the figure, five percolation ponds with a total surface area of approximately 18.34 acres will be constructed. Table 6-8 summarizes the design data used in the water balance calculations.

CITY OF COALINGA

SANITARY SEWER COLLECTION SYSTEM
PRELIMINARY ENGINEERING REPORT



LEGEND

WASTEWATER PIPELINE

RECYCLED WATER PIPELINE

NORTH
SCALE: 1" = 650'

FIGURE 6-2
ALTERNATIVE II WWTF SITE LAYOUT

Table 6-8 Alternative III – Water Balance Design Data

Parameter	Value
Average Design Flow, MGD	1.34
Irrigation Efficiency, %	90%
Percolation Pond Area, Acres	18.34
Percolation Pond Volume, Acre-feet	98.5
Percolation Rate, inch/day	2.8

According to the water balance calculations, a total percolation area of 18.34 acres would allow the City to discharge 1.34 MGD. A copy of the water balance calculations is provided in Appendix D.

6.4.4. Capital Construction Costs

Table 6-9 provides the total construction costs associated with constructing an extended aeration system and treated effluent disposal through percolation ponds.

Table 6-9 Alternative III – Capital Construction Costs

Description	Quantity	Units	Unit Cost ($/Unit)	Total
Mobilization	1	LS	$400,000	$400,000
Headworks	1	LS	$600,000	$600,000
Extended Aeration Basin	1	LS	$3,500,000	$3,500,000
WWTP Equipment Package	1	LS	$4,500,000	$4,500,000
Blower Building	1	LS	$800,000	$800,000
Sludge Dewatering System	1	LS	$650,000	$650,000
Dry Sludge Storage	1	LS	$200,000	$200,000
Wastewater Facility Piping	1	LS	$500,000	$500,000
Evaporation/Percolation Pond Excavation	390,000	CY	$2.50	$975,000
Recycled Water Pump Station	1	LS	$1,000,000	$1,000,000
Permitting	1	LS	$25,000	$25,000
Electrical & Instrumentation	1	LS	$2,000,000	$2,000,000
Subtotal Construction Costs				**$15,150,000**
Contingency (15%)				$2,272,500
Engineering, Environmental, Construction Administration (12%)				$1,818,000
TOTAL				**$19,240,500**
NOTE: All capital construction costs are rounded up to the nearest thousandth.				

The total project cost for Alternative III would be approximately $19.2 million. The City would apply for construction funding to the SWRCB CWSRF to fund this improvements project.

6.4.5. Estimated O&M Costs

In addition to the City's existing operation and administration costs, O&M costs associated with the upgraded WWTP include costs for a Grade 3 Operator, electric, laboratory, and sludge disposal. The O&M cost provided in Table 6-5 is based on the City's current O&M costs for the WWTP.

Table 6-10 Alternative III – Estimated O&M Costs

Description	Costs
Salaries Regular	$229,773
Salaries Part Time	$19,124
Salaries Overtime	$16,000
Salaries Cash Outs	$4,670
Retirement CALPERS	$21,584
Medical/Life Insurance	$55,073
Social Security FICA	$15,556
Medicare Insurance	$3,609
Disability Income Insurance	$3,111
Deferred Comp - 457 Retirement	$8,422
Workers Comp. Insurance	$29,868
Safety Boot Allowance	$588
Retirement CalPERS UL	$2,640
Unemployment Insurance	$2,298
Personnel Cost	$412,316
Description	**Costs**
Office Supplies	$500
Postage & Freight Out	$250
Printing & Binding	$250
Small Tolls &Equipment	$1,000
Uniforms	$2,000
Utility Parts & Supplies	$10,000
Vehicle Parts & Supplies	$1,000
Gasoline & Diesel	$3,500
Water, Gas, Sanitation & Sewer	$18,000
Electric	$150,000
Telephone	$2,000
Equipment Rental	$2,000
Office Equip, Repairs & Maintenance	$3,000
Major Equip Repairs & Maintenance	$40,000
Buildings Repairs & Maintenance	$5,000
Grounds, Chemicals & Maintenance	$5,000
Vehicle Parts, Repairs & Maintenance	$2,000

Description	Costs
Safety Equipment	$2,000
Training, Travel, & Conference	$2,000
Subs., Dues, & Publications	$2,000
Certifications, Renewals & Test	$3500
City Attorney Fees	$2,000
Computer Program & Consulting	$4,500
Medical - General	$700
Laboratory	$5,000
Chlorine	$22,500
Polymer	$10,000
Professional Services	$25,000
Sludge Removal Contract	$50,000
Grant Writing/Application	$10,000
Physical w/Drug & Alcohol Test	$300
Fingerprinting	$50
Liability & Property Insurance	$25,000
Taxes, Licenses, & Fees	$25,000
2021A Wtr/WW Rev Bonds Prin	$70,000
2021A Wtr/WW Rev Bonds Int	$66,689
Sewer Plant Automation and Security Upgrades	$200,000
O&M Cost	$739,239
Wastewater Plant Total	$1,151,555

6.5. Alternative IV: Upgrading WW Treatment Facility to Tertiary Treatment

6.5.1. Overview

Alternative IV would consist of upgrading the effluent quality produced by Coalinga's WWTP to disinfected tertiary. Under this alternative we will evaluate the following offsite disposal alternatives:

- Alternative IV A: Offsite Disposal through Agricultural Irrigation (Human Crops)
- Alternative IV B: Offsite Disposal through Landscape Irrigation

6.5.2. Improvements to WWTP

6.5.2.1. Tertiary Treatment

Under this alternative, the existing WWTP will be upgraded to an extended aeration system followed by filtration and disinfection.

After wastewater has passed the aeration process and solids separation process (clarification), wastewater must be filtered and then disinfected. To use recycled wastewater for the irrigation of food crops, the treated effluent produced from the WWTP must meet the effluent quality requirements in Title 22, without any major interruption in the treatment performance. According to Title 22, the

average daily effluent turbidity limit for disinfected tertiary recycled water is 2 NTU, and the allowable total coliform must not exceed 2.2 MPN/100 mL.

As shown in Figure 6-5, after the secondary treatment process, wastewater will be filtered in accordance with Title 22 standards. For this Alternative, filtration may be achieved by either media filtration or membrane filtration. Media filtration consists of passing the clarified effluent through a bed of filter media such as sand. The clarified wastewater must then be coagulated and flocculated with a suitable chemical coagulant before entering the filters. Membrane filtration consists of submerging hollow membrane fibers or membrane plates, and through suction, force the liquid through the membrane pores. These pores are smaller than most microorganisms suspended in the mixed liquor. This process of filtration does not require the use of a chemical coagulant.

Tertiary treatment will require at least a Grade III certified treatment operator at the WWTF. The local availability and cost of Grade III operators can be significant for small wastewater utilities. In addition, chemical usage will include chlorine and possibly coagulants, which will also increase operation costs. Finally, in-plant and effluent monitoring requirements are typically much more extensive in tertiary facilities than in secondary facilities to ensure that public health is adequately protected. The capital construction costs associated with constructing disinfected tertiary treatment facility are provided in Table 6-14.

6.5.2.2. Storage Requirements

When using disinfected tertiary recycled water for agricultural irrigation, a certain amount of effluent storage will be required to supply recycled water during the summer months. Since crops are typically watered on a weekly basis during the summer, the amount of storage required for each reclamation area is assumed to be one fourth of the maximum irrigation demand. According to the water balance calculations, the maximum irrigation demand will occur during the month of July, during which approximately 106.3 acre-feet of recycled water will be used. For Alternative III, it has been assumed that the amount of storage required will be one fourth of the maximum irrigation demand. Therefore, approximately 26.6 acre-feet of storage will be required.

For this Alternative, evaporation/percolation Pond No. 4 will need to be excavated from a depth of 4.7 feet to 5.1 feet. At this depth, Pond No. 4 will be able to store approximately 26.9 acre-feet of recycled water. Pond No. 4 will also be lined with a High-Density Polyethylene (HDPE) liner. Table 6-14 displays the capital construction costs associated with excavating and lining Pond No. 4.

6.5.3. Alternative IV-A Offsite Disposal through Agricultural Irrigation (Human Crops)

This alternative would consist of disposing disinfected tertiary effluent to adjacent land through agricultural irrigation at agronomic rates.

6.5.3.1. Potential User Survey

For alternative IV-A, the City identified all parcels and property owners within a 2-mile radius southeast of the WWTP as shown in Figure 6-4. Figure 6-5 shows the parcels within the recycled water user survey area.

6.5.3.2. Water Balance

Water balance calculations were used to determine the area required to adequately dispose of the daily flow of recycled water and the volume of storage required. Table 6-11 and Table 6-12 summarize the design data used in the water balance calculations and the water balance calculation summary for alternative IV A. A copy of the water balance for this alternative is included in Appendix E.

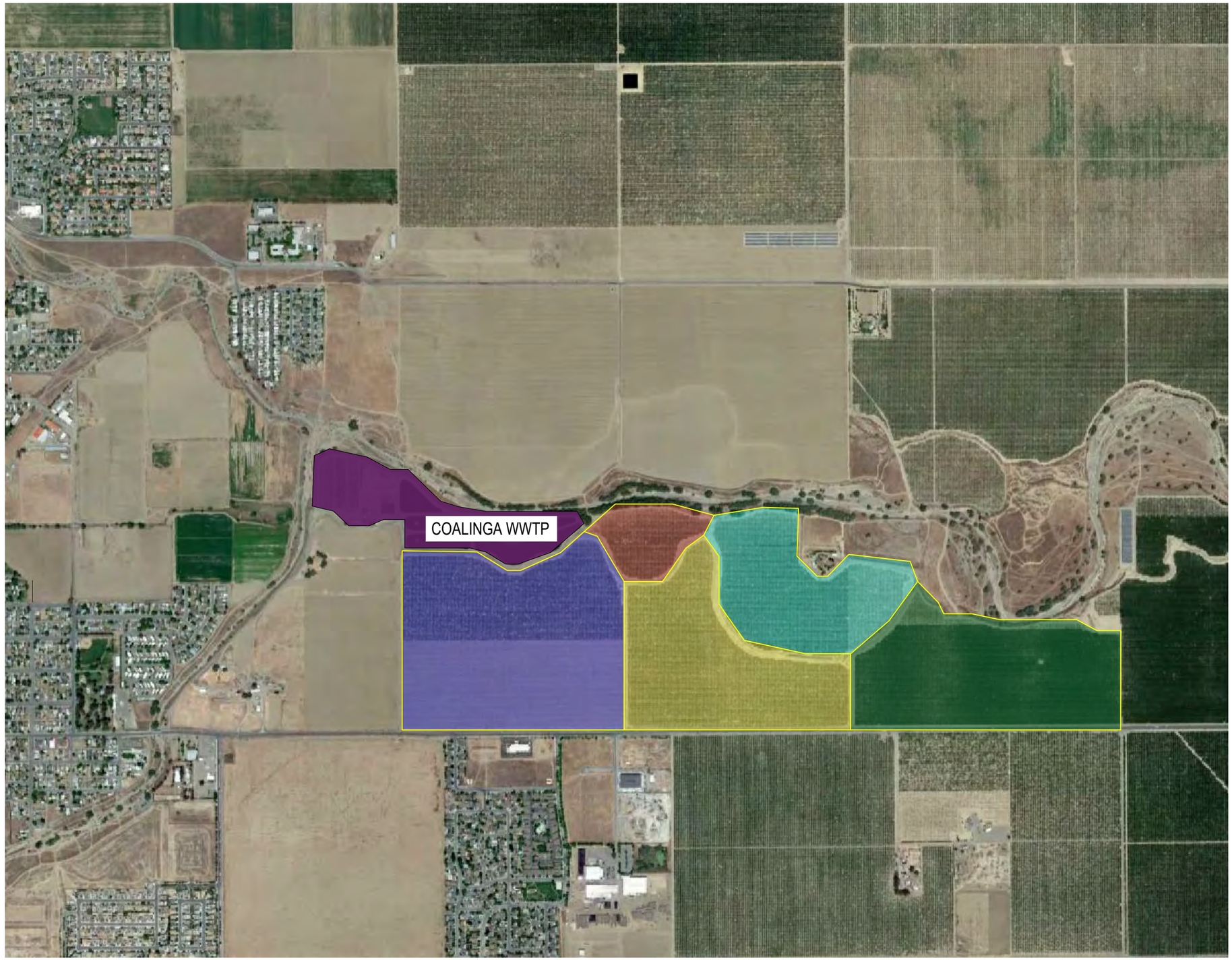
Table 6-11 Alternative IV-A - Water Balance Design Data

Parameter	Value
Average Design Flow, MGD	1.340
Irrigation Efficiency, %	90%
Storage Pond Area, Acres	18.34
Effluent Reclamation Area, Acres	288
Percolation Rate, in/day	0

Table 6-12 Alternative IV-A - Water Balance Calculation Summary

	Current Flow 0.857 MGD	Design Flow 1.34 MGD
Reclamation Area, Acres	325	288
Total Storage Volume Required, Acre-Feet	306.1	574.5
Additional Storage Required, Acre-Feet	306.1	476

According to the water balance calculations provided in Appendix E, the maximum irrigation demand will occur during the month of July, during which approximately 275.3 acre-feet of recycled water will be used for irrigation. In this alternative, the City will require an additional 574.5 acre-feet for storage. When upgrading to tertiary treatment, the City will use the existing aerated lagoons and stabilization ponds as storage ponds. Figure 6-5 displays the proposed site layout for this alternative, including approximately 46 acres of additional storage.



CITY OF COALINGA

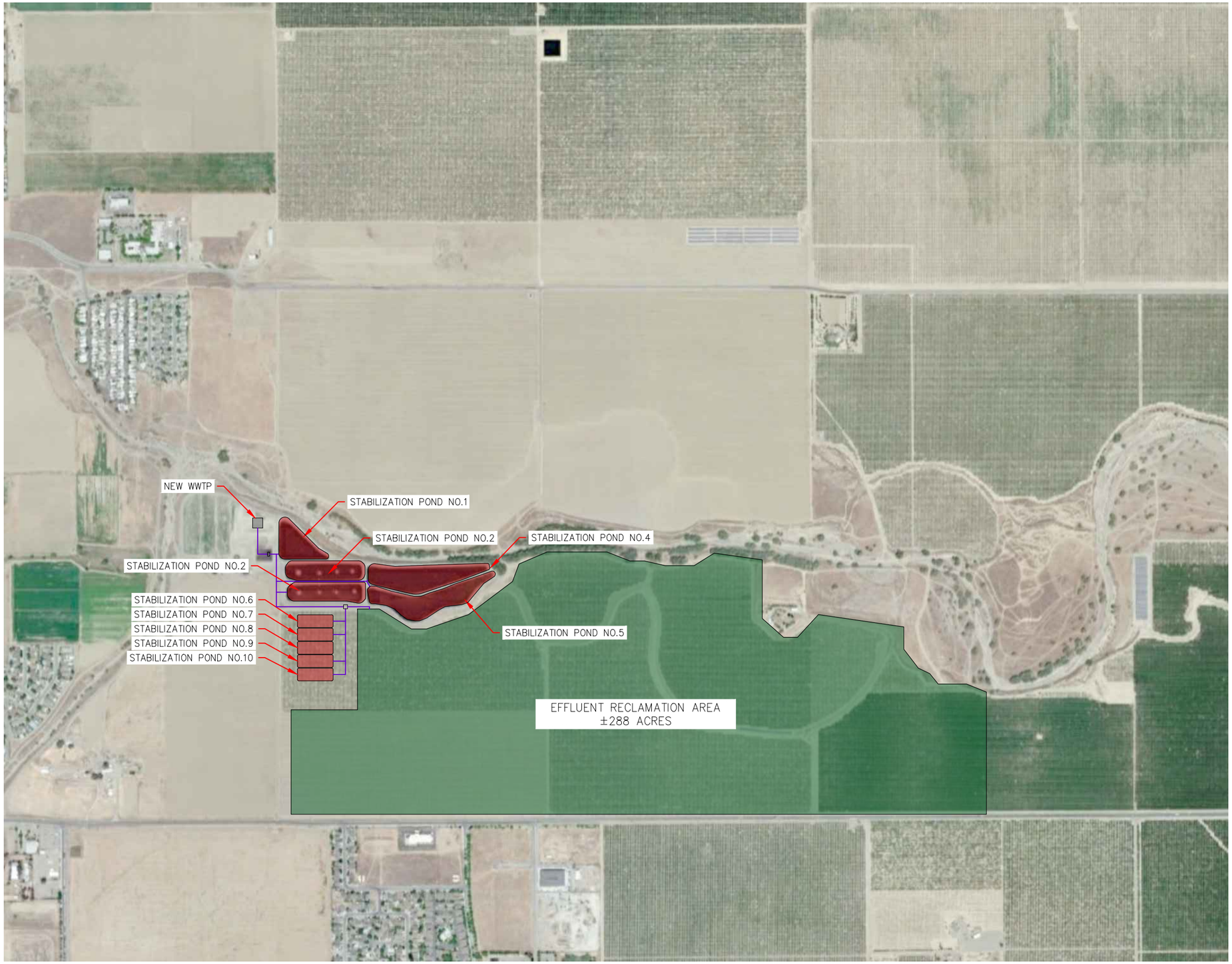
SANITARY SEWER COLLECTION SYSTEM
PRELIMINARY ENGINEERING REPORT

LEGEND

POTENTIAL USER

NORTH
SCALE: 1"=1200'

FIGURE 6-4
RECYCLED WATER USER SURVEY



CITY OF COALINGA

SANITARY SEWER COLLECTION SYSTEM
PRELIMINARY ENGINEERING REPORT

LEGEND

RECYCLED WATER PIPELINE

NORTH
SCALE: 1"=1000'

FIGURE 6-5
ALTERNATIVE IV A
PROPOSED WWTP SITE LAYOUT

6.5.3.3. Capital Construction Costs

Table 6-14 displays the total construction costs associated with constructing a tertiary treatment facility and recycled water delivery system to convey recycled water for the use of agricultural irrigation.

Table 6-13 Alternative IV-A – Capital Construction Costs

Description	Quantity	Units	Unit Cost ($/Unit)	Total
Mobilization	1	LS	$400,000	$400,000
Headworks	1	LS	$600,000	$600,000
Extended Aeration System Basin	1	LS	$3,500,000	$3,500,000
WWTP Equipment Package & Installation	1	LS	$4,500,000	$4,500,000
Filtration + UV Disinfection	1	LS	$1,100,000	$1,100,000
Blower Building	1	LS	$800,000	$800,000
Sludge Dewatering System	1	LS	$650,000	$650,000
Dry Sludge Storage	1	LS	$200,000	$200,000
Wastewater Facility Piping	1	LS	$500,000	$500,000
Recycled Pump Station	1	LS	$1,000,000	$1,000,000
Storage Pond Excavation	1,203,782	LS	$2.50	$3,009,000
HDPE Storage Pond Liners	1,095,665	LS	$1.10	$1,205,000
Recycled Water Piping	2,000	LF	$190	$380,000
Permitting	1	LS	$25,000	$25,000
Electrical & Instrumentation	1	LS	$2,000,000	$2,000,000
Subtotal Construction Costs				**$19,774,000**
Contingency (15%)				$2,967,000
Engineering, Environmental, Construction Administration (12%)				$2,373,000
TOTAL				**$25,114,000**
NOTE: All capital construction costs are rounded up to the nearest thousandth.				

The total project cost for Alternative IV A would be approximately $25.1 million. Like the previous alternatives, the City would apply for construction funding to the SWRCB CWSRF to fund this improvements project.

6.5.3.4. Estimated O&M Costs

In addition to the City's existing O&M costs, Alternative IV A will also include costs for a Grade 3 Operator, electric, laboratory, sludge disposal, and chemicals for disinfection. The O&M cost provided in Table 6-15 is based on the City's current O&M costs for the WWTP.

Table 6-14 Alternative IV A – Estimated O&M Costs

Description	Costs
Salaries Regular	$229,773
Salaries Part Time	$19,124
Salaries Overtime	$16,000
Salaries Cash Outs	$4,670
Retirement CALPERS	$21,584
Medical/Life Insurance	$55,073
Social Security FICA	$15,556
Medicare Insurance	$3,609
Disability Income Insurance	$3,111
Deferred Comp - 457 Retirement	$8,422
Workers Comp. Insurance	$29,868
Safety Boot Allowance	$588
Retirement CalPERS UL	$2,640
Unemployment Insurance	$2,298
Personnel Cost	$412,316
Description	**Costs**
Office Supplies	$500
Postage & Freight Out	$250
Printing & Binding	$250
Small Tolls &Equipment	$1,000
Uniforms	$2,000
Utility Parts & Supplies	$10,000
Vehicle Parts & Supplies	$1,000
Gasoline & Diesel	$3,500
Water, Gas, Sanitation & Sewer	$18,000
Electric	$150,000
Telephone	$2,000
Equipment Rental	$2,000
Office Equip, Repairs & Maintenance	$3,000
Major Equip Repairs & Maintenance	$40,000
Buildings Repairs & Maintenance	$5,000
Grounds, Chemicals & Maintenance	$5,000
Vehicle Parts, Repairs & Maintenance	$2,000
Safety Equipment	$2,000
Training, Travel, & Conference	$2,000
Subs., Dues, & Publications	$2,000
Certifications, Renewals & Test	$3500

Description	Costs
City Attorney Fees	$2,000
Computer Program & Consulting	$4,500
Medical - General	$700
Laboratory	$5,000
Chlorine	$22,500
Polymer	$10,000
Professional Services	$25,000
Sludge Removal Contract	$50,000
Grant Writing/Application	$10,000
Physical w/Drug & Alcohol Test	$300
Fingerprinting	$50
Liability & Property Insurance	$25,000
Taxes, Licenses, & Fees	$25,000
2021A Wtr/WW Rev Bonds Prin	$70,000
2021A Wtr/WW Rev Bonds Int	$66,689
Sewer Plant Automation and Security Upgrades	$200,000
O&M Cost	$739,239
Wastewater Plant Total	$1,151,555

6.5.4. Alternative IV-B Offsite Disposal through Landscape Irrigation

This alternative would consist of disposing disinfected tertiary effluent to irrigate public parks, school grounds and other landscape areas within the City's service area.

6.5.4.1. Potential Customers

In order to identify potential customers for this alternative, the City provided the annual water usage data of each potential recycled water customer where available. Figures 6-6 and 6-7 display the irrigable areas available at each site. Table 6-16 displays each customer's total water demand and the estimated irrigable area available at each site.

Table 6-15 Potential Landscape Irrigation Customers

Site No	Location	Demand (MGD)
1	CHUSD	0.09
2	West Hills	0.09
3	Keck Park	0.03
4	Olsen Park	0.03
5	Chevron 25D	0.04
6	Sandalwood Park	0.01
7	Latchkey Pioneers	0.02

Site No	Location	Demand (MGD)
8	West Hills Farm of the Future	0.00
9	Wastewater Plant	0.02
10	Sports Complex	0.02
11	Centenniel Park	0.03
12	Next Green Wave	0.01
13	Triple J Ready Mix	0.00
14	Washington/Monterey Medians	0.00
15	Juniper Ridge Medians	0.01
16	Posa Chanet Medians	0.01
17	Lyons Park	0.00
18	Fountain	0.01
	Total	**0.42**

6.5.4.2. Water balance

Under Alternative IV B, the water balance calculations are used to determine the amount of recycled water that will be disposed on the irrigation sites and the volume of storage required. Table 6-17 and Table 6-18 summarize the design data used in the water balance calculations and the water balance calculation summary for alternative IV A. A copy of the water balance calculation for this Alternative is provided in Appendix F.

Table 6-16 Water Balance Design Data

Parameter	Value
Average Design Flow, MGD	1.340
Irrigation Efficiency, %	90%
Storage Pond Area, Acres	18.34
Effluent Reclamation Area, Acres	273
Percolation Rate, inch/day	0

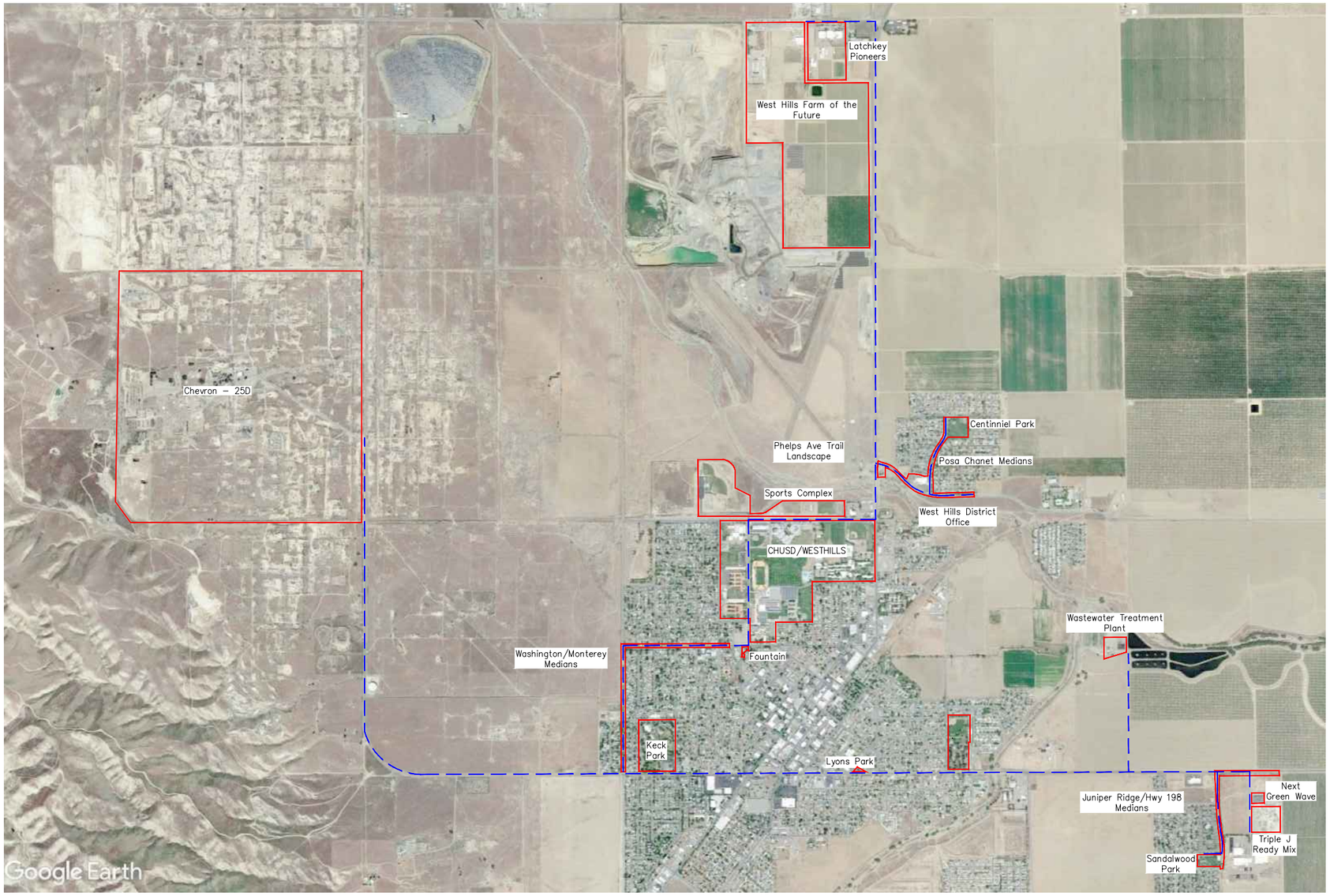
Table 6-17 Water Balance Calculation Summary

	Current Flow 0.857 MGD	Design Flow 1.34 MGD
Reclamation Area, Acres	325	273
Total Storage Volume Required, Acre-Feet	306.1	480.2
Additional Storage Required, Acre-Feet	306.1	476

According to the water balance calculations, the maximum irrigation demand will occur during the month of July, during which approximately 235.1 acre-feet of recycled water will be used. For this alternative, the City will require an additional 480.2 acre-feet for storage. When upgrading to tertiary treatment, the City will use the existing aerated lagoons and stabilization ponds as storage ponds. Figure 6-6 displays the proposed site layout for this Alternative, including approximately 46 acres of additional storage.

CITY OF COALINGA

SANITARY SEWER COLLECTION SYSTEM
PRELIMINARY ENGINEERING REPORT



LEGEND

WATER RECYCLING LIMIT

WATER LINE ROUTE

NORTH

SCALE IN FEET

0 2500

FIGURE 6-7
POTENTIAL LANDSCAPE IRRIGATION CUSTOMERS

6.5.4.3. Recycled Water Delivery System

To supply recycled water to town, approximately 57,167 linear feet (LF) of purple pipeline will be constructed. Figure 6-7 displays the recycled water conveyance system for this Alternative. The existing irrigation systems at each facility will need to be disconnected from the City's potable water supply and connected to the new recycled water pipeline.

6.5.4.4. Capital Construction Costs

Table 6-19 displays the total construction costs associated with constructing a tertiary treatment facility and recycled water delivery system to convey recycled water for the use of agricultural irrigation.

Table 6-18 Alternative IV B – Capital Construction Costs

Description	Quantity	Units	Unit Cost ($/Unit)	Total
Mobilization	1	LS	$400,000	$400,000
Headworks	1	LS	$600,000	$600,000
Extended Aeration System	1	LS	$3,500,000	$3,500,000
WWTP Equipment Package & Installation	1	LS	$4,500,000	$4,500,000
Filtration + UV Disinfection	1	LS	$1,100,000	$1,100,000
Blower Building	1	LS	$800,000	$800,000
Sludge Dewatering System	1	LS	$650,000	$650,000
Dry Sludge Storage	1	LS	$200,000	$200,000
Wastewater Facility Piping	1	LF	$500,000	$500,000
Storage Pond Excavation	1,203,782	LS	$2.50	$3,009,000
HDPE Storage Pond Liners	1,095,665	LS	$1.10	$1,205,000
Recycled Water Pump Station	1	LS	$1,000,000	$1,000,000
Recycled Water Piping	60,000	LF	$190	$11,400,000
Electrical & Instrumentation	1	LS	$2,000,000	$2,000,000
Permitting	1	LS	$25,000	$25,000
			Subtotal Construction Costs	**$30,889,000**
Contingency (15%)				$4,634,000
Engineering, Environmental, Construction Administration (12%)				$3,706,000
			TOTAL	**$39,229,000**
NOTE: All capital construction costs are rounded up to the nearest thousandth.				

The total project cost for Alternative IV B would be approximately $39.2 million. Like the previous alternatives, the City would apply for construction funding to the SWRCB CWSRF to fund this improvements project.

6.5.4.5. Estimated O&M Costs

In addition to the City's existing O&M costs, Alternative IV will also include costs for a Grade 3 Operator, electric, laboratory, sludge disposal, chemicals for disinfection. The O&M cost provided in Table 6-20 is based on the City's current O&M costs for the WWTP.

Table 6-19 Alternative IV B – Estimated O&M Costs

Description	Costs
Salaries Regular	$229,773
Salaries Part Time	$19,124
Salaries Overtime	$16,000
Salaries Cash Outs	$4,670
Retirement CALPERS	$21,584
Medical/Life Insurance	$55,073
Social Security FICA	$15,556
Medicare Insurance	$3,609
Disability Income Insurance	$3,111
Deferred Comp - 457 Retirement	$8,422
Workers Comp. Insurance	$29,868
Safety Boot Allowance	$588
Retirement CalPERS UL	$2,640
Unemployment Insurance	$2,298
Personnel Cost	$412,316
Description	**Costs**
Office Supplies	$500
Postage & Freight Out	$250
Printing & Binding	$250
Small Tolls &Equipment	$1,000
Uniforms	$2,000
Utility Parts & Supplies	$10,000
Vehicle Parts & Supplies	$1,000
Gasoline & Diesel	$3,500
Water, Gas, Sanitation & Sewer	$18,000
Electric	$150,000
Telephone	$2,000
Equipment Rental	$2,000
Office Equip, Repairs & Maintenance	$3,000
Major Equip Repairs & Maintenance	$40,000
Buildings Repairs & Maintenance	$5,000
Grounds, Chemicals & Maintenance	$5,000
Vehicle Parts, Repairs & Maintenance	$2,000

Description	Costs
Safety Equipment	$2,000
Training, Travel, & Conference	$2,000
Subs., Dues, & Publications	$2,000
Certifications, Renewals & Test	$3500
City Attorney Fees	$2,000
Computer Program & Consulting	$4,500
Medical - General	$700
Laboratory	$5,000
Chlorine	$22,500
Polymer	$10,000
Professional Services	$25,000
Sludge Removal Contract	$50,000
Grant Writing/Application	$10,000
Physical w/Drug & Alcohol Test	$300
Fingerprinting	$50
Liability & Property Insurance	$25,000
Taxes, Licenses, & Fees	$25,000
2021A Wtr/WW Rev Bonds Prin	$70,000
2021A Wtr/WW Rev Bonds Int	$66,689
Sewer Plant Automation and Security Upgrades	$200,000
O&M Cost	$739,239
Wastewater Plant Total	$1,151,555

This alternative would consist of disposing of treated wastewater offsite through evaporation/percolation ponds. As previously stated, AMCE prepared a Recycled Water User Survey to all private landowners included in Table 6-11. Unlike Alternative III, if the property owners decide to use treated wastewater from the WWTF to recharge the groundwater aquifer basin and satisfy the goals of the Sustainable Groundwater Management Act (SGMA).

The SGMA was passed by the California legislature in 2014, as an effort to achieve sustainable use and management of groundwater by 2040. The Act requires local and regional governments and water agencies of high and medium priority groundwater basis to halt overdraft and bring groundwater basins into balanced levels of pumping and recharge. The role of farmers is critical in achieving water sustainability because agriculture is the largest human use of water in the state. Instead of using treated effluent for irrigation purposes, local farmers are now considering using treated wastewater for groundwater recharge to offset the amount of groundwater pumped.

Under this Alternative, the existing WWTF will be upgraded to a tertiary treatment system to improve the effluent quality for agriculture and irrigation purposes. The extended aeration activated sludge

system will provide almost compete of organic material and nitrification. Treated wastewater will then be discharged to an evaporation/percolation pond or will be used to recharge the groundwater aquifers.

SECTION 7 - PROPOSED PROJECT

7.1. Project Overview

As previously stated, the purpose of this PER is to recommend the most viable and sustainable alternative that will correct deficiencies in the sewer collection system and improve the operation of existing WWTP. This Section provides a detailed description of the proposed project, which consists of rehabilitating approximately 30,815 LF of gravity sewer mains using trenchless construction methods, replacing approximately 19,801 LF of gravity sewer mains using convention construction methods, upgrading the existing WWTF to an extended aeration activated sludge facility, and constructing percolation ponds to increase the facility's disposal capacity. The following sections describe the proposed improvements and upgrades to the existing sewer collection system and WWTF.

7.2. Proposed Improvements to Sewer Collection System

Based on the condition assessment conducted, the recommended improvements for the City's sewer collection system are summarized in the following paragraphs. Figure 7-1 displays the proposed improvements to the sewer collection system.

7.2.1. Sewer Main Replacement

As previously discussed in Section 4.4 of this PER, CCTV inspection conducted on 104,618 LF of the City's sewer collection system revealed sever defects in portions of the collection system. Defects found in the sewer mains included root intrusion, fractured and broken pipe, cracked pipe, sags greater than 60 percent, defective and intruding laterals, joint displacements, and attached deposits (grease and concrete). The segments of the sewer collection system recommended for replacement have been selected based on sorted NASSCO ratings and the condition of the existing sewer mains. For this proposed project, it is recommended that approximately 41,073 LF of gravity sewer mains be replaced with new sewer pipes before failure occurs. Table 7-1 provides a summary of the sewer mains that will be replaced using the conventional construction method of dig and replace.

Table 7-1 Proposed Sewer Main Replacement

Parameter	Total Length (ft)
6" PVC Pipe	13,838
8" PVC Pipe	4,226
10" PVC Pipe	1,738
Total	**19,802**

7.2.2. Sewer Main Rehabilitation

Trenchless sewer rehabilitation is recommended where applicable to reduce surface disturbance over traditional dig and replace methods, reduce the number of traffic and pedestrian detours, spare tree removal, decrease construction noise, and reduce air pollution from construction equipment. Table 7-2 provides a summary of the sewer mains that will be rehabilitated using the trenchless construction method known as cured-in-place (CIPP).

Table 7-2 Proposed Sewer Main Rehabilitation

Parameter	Total Length (ft)
6" PVC Pipe	15,914
8" PVC Pipe	7,297
10" PVC Pipe	2,071
15" PVC Pipe	2,558
18" PVC Pipe	2,975
Total	**30,815**

7.2.3. Potential Construction Problems

Sewer collection system historically have construction problems related to many factors. As previously stated, approximately 50,616 LF of sewer mains will either be replaced using the conventional construction method of dig and replace or rehabilitated using the trenchless construction method of CIPP. The following is a list of potential problems associated with replacing/rehabilitating sewer mains within the City's sewer collection system:

- Handling of raw sewage by construction crews while replacing sewer mains.
- Disruption to the local streets and temporary detours.
- Reconstruction of trench paving to match roadway standards.
- Access to private properties and businesses during construction.
- Timely backfilling of trenches, sewer line testing, and repaving of streets.
- Connection of existing laterals at depths that could vary 6-feet or more.
- Coordination for disruption of sewer services with both private and public users.

CITY OF COALINGA

CCTV INSPECTION PROJECT

LEGEND

- NO REPLACEMENT
- REPLACEMENT
- REHABILITATION
- NOT SURVEYED

NORTH

SCALE IN FEET

0 1,000 FT

ALTERNATIVE II - SEWER MAINS TO BE REPLACED AND REHABILITATED

AM Consulting Engineers • 5150 N. Sixth Street Suite 124 • Fresno, California 93710 • (559) 473-1371

7.3. Proposed Improvements to Wastewater Treatment Plant

This Section provides a more detailed description of the proposed improvements to Coalinga's WWTP. Figures 7-3 and 7-4 display the proposed WWTP site layout and illustrate the various treatment improvements. The existing aerated lagoons and stabilization ponds will be decommissioned for the construction of percolation ponds. In this proposed project, an extended aeration system with biological nutrient removal with filtration and disinfection will be constructed.

For this proposed project, Aero Mod extended aeration system was selected. The moving aeration chains are equipped with diffuser and provide efficient mixing of the basin contents as well as high oxygen transfer at low energy usage. Aeration will be provided by aeration blowers, which will be operated by VFDs. Mixed liquor will flow across the aerated tank reactor and will enter a distribution box that will split flow between two clarifiers. One clarifier will be required to handle the plant's design flow of 1.34 MGD, while the other will be provided for redundancy. Mixed liquor will settle in the clarifier and clear liquid will overflow into a peripheral weir channel and into the RAS/WAS pump station. Settled sludge will be recirculated back to the aeration basin or wasted to a sludge drying bed. Treated effluent will be conveyed to the facility's new percolation ponds that will be constructed. Figure 7-3 displays the proposed improvements to the WWTF.

7.3.1. Extended Aeration and Biological Nutrient Removal

The proposed aeration tank will be constructed in the existing WWTP facility. Aero-Mod SEQUOX for biological nutrient removal offers the benefits of sequencing aeration and continuous clarification. Flow enters through an anoxic tank, where the raw sewage is combined with returned activated sludge (RAS) from the clarifiers. The combination of cyclical aeration in the four (4) basins creates excellent aerobic conditions for BOD and ammonia removal when aerating. When the air is off, the nitrate laden MLSS settles and becomes oxygen deprived, creating anoxic conditions for the nitrates to become the oxygen source and allow for denitrification to occur.

The plug flow process repeats this cyclical on/off aeration several times as the liquid mass progresses through the SEQUOX process and on to the clarifier. The effluent quality is achieved with TN levels as low as 3 mg/L. The process is energy efficient and has a small footprint and it does not require recycling pumps or mixers. Table 7-3 contains the required dimensions for the aerated treatment system.

7.3.2. Clarifier

The SEQUOX process often incorporates the ClarAtor clarifier where the biomass is settled and returned to the Selector Tank. The clarified effluent is withdrawn and discharged. This technology is low Maintenance featuring stainless steel and fiberglass components with no moving parts below the water, its unique flow regulation system provides in-basin surge storage. For this proposed project, a center-fee configuration will be used for influent entering the secondary clarifier. Mixed liquor will be carried to the center of the clarifier, which will radially distribute flow from the top of the basin. a peripheral weir will collect effluent and surface skimmer will collect floating scum.

7.3.3. Effluent Disposal

The purpose of upgrading the existing WWTP to an extended aeration activated system with biological nutrient removal facility is to lower the nitrogen concentration of the effluent before it is discharged to percolate the underground aquifer. Nitrogen is a nutrient normally present in domestic wastewater at a concentration that can degrade groundwater quality. Currently, the existing WWTP is not protective of

CITY OF COALINGA

SANITARY SEWER COLLECTION SYSTEM
PRELIMINARY ENGINEERING REPORT

LEGEND

RECYCLED WATER PIPELINE

NORTH
SCALE: 1"=300'

FIGURE 7-3
PROPOSED WWTP SITE LAYOUT

the current beneficial use of the groundwater and is not consistent with RWQCB's policy of beneficial reuse. By upgrading the WWTP to include secondary/tertiary treatment and discharging the higher effluent quality to percolation ponds on site, the City will provide an incidental recharge of the groundwater aquifer, which will ultimately help demonstrate groundwater sustainability. By removing nitrogen, treated effluent will be allowed to percolate and be protective of the groundwater's beneficial uses. As previously described in Section 6.4.3 of this PER, the City would need to decommission the existing aerated lagoons and stabilization ponds to construct five percolation ponds to increase the facility's disposal capacity. According to the water balance calculations provided in Appendix D, a total percolation area of 18.34 acres would allow the City to dispose 1.34 MGD. Table 7-3 display the surface areas and estimated volumes of each percolation pond.

Table 7-3 Proposed Evaporation/Percolation Pond Characteristics

Pond No	Top Surface Area (ac)	Depth (ft)	Volume (ac-ft)	Volume (gal)
Pond 1	3	6	18	5,866,200
Pond 2	3	6	18	5,866,200
Pond 3	2.45	5	12.25	3,992,275
Pond 4	4.83	5	24.15	7,870,485
Pond 5	5.06	5	25.30	8,245,270
Total	**18.34**		**97.7**	**31,840,430**

7.4. Climate Change Considerations

The impacts of climate change on the selected alternative as well as adaptation and mitigation measures have been considered for this PER. The WWTF will be most vulnerable to the effects of drought and water supply depletion and will be minorly affected by increasing water and air temperatures, flooding, and increased storm severity. The extended aeration activated sludge system is well suited to operating over a wide range of influent conditions. Decreased influent flows and higher biological load concentrations have little impact on the important operational factors of influent BOD per volume and sludge retention time. To prevent flooding of the evaporation/percolation ponds, the levees will be constructed well above the base flood elevation. Proper site drainage and erosion control will reduce the damage from severe storms.

Mitigation measures are measures taken to slow or stop changes to the environment caused by GHG emissions. Since filtration and disinfection are not included, the proposed WWTF will require less power and will produce less GHG emissions from power generation than a disinfected treaty treatment facility. Additionally, the use of variable frequency drives (VFDs) on blowers and pumps will further reduce power demands, as will decreasing aeration during periods of low oxygen demand. The use of efficient aeration/mixing equipment will also decrease the amount of GHG emissions produced during operation of the facility.

7.5. Permitting Requirements

Permitting requirements to construct the upgraded WWTF include the following:

- Preparation of the necessary environmental documentation in accordance with CEQA-Plus. It is assumed a mitigated negative declaration will suffice for the work being proposed.

- Preparation of a Report on Waste Discharge to the Regional Water Quality Control Board describing the proposed changes to treatment and disposal.
- Preparation of a Title 22 Report to the SWRCB-DDW describing the new effluent disposal areas and the safety measures that will be implemented to protect public health.

7.6. Opinions of Probable Construction Costs

This section describes the probable cost for construction, operating, and Maintaining the City's improved sewer collection system and WWTP. No key issues or items likely to significantly impact the project budget or schedule are foreseen at this time.

7.6.1. Capital Construction Costs

The capital construction costs for the proposed improvements to the sewer collection system and WWTP are included in this section. The cost estimates included in this Section are only preliminary and final estimates will be prepared at the completion of each design stage. Table 7-4 displays the estimated construction costs for the proposed improvements, including contingency, engineering and construction administration fees.

Table 7-4 Summary of Capital Construction Costs

Description	Quantity	Units	Unit Cost ($/Unit)	Total
General Construction Costs				
Mobilization	1	LS	$240,000	$240,000
Traffic Control Plan	1	LS	$90,000	$90,000
Subtotal General Construction Costs				**$330,000**
Sewer Main Replacement				
6" PVC Pipe	13,838	LF	$215	$2,975,100
8" PVC Pipe	4,226	LF	$215	$908,700
10" PVC Pipe	1,738	LF	$240	$417,100
Excavation	9,933	CY	$9	$89,500
Backfill	13,907	TON	$6	$83,500
Surface Restoration	2,481	SY	$30	$74,500
Remove and Replace Sewer Lateral	40	EA	$4,800	$192,000
Bypass Pumping	70	Day	$1,200	$84,000
Subtotal Sewer Main Replacement Costs				**$4,824,400**
Sewer Main Rehabilitation				
6" CIPP Liner	15,914	LF	$95	$1,511,800
8" CIPP Liner	7,297	LF	$105	$766,300
10" CIPP Liner	2,071	LF	$110	$227,900
15" CIPP Liner	2,558	LF	$120	$306,000
18" CIPP Liner	2,975	LF	$120	$356,000
Subtotal Sewer Main Replacement Costs				**$3,170,000**
WWTP Improvements				

Table 7-4 Summary of Capital Construction Costs

Description	Quantity	Units	Unit Cost ($/Unit)	Total
Mobilization	1	LS	$400,000	$400,000
Headworks	1	LS	$600,000	$600,000
Extended Aeration Basin	1	LS	$3,500,000	$3,500,000
WWTP Equipment Package & Installation	1	LS	$4,500,000	$4,500,000
Blower Building	1	LS	$800,000	$800,000
Sludge Dewatering System	1	LS	$500,000	$650,000
Dry Sludge Storage	1	LS	$200,000	$200,000
Wastewater Facility Piping	1	LS	$500,000	$500,000
Evaporation/Percolation Pond Excavation	390,000	CY	$2.50	$975,000
Recycled Water Pump Station	1	LS	$1,000,000	$1,000,000
Electrical & Instrumentation	1	LS	$2,000,000	$2,000,000
Permitting	1	LS	$25,000	$25,000
Subtotal WWTP Improvements Costs				**$15,150,000**
Subtotal Construction Costs				**$23,474,400**
Contingency (15%)				$3,521,160
Engineering, Environmental, Construction Administration (12%)				$2,816,928
Total Capital Construction Costs				**$29,812,00**
NOTE: All capital construction costs are rounded up to the nearest thousand.				

The total capital construction costs for the proposed Project would be approximately $29.8 million. The City would apply for grant funding through the SWRCB CWSRF to fund the proposed improvements to the sewer collection system and WWTP. The City should be eligible to receive funding from CWSRF Grant for both planning and construction costs. Table 7-4 displays the proposed planning and construction for the proposed Project.

7.6.2. Operation and Maintenance

Annual O&M costs provided in Table 6-5 are based on the City's current O&M costs associated with the sewer collection system and WWTP. These costs include labor, tools, operating supplies, replacement parts, engineering fees, sludge disposal, and various administration costs. The City is currently in the process of constructing a solar photovoltaic (PV) system within the boundary of the WWTP. Since the solar PV system will be used to power the WWTP, a cost of $0 has been assumed for the plant's electricity costs. According to Table 7-5, the estimated annual O&M costs for the sewer collection system and WWTP.

Table 7-5 Estimated Annual O&M Costs

Description	Amount
Sewer Collection System	
Full Time Employees	$245,000
Full Time Employees/Overtime	$35,000
PERS Contribution	$63,250
FICA Contribution	$21,500
Medical Benefits	$61,125
Uniforms	$3,000
Other Operating Supplies	$12,000
Equipment Parts	$10,000
Building Repair Supplies	$1,500
Street Maintenance Materials	$5,800
Tools	$1,200
Other Maintenance Supplies	$4,000
Auditing Services	$3,000
Engineering Services	$4,000
Professional Services	$15,000
Conference/Training	$1,000
Machinery Repair & Maintenance	$1,500
Other Repairs & Maintenance	$1,000
Regulatory Agencies	$300
Construction	$20,000
Equipment Transfers	$83,283
Operational Transfers	$80,618
Subtotal Sewer Collection System Costs	**$673,076**
Wastewater Treatment/Distribution	
Full Time Employees	$276,000
Full Time Employees/Overtime	$48,000
PERS Contribution	$72,000
FICA Contribution	$25,000
Medical Benefits	$79,000
Uniforms	$3,500
Office Supplies	$500
Computer Supplies	$250
Cleaning Supplies	$1,000
Lubricants	$500
Chemicals	$250
Shop Materials	$250

Table 7-5 Estimated Annual O&M Costs

Description	Amount
Equipment Parts	$12,500
Sludge Removal	$10,000
Building Repair Supplies	$750
Street Maintenance Materials	$3,000
Tools	$2,000
Other Maintenance Supplies	$15,000
Auditing Services	$5,000
Engineering Services	$1,000
Computer Lease/Enhance	$1,000
Professional Services	$13,000
Emergency Generator Services	$3,500
Telephone	$3,000
Billing/Postage	$100
Conference/Training	$3,000
Electricity	$0
Machinery Repair & Maintenance	$8,000
Other Repairs & Maintenance	$8,000
Books/Subscriptions	$250
Memberships	$500
Water Contract/Utilities	$12,000
Regulatory Agencies	$10,000
Testing Services	$9,000
General Services/Liability	$10,000
Machinery/Equipment	$30,000
Equipment Transfers	$83,282
Operational Transfers	$80,618
Public Safety Allocation	$30,000
Subtotal Wastewater Treatment/Distribution	**$860,750**
Estimated Annual O&M Costs	**$1,533,826**

7.6.3. Present Worth Analysis

To determine the present worth of the proposed Project, the salvage value for each construction item was first determined. Table 6-6 displays the estimated cost for each construction item and each item corresponding useful life. The salvage value for each item was calculated using the SWRCB's Economic Analysis Model. The salvage value for the proposed project was estimated to be approximately $ 14.54 Million.

Table 7-6 Estimated Salvage Value

Item	Cost	Useful Life	Salvage Value
Site Work(1)	$2,587,000	100	$2,069,000
Surface Restoration	$74,500	30	$24,000
Pipelines(2)	$7,970,900	80	$5,978,000
Lateral Connections	$192,000	80	$144,000
Equipment	$12,650,000	40	$6,325,000
Subtotal Construction Costs	**$23,474,400**	-	**$14,540,000**
Contingency(3)	$3,521,160	-	-
Engineering, Environmental, Construction Administration(3)	$2,816,928	-	-
TOTAL	**$29,812,488**	-	**$14,540,000**

Notes:
(1) Site Work includes mobilization, traffic control and flagging, excavation and backfill of pipelines, and bypass pumping.
(2) Pipelines includes replacing and rehabilitating sewer mains.
(3) No salvage value is given for permitting, contingency, engineering, environmental and construction administration.

Table 6-7 displays the present worth cost analysis that was used to determine the present worth of the proposed project. Using the SWRCB Economic Analysis Model, the proposed Project's present worth was estimated to be approximately $ 23.88 Million. All costs are in 2019 dollars.

Table 7-7 Present Worth Cost Analysis

Year	Design & Construction Cost	O&M Costs		Salvage Value	Present Worth Factor at 6%	Present Worth of Costs				
						Design & Construction Cost	O&M Costs		Salvage Value	Total
		Fixed	Variable				Fixed	Variable		
2023	29,812,488				1	$29,812,488	$0	$0		$29,812,488
2024		$1,372,726	$161,100		0.943		$1,294,481	$151,917		$1,446,398
2025		$1,372,726	$161,100		0.89		$1,221,726	$143,379		$1,365,105
2026		$1,372,726	$161,100		0.84		$1,153,090	$135,324		$1,288,414
2027		$1,372,726	$161,100		0.792		$1,087,199	$127,591		$1,214,790
2028		$1,372,726	$161,100		0.747		$1,025,426	$120,342		$1,145,768
2029		$1,372,726	$161,100		0.705		$967,772	$113,576		$1,081,347
2030		$1,372,726	$161,100		0.665		$912,863	$107,132		$1,019,994
2031		$1,372,726	$161,100		0.627		$860,699	$101,010		$961,709
2032		$1,372,726	$161,100		0.592		$812,654	$95,371		$908,025
2033		$1,372,726	$161,100		0.558		$765,981	$89,894		$855,875
2034		$1,372,726	$161,100		0.527		$723,427	$84,900		$808,326
2035		$1,372,726	$161,100		0.497		$682,245	$80,067		$762,312
2036		$1,372,726	$161,100		0.469		$643,808	$75,556		$719,364

Table 7-7 Present Worth Cost Analysis

Year	Design & Construction Cost	O&M Costs		Salvage Value	Present Worth Factor at 6%	Present Worth of Costs				
						Design & Construction Cost	O&M Costs		Salvage Value	Total
		Fixed	Variable				Fixed	Variable		
2037		$1,372,726	$161,100		0.442		$606,745	$71,206		$677,951
2038		$1,372,726	$161,100		0.417		$572,427	$67,179		$639,605
2039		$1,372,726	$161,100		0.394		$540,854	$63,473		$604,327
2040		$1,372,726	$161,100		0.371		$509,281	$59,768		$569,049
2041		$1,372,726	$161,100		0.35		$480,454	$56,385		$536,839
2042		$1,372,726	$161,100		0.331		$454,372	$53,324		$507,696
2043		$1,372,726	$161,100	15,147,000	0.312		$428,291	$50,263	$4,725,864	($4,247,310)
Total	**29,812,488**					**29,812,488**	**15,743,794**	**1,847,656**	**4,725,864**	**42,678,074**

7.6.4. Life Cycle Costs

Life-cycle cost refers to the sum of the capital construction costs and recurring O&M cost over the full life span of the proposed project. Table 6-8 displays the life cycle cost analysis for the proposed project. The analysis covers a 20, 30 and 40-year life-cycle and assumes a 1.2 percent discount rate for the 20-year lifecycle and a 1.5 percent discount rate for the 30 and 40-year life-cycle.

Table 7-8 Proposed Project Life-Cycle Costs

	Total Amount
Capital Construction	$29,811,400
O&M Cost	$1,533,826
O&M Cost (20-yrs)	$23,911,062
O&M Cost (30-yrs)	$32,103,427
O&M Cost (40-yrs)	$38,503,289
20-yr Life Cycle	$25,444,888
30-yr Life Cycle	$33,637,253
40-yr Life Cycle	$40,037,115

7.7. Project Schedule

Approval of the CWSRF construction application is expected in 9 months to a year after submission to the SWRCB. After Approval, the project engineer can begin the project design. Once the plans and specifications and construction documents have been prepared, bidding can begin, followed by construction. Construction time is expected to be one year. A project schedule is provided in Table 6-9 below.

Table 7-9 Estimated Project Schedule

Task	Estimated Date
Environmental Documents	February 28, 2024
Sewer Rate Study	June 30, 2024
CWSRF Application Preparation	
General Package	July 31, 2023
Technical Package	August 31, 2023
Environmental Package	February 28, 2024
Financial Package	April 30, 2024
CWSRF Application Submission	April 30, 2024
CWSRF Application Review	July 31, 2024
Funding Agreement Approved	August 31, 2024
Project Design	March 31, 2025
Preparation of Construction Documents	October 31, 2025
Bidding	December 30, 2025
Construction Begins	January 5, 2026
Construction Ends	May 31, 2026

APPENDIX A

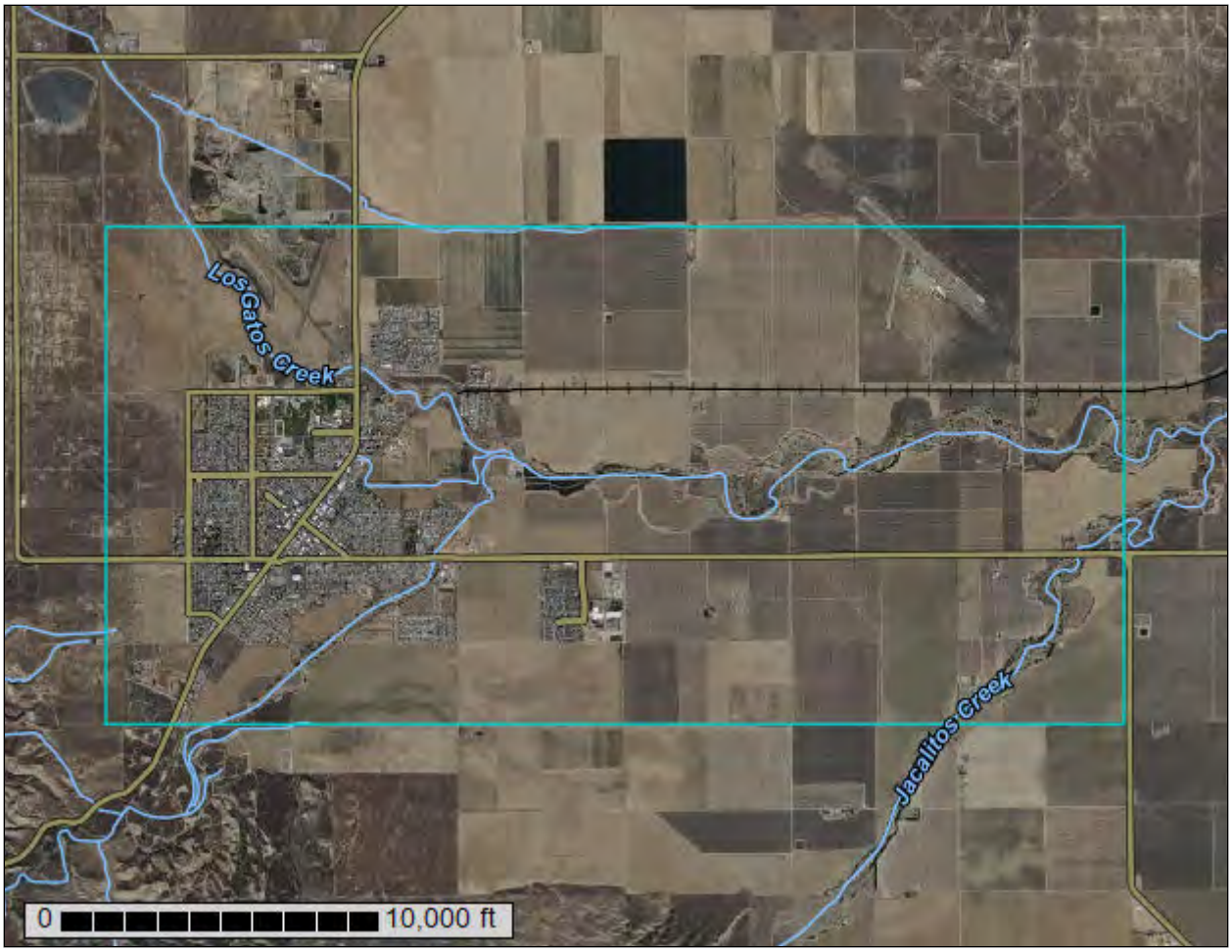
SOILS REPORT

United States Department of Agriculture

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Fresno County, California, Western Part



May 23, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

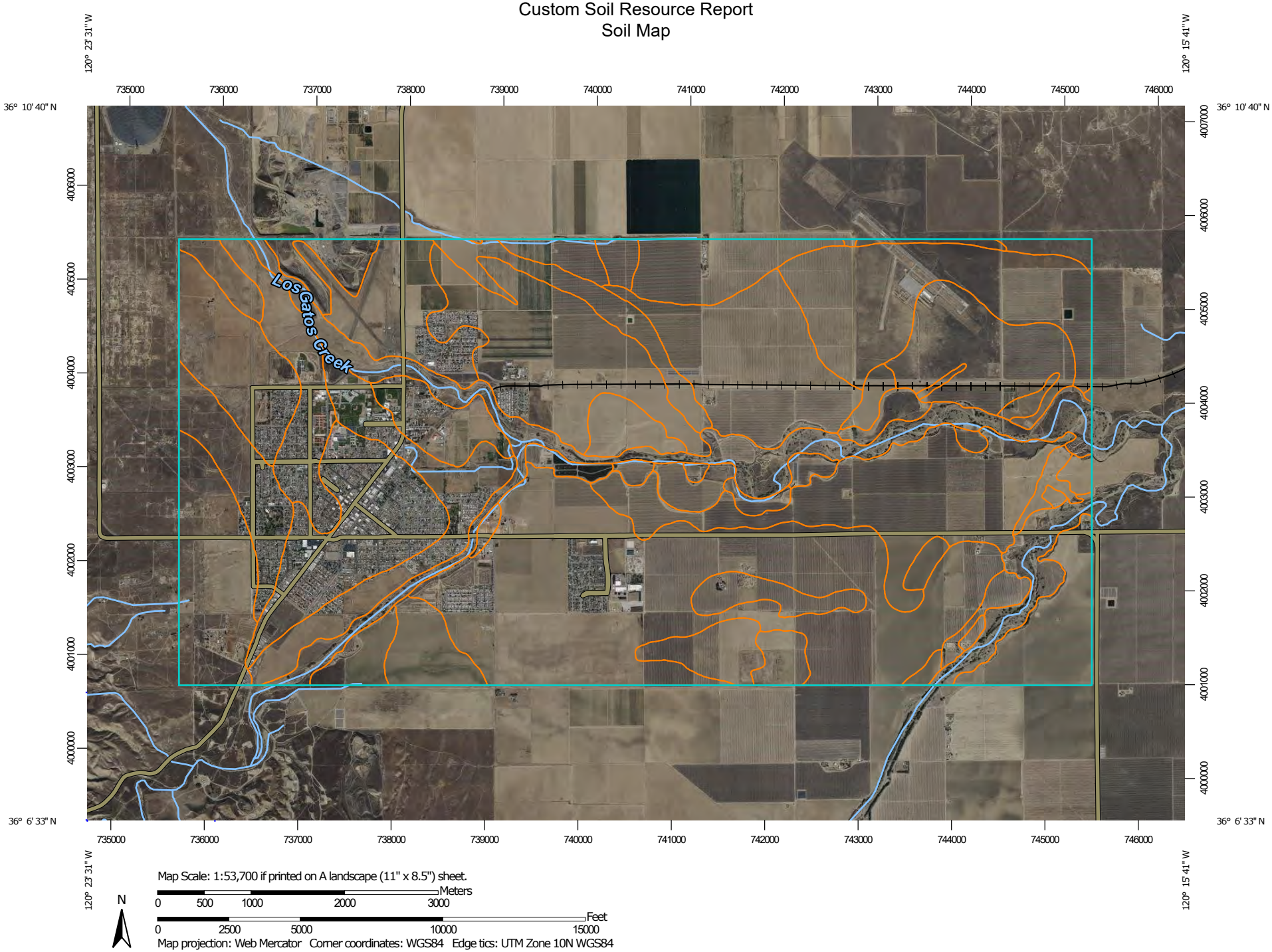
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



MAP LEGEND

Area of Interest (AOI)

- Area of Interest (AOI)

Soils

- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features

- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features

- Streams and Canals

Transportation

- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background

- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Fresno County, California, Western Part
Survey Area Data: Version 17, Sep 1, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Mar 16, 2022—Mar 21, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
412	Yribarren clay loam, 0 to 2 percent slopes	371.6	3.2%
435	Lethent clay loam, 0 to 1 percent slopes	34.9	0.3%
445	Excelsior sandy loam, 0 to 2 percent slopes, MLRA 17	3,381.4	29.3%
447	Excelsior sandy loam, sandy substratum, 0 to 2 percent slopes	1,183.3	10.3%
448	Excelsior loamy sand, sandy substratum, 0 to 1 percent slopes, eroded	41.4	0.4%
451	Milham sandy loam, 0 to 2 percent slopes MLRA 17	286.6	2.5%
452	Milham sandy loam, 2 to 5 percent slopes	498.0	4.3%
474	Westhaven loam, 0 to 2 percent slopes	1,353.9	11.8%
476	Posochanet clay loam, saline-sodic, 0 to 2 percent slopes	1,157.5	10.0%
477	Westhaven clay loam, 0 to 2 percent slopes	720.5	6.3%
478	Cerini sandy loam, 0 to 2 percent slopes, MLRA 17	547.6	4.8%
479	Cerini clay loam, 0 to 2 percent slopes	696.4	6.0%
480	Calflax clay loam, saline-sodic, 0 to 2 percent slopes, MLRA 17	128.5	1.1%
847	Carranza gravelly sandy loam, 2 to 8 percent slopes	79.7	0.7%
950	Pits, gravel	117.7	1.0%
960	Excelsior, sandy substratum-westhaven association, flooded, 0 to 2 percent slopes	877.2	7.6%
981	Sewage disposal pond	44.6	0.4%
Totals for Area of Interest		**11,522.9**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps.

The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Fresno County, California, Western Part

412—Yribarren clay loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hnzf
Elevation: 540 to 800 feet
Mean annual precipitation: 6 to 7 inches
Mean annual air temperature: 63 to 64 degrees F
Frost-free period: 240 to 250 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Yribarren, clay loam, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Yribarren, Clay Loam

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from calcareous sedimentary rock

Typical profile

Ap - 0 to 9 inches: clay loam
A - 9 to 16 inches: silty clay loam
Btk - 16 to 31 inches: silty clay
2Bky - 31 to 51 inches: silt loam
3Bk - 51 to 60 inches: clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Very rareNone
Frequency of ponding: None
Calcium carbonate, maximum content: 4 percent
Gypsum, maximum content: 4 percent
Maximum salinity: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 15.0
Available water supply, 0 to 60 inches: High (about 9.4 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert

Hydric soil rating: No

Minor Components

Panoche, loam
Percent of map unit: 4 percent
Landform: Alluvial fans
Hydric soil rating: No

Excelsior, sandy loam
Percent of map unit: 3 percent
Landform: Alluvial fans
Hydric soil rating: No

Milham, sandy loam
Percent of map unit: 3 percent
Landform: Fan remnants
Hydric soil rating: No

Westhaven, loam
Percent of map unit: 2 percent
Landform: Alluvial fans
Hydric soil rating: No

Ciervo, clay
Percent of map unit: 2 percent
Landform: Fan skirts
Hydric soil rating: No

Carranza, gravelly sandy loam
Percent of map unit: 1 percent
Landform: Fan remnants
Hydric soil rating: No

435—Lethent clay loam, 0 to 1 percent slopes

Map Unit Setting
National map unit symbol: hnzm
Elevation: 240 to 1,000 feet
Mean annual precipitation: 7 to 8 inches
Mean annual air temperature: 62 to 64 degrees F
Frost-free period: 220 to 250 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Lethent, clay loam, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lethent, Clay Loam

Setting

Landform: Fan remnants
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from calcareous sedimentary rock

Typical profile

Ap1 - 0 to 7 inches: clay loam
Ap2 - 7 to 16 inches: clay loam
Ap3 - 16 to 25 inches: clay loam
Btkn1 - 25 to 33 inches: clay loam
Btkn2 - 33 to 62 inches: clay loam
C - 62 to 72 inches: clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: 20 to 39 inches to natric
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Very rareNone
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Slightly saline to strongly saline (4.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 40.0
Available water supply, 0 to 60 inches: Low (about 4.3 inches)

Interpretive groups

Land capability classification (irrigated): 3s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert
Hydric soil rating: No

Minor Components

Gepford, clay

Percent of map unit: 2 percent
Landform: Flood plains on basin floors
Ecological site: R017XY907CA - Aridic Alkali Desert
Hydric soil rating: Yes

Posochanet, clay loam, saline-sodic

Percent of map unit: 2 percent
Landform: Fan skirts
Ecological site: R017XY907CA - Aridic Alkali Desert
Hydric soil rating: No

Ciervo, clay, saline-sodic

Percent of map unit: 2 percent

Landform: Fan skirts
Ecological site: R017XY907CA - Aridic Alkali Desert
Hydric soil rating: No

Cerini, clay loam
Percent of map unit: 2 percent
Landform: Alluvial fans
Ecological site: R017XY907CA - Aridic Alkali Desert
Hydric soil rating: No

Calflax, clay loam, saline-sodic
Percent of map unit: 1 percent
Landform: Fan skirts
Ecological site: R017XY907CA - Aridic Alkali Desert
Hydric soil rating: No

Calflax, clay loam, saline-sodic, wet
Percent of map unit: 1 percent
Landform: Fan skirts
Ecological site: R017XY907CA - Aridic Alkali Desert
Hydric soil rating: No

445—Excelsior sandy loam, 0 to 2 percent slopes, MLRA 17

Map Unit Setting
National map unit symbol: 2ss8v
Elevation: 200 to 1,000 feet
Mean annual precipitation: 5 to 8 inches
Mean annual air temperature: 62 to 65 degrees F
Frost-free period: 240 to 300 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Excelsior and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Excelsior

Setting
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous coarse-loamy alluvium derived from sedimentary rock

Typical profile
Ap - 0 to 7 inches: sandy loam
A - 7 to 23 inches: sandy loam
C - 23 to 72 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Very rareNone
Frequency of ponding: None
Calcium carbonate, maximum content: 3 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water supply, 0 to 60 inches: Moderate (about 7.2 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 7c
Hydrologic Soil Group: A
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Minor Components

Cerini

Percent of map unit: 6 percent
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Excelsior

Percent of map unit: 4 percent
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Kimberlina

Percent of map unit: 3 percent
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Bakersfield

Percent of map unit: 1 percent
Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Westhaven

Percent of map unit: 1 percent
Landform: Flood plains, alluvial fans
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

447—Excelsior sandy loam, sandy substratum, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hnzw
Elevation: 180 to 900 feet
Mean annual precipitation: 6 to 8 inches
Mean annual air temperature: 62 to 64 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Excelsior, sandy loam, sandy substratum, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Excelsior, Sandy Loam, Sandy Substratum

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from calcareous sedimentary rock

Typical profile

Ap - 0 to 7 inches: sandy loam
A - 7 to 23 inches: sandy loam
C1 - 23 to 53 inches: stratified loamy sand to silt loam
C2 - 53 to 72 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: RareNone
Frequency of ponding: None
Calcium carbonate, maximum content: 3 percent

Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water supply, 0 to 60 inches: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: B
Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert
Hydric soil rating: No

Minor Components

Excelsior, sandy loam

Percent of map unit: 4 percent
Landform: Alluvial fans
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Kimberlina, sandy loam

Percent of map unit: 4 percent
Landform: Alluvial fans
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Polvadero, sandy loam

Percent of map unit: 2 percent
Landform: Fan remnants
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Wasco, sandy loam

Percent of map unit: 2 percent
Landform: Alluvial fans
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Excelsior, sandy loam, saline-sodic

Percent of map unit: 2 percent
Landform: Alluvial fans
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Westhaven, loam

Percent of map unit: 1 percent
Landform: Alluvial fans
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

448—Excelsior loamy sand, sandy substratum, 0 to 1 percent slopes, eroded

Map Unit Setting

National map unit symbol: hnzx
Elevation: 470 to 670 feet
Mean annual precipitation: 7 to 8 inches
Mean annual air temperature: 62 to 64 degrees F
Frost-free period: 240 to 270 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Excelsior, loamy sand, sandy substratum, eroded, and similar soils: 88 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Excelsior, Loamy Sand, Sandy Substratum, Eroded

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from calcareous sedimentary rock

Typical profile

Ap - 0 to 8 inches: loamy sand
C1 - 8 to 38 inches: stratified sandy loam to silt loam
C2 - 38 to 60 inches: loamy sand

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Very rareNone
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water supply, 0 to 60 inches: Low (about 5.7 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: B
Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert
Hydric soil rating: No

Minor Components

Westhaven, loam
Percent of map unit: 3 percent
Landform: Alluvial fans
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Kimberlina, sandy loam
Percent of map unit: 2 percent
Landform: Alluvial fans
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Guijarral, sandy loam
Percent of map unit: 2 percent
Landform: Fan remnants
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Polvadero, sandy loam
Percent of map unit: 2 percent
Landform: Fan remnants
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Wasco, sandy loam
Percent of map unit: 2 percent
Landform: Alluvial fans
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Excelsior, loamy sand
Percent of map unit: 1 percent
Landform: Alluvial fans
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

451—Milham sandy loam, 0 to 2 percent slopes MLRA 17

Map Unit Setting
National map unit symbol: 2ss91
Elevation: 200 to 1,200 feet
Mean annual precipitation: 5 to 8 inches
Mean annual air temperature: 63 to 65 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Milham and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Milham

Setting

Landform: Terraces, fan remnants, plains, alluvial fans
Landform position (three-dimensional): Tread, rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from igneous and sedimentary rock

Typical profile

Ap - 0 to 4 inches: sandy loam
Bk - 4 to 10 inches: sandy loam
Btk1 - 10 to 22 inches: loam
Btk2 - 22 to 49 inches: clay loam
2Ck - 49 to 60 inches: sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.60 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Rare
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 25.0
Available water supply, 0 to 60 inches: High (about 9.1 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 7c
Hydrologic Soil Group: C
Ecological site: R017XG043CA - Loamy 6-8" P.Z.
Hydric soil rating: No

Minor Components

Kimberlina

Percent of map unit: 5 percent
Landform: Alluvial fans
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Garces

Percent of map unit: 5 percent

Landform: Rims on basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Panoche

Percent of map unit: 5 percent
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

452—Milham sandy loam, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: hnzz
Elevation: 440 to 1,100 feet
Mean annual precipitation: 6 to 8 inches
Mean annual air temperature: 63 to 65 degrees F
Frost-free period: 250 to 300 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Milham, sandy loam, and similar soils: 89 percent
Minor components: 11 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Milham, Sandy Loam

Setting

Landform: Fan remnants
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from calcareous sedimentary rock

Typical profile

A - 0 to 6 inches: sandy loam
Bt - 6 to 16 inches: sandy clay loam
Btk - 16 to 31 inches: sandy clay loam
Bk - 31 to 60 inches: sandy loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 8 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 12.0
Available water supply, 0 to 60 inches: Moderate (about 7.5 inches)

Interpretive groups
Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: C
Ecological site: R017XG043CA - Loamy 6-8" P.Z.
Hydric soil rating: No

Minor Components

Polvadero, sandy loam
Percent of map unit: 3 percent
Landform: Fan remnants
Hydric soil rating: No

Excelsior, sandy loam
Percent of map unit: 2 percent
Landform: Alluvial fans
Hydric soil rating: No

Wasco, sandy loam
Percent of map unit: 2 percent
Landform: Alluvial fans
Hydric soil rating: No

Kimberlina, sandy loam
Percent of map unit: 2 percent
Landform: Alluvial fans
Hydric soil rating: No

Milham, sandy loam, undulating
Percent of map unit: 2 percent
Landform: Fan remnants
Hydric soil rating: No

474—Westhaven loam, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: hp09
Elevation: 270 to 690 feet
Mean annual precipitation: 6 to 8 inches
Mean annual air temperature: 62 to 65 degrees F

Frost-free period: 240 to 290 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Westhaven, loam, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Westhaven, Loam

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from calcareous sedimentary rock

Typical profile

Ap - 0 to 7 inches: loam
Bw - 7 to 17 inches: loam
Bk1 - 17 to 42 inches: stratified loam to silty clay loam
Bk2 - 42 to 65 inches: stratified loamy sand to silty clay loam
C - 65 to 72 inches: stratified loam to silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Very rareNone
Frequency of ponding: None
Calcium carbonate, maximum content: 4 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 12.0
Available water supply, 0 to 60 inches: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 7c
Hydrologic Soil Group: C
Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert
Hydric soil rating: No

Minor Components

Cerini, clay loam

Percent of map unit: 4 percent
Landform: Alluvial fans
Hydric soil rating: No

Wasco, sandy loam

Percent of map unit: 3 percent

Landform: Alluvial fans
Hydric soil rating: No

Excelsior, sandy loam
Percent of map unit: 3 percent
Landform: Alluvial fans
Hydric soil rating: No

Kimberlina, sandy loam
Percent of map unit: 3 percent
Landform: Alluvial fans
Hydric soil rating: No

Panoche, loam
Percent of map unit: 2 percent
Landform: Alluvial fans
Hydric soil rating: No

476—Posochanet clay loam, saline-sodic, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: hp0c
Elevation: 260 to 690 feet
Mean annual precipitation: 6 to 8 inches
Mean annual air temperature: 62 to 65 degrees F
Frost-free period: 230 to 250 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Posochanet, clay loam, saline-sodic, and similar soils: 88 percent
Minor components: 12 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Posochanet, Clay Loam, Saline-sodic

Setting
Landform: Fan skirts
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from calcareous sedimentary rock

Typical profile
Ap1 - 0 to 7 inches: clay loam
Ap2 - 7 to 15 inches: clay loam
Bw - 15 to 24 inches: stratified loam to silty clay loam
Bknz - 24 to 60 inches: stratified loam to silty clay loam

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Very rareNone
Frequency of ponding: None
Calcium carbonate, maximum content: 2 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Slightly saline to moderately saline (4.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 30.0
Available water supply, 0 to 60 inches: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert
Hydric soil rating: No

Minor Components

Tranquillity, clay, saline-sodic

Percent of map unit: 3 percent
Landform: Fan skirts
Hydric soil rating: No

Ciervo, clay, saline-sodic

Percent of map unit: 3 percent
Landform: Fan skirts
Hydric soil rating: No

Lethent, clay loam

Percent of map unit: 3 percent
Landform: Fan remnants
Hydric soil rating: No

Cerini, clay loam

Percent of map unit: 1 percent
Landform: Alluvial fans
Hydric soil rating: No

Calflax, clay loam, saline-sodic

Percent of map unit: 1 percent
Landform: Fan skirts
Hydric soil rating: No

Posochanet, clay loam, saline-sodic, wet

Percent of map unit: 1 percent
Landform: Fan skirts
Hydric soil rating: No

477—Westhaven clay loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: hp0d
Elevation: 250 to 640 feet
Mean annual precipitation: 6 to 8 inches
Mean annual air temperature: 62 to 65 degrees F
Frost-free period: 240 to 290 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Westhaven, clay loam, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Westhaven, Clay Loam

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from calcareous sedimentary rock

Typical profile

Ap - 0 to 12 inches: clay loam
Bw - 12 to 21 inches: silty clay loam
Bk - 21 to 61 inches: stratified loam to silty clay loam
C - 61 to 72 inches: stratified loamy sand to silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Very rareNone
Frequency of ponding: None
Calcium carbonate, maximum content: 4 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 12.0
Available water supply, 0 to 60 inches: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 7c

Hydrologic Soil Group: C
Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert
Hydric soil rating: No

Minor Components

Cerini, clay loam
Percent of map unit: 5 percent
Landform: Alluvial fans
Hydric soil rating: No

Ciervo, clay
Percent of map unit: 2 percent
Landform: Fan skirts
Hydric soil rating: No

Westhaven, loam
Percent of map unit: 2 percent
Landform: Alluvial fans
Hydric soil rating: No

Calflax, clay loam, saline-sodic
Percent of map unit: 2 percent
Landform: Fan skirts
Hydric soil rating: No

Lethent, clay loam
Percent of map unit: 2 percent
Landform: Fan remnants
Hydric soil rating: No

Posochanet, clay loam, saline-sodic
Percent of map unit: 2 percent
Landform: Fan skirts
Hydric soil rating: No

478—Cerini sandy loam, 0 to 2 percent slopes, MLRA 17

Map Unit Setting
National map unit symbol: 2vnd5
Elevation: 210 to 930 feet
Mean annual precipitation: 6 to 11 inches
Mean annual air temperature: 62 to 66 degrees F
Frost-free period: 240 to 300 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Cerini and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cerini

Setting

Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from calcareous sedimentary rock

Typical profile

Ap - 0 to 5 inches: sandy loam
Bw - 5 to 25 inches: clay loam
Bk1 - 25 to 35 inches: stratified sandy loam to clay loam
Bk2 - 35 to 79 inches: stratified sandy loam to clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: NoneVery rare
Frequency of ponding: None
Calcium carbonate, maximum content: 4 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 8.0
Available water supply, 0 to 60 inches: High (about 9.4 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 7c
Hydrologic Soil Group: C
Ecological site: R017XY904CA - Subirrigated Deep Alluvial Fans
Hydric soil rating: No

Minor Components

Excelsior, sandy loam

Percent of map unit: 3 percent
Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Westhaven, loam

Percent of map unit: 3 percent
Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Kimberlina, sandy loam

Percent of map unit: 2 percent
Landform: Alluvial fans
Down-slope shape: Linear

Across-slope shape: Linear
Hydric soil rating: No

Ciervo, clay
Percent of map unit: 1 percent
Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Granoso
Percent of map unit: 1 percent
Landform: Alluvial fans
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

479—Cerini clay loam, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: hp0g
Elevation: 160 to 800 feet
Mean annual precipitation: 6 to 8 inches
Mean annual air temperature: 62 to 64 degrees F
Frost-free period: 230 to 290 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Cerini, clay loam, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Cerini, Clay Loam

Setting
Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from calcareous sedimentary rock

Typical profile
Ap - 0 to 5 inches: clay loam
Bw - 5 to 25 inches: clay loam
Bk1 - 25 to 35 inches: stratified sandy loam to clay loam
Bk2 - 35 to 62 inches: stratified sandy loam to clay loam

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Very rareNone
Frequency of ponding: None
Calcium carbonate, maximum content: 4 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 8.0
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): 1
Land capability classification (nonirrigated): 7c
Hydrologic Soil Group: C
Ecological site: R017XY906CA - Non-Alkali San Joaquin Valley Desert
Hydric soil rating: No

Minor Components

Ciervo, clay

Percent of map unit: 4 percent
Landform: Fan skirts
Hydric soil rating: No

Panoche, clay loam

Percent of map unit: 3 percent
Landform: Alluvial fans
Hydric soil rating: No

Cerini, sandy loam

Percent of map unit: 2 percent
Landform: Alluvial fans
Hydric soil rating: No

Excelsior, sandy loam

Percent of map unit: 2 percent
Landform: Alluvial fans
Hydric soil rating: No

Westhaven, loam

Percent of map unit: 2 percent
Landform: Alluvial fans
Hydric soil rating: No

Kimberlina, sandy loam

Percent of map unit: 2 percent
Landform: Alluvial fans
Hydric soil rating: No

480—Calflax clay loam, saline-sodic, 0 to 2 percent slopes, MLRA 17

Map Unit Setting

National map unit symbol: 2vncm
Elevation: 160 to 730 feet
Mean annual precipitation: 6 to 11 inches
Mean annual air temperature: 61 to 66 degrees F
Frost-free period: 230 to 250 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Calflax, clay loam, saline-sodic, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Calflax, Clay Loam, Saline-sodic

Setting

Landform: Fan skirts
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from calcareous sedimentary rock

Typical profile

Ap - 0 to 8 inches: clay loam
Bw - 8 to 26 inches: clay loam
Bny - 26 to 33 inches: loam
Bnyz1 - 33 to 47 inches: silt loam
Bnyz2 - 47 to 65 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Very rareNone
Frequency of ponding: None
Calcium carbonate, maximum content: 3 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Very slightly saline to strongly saline (2.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 30.0
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): 2s
Land capability classification (nonirrigated): 7s

Hydrologic Soil Group: C
Ecological site: R017XY907CA - Aridic Alkali Desert
Hydric soil rating: No

Minor Components

Calflax, clay loam, saline-sodic, wet
Percent of map unit: 3 percent
Landform: Fan skirts
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Posochanet, clay, saline-sodic
Percent of map unit: 2 percent
Landform: Fan skirts
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Garces, silt loam
Percent of map unit: 1 percent
Landform: Rims on basin floors
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Westhaven
Percent of map unit: 1 percent
Landform: Flood plains, alluvial fans
Landform position (three-dimensional): Tread, talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Unnamed hydric
Percent of map unit: 1 percent
Landform: Fan skirts
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: Yes

Twisselman, clay, saline-alkali
Percent of map unit: 1 percent
Landform: Alluvial fans
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Panoche
Percent of map unit: 1 percent
Landform: Alluvial fans
Landform position (three-dimensional): Talf

Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Cerini, clay loam
Percent of map unit: 1 percent
Landform: Alluvial fans
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Lethent
Percent of map unit: 1 percent
Landform: Rims
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Kimberlina, sandy loam
Percent of map unit: 1 percent
Landform: Alluvial fans
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Ciervo, clay, saline-sodic
Percent of map unit: 1 percent
Landform: Fan skirts
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

Avenal
Percent of map unit: 1 percent
Landform: Alluvial fans
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

847—Carranza gravelly sandy loam, 2 to 8 percent slopes

Map Unit Setting
National map unit symbol: hp3h
Elevation: 540 to 1,360 feet
Mean annual precipitation: 8 to 10 inches

Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 250 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

Carranza, gravelly sandy loam, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Carranza, Gravelly Sandy Loam

Setting

Landform: Fan remnants
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from sandstone and shale

Typical profile

A - 0 to 7 inches: gravelly sandy loam
ABt - 7 to 14 inches: gravelly sandy loam
Bt1 - 14 to 20 inches: gravelly sandy clay loam
Bt2 - 20 to 25 inches: very gravelly sandy clay loam
Bt3 - 25 to 60 inches: gravelly sandy clay loam

Properties and qualities

Slope: 2 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 6.0
Available water supply, 0 to 60 inches: Moderate (about 6.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R017XE061CA - Loamy Fan Remnant 8-10" P.Z.
Hydric soil rating: No

Minor Components

Bapos, clay loam

Percent of map unit: 5 percent
Landform: Fan remnants
Hydric soil rating: No

Milham, sandy loam

Percent of map unit: 5 percent

Landform: Fan remnants
Hydric soil rating: No

Pedcat, fine sandy loam, eroded
Percent of map unit: 5 percent
Landform: Fan remnants
Hydric soil rating: Yes

950—Pits, gravel

Map Unit Setting
National map unit symbol: hp2k
Elevation: 420 to 960 feet
Farmland classification: Not prime farmland

Map Unit Composition
Pits, gravel: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pits, Gravel

Setting
Landform: Fan remnants, flood plains
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium from mixed rock

Properties and qualities
Slope: 0 to 5 percent
Frequency of flooding: RareNone

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydric soil rating: No

Minor Components

Excelsior, sandy loam
Percent of map unit: 4 percent
Landform: Alluvial fans, flood plains
Microfeatures of landform position: Bars and channels
Hydric soil rating: No

Cerini, sandy loam
Percent of map unit: 4 percent
Landform: Alluvial fans
Hydric soil rating: No

Los banos, clay loam
Percent of map unit: 3 percent
Landform: Fan remnants
Hydric soil rating: No

Panoche, loam
Percent of map unit: 2 percent
Landform: Alluvial fans
Hydric soil rating: No

Guijarral, sandy loam
Percent of map unit: 2 percent
Landform: Fan remnants
Hydric soil rating: No

960—Excelsior, sandy substratum-westhaven association, flooded, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: hp2l
Elevation: 310 to 850 feet
Mean annual precipitation: 7 to 8 inches
Mean annual air temperature: 62 to 64 degrees F
Frost-free period: 240 to 280 days
Farmland classification: Not prime farmland

Map Unit Composition
Excelsior, sandy loam, sandy substratum, and similar soils: 50 percent
Westhaven, loam, and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Excelsior, Sandy Loam, Sandy Substratum

Setting
Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Tread
Microfeatures of landform position: Bars and channels
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from calcareous sedimentary rock

Typical profile
A1 - 0 to 7 inches: sandy loam
A2 - 7 to 23 inches: sandy loam
C1 - 23 to 53 inches: stratified loamy sand to silt loam
C2 - 53 to 72 inches: loamy sand

Properties and qualities
Slope: 0 to 2 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: NoneOccasional
Frequency of ponding: Occasional
Calcium carbonate, maximum content: 3 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water supply, 0 to 60 inches: Moderate (about 6.8 inches)

Interpretive groups

Land capability classification (irrigated): 2w
Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: B
Ecological site: R017XY903CA - Stream Channels and Floodplains
Hydric soil rating: No

Description of Westhaven, Loam

Setting

Landform: Alluvial fans, flood plains
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Tread
Microfeatures of landform position: Bars and channels
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Alluvium derived from calcareous sedimentary rock

Typical profile

Ap - 0 to 7 inches: loam
Bw - 7 to 17 inches: loam
Bk1 - 17 to 42 inches: stratified loam to silty clay loam
Bk2 - 42 to 65 inches: stratified loamy sand to silty clay loam
C - 65 to 72 inches: stratified loam to silty clay loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: NoneOccasional
Frequency of ponding: Occasional
Calcium carbonate, maximum content: 4 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 12.0
Available water supply, 0 to 60 inches: High (about 9.8 inches)

Interpretive groups

Land capability classification (irrigated): 2w

Land capability classification (nonirrigated): 7w
Hydrologic Soil Group: C
Ecological site: R017XY903CA - Stream Channels and Floodplains
Hydric soil rating: No

Minor Components

Ciervo, clay
Percent of map unit: 10 percent
Landform: Fan skirts
Ecological site: R017XY903CA - Stream Channels and Floodplains
Hydric soil rating: No

Excelsior, sandy loam
Percent of map unit: 5 percent
Landform: Alluvial fans, flood plains
Microfeatures of landform position: Bars and channels
Ecological site: R017XY903CA - Stream Channels and Floodplains
Hydric soil rating: No

Cerini, clay loam
Percent of map unit: 3 percent
Landform: Alluvial fans
Ecological site: R017XY903CA - Stream Channels and Floodplains
Hydric soil rating: No

Anela, very gravelly sandy loam
Percent of map unit: 2 percent
Landform: Flood plains
Ecological site: R017XY903CA - Stream Channels and Floodplains
Hydric soil rating: No

981—Sewage disposal pond

Map Unit Setting
National map unit symbol: hp2n
Elevation: 140 to 650 feet
Farmland classification: Not prime farmland

Map Unit Composition
Sewage disposal pond: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Sewage Disposal Pond

Properties and qualities
Slope: 0 percent
Frequency of flooding: Very rareNone

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APPENDIX B

WASTE DISCHARGE REQUIREMENTS ORDER NO. 94-184

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. 94-184

WASTE DISCHARGE REQUIREMENTS
FOR
CITY OF COALINGA
WASTEWATER TREATMENT FACILITY
FRESNO COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Board) finds that:

1. The City of Coalinga (hereafter Discharger) submitted a Report of Waste Discharge, dated 2 July 1991, and a site evaluation report, dated 25 June 1991, in support of a change in operation and an increase in quantity of discharge from its municipal wastewater treatment facility (WWTF). The property (Assessor's Parcel Nos. 070-07-023, 071-02-026, and 071-02-043) is owned by the Discharger. The WWTF is at the confluence of Los Gatos Creek and Warthan Creek. The ponds and lagoons are immediately adjacent to Los Gatos Creek, separated by an embankment which extends three feet above the highest pond water level.

2. Waste Discharge Requirements Order No. 80-064, adopted by the Board on 30 May 1980, prescribes requirements for a monthly average dry weather flow discharge of 0.93 million gallons per day (mgd) from the WWTF, for use on irrigated lands.

3. Order No. 80-64 is neither adequate (due to increase in flow and a change in operation) nor consistent with current plans and policies of the Board.

4. The Discharger completed rehabilitation of the primary clarifier and digester, which were removed from service during the previous plant modification, on 25 November 1991. The facility includes a bar screen; a primary clarifier; an aerobic sludge digester; sludge drying beds; two aerated facultative lagoons, each with a surface area of 3 acres; and three stabilization ponds, having a total surface area of 11 acres. Effluent is pumped from one of the stabilization ponds to 30 acres of farm land owned by the Discharger (leased and operated by West Hills Community College District) and 102 acres of farm land owned by West Hills Community College District (User) for crop irrigation and percolation disposal. The User grows alfalfa, hay, cotton, pasture, and sugar beets (for research only) with reclaimed wastewater. The Discharger owns an additional 96.7 acres of land in the immediate area, which could be used for reclamation if needed.

5. Reuse of reclaimed wastewater by User is regulated under separate Order.

6. At current flows, the Discharger applies approximately 6.8 feet/year of treated wastewater to the acreage available for wastewater reclamation. If applied to the total acreage available for reclamation, the application rate would be on the order of 3.9 feet/yearly without considering necessary setbacks from roads, wells and adjacent property. The typical irrigation application rates for Alfalfa and Cotton are 4.7 feet/year and 3.7 feet/year, respectively.

7. The WWTF has a design average daily dry weather flow capacity of 1.34 mgd. It presently serves a population of approximately 9,240, which generates an average daily wastewater flow of 0.80 mgd and maximum peak daily flow of 1.20 mgd.

8. The wastestream consists entirely of domestic wastes. There are no significant industrial dischargers.

9. The WWTF is in Section 33, T20S, R15E , MDB&M, with surface water drainage to Warthan Creek and Los Gatos Creek, as shown in Attachment A, which is attached hereto and part of this Order by reference. The site lies within the Kettleman Hydrologic Area (No. 558.50), as depicted on interagency hydrologic maps prepared by the Department of Water Resources in August 1986.

10. Federal Regulations for storm water discharges were promulgated by the USEPA on 16 November 1990 (40 CFR Parts 122, 123, and 124). The regulations require specific categories of facilities, which discharge storm water associated with industrial activity (storm water), to obtain NPDES permits and to implement Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or eliminate industrial storm water pollution.

    The State Water Resources Control Board adopted Order No. 91-13-DWQ, NPDES General Permit No. CAS000001, amended 17 September 1992, specifying waste discharge requirements for discharges of storm water associated with industrial activities (hereafter General Permit). The Discharger is required to file a Notice of Intent (NOI) to comply with the General Permit because it is specified in the General Permit that all WWTFs with design flows greater than 1.0 mgd must be covered by the General Permit. The Discharger has not submitted an NOI.

11. The Board adopted a Water Quality Control Plan for the Tulare Lake Basin (5D, hereafter Basin Plan), which contains water quality objectives for all waters of the Basin. These requirements implement the Basin Plan.

12. California Department of Health Services has established statewide reclamation criteria in Title 22, California Code of Regulations (CCR), Section 60301, et seq. (hereafter Title 22) for use of reclaimed water and has developed guidelines for specific uses.

13. Coalinga is a surface water contractor with the United States Bureau of Reclamation for water from the Central Valley project via the Coalinga Canal, which is operated by Westlands Water District (electrical conductivity is about 400 μmhos/cm, total dissolved solids is about 220 mg/l).

14. Ground water is encountered at a depth of 300 feet below ground surface and is of poor quality, with electrical conductivities averaging approximately 2500 μmhos/cm.

15. The beneficial uses of underlying ground water are municipal, agricultural, and industrial supply.

16. Average annual precipitation is 6 to 8 inches.

17. The beneficial uses of Los Gatos Creek and Warthan Creek are agricultural and industrial supply.

18. Soil permeabilities in the vicinity of the WWTF range from 0.06 to 2.0 inches/hour.

19. Coalinga is in an area of active seismic activity because of proximity to the San Andreas, Post-Poso Creek, and White Wolf faults. In 1983 Coalinga was jolted by an earthquake having a magnitude of 6.7 on the Richter Scale. According to the California Division of Mines and Geology, there is a 50 percent likelihood of an earthquake of greater than 8 on the Richter Scale occurring by the year 2000 in the State of California.

20. The Discharger stockpiles its dried sludge on-site. Order No. 80-64 does not require the Discharger to submit a sludge management plan, and the Discharger has not submitted a sludge management plan.

21. The action to revise waste discharge requirements for the rehabilitation of the existing permitted WWTF is exempt from the provisions of the California Environmental Quality Act (CEQA), in accordance with Title 14, California Code of Regulations (CCR), Section 15301.

22. The Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

23. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that Order No. 80-064 is rescinded and the City of Coalinga, its agents, successors, and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. Discharge Prohibitions:

1. Discharge of wastes to surface waters or surface water drainage courses is prohibited.

2. Bypass or overflow of untreated or partially treated waste is prohibited.

3. Discharge of waste classified as 'hazardous' or 'designated', as defined in Sections 2521(a) and 2522(a) of Title 23, California Code of Regulations, Section 2510, et seq, (hereafter Chapter 15) is prohibited.

B. Discharge Specifications:

1. The monthly average dry weather discharge shall not exceed 1.34 mgd.

2. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas.

3. As a means of discerning compliance with Discharge Specification No. B.2, the dissolved oxygen content in the upper zone (1 foot) of wastewater in ponds and lagoons shall not be less than 1.0 mg/l.

4. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

5. Effluent shall not exceed the following limits:

Constituent	Units	Monthly Average	Daily Maximum
BOD_5[1]	mg/l	40	80
Settleable Solids	ml/l	0.2	0.5

[1] Five-day, 20° Celsius biochemical oxygen demand.

6. Ponds shall not have a pH less than 6.5 or greater than 9.5.

7. Ponds shall be managed to prevent breeding of mosquitos. In particular:

   a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.

   b. Weeds shall be minimized through control of water depth, harvesting, or herbicides.

   c. Dead algae, vegetation, and debris shall not accumulate on the water surface.

8. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.

9. Ponds shall have sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation and ancillary inflow and infiltration during the nonirrigation season. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns. Freeboard shall never be less than two feet (measured vertically).

10. On or about 1 October of each year, available pond storage capacity shall at least equal the volume necessary to comply with Discharge Specification B.9.

C. Reclamation Specifications:

1. There should be no irrigation with, or impoundment of reclaimed water within a minimum of 150 feet of any drinking water well. Drainage should be controlled to prevent reclaimed water from coming within 150 feet of a drinking water well.

2. Reclaimed water used for irrigation shall be managed to minimize erosion.

3. The Discharger may not irrigate effluent during periods of precipitation and for at least 24 hours after cessation of precipitation.

4. The following setback distances (feet) shall be provided at the reclamation area:

Setback Distance (feet)	To
25	Property Line
30	Public Roads
50	On-site irrigation wells
150	Domestic wells
50	Drainage courses

5. The perimeter of the reclamation area shall be graded to prevent ponding along public roads or other public areas.

6. Application of reclaimed water to the reclamation area shall be at reasonable rates considering the crops, soil, climate, and irrigation management system.

7. There shall be no standing water in the reclamation area 24 hours after wastewater is applied.

8. Reclaimed water must be controlled to comply with the following:

   a. Mist should not be created;

   b. Reclaimed water should not be sprayed;

   c. Runoff is confined to the reclaimed water use area;

d. Runoff does not contact or enter a dwelling, food handling facility, passing vehicle, or a place where the public may be present;

e. Runoff does not contact a yard at a residence, or an area with frequent human contact;

f. Runoff does not contact or enter a place where access and exposure to a wetted surface could be similar to that at a park, playground, or school yard.

D. Sludge Disposal:

1. Collected screenings, sludges, and other solids removed from liquid wastes shall be disposed of in a manner that is consistent with Chapter 15 and approved by the Executive Officer.

2. Any proposed change in sludge use or disposal practice shall be reported to the Executive Officer **at least 90 days in advance** of the change.

3. Use and disposal of sewage sludge shall comply with existing federal and state laws and regulations, and with 40 CFR Part 503 technical standards when promulgated.

   If an applicable management practice or numerical limitation for pollutants in sewage sludge is promulgated under 40 CFR Part 503 of the CWA after issuance of this permit which is more stringent than the sludge pollutant limit or management practice specified in this permit or in existing federal or state laws or regulations, the Discharger shall comply with the limitations by not later than the compliance deadline specified in the applicable regulations as required by 40 CFR Part 503.

E. Ground Water Limitations:

The discharge, in combination with other sources, shall not cause underlying ground water to:

1. Contain waste constituents in concentrations statistically greater than receiving water limits, where specified below, or background water quality where not specified. (For purposes of comparison, background water quality shall be

determined when background monitoring provides sufficient data. Quality determined in this manner establishes "water quality protection standards.")

2. Contain chemicals, heavy metals, or trace elements in concentrations that adversely affect beneficial uses or exceed maximum contaminant levels specified in the California Code of Regulations, Title 22, Division 4, Chapter 15.

3. Exceed a most probable number of total coliform organisms of 2.2/100 ml over any seven-day period.

4. Exceed concentrations of radionuclides specified in the California Code of Regulations, Title 22, Division 4, Chapter 15.

5. Contain taste or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.

6. Contain concentrations of chemical constituents in amounts that adversely affect agricultural use.

F. Provisions:

1. The Discharger shall comply with Monitoring and Reporting Program No. 94-184, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.

2. The Discharger shall comply with the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements," dated 1 March 1991, which are attached hereto and by reference a part of this Order. This attachment and its individual paragraphs are commonly referenced as "Standard Provision(s)."

3. In the event of any change in control or ownership of land or waste discharge facilities described herein, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.

   To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Board, and a statement. The

statement shall comply with the signatory paragraph of Standard Provision B.3 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved by the Executive Officer.

4. At least **90 days** prior to termination or expiration of any lease, contract, or agreement involving disposal or reclamation areas or off-site reuse of effluent, used to justify the capacity authorized herein and assure compliance with this Order, the Discharger shall notify the Board in writing of the situation and of what measures have been taken or are being taken to assure full compliance with this Order.

5. The Discharger shall use the best practicable cost-effective control technique currently available to comply with salinity limits specified in this order.

6. **By 1 January 1995**, the Discharger shall submit a water balance for the reclamation area which includes a topographic map showing the net acreage available for wastewater reclamation; considers crop water needs (feet of water/year); harvesting and planting "down" times, when wastewater is not applied; losses due to percolation and evaporation in the ponds; and compliance with Reclamation Specifications in this Order. The water balance shall be submitted as a technical report prepared by a California registered civil engineer or a California registered agricultural engineer.

7. **By 1 January 1995**, the Discharger shall submit a technical report prepared by a California registered engineer which verifies whether the WWTF complies with Discharge Specification B.4.

8. **By 1 January 1995**, the Discharger shall submit a technical report, which discusses compliance with Reclamation Specifications and includes a time schedule for compliance with said Reclamation Specification where necessary.

9. **By 1 August 1994**, the Discharger shall submit a copy of the agreement between the Discharger and West Hills Community College District for delivery of reclaimed water and an accurate map defining the boundaries of city owned land and the reclamation property belonging to West Hills Community College District farm. The map shall identify where West Hills Community College District is reclaiming effluent or may reclaim effluent and the land the city itself has available for reclamation if the need arises.

10. **By 1 August 1994**, the Discharger shall submit a completed NOI to comply with the General Permit.

11. The Discharger shall submit to the Board on or before each report due date the specified document or, if an action is specified, a written report detailing evidence of compliance with the date and task. If noncompliance is being reported, the reasons for such noncompliance shall be stated, plus an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Board by letter when it returns to compliance with the time schedule.

12. The Discharger must comply with all conditions of this Order, including timely submittal of technical and monitoring reports as directed by the Executive Officer. Violations may result in enforcement action, including Regional Board or court orders requiring corrective action or imposing civil monetary liability, or in revision or rescission of this Order.

13. A copy of this Order shall be kept at the discharge facility for reference by operating personnel. Key operating personnel shall be familiar with its contents.

14. If reclaimed water is used for construction purposes, it shall comply with the most current edition of "Guidelines for Use of Reclaimed Water for Construction Purposes". Other uses of reclaimed water not specifically authorized herein shall be subject to the approval of the Executive Officer and shall comply with 22 CCR, Division 4.

15. The Board will review this Order periodically and will revise requirements when necessary.

I, WILLIAM H. CROOKS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 24 June 1994.

WILLIAM H. CROOKS, Executive Officer

MS:cjs: 6/24/94

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. 94-184

FOR
CITY OF COALINGA
WASTEWATER TREATMENT FACILITY
FRESNO COUNTY

Specific sample station locations shall be established with concurrence of the Board's staff, and the Discharger shall submit a description of the stations to Board and attach a copy to it's copy of this Program.

INFLUENT MONITORING

Influent samples shall be collected at the inlet of the headworks and approximately the same time as effluent samples. Influent monitoring shall include at least the following:

Constituents	Units	Type of Sample	Sampling Frequency
Flow	mgd	continuous	Daily
Settleable Solids	ml/l	grab	Daily
BOD_5[1]	mg/l	8-hr composite[2]	Weekly

[1] Five-day, 20° Celsius biochemical oxygen demand.
[2] Samples to be collected in proportion to flow.

EFFLUENT MONITORING

Except for flow, which may be measured either at the headworks or treatment unit, effluent samples shall be collected just prior to discharge to the disposal facility. Effluent samples should be representative of the volume and nature of the discharge. Samples collected from the outlet structure of ponds will be considered adequately. Time of collection of a grab sample shall be recorded. Effluent monitoring shall include at least the following:

Constituents	Units	Type of Sample	Sampling Frequency[1]
Dissolved Oxygen[2]	mg/l	Grab	Daily
pH	pH Units	Grab	Daily
Settleable Solids	ml/l	Grab	Daily
BOD_5[3]	mg/l	8-hr composite	Weekly

Constituents	Units	Type of Sample	Sampling Frequency[1]
Specific Conductivity	μmhos/cm	Grab	Monthly
Nitrates as N	mg/l	Grab	Quarterly

[1] If results of monitoring a pollutant appear to violate effluent limitations, but monitoring frequency is not sufficient to validate violation (e.g., the monthly average for BOD), or indicate a violation and potential upset of the treatment process (e.g., less than minimum D.O.), the frequency of sampling shall be increased to confirm the magnitude and duration of violation, if any, and aid in identification and resolution of the problem.

[2] Samples shall be collected at a depth of one foot from each pond, opposite the inlet, and analyzed for dissolved oxygen. Samples shall be collected between 0800 and 0900 hours.

[3] Five-day, 20° Celsius biochemical oxygen demand.

SLUDGE MONITORING

When sludge is removed from ponds and treatment units, but prior to disposal, a composite sample shall be analyzed, on a dry weight basis, for Total Solids (%), Nitrogen (total, NH_4-N, and NO_3-N), Total Phosphorous, Total Potassium, Total PCBs, and totals of specific metals (Pb, Zn, Cu, Ni, Cd, and Ag). Analytical results shall be submitted to the Executive Officer. Analysis of soluble concentrations of these specific metals shall also be included as needed. If final disposal is proposed to go to land, a technical report analyzing application rates and procedures relative to Department of Health Services' *Manual of Good Practices for Landspreading of Sewage Sludge* and EPA's *Process Design Manual for Land Application of Municipal Sludges* and Title 23, California Code of Regulations, Section 2511(f), shall be completed and submitted to the Executive Officer for approval. The report shall be prepared by a California registered civil engineer experienced in wastewater treatment and disposal.

Sampling records shall be retained for a minimum of five years. A log shall be kept of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis for part of the annual report.

POND MONITORING

The freeboard shall be monitored on the evaporation/percolation ponds in use to the nearest tenth foot. Pond water monitoring shall include the following:

Constituent	Unit	Type of Sample	Frequency
Freeboard	feet	Observation	Weekly

Permanent markers shall be placed in the pond with calibration indicating the water level at design capacity and available operational freeboard.

In addition, the Discharger shall inspect the condition of the ponds once per week and write visual observation in a bound log book. Notations shall include observations of whether weeds are developing in the water or along the bank, and their location; whether dead algae, vegetation, scum, or debris are accumulating on the pond surface and their location; whether burrowing animals or insects are present; and the color of the pond (e.g., dark sparkling green, dull green, yellow, grey, tan, brown, etc.). A copy of the entries made in the log during each month shall be submitted along with the monitoring report the following month. Where the O&M manual indicates remedial action is necessary, the Discharger shall briefly explain in the transmittal what action has been taken or is scheduled to be taken.

WATER SUPPLY MONITORING

A sampling station shall be established where a representative sample of the water supply can be obtained or the information requested below may be obtained from the supplier. Water supply monitoring shall include at least the following:

Constituents	Units	Sampling Frequency
Standard Minerals[1]	mg/l	Quarterly
Electrical Conductivity @ 25°C	μmhos/cm	Quarterly
Total Dissolved Solids	mg/l	Quarterly

[1] Standard Mineral analyses shall include bicarbonate, calcium, carbonate, chloride, fluoride, iron, manganese, magnesium, nitrate, potassium, sodium, sulfate, total phosphorus, total cations, and total anions.

ANNUAL LAND MANAGEMENT REPORTS

The Discharger shall submit a summary report on its land management operation (West Hills College shall submit its own) after the conclusion of each season. The report shall discuss net acreage irrigated and total water application over the season; the total wastewater applied in acre-feet; the total wastewater, and nutrient loading from wastewater, sludges, and chemical fertilizers; and the amount of nutrients removed through harvest of the crop. In short, the report shall present a mass balance relative to pollutants of concern and hydraulic loading. The report is due by 30 January of the following year.

REPORTING

Monthly monitoring reports shall be submitted to the Board by the **20th day of the following month.**

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner that illustrates clearly whether the Discharger complies with waste discharge requirements, including calculation of all averages, etc.

If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the discharge monitoring report.

The Discharger may also be requested to submit an annual report to the Board with tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

By **31 January of each year**, the Discharger shall submit a written report to the Executive Officer containing the following:

a. The names, titles, certificate grade (if any) and general responsibilities of persons operating and maintaining the wastewater treatment plant.

b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.

c. A certified statement of when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who did the calibration (Standard Provision C.4).

d. A statement whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last reviewed for adequacy.

e. The total quantity of sludge disposed of during the previous year and ultimate disposal site(s).

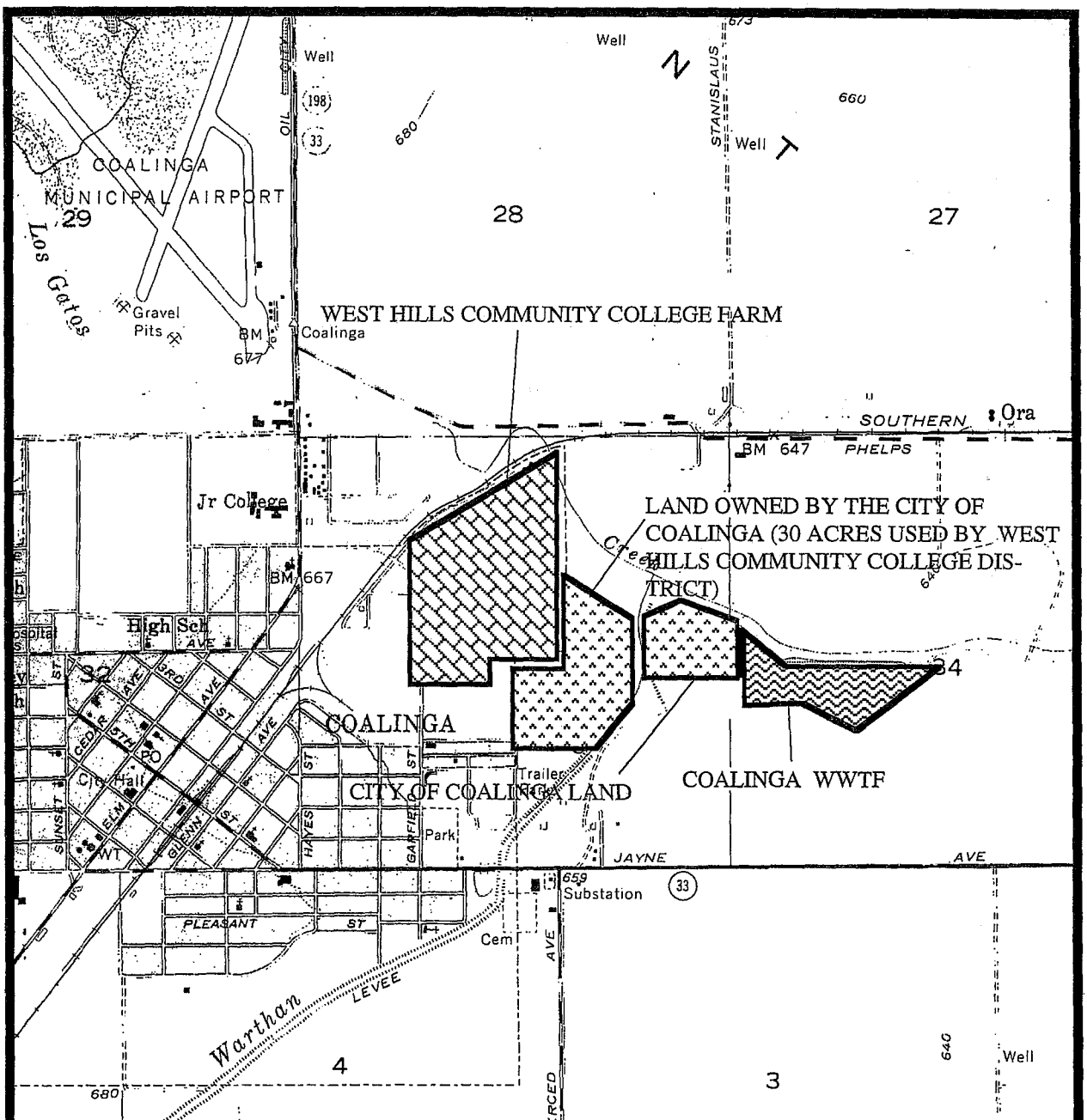
All reports submitted in response to this Order shall comply with the signatory requirements in Standard Provision B.3.

The Discharger shall implement the above monitoring program on the first day of the month following adoption of this Order.

Ordered by: William H. Crooks
WILLIAM H. CROOKS, Executive Officer

24 June 1994
(Date)

MS:cjs: 6/24/94



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Scale: 1"=2000'

ATTACHMENT A

City of Coalinga WWTF

FRESNO COUNTY

Portions of Sec. 33 and 34, T20S, R15E, MDB&M
Coalinga, CA. 7.5' USGS Quad
Photorevised 1979

INFORMATION SHEET

CITY OF COALINGA
WASTEWATER TREATMENT FACILITY
FRESNO COUNTY

The City of Coalinga (hereafter Discharger), an incorporated city with an approximate population of 9,240, operates a wastewater treatment facility (WWTF) with surface water drainage to Warthan Creek and Los Gatos Creek in the Pleasant Valley. The City is on the western side of the San Joaquin Valley, along Highway 33 and 198, approximately 12 miles west of interstate 5. The WWTF is regulated by Waste Discharge Requirements Order No. 80-064 for a monthly average dry weather flow of .93 million gallons per day (mgd) of primarily domestic wastewater.

The Discharger completed a project on 25 November 1991 which involved rehabilitation of the primary clarifier and digester, which were removed from service during the previous plant modification. No new construction was involved. The WWTF consists of headworks; a primary clarifier; an aerobic sludge digester; sludge drying beds; two aerated facultative lagoons, each with a surface area of 3 acres; and three stabilization ponds, having a total surface area on 11 acres. Effluent is pumped from one of the stabilization ponds to 30 acres of farmland owned by the Discharger and 102 acres of farmland owned by West Hills Community College District for crop irrigation and percolation disposal. The User grows alfalfa, hay, cotton, pasture, and sugar beets (for research only) with reclaimed wastewater on its land.

The State Water Resources Control Board adopted Order No. 91-13-DWQ, NPDES General Permit No. CAS000001, amended 17 September 1992, specifying waste discharge activities (hereafter General Permit). The Discharger must to file a Notice of Intent (NOI) to comply with the General Permit because all WWTFs with design flows greater than 1.0 mgd must be covered by the General Permit. The Discharger has not submitted a NOI.

Panoche clay loam, and Panoche sandy loam are the predominant soil types in Coalinga. Soil analysis indicates naturally occurring asbestos in the Coalinga area.

The City is in an area of seismic activity in the vicinity of the San Andreas, Post-Poso Creek, and White Wolf faults. In 1983, the City was jolted by an earthquake having a magnitude of 6.7 on the Richter Scale. According to the California Division of Mines and Geology, there is a 50 percent likelihood of an earthquake of greater than 8 on the Richter Scale occurring by the year 2000.

Ground water is encountered at a depth of 300 to 400 feet below ground surface. The ground water quality is poor; specific conductances ranges from 2500 μmhos/cm to 3000 μmhos/cm. The beneficial use of underlying ground water is agricultural supply.

The action to revise waste discharge requirements for the rehabilitation of the existing permitted WWTF is exempt from the provisions of the California Environmental Quality Act (CEQA) in accordance with Title 14, California Code of Regulations (CCR), Section 15301.

APPENDIX C

ANNUAL WATER BALANCE

CITY OF COALINGA
Water Balance Assuming Evaporation and Agricultural Irrigation
0.857 MGD

DESIGN DATA	
Parameter	**Value**
Average Design Flow, MGD	0.857
Irrigation Efficiency, %	70%
Pond #2 Area, Acres	18.34
Effluent Reclamation Area, Acres	325
Percolation Rate, inch/day	0

Month	Sewage Flow		Evaporation Ponds	Precipitation Ponds	Irrigation Disposal Areas	Percolation	Balance (Acre-feet)	
	(MGD)	(acre-feet)	(acre-feet)	(acre-feet)	(acre-feet)[2]	(Acre-ft)[3]	Monthly	Cumulative[5]
October	0.857	81.5	7.3	1.1	167.9	0.0	-92.5	0.0
November	0.857	78.9	4.0	1.9	79.0	0.0	-2.2	0.0
December	0.857	81.5	2.6	3.2	26.6	0.0	55.5	55.5
January	0.857	81.5	2.6	5.3	0.0	0.0	84.2	139.8
February	0.857	73.6	4.2	5.2	29.6	0.0	45.0	184.8
March	0.857	81.5	6.8	4.6	100.1	0.0	-20.7	164.1
April	0.857	78.9	9.6	1.4	214.9	0.0	-144.2	19.9
May	0.857	81.5	13.0	0.7	299.9	0.0	-230.6	0.0
June	0.857	78.9	14.6	0.2	336.6	0.0	-272.2	0.0
July	0.857	81.5	15.6	0.0	359.8	0.0	-293.9	0.0
August	0.857	81.5	14.1	0.1	323.8	0.0	-256.3	0.0
September	0.857	78.9	10.6	1.0	243.8	0.0	-174.5	0.0
		960.0	105.1	24.8	2182.0	0.0		

(1) Irrigation requirements based on ET values for the San Joaquin Valley.
(2) Water contribution by rainfall over the pond surface areas.
(3) Percolation assumes a rate of 0.00 inch per day.
(4) Monthly excess (deficit) of water. Equal to the sum of sewage flow and precipitation less water loss through evaporation and percolation.
(5) Cummulative Balance is proposed to be either stored on the top 48" of soil (root zone) or percolated beyond the root zone. Water storage capacity of exisitng Hanford Loam soils is 0.11 in/in (See USDA Soil Survey Report).
Note: Reference precipitation and evapotranspiration data are included in this Attachment.

CITY OF COALINGA
Water Balance Assuming Evaporation and Agricultural Irrigation
1.34 MGD

DESIGN DATA	
Parameter	**Value**
Average Design Flow, MGD	1.340
Irrigation Efficiency, %	70%
Treatment Pond Area, Acres	18.34
Effluent Reclamation Area, Acres	219
Percolation Rate, inch/day	0

			Evaporation	Precipitation	Irrigation	Pond		
	Sewage Flow		Ponds	Ponds	Disposal Areas	Percolation	Balance (Acre-feet)	
Month	**(MGD)**	**(acre-feet)**	**(acre-feet)**	**(acre-feet)**	**(acre-feet)[2]**	**(Acre-ft)[3]**	**Monthly**	**Cumulative[5]**
October	1.34	127.5	7.3	1.1	111.8	0.0	9.5	9.5
November	1.34	123.4	4.0	1.9	53.2	0.0	68.0	77.5
December	1.34	127.5	2.6	3.2	17.9	0.0	110.2	187.7
January	1.34	127.5	2.6	5.3	0.0	0.0	130.2	317.9
February	1.34	115.1	4.2	5.2	19.9	0.0	96.2	414.1
March	1.34	127.5	6.8	4.6	67.5	0.0	57.9	472.0
April	1.34	123.4	9.6	1.4	144.8	0.0	-29.6	442.3
May	1.34	127.5	13.0	0.7	202.1	0.0	-86.9	355.4
June	1.34	123.4	14.6	0.2	226.8	0.0	-117.9	237.5
July	1.34	127.5	15.6	0.0	242.5	0.0	-130.6	107.0
August	1.34	127.5	14.1	0.1	218.2	0.0	-104.7	2.3
September	1.34	123.4	10.6	1.0	164.3	0.0	-50.5	0.0
		1,501.0	105.1	24.8	1469.0	0.0		

(1) Irrigation requirements based on ET values for the San Joaquin Valley.
(2) Water contribution by rainfall over the pond surface areas
(3) Percolation assumes a rate of 0.00 inch per day.
(4) Monthly excess (deficit) of water. Equal to the sum of sewage flow and precipitation less water loss through evaporation and percolation.
(5) Cummulative Balance is proposed to be either stored on the top 24" of soil (root zone) or percolated beyond the root zone. Water storage capacity of exisitng Exclusive sandy loam soils is 0.10 in/in (See USDA Soil Survey Report).
Note: Reference precipitation and evapotranspiration data are included in the Appendix.

CITY OF COALINGA

Precipitation and Evaporation Reference Data

Month	Days	Crop Coefficients (kc)[1]			Ref Evap (inches)	Precipitation (inches)		Eff. Precipitation (inches)[5]
		Ponds	Alfalfa	Cotton	ETo[2]	Normal[3]	100-yr[4]	
October	31	1.1	1.00	0.80	4.34	0.38	0.74	0.05
November	30	1.1	1.00	0.80	2.40	0.64	1.25	0.36
December	31	1.1	1.00	0.80	1.55	1.07	2.09	0.86
January	31	1.1	1.00	0.80	1.55	1.78	3.48	1.80
February	28	1.1	1.00	0.80	2.52	1.75	3.42	1.76
March	31	1.1	1.00	0.59	4.03	1.55	3.03	1.44
April	30	1.1	1.00	0.71	5.70	0.46	0.90	0.15
May	31	1.1	1.00	0.83	7.75	0.24	0.47	0.00
June	30	1.1	1.00	0.90	8.70	0.06	0.12	0.00
July	31	1.1	1.00	0.96	9.30	0.01	0.02	0.00
August	31	1.1	1.00	0.96	8.37	0.04	0.08	0.00
September	30	1.1	1.00	0.91	6.30	0.32	0.63	0.00
Total					**62.51**	**8.30**	**16.24**	

[1] Irrigation with Reclaimed Municipal Wastewater. A guidance manual. PettyGrove and Asano, 1986.

[2] California Irrigation Management Information System (ET_0 Map)

[3] National Climate Data Center. Normal Precipitation (1971-2000).

[4] Rainfall-Depth Duration Frequency for California. California Dept. of Water Resources, Division of Planning, February 1981.

[5] Effective Precipitation: FAO Irrigation Water Management, Training Manual No. 3.

APPENDIX D

ANNUAL WATER BALANCE

CITY OF COALINGA
Water Balance Assuming Evaporation and Agricultural Irrigation
0.857 MGD

DESIGN DATA	
Parameter	**Value**
Average Design Flow, MGD	0.857
Irrigation Efficiency, %	70%
Treatment pond Area, Acres	18.34
Effluent Reclamation Area, Acres	325
Percolation Rate, inch/day	0

Month	Sewage Flow		Evaporation Ponds	Precipitation Ponds	Irrigation Disposal Areas	Percolation	Balance (Acre-feet)	
	(MGD)	(acre-feet)	(acre-feet)	(acre-feet)	(acre-feet)[2]	(Acre-ft)[3]	Monthly	Cumulative[5]
October	0.857	81.5	7.3	1.1	167.9	0.0	-92.5	0.0
November	0.857	78.9	4.0	1.9	79.0	0.0	-2.2	0.0
December	0.857	81.5	2.6	3.2	26.6	0.0	55.5	55.5
January	0.857	81.5	2.6	5.3	0.0	0.0	84.2	139.8
February	0.857	73.6	4.2	5.2	29.6	0.0	45.0	184.8
March	0.857	81.5	6.8	4.6	100.1	0.0	-20.7	164.1
April	0.857	78.9	9.6	1.4	214.9	0.0	-144.2	19.9
May	0.857	81.5	13.0	0.7	299.9	0.0	-230.6	0.0
June	0.857	78.9	14.6	0.2	336.6	0.0	-272.2	0.0
July	0.857	81.5	15.6	0.0	359.8	0.0	-293.9	0.0
August	0.857	81.5	14.1	0.1	323.8	0.0	-256.3	0.0
September	0.857	78.9	10.6	1.0	243.8	0.0	-174.5	0.0
		960.0	105.1	24.8	2182.0	0.0		

(1) Irrigation requirements based on ET values for the San Joaquin Valley.
(2) Water contribution by rainfall over the pond surface areas.
(3) Percolation assumes a rate of 0.00 inch per day.
(4) Monthly excess (deficit) of water. Equal to the sum of sewage flow and precipitation less water loss through evaporation and percolation.
(5) Cummulative Balance is proposed to be either stored on the top 48" of soil (root zone) or percolated beyond the root zone. Water storage capacity of exisitng Hanford Loam soils is 0.11 in/in (See USDA Soil Survey Report).
Note: Reference precipitation and evapotranspiration data are included in this Attachment.

CITY OF COALINGA
Water Balance Assuming Evaporation and Agricultural Irrigation
1.34 MGD

DESIGN DATA	
Parameter	**Value**
Average Design Flow, MGD	1.340
Irrigation Efficiency, %	90%
Effluent Pond Area, Acres	18.34
Percolation Rate, inch/day	2.8

Month	Sewage Flow (MGD)	Sewage Flow (acre-feet)	Evaporation Ponds (acre-feet)	Precipitation Ponds (acre-feet)	Irrigation Disposal Areas (acre-feet)[2]	Pond Percolation (Acre-ft)[3]	Balance (Acre-feet) Monthly	Balance (Acre-feet) Cumulative[5]
October	1.34	127.5	7.3	1.1	0.0	132.7	-11.3	0.0
November	1.34	123.4	4.0	1.9	0.0	128.4	-7.1	0.0
December	1.34	127.5	2.6	3.2	0.0	132.7	-4.6	0.0
January	1.34	127.5	2.6	5.3	0.0	132.7	-2.5	0.0
February	1.34	115.1	4.2	5.2	0.0	119.8	-3.7	0.0
March	1.34	127.5	6.8	4.6	0.0	132.7	-7.3	0.0
April	1.34	123.4	9.6	1.4	0.0	128.4	-13.2	0.0
May	1.34	127.5	13.0	0.7	0.0	132.7	-17.5	0.0
June	1.34	123.4	14.6	0.2	0.0	128.4	-19.5	0.0
July	1.34	127.5	15.6	0.0	0.0	132.7	-20.8	0.0
August	1.34	127.5	14.1	0.1	0.0	132.7	-19.1	0.0
September	1.34	123.4	10.6	1.0	0.0	128.4	-14.6	0.0
		1,501.0	105.1	24.8	0.0	1562.0	-141.2	

(1) Irrigation requirements based on ET values for the San Joaquin Valley.
(2) Water contribution by rainfall over the pond surface areas
(3) Percolation assumes a rate of 2.8 inch per day.
(4) Monthly excess (deficit) of water. Equal to the sum of sewage flow and precipitation less water loss through evaporation and percolation.
(5) Cummulative Balance is proposed to be either stored on the top 24" of soil (root zone) or percolated beyond the root zone. Water storage capacity of exisitng Exclusive sandy loam soils is 0.10 in/in (See USDA Soil Survey Report).
Note: Reference precipitation and evapotranspiration data are included in the Appendix.

CITY OF COALINGA

Precipitation and Evaporation Reference Data

Month	Days	Crop Coefficients (kc)[1]		Ref Evap (inches)	Precipitation (inches)		Eff. Precipitation (inches)[5]		
		Ponds	Grass	ETo[2]	Normal[3]	100-yr[4]			
October	31	1.1	1.00	4.34	0.38	0.74	0.05	(0.17)	0.00
November	30	1.1	1.00	2.40	0.64	1.25	0.36	(0.01)	0.00
December	31	1.1	1.00	1.55	1.07	2.09	0.86	0.25	0.25
January	31	1.1	1.00	1.55	1.78	3.48	1.80	0.67	0.67
February	28	1.1	1.00	2.52	1.75	3.42	1.76	0.66	0.66
March	31	1.1	1.00	4.03	1.55	3.03	1.44	0.54	0.54
April	30	1.1	1.00	5.70	0.46	0.90	0.15	(0.12)	0.00
May	31	1.1	1.00	7.75	0.24	0.47	0.00	(0.25)	0.00
June	30	1.1	1.00	8.70	0.06	0.12	0.00	(0.36)	0.00
July	31	1.1	1.00	9.30	0.01	0.02	0.00	(0.39)	0.00
August	31	1.1	1.00	8.37	0.04	0.08	0.00	(0.37)	0.00
September	30	1.1	1.00	6.30	0.32	0.63	0.00	(0.20)	0.00
Total				**62.51**	**8.30**	**16.24**			

[1] Irrigation with Reclaimed Municipal Wastewater. A guidance manual. PettyGrove and Asano, 1986.

[2] California Irrigation Management Information System (ET_0 Map)

[3] National Climate Data Center. Normal Precipitation (1971-2000).

[4] Rainfall-Depth Duration Frequency for California. California Dept. of Water Resources, Division of Planning, February 1981.

[5] Effective Precipitation: FAO Irrigation Water Management, Training Manual No. 3.

APPENDIX E

ANNUAL WATER BALANCE

CITY OF COALINGA
Water Balance Assuming Evaporation and Agricultural Irrigation
0.857 MGD

DESIGN DATA	
Parameter	**Value**
Average Design Flow, MGD	0.857
Irrigation Efficiency, %	70%
Pond #2 Area, Acres	18.34
Effluent Reclamation Area, Acres	325
Percolation Rate, inch/day	0

Month	Sewage Flow		Evaporation Ponds	Precipitation Ponds	Irrigation Disposal Areas	Percolation	Balance (Acre-feet)	
	(MGD)	(acre-feet)	(acre-feet)	(acre-feet)	(acre-feet)[2]	(Acre-ft)[3]	Monthly	Cumulative[5]
October	0.857	81.5	7.3	1.1	154.5	0.0	-79.1	0.0
November	0.857	78.9	4.0	1.9	50.2	0.0	26.5	26.5
December	0.857	81.5	2.6	3.2	0.0	0.0	82.1	108.7
January	0.857	81.5	2.6	5.3	0.0	0.0	84.2	192.9
February	0.857	73.6	4.2	5.2	0.0	0.0	74.6	267.6
March	0.857	81.5	6.8	4.6	40.9	0.0	38.5	306.1
April	0.857	78.9	9.6	1.4	170.8	0.0	-100.1	206.0
May	0.857	81.5	13.0	0.7	281.9	0.0	-212.6	0.0
June	0.857	78.9	14.6	0.2	353.4	0.0	-289.0	0.0
July	0.857	81.5	15.6	0.0	399.4	0.0	-333.5	0.0
August	0.857	81.5	14.1	0.1	359.5	0.0	-291.9	0.0
September	0.857	78.9	10.6	1.0	258.4	0.0	-189.1	0.0
		960.0	105.1	24.8	2068.9	0.0		

(1) Irrigation requirements based on ET values for the San Joaquin Valley.
(2) Water contribution by rainfall over the pond surface areas.
(3) Percolation assumes a rate of 0.00 inch per day.
(4) Monthly excess (deficit) of water. Equal to the sum of sewage flow and precipitation less water loss through evaporation and percolation.
(5) Cummulative Balance is proposed to be either stored on the top 48" of soil (root zone) or percolated beyond the root zone. Water storage capacity of exisitng Hanford Loam soils is 0.11 in/in (See USDA Soil Survey Report).
Note: Reference precipitation and evapotranspiration data are included in this Attachment.

CITY OF COALINGA
Water Balance Assuming Evaporation and Agricultural Irrigation
1.34 MGD

DESIGN DATA	
Parameter	**Value**
Average Design Flow, MGD	1.340
Irrigation Efficiency, %	90%
Storage Pond Area, Acres	18.34
Effluent Reclamation Area, Acres	288
Percolation Rate, inch/day	0

Month	Sewage Flow		Evaporation Ponds	Precipitation Ponds	Irrigation Disposal Areas	Pond Percolation	Balance (Acre-feet)	
	(MGD)	(acre-feet)	(acre-feet)	(acre-feet)	(acre-feet)[2]	(Acre-ft)[3]	Monthly	Cumulative[5]
October	1.34	127.5	7.3	1.1	105.1	0.0	16.2	16.2
November	1.34	123.4	4.0	1.9	34.6	0.0	86.6	102.9
December	1.34	127.5	2.6	3.2	0.0	0.0	128.1	230.9
January	1.34	127.5	2.6	5.3	0.0	0.0	130.2	361.1
February	1.34	115.1	4.2	5.2	0.0	0.0	116.1	477.3
March	1.34	127.5	6.8	4.6	28.2	0.0	97.2	574.5
April	1.34	123.4	9.6	1.4	117.7	0.0	-2.5	571.9
May	1.34	127.5	13.0	0.7	194.3	0.0	-79.1	492.8
June	1.34	123.4	14.6	0.2	243.6	0.0	-134.7	358.1
July	1.34	127.5	15.6	0.0	275.3	0.0	-163.4	194.7
August	1.34	127.5	14.1	0.1	247.8	0.0	-134.2	60.5
September	1.34	123.4	10.6	1.0	178.1	0.0	-64.3	0.0
		1,501.0	105.1	24.8	1424.6	0.0		

(1) Irrigation requirements based on ET values for the San Joaquin Valley.
(2) Water contribution by rainfall over the pond surface areas
(3) Percolation assumes a rate of 0.00 inch per day.
(4) Monthly excess (deficit) of water. Equal to the sum of sewage flow and precipitation less water loss through evaporation and percolation.
(5) Cummulative Balance is proposed to be either stored on the top 24" of soil (root zone) or percolated beyond the root zone. Water storage capacity of exisitng Exclusive sandy loam soils is 0.10 in/in (See USDA Soil Survey Report).
Note: Reference precipitation and evapotranspiration data are included in the Appendix.

CITY OF COALINGA

Precipitation and Evaporation Reference Data

Month	Days	Crop Coefficients (kc)[1]		Ref Evap (inches)	Precipitation (inches)		Eff. Precipitation (inches)[5]
		Ponds	Almond	ETo[2]	Normal[3]	100-yr[4]	
October	31	1.1	0.92	4.34	0.38	0.74	0.05
November	30	1.1	0.69	2.40	0.64	1.25	0.36
December	31	1.1	0.43	1.55	1.07	2.09	0.86
January	31	1.1	0.40	1.55	1.78	3.48	1.80
February	28	1.1	0.41	2.52	1.75	3.42	1.76
March	31	1.1	0.62	4.03	1.55	3.03	1.44
April	30	1.1	0.80	5.70	0.46	0.90	0.15
May	31	1.1	0.94	7.75	0.24	0.47	0.00
June	30	1.1	1.05	8.70	0.06	0.12	0.00
July	31	1.1	1.11	9.30	0.01	0.02	0.00
August	31	1.1	1.11	8.37	0.04	0.08	0.00
September	30	1.1	1.06	6.30	0.32	0.63	0.00
Total				**62.51**	**8.30**	**16.24**	

[1] Irrigation with Reclaimed Municipal Wastewater. A guidance manual. PettyGrove and Asano, 1986.

[2] California Irrigation Management Information System (ET_0 Map)

[3] National Climate Data Center. Normal Precipitation (1971-2000).

[4] Rainfall-Depth Duration Frequency for California. California Dept. of Water Resources, Division of Planning, February 1981.

[5] Effective Precipitation: FAO Irrigation Water Management, Training Manual No. 3.

APPENDIX F

ANNUAL WATER BALANCE

CITY OF COALINGA
Water Balance Assuming Evaporation and Agricultural Irrigation
0.857 MGD

DESIGN DATA	
Parameter	**Value**
Average Design Flow, MGD	0.857
Irrigation Efficiency, %	70%
Pond #2 Area, Acres	18.34
Effluent Reclamation Area, Acres	273
Percolation Rate, inch/day	0

Month	Sewage Flow		Evaporation Ponds	Precipitation Ponds	Irrigation Disposal Areas	Percolation	Balance (Acre-feet)	
	(MGD)	(acre-feet)	(acre-feet)	(acre-feet)	(acre-feet)[2]	(Acre-ft)[3]	Monthly	Cumulative[5]
October	0.857	81.5	7.3	1.1	141.1	0.0	-65.7	0.0
November	0.857	78.9	4.0	1.9	66.4	0.0	10.4	10.4
December	0.857	81.5	2.6	3.2	22.3	0.0	59.8	70.2
January	0.857	81.5	2.6	5.3	0.0	0.0	84.2	154.4
February	0.857	73.6	4.2	5.2	24.9	0.0	49.8	204.2
March	0.857	81.5	6.8	4.6	84.1	0.0	-4.7	199.5
April	0.857	78.9	9.6	1.4	180.5	0.0	-109.8	89.7
May	0.857	81.5	13.0	0.7	251.9	0.0	-182.7	0.0
June	0.857	78.9	14.6	0.2	282.8	0.0	-218.3	0.0
July	0.857	81.5	15.6	0.0	302.3	0.0	-236.3	0.0
August	0.857	81.5	14.1	0.1	272.0	0.0	-204.4	0.0
September	0.857	78.9	10.6	1.0	204.8	0.0	-135.5	0.0
		960.0	105.1	24.8	1832.9	0.0	-953.2	

(1) Irrigation requirements based on ET values for the San Joaquin Valley.
(2) Water contribution by rainfall over the pond surface areas.
(3) Percolation assumes a rate of 0.00 inch per day.
(4) Monthly excess (deficit) of water. Equal to the sum of sewage flow and precipitation less water loss through evaporation and percolation.
(5) Cummulative Balance is proposed to be either stored on the top 48" of soil (root zone) or percolated beyond the root zone. Water storage capacity of exisitng Hanford Loam soils is 0.11 in/in (See USDA Soil Survey Report).
Note: Reference precipitation and evapotranspiration data are included in this Attachment.

CITY OF COALINGA
Water Balance Assuming Evaporation and Agricultural Irrigation
1.34 MGD

DESIGN DATA	
Parameter	**Value**
Average Design Flow, MGD	1.340
Irrigation Efficiency, %	90%
Storage Pond Area, Acres	18.34
Effluent Reclamation Area, Acres	273
Percolation Rate, inch/day	0

Month	Sewage Flow		Evaporation Ponds	Precipitation Ponds	Irrigation Disposal Areas	Pond Percolation	Balance (Acre-feet)	
	(MGD)	(acre-feet)	(acre-feet)	(acre-feet)	(acre-feet)[2]	(Acre-ft)[3]	Monthly	Cumulative[5]
October	1.34	127.5	7.3	1.1	108.4	0.0	12.9	12.9
November	1.34	123.4	4.0	1.9	51.6	0.0	69.6	82.6
December	1.34	127.5	2.6	3.2	17.4	0.0	110.7	193.3
January	1.34	127.5	2.6	5.3	0.0	0.0	130.2	323.5
February	1.34	115.1	4.2	5.2	19.3	0.0	96.8	420.3
March	1.34	127.5	6.8	4.6	65.4	0.0	59.9	480.2
April	1.34	123.4	9.6	1.4	140.4	0.0	-25.2	455.0
May	1.34	127.5	13.0	0.7	195.9	0.0	-80.7	374.2
June	1.34	123.4	14.6	0.2	219.9	0.0	-111.0	263.2
July	1.34	127.5	15.6	0.0	235.1	0.0	-123.2	140.0
August	1.34	127.5	14.1	0.1	211.6	0.0	-98.0	42.0
September	1.34	123.4	10.6	1.0	159.3	0.0	-45.5	0.0
		1,501.0	105.1	24.8	1424.3	0.0	-3.5	

(1) Irrigation requirements based on ET values for the San Joaquin Valley.
(2) Water contribution by rainfall over the pond surface areas
(3) Percolation assumes a rate of 0.00 inch per day.
(4) Monthly excess (deficit) of water. Equal to the sum of sewage flow and precipitation less water loss through evaporation and percolation.
(5) Cummulative Balance is proposed to be either stored on the top 24" of soil (root zone) or percolated beyond the root zone. Water storage capacity of exisitng Exclusive sandy loam soils is 0.10 in/in (See USDA Soil Survey Report).
Note: Reference precipitation and evapotranspiration data are included in the Appendix.

CITY OF COALINGA

Precipitation and Evaporation Reference Data

Month	Days	Crop Coefficients (kc)[1]		Ref Evap (inches)	Precipitation (inches)			Eff. Precipitation (inches)[5]
		Ponds	Grass	ETo[2]	Normal[3]		100-yr[4]	
October	31	1.1	1.00	4.34	0.38	0.05	0.74	0.05
November	30	1.1	1.00	2.40	0.64	0.36	1.25	0.36
December	31	1.1	1.00	1.55	1.07	0.86	2.09	0.86
January	31	1.1	1.00	1.55	1.78	1.80	3.48	1.80
February	28	1.1	1.00	2.52	1.75	1.76	3.42	1.76
March	31	1.1	1.00	4.03	1.55	1.44	3.03	1.44
April	30	1.1	1.00	5.70	0.46	0.15	0.90	0.15
May	31	1.1	1.00	7.75	0.24	(0.11)	0.47	0.00
June	30	1.1	1.00	8.70	0.06	(0.32)	0.12	0.00
July	31	1.1	1.00	9.30	0.01	(0.38)	0.02	0.00
August	31	1.1	1.00	8.37	0.04	(0.35)	0.08	0.00
September	30	1.1	1.00	6.30	0.32	(0.02)	0.63	0.00
Total				**62.51**	**8.30**		**16.24**	

[1] Irrigation with Reclaimed Municipal Wastewater. A guidance manual. PettyGrove and Asano, 1986.

[2] California Irrigation Management Information System (ET_0 Map)

[3] National Climate Data Center. Normal Precipitation (1971-2000).

[4] Rainfall-Depth Duration Frequency for California. California Dept. of Water Resources, Division of Planning, February 1981.

[5] Effective Precipitation: FAO Irrigation Water Management, Training Manual No. 3.

Appendix B

Air Emission Output Files

Coalinga Sewer Pipeline Replacement Detailed Report

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1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Coalinga Sewer Pipeline Replacement
Construction Start Date	1/1/2027
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	3.50000
Precipitation (days)	16.8000
Location	36.14350657546261, -120.3644755280045
County	Fresno
City	Coalinga
Air District	San Joaquin Valley APCD
Air Basin	San Joaquin Valley
TAZ	2531
EDFZ	5
Electric Utility	Pacific Gas & Electric Company
Gas Utility	City of Coalinga
App Version	2022.1.1.45

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
Road Widening	10.00000	Mile	12.0000	0.00000	—	—	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

No measures selected

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.32532	3.68031	28.0878	39.2304	0.07068	1.18206	0.47938	1.66145	1.08751	0.11251	1.20002	—	8,168.44	8,168.44	0.32440	0.08457	1.65564	8,203.40
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.28860	3.62873	28.1284	38.7076	0.07068	1.18206	0.47938	1.66145	1.08751	0.11251	1.20002	—	8,111.53	8,111.53	0.33019	0.08650	0.04296	8,145.61
Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	1.18945	1.01367	7.74016	10.9758	0.01931	0.31478	0.17372	0.48850	0.28960	0.04072	0.33032	—	2,241.22	2,241.22	0.08973	0.02543	0.26057	2,251.30

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.21707	0.18500	1.41258	2.00308	0.00352	0.05745	0.03170	0.08915	0.05285	0.00743	0.06028	—	371.059	371.059	0.01486	0.00421	0.04314	372.728

2.2. Construction Emissions by Year

2.2.1. Total Construction Emissions by Year, Unmitigated

Includes both onsite and offsite emissions.

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	4.32532	3.68031	28.0878	39.2304	0.07068	1.18206	0.47938	1.66145	1.08751	0.11251	1.20002	—	8,168.44	8,168.44	0.32440	0.08457	1.65564	8,203.40
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	4.28860	3.62873	28.1284	38.7076	0.07068	1.18206	0.47938	1.66145	1.08751	0.11251	1.20002	—	8,111.53	8,111.53	0.33019	0.08650	0.04296	8,145.61
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.18945	1.01367	7.74016	10.9758	0.01931	0.31478	0.17372	0.48850	0.28960	0.04072	0.33032	—	2,241.22	2,241.22	0.08973	0.02543	0.26057	2,251.30
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.21707	0.18500	1.41258	2.00308	0.00352	0.05745	0.03170	0.08915	0.05285	0.00743	0.06028	—	371.059	371.059	0.01486	0.00421	0.04314	372.728

2.2.2. Onsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	3.98784	3.35089	27.9061	36.4512	0.07059	1.18188	0.00000	1.18188	1.08733	0.00000	1.08733	—	7,644.02	7,644.02	0.31008	0.06202	0.00000	7,670.26
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	3.98784	3.35089	27.9061	36.4512	0.07059	1.18188	0.00000	1.18188	1.08733	0.00000	1.08733	—	7,644.02	7,644.02	0.31008	0.06202	0.00000	7,670.26
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	1.07765	0.90477	7.66995	10.1369	0.01929	0.31475	0.00000	0.31475	0.28957	0.00000	0.28957	—	2,065.60	2,065.60	0.08379	0.01676	0.00000	2,072.69
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.19667	0.16512	1.39977	1.84998	0.00352	0.05744	0.00000	0.05744	0.05285	0.00000	0.05285	—	341.983	341.983	0.01387	0.00277	0.00000	343.157

2.2.3. Offsite Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.33748	0.32941	0.18167	2.77921	0.00009	0.00018	0.47938	0.47956	0.00018	0.11251	0.11268	—	524.412	524.412	0.01433	0.02255	1.65564	533.147
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.30077	0.27784	0.22230	2.25643	0.00009	0.00018	0.47938	0.47956	0.00018	0.11251	0.11268	—	467.509	467.509	0.02011	0.02448	0.04296	475.351

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.11180	0.10890	0.07021	0.83893	0.00002	0.00003	0.17372	0.17375	0.00003	0.04072	0.04075	—	175.619	175.619	0.00594	0.00867	0.26057	178.611
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2027	0.02040	0.01987	0.01281	0.15310	< 0.000005	0.00001	0.03170	0.03171	0.00001	0.00743	0.00744	—	29.0757	29.0757	0.00098	0.00143	0.04314	29.5710

3. Construction Emissions Details

3.1. Linear, Grubbing & Land Clearing (2027)

3.1.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.50946	0.42808	3.80861	4.46942	0.00584	0.18470	—	0.18470	0.16993	—	0.16993	—	632.486	632.486	0.02566	0.00513	—	634.656
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.02094	0.01759	0.15652	0.18367	0.00024	0.00759	—	0.00759	0.00698	—	0.00698	—	25.9926	25.9926	0.00105	0.00021	—	26.0818
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.00382	0.00321	0.02856	0.03352	0.00004	0.00139	—	0.00139	0.00127	—	0.00127	—	4.30336	4.30336	0.00017	0.00003	—	4.31813
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.1.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.19699	0.18216	0.13222	1.47669	0.00000	0.00000	0.31282	0.31282	0.00000	0.07332	0.07332	—	296.818	296.818	0.01268	0.01483	0.02778	301.583
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Worker	0.00820	0.00799	0.00488	0.06151	0.00000	0.00000	0.01272	0.01272	0.00000	0.00298	0.00298	—	12.6327	12.6327	0.00042	0.00061	0.01899	12.8437
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00150	0.00146	0.00089	0.01123	0.00000	0.00000	0.00232	0.00232	0.00000	0.00054	0.00054	—	2.09149	2.09149	0.00007	0.00010	0.00314	2.12643
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2. Linear, Grading & Excavation (2027)

3.2.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	3.98784	3.35089	27.9061	36.4512	0.07059	1.18188	—	1.18188	1.08733	—	1.08733	—	7,644.02	7,644.02	0.31008	0.06202	—	7,670.26
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	3.98784	3.35089	27.9061	36.4512	0.07059	1.18188	—	1.18188	1.08733	—	1.08733	—	7,644.02	7,644.02	0.31008	0.06202	—	7,670.26
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.74294	0.62428	5.19895	6.79091	0.01315	0.22019	—	0.22019	0.20257	—	0.20257	—	1,424.09	1,424.09	0.05777	0.01155	—	1,428.98
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.13559	0.11393	0.94881	1.23934	0.00240	0.04018	—	0.04018	0.03697	—	0.03697	—	235.775	235.775	0.00956	0.00191	—	236.584
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.2.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.33643	0.32871	0.16185	2.77030	0.00000	0.00000	0.47603	0.47603	0.00000	0.11158	0.11158	—	508.609	508.609	0.01350	0.02064	1.62916	516.726
Vendor	0.00106	0.00071	0.01982	0.00891	0.00009	0.00018	0.00336	0.00353	0.00018	0.00093	0.00110	—	12.6314	12.6314	0.00031	0.00185	0.02648	13.2175
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.29977	0.27720	0.20120	2.24714	0.00000	0.00000	0.47603	0.47603	0.00000	0.11158	0.11158	—	451.680	451.680	0.01929	0.02257	0.04227	458.930
Vendor	0.00099	0.00064	0.02110	0.00928	0.00009	0.00018	0.00336	0.00353	0.00018	0.00093	0.00110	—	12.6569	12.6569	0.00031	0.00185	0.00069	13.2171
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.05657	0.05513	0.03364	0.42432	0.00000	0.00000	0.08773	0.08773	0.00000	0.02055	0.02055	—	87.1473	87.1473	0.00288	0.00420	0.13098	88.6032
Vendor	0.00019	0.00012	0.00384	0.00169	0.00002	0.00003	0.00062	0.00065	0.00003	0.00017	0.00020	—	2.35524	2.35524	0.00006	0.00035	0.00213	2.46162
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01032	0.01006	0.00614	0.07744	0.00000	0.00000	0.01601	0.01601	0.00000	0.00375	0.00375	—	14.4282	14.4282	0.00048	0.00070	0.02169	14.6693
Vendor	0.00003	0.00002	0.00070	0.00031	< 0.000005	0.00001	0.00011	0.00012	0.00001	0.00003	0.00004	—	0.38994	0.38994	0.00001	0.00006	0.00035	0.40755
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3. Linear, Drainage, Utilities, & Sub-Grade (2027)

3.3.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	2.06595	1.72988	15.0381	19.6689	0.03954	0.56552	—	0.56552	0.52028	—	0.52028	—	4,088.78	4,088.78	0.16586	0.03317	—	4,102.81
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.25471	0.21327	1.85402	2.42493	0.00488	0.06972	—	0.06972	0.06414	—	0.06414	—	504.096	504.096	0.02045	0.00409	—	505.826
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.04648	0.03892	0.33836	0.44255	0.00089	0.01272	—	0.01272	0.01171	—	0.01171	—	83.4588	83.4588	0.00339	0.00068	—	83.7453
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.3.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.28836	0.28175	0.13873	2.37454	0.00000	0.00000	0.40803	0.40803	0.00000	0.09564	0.09564	—	435.950	435.950	0.01157	0.01769	1.39643	442.908

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.03209	0.03127	0.01908	0.24069	0.00000	0.00000	0.04976	0.04976	0.00000	0.01166	0.01166	—	49.4323	49.4323	0.00163	0.00239	0.07430	50.2581
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00586	0.00571	0.00348	0.04393	0.00000	0.00000	0.00908	0.00908	0.00000	0.00213	0.00213	—	8.18408	8.18408	0.00027	0.00039	0.01230	8.32081
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4. Linear, Paving (2027)

3.4.1. Onsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Off-Road Equipment	0.93732	0.78761	7.30737	11.7016	0.01633	0.27376	—	0.27376	0.25186	—	0.25186	—	1,768.15	1,768.15	0.07172	0.01434	—	1,774.22
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.05906	0.04963	0.46046	0.73736	0.00103	0.01725	—	0.01725	0.01587	—	0.01587	—	111.418	111.418	0.00452	0.00090	—	111.800
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.01078	0.00906	0.08403	0.13457	0.00019	0.00315	—	0.00315	0.00290	—	0.00290	—	18.4465	18.4465	0.00075	0.00015	—	18.5098
Onsite truck	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

3.4.2. Offsite - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25953	0.25358	0.12485	2.13709	0.00000	0.00000	0.36722	0.36722	0.00000	0.08608	0.08608	—	392.355	392.355	0.01042	0.01592	1.25678	398.618

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01476	0.01438	0.00878	0.11072	0.00000	0.00000	0.02289	0.02289	0.00000	0.00536	0.00536	—	22.7389	22.7389	0.00075	0.00110	0.03418	23.1187
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.00269	0.00263	0.00160	0.02021	0.00000	0.00000	0.00418	0.00418	0.00000	0.00098	0.00098	—	3.76468	3.76468	0.00012	0.00018	0.00566	3.82757
Vendor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
Hauling	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	—	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
Linear, Grubbing & Land Clearing	Linear, Grubbing & Land Clearing	1/1/2027	1/22/2027	5.00000	15.0000	—
Linear, Grading & Excavation	Linear, Grading & Excavation	1/23/2027	4/28/2027	5.00000	68.0000	—
Linear, Drainage, Utilities, & Sub-Grade	Linear, Drainage, Utilities, & Sub-Grade	4/29/2027	7/1/2027	5.00000	45.0000	—
Linear, Paving	Linear, Paving	7/2/2027	8/3/2027	5.00000	23.0000	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Grubbing & Land Clearing	Crawler Tractors	Diesel	Average	1.000000	8.00000	87.0000	0.43000
Linear, Grubbing & Land Clearing	Excavators	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Linear, Grubbing & Land Clearing	Signal Boards	Electric	Average	20.0000	8.00000	6.00000	0.82000
Linear, Grading & Excavation	Crawler Tractors	Diesel	Average	1.000000	8.00000	87.0000	0.43000
Linear, Grading & Excavation	Excavators	Diesel	Average	3.00000	8.00000	36.0000	0.38000
Linear, Grading & Excavation	Graders	Diesel	Average	2.00000	8.00000	148.000	0.41000
Linear, Grading & Excavation	Rollers	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Linear, Grading & Excavation	Rubber Tired Loaders	Diesel	Average	1.000000	8.00000	150.000	0.36000
Linear, Grading & Excavation	Scrapers	Diesel	Average	2.00000	8.00000	423.000	0.48000
Linear, Grading & Excavation	Signal Boards	Electric	Average	20.0000	8.00000	6.00000	0.82000
Linear, Grading & Excavation	Tractors/Loaders/ Backhoes	Diesel	Average	4.00000	8.00000	84.0000	0.37000
Linear, Drainage, Utilities, & Sub-Grade	Air Compressors	Diesel	Average	1.000000	8.00000	37.0000	0.48000

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
Linear, Drainage, Utilities, & Sub-Grade	Generator Sets	Diesel	Average	1.000000	8.00000	14.0000	0.74000
Linear, Drainage, Utilities, & Sub-Grade	Graders	Diesel	Average	1.000000	8.00000	148.000	0.41000
Linear, Drainage, Utilities, & Sub-Grade	Plate Compactors	Diesel	Average	1.000000	8.00000	8.00000	0.43000
Linear, Drainage, Utilities, & Sub-Grade	Pumps	Diesel	Average	1.000000	8.00000	11.0000	0.74000
Linear, Drainage, Utilities, & Sub-Grade	Rough Terrain Forklifts	Diesel	Average	1.000000	8.00000	96.0000	0.40000
Linear, Drainage, Utilities, & Sub-Grade	Scrapers	Diesel	Average	1.000000	8.00000	423.000	0.48000
Linear, Drainage, Utilities, & Sub-Grade	Signal Boards	Electric	Average	20.0000	8.00000	6.00000	0.82000
Linear, Drainage, Utilities, & Sub-Grade	Tractors/Loaders/ Backhoes	Diesel	Average	3.00000	8.00000	84.0000	0.37000
Linear, Paving	Pavers	Diesel	Average	1.000000	8.00000	81.0000	0.42000
Linear, Paving	Paving Equipment	Diesel	Average	1.000000	8.00000	89.0000	0.36000
Linear, Paving	Rollers	Diesel	Average	2.00000	8.00000	36.0000	0.38000
Linear, Paving	Signal Boards	Electric	Average	20.0000	8.00000	6.00000	0.82000
Linear, Paving	Tractors/Loaders/ Backhoes	Diesel	Average	3.00000	8.00000	84.0000	0.37000

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
Linear, Grubbing & Land Clearing	Worker	57.5000	7.70000	LDA,LDT1,LDT2
Linear, Grubbing & Land Clearing	Vendor	0.00000	4.00000	HHDT,MHDT
Linear, Grubbing & Land Clearing	Hauling	0.00000	20.0000	HHDT
Linear, Grubbing & Land Clearing	Onsite truck	—	—	HHDT
Linear, Grading & Excavation	Worker	87.5000	7.70000	LDA,LDT1,LDT2
Linear, Grading & Excavation	Vendor	1.000000	4.00000	HHDT,MHDT
Linear, Grading & Excavation	Hauling	0.00000	20.0000	HHDT
Linear, Grading & Excavation	Onsite truck	—	—	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Worker	75.0000	7.70000	LDA,LDT1,LDT2
Linear, Drainage, Utilities, & Sub-Grade	Vendor	0.00000	4.00000	HHDT,MHDT
Linear, Drainage, Utilities, & Sub-Grade	Hauling	0.00000	20.0000	HHDT
Linear, Drainage, Utilities, & Sub-Grade	Onsite truck	—	—	HHDT
Linear, Paving	Worker	67.5000	7.70000	LDA,LDT1,LDT2
Linear, Paving	Vendor	0.00000	4.00000	HHDT,MHDT
Linear, Paving	Hauling	0.00000	20.0000	HHDT
Linear, Paving	Onsite truck	—	—	HHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2027	2,348.06	203.983	0.03300	0.00400

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	25.1400	annual days of extreme heat
Extreme Precipitation	1.65000	annual days with precipitation above 20 mm
Sea Level Rise	—	meters of inundation depth
Wildfire	0.00000	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	0	0	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	0	0	0	N/A
Drought	0	0	0	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	0	0	0	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	2	1	1	3
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	1	1	1	2
Drought	1	1	1	2
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	1	1	1	2

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—

Indicator	Result for Project Census Tract
AQ-Ozone	65.6876
AQ-PM	44.9782
AQ-DPM	48.2390
Drinking Water	66.2420
Lead Risk Housing	50.3718
Pesticides	60.5862
Toxic Releases	31.6079
Traffic	2.93750
Effect Indicators	—
CleanUp Sites	91.0414
Groundwater	40.7604
Haz Waste Facilities/Generators	43.2958
Impaired Water Bodies	23.8765
Solid Waste	52.8981
Sensitive Population	—
Asthma	72.1211
Cardio-vascular	91.6002
Low Birth Weights	49.9102
Socioeconomic Factor Indicators	—
Education	69.1977
Housing	52.0913

Indicator	Result for Project Census Tract
Linguistic	36.9739
Poverty	57.4372
Unemployment	51.2624

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	43.55190556
Employed	29.10304119
Median HI	46.75991274
Education	—
Bachelor's or higher	30.70704478
High school enrollment	5.569100475
Preschool enrollment	20.53124599
Transportation	—
Auto Access	30.77120493
Active commuting	37.16155524
Social	—
2-parent households	17.16925446
Voting	26.22866675

Indicator	Result for Project Census Tract
Neighborhood	—
Alcohol availability	56.37110227
Park access	32.00307969
Retail density	30.32208392
Supermarket access	64.76324907
Tree canopy	12.96034903
Housing	—
Homeownership	44.15501091
Housing habitability	71.60272039
Low-inc homeowner severe housing cost burden	69.34428333
Low-inc renter severe housing cost burden	69.76774028
Uncrowded housing	56.30694213
Health Outcomes	—
Insured adults	67.2783267
Arthritis	0.0
Asthma ER Admissions	31.4
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0

Indicator	Result for Project Census Tract
Diagnosed Diabetes	0.0
Life Expectancy at Birth	16.3
Cognitively Disabled	52.2
Physically Disabled	10.4
Heart Attack ER Admissions	0.4
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	57.7
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	0.0
SLR Inundation Area	0.0
Children	40.5
Elderly	67.6
English Speaking	65.8

Indicator	Result for Project Census Tract
Foreign-born	19.9
Outdoor Workers	7.3
Climate Change Adaptive Capacity	—
Impervious Surface Cover	46.7
Traffic Density	1.0
Traffic Access	0.0
Other Indices	—
Hardship	59.6
Other Decision Support	—
2016 Voting	46.1

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	72.0000
Healthy Places Index Score for Project Location (b)	28.0000
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

8.1. Justifications

Screen	Justification
Construction: Dust From Material Movement	no soil will be imported or exported

Appendix C

Biological Resource Evaluation

SANITARY SEWER COLLECTION SYSTEM AND WASTEWATER TREATMENT PLANT IMPROVEMENTS BIOLOGICAL EVALUATION CITY OF COALINGA, CALIFORNIA

Prepared by

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1.0 INTRODUCTION

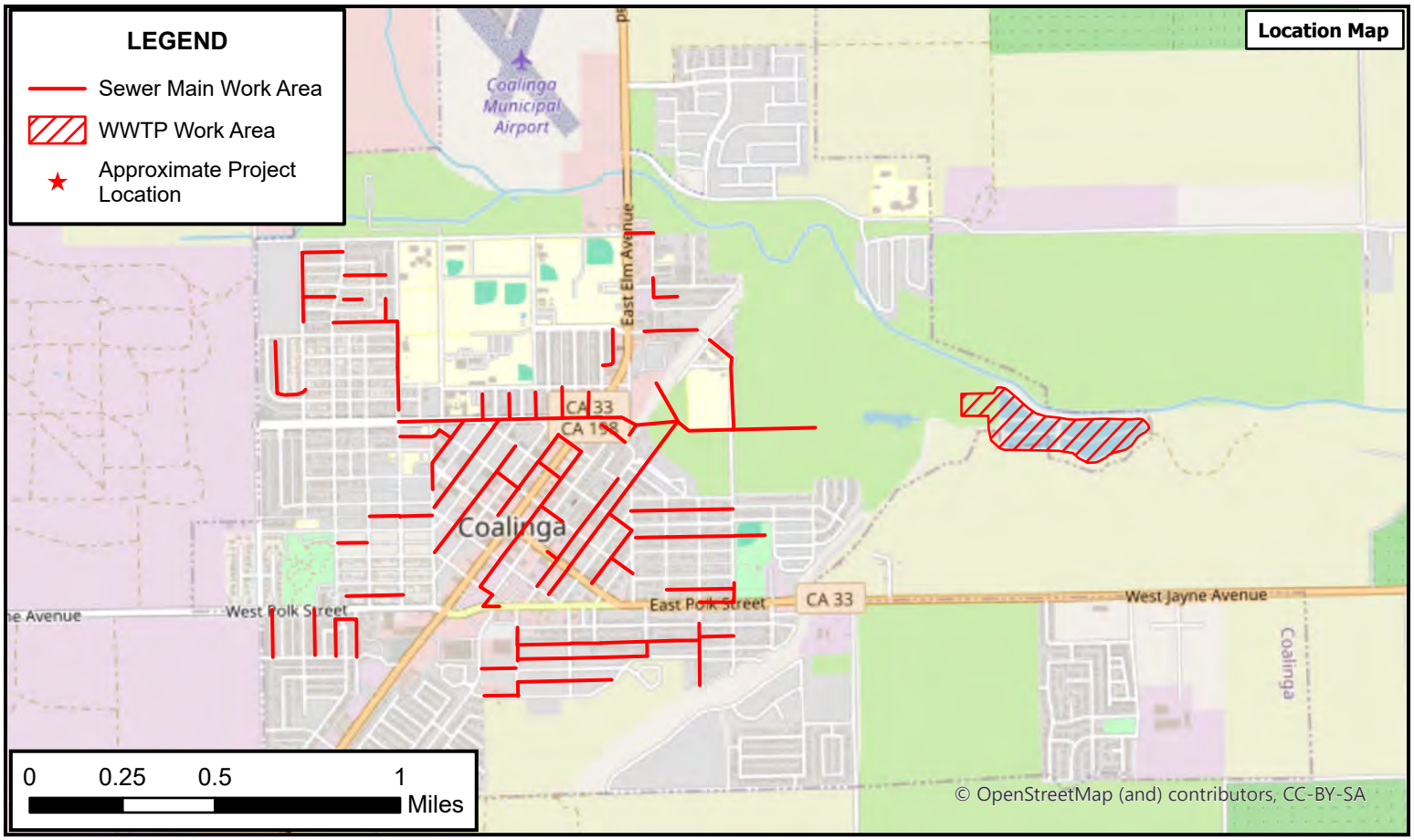
This technical report, prepared by Live Oak Associates, Inc. (LOA) to facilitate compliance with the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), and Section 7 of the federal Endangered Species Act, describes the biotic resources of lands that may be affected by the City of Coalinga's proposed Sanitary Sewer Collection System and Wastewater Treatment Plant Improvements Project ("project"), and evaluates potential impacts to those resources that could result from the project. The project's area of potential effect, or "project site," consists of a discontinuous, 50,616-linear-foot alignment along which existing sewer mains will be rehabilitated or replaced ("sewer main work area"), and an approximately 30-acre portion of the City's wastewater treatment plant (WWTP) proposed for various improvements ("WWTP work area").

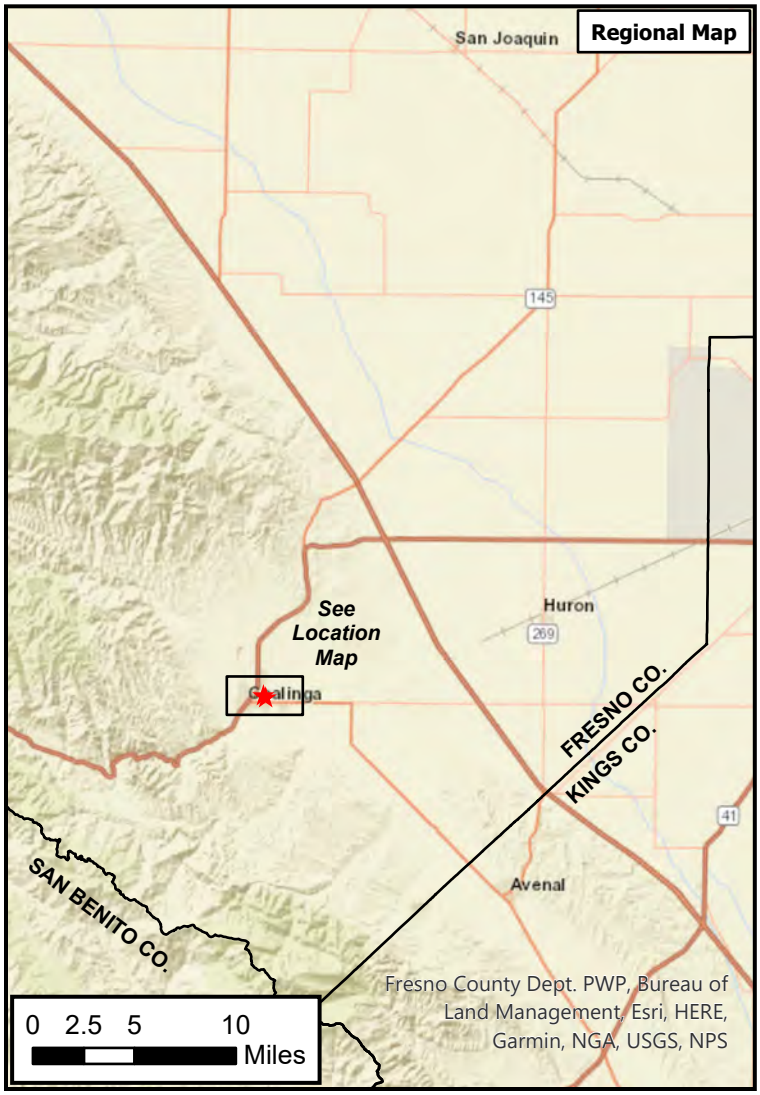
The project site is located within the City of Coalinga in Fresno County, California (Figure 1). It may be found on the *Coalinga* U.S. Geological Survey (USGS) 7.5-minute quadrangle in Sections 32, 33, and 34 in Township 20 South and in Sections 4 and 5 in Township 21 South, Range 15 East, Mount Diablo Base and Meridian (Figure 2).

1.1 PROJECT DESCRIPTION

The City of Coalinga owns and operates a citywide sewer collection system and wastewater treatment plant (WWTP) under Water Discharge Requirements (WDR) No. 94-184. A condition survey of the sewer collection system was recently conducted and revealed that approximately 19,801 linear feet (lf) of gravity sewer mains need rehabilitation and that approximately 30,815 lf of gravity sewer mains need replacing. In addition, improvements are needed at the City's WWTP due to lack of effluent disposal alternatives.

Two trenchless construction methods, cured-in-place pipe (CIPP) and pipe bursting, will be utilized to rehabilitate pipelines with cracks, light root intrusion, small sags, small holes with no void, small offset joints, and structurally deficient segments. The CIPP method uses a flexible fabric liner coated with a thermosetting resin to form a new pipe inside the existing pipe. The liner will be inserted into the pipes at existing manholes, and will be cured with heat, forming a strong bond between the tube and existing pipe. The pipe bursting method involves pulling the



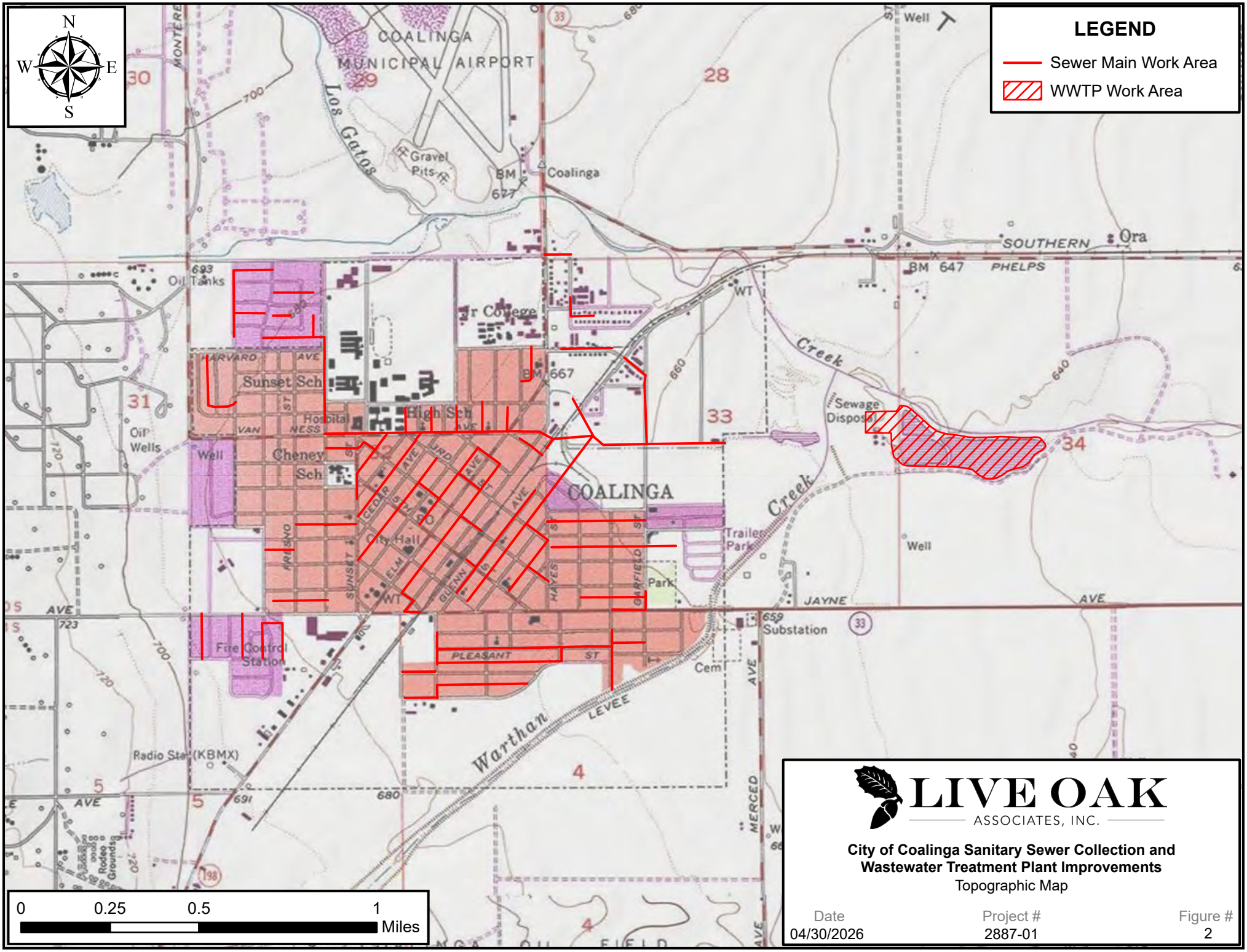


LIVE OAK ASSOCIATES, INC.

City of Coalinga Sanitary Sewer Collection and Wastewater Treatment Plant Improvements

Vicinity Map

Date	Project #	Figure #
04/30/2026	2887-01	1



LIVE OAK ASSOCIATES, INC.

City of Coalinga Sanitary Sewer Collection and Wastewater Treatment Plant Improvements

Topographic Map

Date	Project #	Figure #
04/30/2026	2887-01	2

new replacement pipe through the old pipe and breaking the old pipe into pieces during replacement. Laterals that need connecting are done via conventional excavation methods.

Pipes that cannot be rehabilitated will be replaced in kind with conventional open trench construction methods. Open trench widths will range from 1 foot to 2.5 feet depending on the diameter of the pipes to be replaced; pipe diameters range from 6 inches to 10 inches. Nearly all sewer line work will be confined to city streets and drives, with no construction activities outside the traveled way. In the few instances where the sewer lines to be rehabilitated or replaced are located outside of the traveled way, all project-related disturbance will be confined to an approximately 20-foot wide corridor centered on the pipe alignment.

The City's WWTP will be upgraded to an extended aeration system with biological nutrient removal with filtration and disinfection. The improvements will include a new aeration tank, two clarifiers, and five percolation ponds. The percolation ponds will be developed within the footprints of the facility's existing ponds, which comprise two aerated lagoons and three stabilization ponds. The existing ponds will be decommissioned and dewatered, following which heavy equipment will be used to remove the clay liners from the bottom of each pond, converting their function to evaporation/percolation. The WWTP improvements will serve to lower the nitrogen concentration of the resulting effluent before it is discharged to the percolation ponds and allowed to percolate into the underground aquifer. The upgraded WWTP will not require off-site effluent disposal; therefore, current effluent disposal practices on adjacent City-owned property would be discontinued following project implementation.

1.2 REPORT OBJECTIVES

This report summarizes a biological study conducted by LOA to facilitate environmental review pursuant to CEQA and NEPA, and to facilitate compliance with Section 7 of the federal Endangered Species Act. As such, the report's objectives are to:

- Characterize the project site's existing biological resources, including biotic habitats, flora and fauna, soils, and aquatic resources.
- Evaluate the project site's potential to support sensitive resources such as special status species, sensitive natural communities, and jurisdictional waters and wetlands.

- Summarize all state and federal natural resource protection laws that may be relevant to project implementation.
- Identify and discuss potential project-related impacts to biological resources within the context of CEQA, NEPA, and other state and federal laws.
- Identify avoidance and mitigation measures that would reduce the magnitude of project-related impacts in a manner consistent with CEQA, NEPA, and species-specific guidelines.
- Make preliminary effect determinations pursuant to Section 7 of the federal Endangered Species Act for listed species with the potential to occur in the project vicinity.

1.3 STUDY METHODOLOGY

A reconnaissance-level field survey of the project site was conducted on March 20 and 21, 2025 by LOA biologist Natalie Neff. The survey consisted of a meandering walk and drive through the project site while identifying its principal land uses and the constituent plants and animals of each land use. The field survey conducted for this study was sufficient to assess the significance of possible biological impacts associated with the development plans for the project site.

LOA conducted an analysis of potential project impacts based on the known and potential biotic resources of the project site discussed in Section 2.0. Sources of information used in the preparation of this analysis included: (1) results of the March 2025 reconnaissance-level surveys, (2) the *California Natural Diversity Data Base* (CDFW 2025), (3) the *Online Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2025), and (4) manuals, reports, and references related to plants and animals of the San Joaquin Valley region.

LOA's field investigation did not include an aquatic resources delineation or focused surveys for special status species. The field survey was sufficient to generally describe those features of the project site that could be subject to the jurisdiction of the U.S. Army Corps of Engineers (USACE), California Department of Fish and Wildlife (CDFW), and/or the Regional Water Quality Control Board (RWQCB), and to assess the significance of possible biological impacts associated with development of the project site.

2.0 EXISTING CONDITIONS

2.1 REGIONAL SETTING

The project site is located in Pleasant Valley, which is itself situated in the southwestern portion of California's San Joaquin Valley. The San Joaquin Valley is a large, nearly flat alluvial plain bordered by the Sierra Nevada to the east, the Tehachapi Mountains to the south, the California coast ranges to the west, and the Sacramento-San Joaquin Delta to the north.

Like most of California, the San Joaquin Valley experiences a Mediterranean climate. Warm dry summers are followed by cool moist winters. Summer temperatures range from 56 to 101 degrees Fahrenheit, and the relative humidity is generally very low. Winter temperatures range from 37 to 72 degrees Fahrenheit. Annual precipitation in the vicinity of the project is about 8.2 inches, almost 85% of which falls between the months of October and March. Nearly all precipitation falls in the form of rain (NOAA 2025).

The principal drainages of the project vicinity are Warthan Creek and Los Gatos Creek. Both creeks initiate in the Diablo Range, approximately 15 miles west of the project site, at an elevation of approximately 3,000 feet. Warthan Creek flows approximately 22 miles southeast toward Pleasant Valley where it enters Los Gatos Creek just west of the Coalinga WWTP. Los Gatos Creek is a historical channel that originally terminated in a delta in the trough of the San Joaquin Valley, and together with the Kings River delta, formed a sill that marked the northern boundary of the historic Tulare Lake in very wet years.

2.2 PROJECT SITE

The project site is situated within Coalinga city limits, and consists entirely of lands modified for human use. While centered primarily on municipal roads and the WWTP, it also contains portions of parking lots, a public park, fallow agricultural lands, and residential lots. The topography of the project site is relatively flat with elevations averaging 640 feet National Geodetic Vertical Datum (NGVD) at the WWTP and ranging from 655 to 690 feet NGVD in municipal Coalinga.

The project site contains six soil mapping units (NRCS 2025). These soils are summarized in Table 1 below.

TABLE 1: SOILS OF THE PROJECT SITE

Soil Mapping Unit	Parent Material	Drainage Class	Hydric Rating
412: Yribarren clay loam, 0 to 2 percent slopes	Alluvium from calcareous sedimentary rock	Well drained	No
445: Excelsior sandy loam, 0 to 2 percent slopes	Calcareous coarse-loamy alluvium from sedimentary rock	Well drained	No
447: Excelsior sandy loam, sandy substratum, 0 to 2 percent slopes	Calcareous coarse-loamy alluvium from sedimentary rock	Well drained	No
451: Milham sandy loam, 0 to 2 percent slopes MLRA 17	Alluvium from igneous and sedimentary rock	Well drained	No
478: Cerini sandy loam, 0 to 2 percent slopes, MLRA 17	Alluvium from calcareous sedimentary rock	Well drained	No
981: Sewage Disposal Pond	-	-	No

None of the site's soil mapping units are considered hydric, meaning none have the propensity to pond water and support hydrophytic (water-loving) vegetation. Soils within the project site and surrounding lands have been subjected to decades of soil-disturbing activities associated with agricultural use, road and canal construction, and urban and rural development, and are not expected to exhibit their native soil characteristics or be particularly relevant to biological resource issues.

A list of vascular plants identified on the site is presented in Appendix A. A list of terrestrial vertebrates using or potentially using the project site is presented in Appendix B. Representative photos of the site are presented in Appendix C.

2.3 BIOTIC HABITATS / LAND USES

LOA identified three general land uses within the project site: urban, rural, and wastewater treatment facility (Figure 3). Within each land use were several different habitat types. The land uses and their constituent habitats are described in more detail in the following sections.

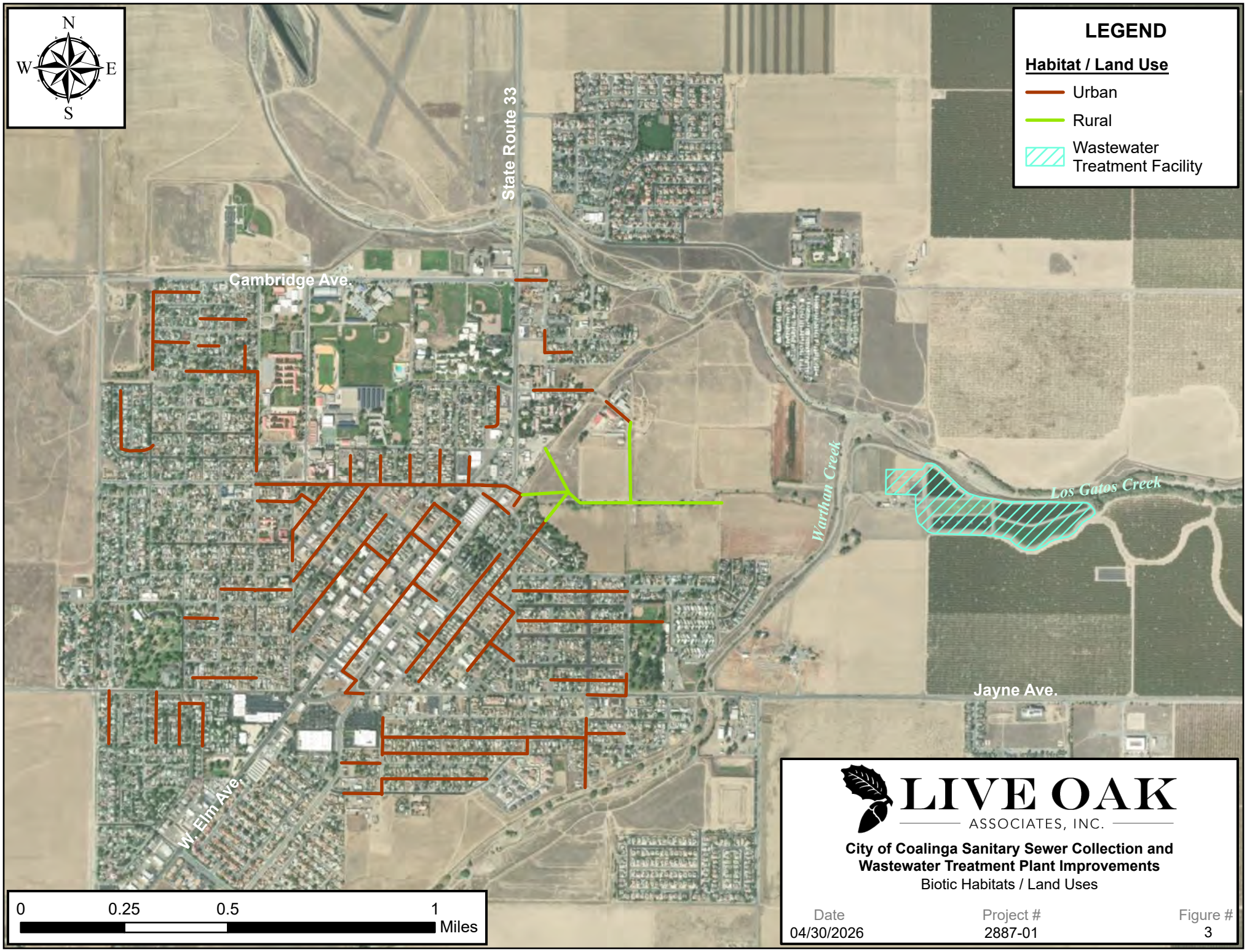
2.3.1 Urban

The sewer main work area is largely confined to municipal Coalinga and includes portions of streets, alleys, parking lots, residential and commercial properties, ruderal areas, and park lands that are collectively classified as "urban." The streets, alleys, and parking lots are developed features that are in most cases paved and entirely barren of vegetation. The residential properties are characterized by homes, outbuildings, and ornamental vegetation including trees, shrubs, turf, and other landscaping features. The project site's one commercial property is a motel; the portion of the property that falls within project boundaries is a landscaped strip with densely-spaced ornamental trees. The ruderal areas are disturbed roadside habitats that, at the time of LOA's survey, were characterized by unmaintained turf and/or common weeds. The park land is a portion of George E. Olsen Memorial Park that, at the time of the survey, contained maintained turf, ornamental trees, and fencing.

The project site's urban lands are of low habitat value for most native wildlife, given high levels of ambient disturbance and, in most areas, a lack of vegetative cover. Wildlife species expected to be found here would be those that are attracted to urban areas and/or tolerate disturbance, and those that are associated with adjacent lands and use or pass through urban areas incidentally.

Reptiles that could be found in the project site's urban lands include the western fence lizard (*Sceloporus occidentalisi*), California alligator lizard (*Elgaria multicarinata multicarinata*), and gopher snake (*Pituophis melanoleucus*). Amphibians are unlikely due to an absence of nearby breeding habitat.

A number of disturbance-tolerant avian species are likely to forage and nest in the site's urban lands. Trees and shrubs could support nesting by American robins (*Turdus migratorius*), Anna's hummingbirds (*Calypte anna*), northern mockingbirds (*Mimus polyglottos*), and mourning doves



LIVE OAK ASSOCIATES, INC.

City of Coalinga Sanitary Sewer Collection and Wastewater Treatment Plant Improvements

Biotic Habitats / Land Uses

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(*Zenaida macroura*), among other species. Mourning doves may also nest in ground vegetation. The site's residential structures could potentially be used for nesting by the house finch (*Haemorhous mexicanus*). All of the aforementioned birds may also forage in the site's urban lands, as could winter migrants such as the savannah sparrow (*Passerculus sandwichensis*) and yellow-rumped warbler (*Dendroica coronata*).

Small mammal species likely to occur in the project site's urban lands include the deer mouse (*Peromyscus maniculatus)*, house mouse (*Mus musculus*), and Norway rat (*Rattus norvegicus*), among others. Burrowing rodent activity is expected to be limited due to the preponderance of pavement in this land use type, as well as regular maintenance practices in most of the unpaved areas. Less-maintained areas could support California ground squirrels (*Otospermophilus beecheyi*) and Botta's pocket gophers (*Thomomys bottae*).

Disturbance-tolerant mammalian predators such as raccoons (*Procyon lotor*) and striped skunks (*Mephitis mephitis*) are expected to occasionally forage on or pass through the site's urban lands. Various bat species may roost in trees and buildings within this land use type and may forage on or over these areas.

2.3.2 Rural

The sewer main work area also includes lands outside of municipal Coalinga that, while all human-altered in some form, experience lower levels of ambient disturbance than the urban land use type and are of higher value for native wildlife species. These include portions of ruderal or fallow fields, unpaved roads, an irrigation ditch, and the minimally maintained margins of these uses. While the roads were barren of vegetation, the fields and margins were characterized by sparse to dense growth of common weeds such as foxtail barley (*Hordeum murinum*), ripgut brome (*Bromus diandrus*), red-stemmed filaree (*Erodium cicutarium*), and cheeseweed (*Malva parviflora*), among others. Where the sewer main alignment crossed and then paralleled an irrigation ditch between urban Coalinga and the WWTP, several native trees including valley oak (*Quercus lobata*) and willow (*Salix* sp.) overhung the work area.

The project site's rural lands may be used by a variety of native wildlife species associated with agricultural and other open habitats. Reptiles that could be found in the project site's rural areas

include the side-blotched lizard (*Uta stansburiana*), western whiptail (*Aspidoscelis tigris*), common kingsnake (*Lampropeltis californiae*), and gopher snake. Common amphibians such as the Sierran treefrog (*Pseudacris sierra*) and western toad (*Anaxyrus boreas*) may breed in nearby irrigation ditches and subsequently disperse through the site's rural lands.

Birds expected to nest within the project site's rural lands include common ground-nesting species such as the western meadowlark (*Sturnella neglecta*), killdeer (*Charadrius vociferus*), and mourning dove. Foraging species would include the western kingbird (*Tyrannus verticalis*) in the summer, savannah sparrow and American pipit (*Anthus rubescens*) in the winter, and American crow (*Corvus brachyrhynchos*), and Brewer's blackbird (*Euphagus cyanocephalus*) throughout the year. The site's rural lands are also likely to be used for foraging by open country raptors such as the red-tailed hawk (*Buteo jamaicensis*) and American kestrel (*Falco sparverius*). Trees within which these raptors could nest, while absent from the site's rural lands, are found immediately outside of project boundaries in some of these areas.

Small mammal species likely to occur in the site's rural lands include the deer mouse, California ground squirrel, Botta's pocket gopher, California vole (*Microtus californicus*), and Audubon's cottontail (*Sylvilagus audubonii*). Raccoons, striped skunks, and coyotes (*Canis latrans*) are likely to occur here from time to time. Various bat species may forage on or over the site's rural lands; however, roosting habitat is absent.

2.3.3 Wastewater Treatment Facility

The WWTP work area consists of lands and facilities used for wastewater treatment. It includes two aerated lagoons, each approximately 3 acres in size; three stabilization ponds collectively encompassing approximately 13 acres; two asphalt-bottomed sludge drying beds; a network of access roads around the pond perimeters; and other ruderal upland areas. At the time of LOA's field survey, most of these lands were highly maintained and barren of vegetation. Where present, vegetation consisted of patches of bermudagrass (*Cynodon dactylon*) and other non-native grasses and forbs. A small portion of the work area is outside of the fenced facility and appears infrequently maintained; this area, located immediately to the west of the aerated lagoons, supported dense cover of non-native grasses and forbs including ripgut brome, foxtail barley, and Russian thistle (*Salsola tragus*).

The WWTP's stabilization ponds are perennially inundated and support various wildlife species associated with aquatic environments. At the time of LOA's field survey, southwestern pond turtles (*Actinemys pallida*) were detected in all three stabilization ponds; this is a California Species of Special Concern that is also proposed for federal listing as threatened. Several amphibian species are likely to occur in the stabilization ponds; these include the Sierran treefrog, western toad, and American bullfrog (*Lithobates catesbeianus*). The stabilization ponds support both waterfowl and shorebirds. Examples of the former observed during LOA's survey include the ruddy duck (*Oxyura amicensis*), green-winged teal (*Anas crecca*), and mallard (*Anas platyrhynchos*), while examples of the latter include the great egret (*Ardea alba*), greater yellowlegs (*Tringa melanoleuca*), and black-necked stilt (*Himantopus mexicanus*). The ponds may serve as a source of mud for black phoebes and cliff swallows (*Petrochelidon pyrrhonata*) during nest-building, and black phoebes may also forage in flight over the ponds.

Upland areas of the WWTP may be utilized by basking turtles of the aforementioned species. Killdeer and black-necked stilts could nest on the ground in these areas. California ground squirrels were observed in upland areas of the WWTP at the time of LOA's survey, and other small mammals such as Botta's pocket gophers, deer mice, and California voles may also occur here. Raccoons and striped skunks are likely to use or pass through these areas from time to time.

2.4 SPECIAL STATUS PLANTS AND ANIMALS

Many species of plants and animals within the state of California have low populations, limited distributions, or both. Such species may be considered "rare" and are vulnerable to extirpation as the state's human population grows and the habitats these species occupy are converted to agricultural and urban uses. As described more fully in Section 3.0, state and federal laws have provided California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (USFWS) with a mechanism for conserving and protecting the diversity of plant and animal species native to the state. A sizable number of native plants and animals have been formally designated as threatened or endangered under state and federal endangered species legislation. Others have been designated as "candidates" for such listing. Still others have been designated as "species of special concern" by the CDFW. The California Native Plant Society (CNPS) has developed its own set of lists (i.e., California Rare Plant Ranks, or CRPR) of native

plants considered rare, threatened, or endangered (CNPS 2025). Collectively, these plants and animals are referred to as "special status species."

The California Natural Diversity Data Base (CNDDB) was queried for special status plant and animal occurrences in the nine USGS 7.5-minute quadrangles containing and surrounding the project site (*Joaquin Rocks, Domengine Ranch, Harris Ranch, Alcalde Hills, Coalinga, Guijarral Hills, Curry Mountain, Kreyenhagen Hills,* and *Avenal*). A number of special status plants and animals were returned in the query and are summarized below in Table 1. Sources of information for this table included *California's Wildlife, Volumes I, II, and III* (Zeiner et. al 1988-1990), *California Natural Diversity Data Base* (CDFW 2025), *The Jepson Manual: Vascular Plants of California, second edition* (Baldwin et al 2012), the *California Native Plant Society's Inventory of Rare and Endangered Vascular Plants of California* (CNPS 2025), *Calflora.org, iNaturalist.org,* and *eBird.org*.

TABLE 2. LIST OF SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT VICINITY

PLANTS

Species Listed under the State and/or Federal Endangered Species Act

Species	Status	Habitat	Occurrence on the Project Site
California Jewel-flower (*Caulanthus californicus*)	FE, CE, CRPR 1B.1	Occurs in chenopod scrub, pinyon and juniper woodland, and sandy valley and foothill grassland; blooms February–May; elevation 250-3,300 ft.	**Absent.** Any suitable habitat that may have once been present on the site has been eliminated through conversion to urban and agricultural uses. This species was generally mapped to Coalinga in 1926, but the population is considered extirpated due to habitat loss (CDFW 2025).
San Joaquin woolly threads (*Monolopia congdonii*)	FE CRPR 1B.2	Occurs in sandy grassland and chenopod scrub in sandy soils of the southwestern Central Valley between 200 and 2,625 feet in elevation. Blooms February-May.	**Absent.** Any suitable habitat that may have once been present on the site has been eliminated through conversion to urban and agricultural uses. This species was generally mapped to Coalinga in 1935, but was not found during a 1988 site visit; the population is considered possibly extirpated due to habitat loss (CDFW 2025).

CNPS-listed Species

Lost Hills Crownscale (*Atriplex coronata* var. *vallicola*)	CRPR 1B.2	Found in chenopod scrub and valley and foothill grasslands; alkaline soils; blooms April-August; elevations below 2,080 ft.	**Absent.** Any suitable habitat that may have once been present on the site has been eliminated through conversion to urban and agricultural uses.
Brittlescale (*Atriplex depressa*)	CRPR 1B.2	Occurs in chenopod scrub, valley and foothill grassland, and wetland habitats; blooms April-October; elevations below 1,050 ft.	**Absent.** Any suitable habitat that may have once been present on the site has been eliminated through conversion to urban and agricultural uses.
Lemmon's Jewelflower (*Caulanthus lemmonii*)	CRPR 1B.2	Occurs in grasslands, chaparral, and scrubland. Blooms March-May, elevation 260-3600 ft.	**Absent.** Any suitable habitat that may have once been present on the site has been eliminated through conversion to urban and agricultural uses.
Hall's Tarplant (*Deinandra halliana*)	CRPR 1B.2	Occurs in chaparral habitats in rocky soils; elevations 900-4,100 ft. Blooms May-June.	**Absent.** The project site is below this species' elevational distribution, and suitable habitat is absent.
Recurved Larkspur (*Delphinium recurvatum*)	CRPR 1B.2	Occurs in poorly drained, fine, alkaline soils in grassland and Atriplex scrub; blooms March-June; elevations up to 2,500 ft.	**Absent.** Any suitable habitat that may have once been present on the site has been eliminated through conversion to urban and agricultural uses.
Eastwood's Buckwheat (*Eriogonum eastwoodianum*)	CRPR 1B.3	Occurs in foothill woodlands, shale. Blooms May-September; elevation from 655 to 3,280 ft.	**Absent.** Any suitable habitat that may have once been present on the site has been eliminated through conversion to urban and agricultural uses.
Diablo Range Hare-Leaf *(Lagophylla diabolensis)*	CRPR 1B.2	Occurs in grassy openings in woodlands in heavy clay. Blooms April-July; elevation 1,150-3,300 ft.	**Absent.** The project site is below this species' elevational distribution, and suitable habitat is absent.
Alkali-Sink Goldfields (*Lasthenia chrysantha*)	CRPR 1B.1	Found in alkaline vernal pools below approximately 650 feet in elevation. Blooms February-April.	**Absent.** Any suitable habitat that may have once been present on the site has been eliminated through conversion to urban and agricultural uses.
Pale-Yellow Layia (*Layia heterotricha*)	CRPR 1B.1	Occurs in foothill woodlands, valley grasslands, pinyon-juniper woodlands, and wetland-riparian areas in clay or sandy soils. Blooms April- June; elevation 660-5,900 ft.	**Absent.** Any suitable habitat that may have once been present on the site has been eliminated through conversion to urban and agricultural uses.

TABLE 2. LIST OF SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT VICINITY

PLANTS

CNPS-listed Species

Species	Status	Habitat	Occurrence on the Project Site
Panoche pepper-grass (*Lepidium jaredii ssp. album*)	CRPR 1B.2	Found on steep slopes associated with alluvial fans and washes; valley and foothill grassland association; clay soils; elevations 600-2,450 ft. Blooms February-June.	**Absent.** Any suitable habitat and microsite conditions that may have once been present on the site have been eliminated through conversion to urban and agricultural uses.
Showy Golden Madia (*Madia radiata*)	CRPR 1B.1	Occurs in foothill woodlands or grasslands in heavy clay. Blooms March- May; elevations up to 6,000 ft.	**Absent.** Any suitable habitat that may have once been present on the site has been eliminated through conversion to urban and agricultural uses.
Indian Valley Bushmallow (*Malacothamnus aboriginum*)	CRPR 1B.2	Found on granitic outcrops and sandy bar soil within chaparral and woodland habitats, often in burned areas; elevations 500-5,600 ft. Blooms April-October.	**Absent.** The project site does not contain chaparral or woodland habitats, or any recently burned areas.
Shining Navarretia (*Navarretia nigelliformis* ssp. *radians*)	CRPR 1B.2	Occurs in valley grassland, foothill woodland, freshwater-wetlands, and wetland-riparian between 525 and 1770 ft. in elevation. Blooms April-July.	**Absent.** Any suitable habitat that may have once been present on the site has been eliminated through conversion to urban and agricultural uses.
Panoche Navarretia (*Navarretia panochensis*	CRPR 1B.3	Known from a few locations in the Panoche region of Fresno and San Benito Counties. Found in grassland and scrub habitats in clay or gravelly soils. Elevation 1,310- 2,130 ft.	**Absent.** The project site is below this species' elevational distribution, and suitable habitat is absent.
Prostrate Vernal Pool Navarretia (*Navarretia prostrata*)	CNPS 1B.2	Occurs in wetlands of coastal scrub and alkaline grassland habitats in the western San Joaquin Valley and Coast Ranges at elevations up to 2,300 ft. Blooms April – July.	**Absent.** Any suitable habitat that may have once been present on the site has been eliminated through conversion to urban and agricultural uses.
Chaparral Ragwort (*Senecio aphanactis*)	CRPR 2B.2	Occurs in coastal scrub, foothill woodlands, alkali flats, and dry, open rocky areas. Blooms February- May; elevations up to 2,600 ft.	**Absent.** Any suitable habitat that may have once been present on the site has been eliminated through conversion to urban and agricultural uses.

ANIMALS

Species Listed under the State and/or Federal Endangered Species Act

Crotch's bumble bee (*Bombus crotchii*)	CCE	Once common in the Central Valley, this species is now largely absent from this portion of its historic range (CDFW 2019). Where present, it is associated with open grassland and scrub habitats, where it relies on food plants of the *Asclepias, Chaenactis, Lupinus, Medicago, Phacelia,* and *Salvia* genera (Williams et al. 2014).	**Unlikely.** Although rural portions of the project site contain some foraging resources for the Crotch's bumble bee, this species is unlikely to occur in the vicinity other than possible occasional transient movements. Xerces et al. (2018) reported no post-2002 detections of this species in the western San Joaquin Valley despite a relatively high sampling effort. The CNDDB lists two occurrences of Crotch's bumble bee within 3 miles of the site, but both are from more than 25 years ago (CDFW 2025). There are no iNaturalist or Bumble Bee Watch observation records within 15 miles of the project site (iNaturalist 2025, Bumble Bee Watch 2025).

TABLE 2. LIST OF SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT VICINITY

ANIMALS

Species Listed under the State and/or Federal Endangered Species Act

Species	Status	Habitat	Occurrence on the Project Site
Monarch Butterfly (*Danaus plexippus*)	FPT	Overwinters in coastal California and Baja California and breeds throughout California in the spring and summer along its annual migration north and east. The adult monarch lays its eggs on obligate milkweed (*Asclepias* spp.) host plants, which the resultant larvae feed on before pupating and emerging as adults. In addition to milkweed, this species requires abundant nectar resources to nourish migrating adults, and trees for roosting during migratory stopovers.	**Possible.** Monarchs have been reported within Coalinga city limits, including a 2022 sighting in George E. Olson Memorial Park, approximately 300 feet south of the sewer main work area (iNaturalist 2025). The project site contains both flowering plants on which monarchs could forage and trees within which they could roost. LOA's survey was conducted early in the growing season, at a time when locally-occurring milkweeds may not be readily detectable. While not observed, milkweed could conceivably occur in the residential yards, park land, and ruderal/fallow fields of the sewer main work area, introducing some potential for breeding in these areas. Milkweed (and monarch reproduction) is not expected in the degraded habitats of the WWTP work area.
Vernal Pool Fairy Shrimp *(Branchinecta lynchi)*	FT	Found in vernal pools and swales, basalt flow depression pools, and depressions in sandstone rock outcrops; can occur in roadside ditches and puddles when in association with vernal pools.	**Absent.** Suitable wetland habitat for this species is absent from the project site and adjacent lands.
California Tiger Salamander *(Ambystoma californiense)*	FT, CT	Found primarily in annual grasslands; requires vernal pools for breeding and rodent burrows for aestivation. CTS are capable of overland travel of up to 1.3 miles (Orloff 2011).	**Absent.** The project site consists entirely of urban, agricultural, and other highly modified lands that would not attract or support this species. Moreover, suitable breeding habitat is absent from the site and surrounding lands within a distance that would enable CTS to access the site for aestivation. The nearest CNDDB occurrence of this species is nearly 20 miles from project boundaries (CDFW 2025).
Foothill Yellow-Legged Frog -Central Coast DPS *(Rana boylii pop. 4)*	FE, CE	Found in or near rocky streams in a variety of habitats. Use submerged rocks and debris for cover. Requires gravel or rocks in moving water near stream margins for reproduction.	**Absent.** Suitable aquatic habitat is absent from the project site and surrounding lands. There is a historic (1941) CNDDB occurrence of this species mapped generally to a location approximately 2 miles west of Coalinga; however, the species is considered extirpated from the vicinity (CDFW 2025).
California Red-Legged Frog *(Rana draytonii)*	FT	Perennial rivers, creeks and stock ponds of the Inner Coast Range foothills, preferring deep pools with overhanging vegetation.	**Absent.** Suitable aquatic habitat is absent from the project site and surrounding lands. The nearest CNDDB occurrence is over 30 miles from project boundaries (CDFW 2025).

TABLE 2. LIST OF SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT VICINITY

ANIMALS

Species Listed under the State and/or Federal Endangered Species Act

Species	Status	Habitat	Occurrence on the Project Site
Western Spadefoot (*Spea hammondii*)	FPT, CSC	Occurs in grasslands of San Joaquin Valley, where it breeds in vernal pools or other seasonal wetlands and aestivates in underground refugia such as rodent burrows. Baumberger et al. (2019) recorded a maximum distance of around 860 feet between breeding and aestivation sites.	**Absent.** There is a historic (1941) CNDDB occurrence of this species mapped generally to a location approximately 2 miles west of Coalinga. While the western spadefoot may yet be present in the larger project vicinity, the project site itself consists entirely of urban and agricultural lands that would not attract or support this species. Suitable breeding habitat is absent from the site and surrounding lands within a distance that would enable western spadefoot individuals to access the site for aestivation.
Southwestern Pond Turtle (*Actinemys pallida*)	FPT, CSC	Found in ponds, marshes, rivers, streams, and irrigation ditches with aquatic vegetation. Requires partially submerged rocks or logs for basking sites. Nesting takes place in open areas, on a variety of soil types, and up to ¼ mile away from water. Overwintering and summertime aestivation may include use of upland habitat, generally with leaf litter or other loose substrate for burying themselves.	**Present.** This species is present at the WWTP. At the time of LOA's survey effort, 36 pond turtles were observed in the three existing stabilization ponds. Turtle age/size varied, indicating that this is a breeding population and not merely sustained through immigration. While highly maintained, upland portions of the WWTP may support nesting by this species, as has been observed at other such facilities (M. Jennings, Rana Resources, pers. comm.). The WWTP's pond turtles are likely to remain active through most of the winter, but during the coldest periods may overwinter underwater (M. Jennings, Rana Resources, pers. comm.). Pond turtles are not expected to occur in the sewer main work area.
Blunt-Nosed Leopard Lizard (BNLL) (*Gambelia sila*)	FE, CE, CP	Occurs in semiarid grasslands, alkali flats, and washes. Avoids densely vegetated areas. Inhabits the San Joaquin Valley and adjacent valleys and foothills north to southern Merced County.	**Unlikely.** The BNLL was historically known from the near vicinity. There is a historic (1935) CNDDB record of this species mapped to a general location 1.25 miles east of Coalinga, centered on the present-day WWTP. A second record, from 1989, documented several individuals along Los Gatos Creek, approximately 1 mile north of project boundaries. Since that time, BNLL sightings in the area have been scarce; the closest post-2000 CNDDB occurrence is located some 8 miles east of the site at a CDFW ecological reserve. There are no iNaturalist sightings within 20 miles of the project site. The site consists entirely of lands heavily modified by urban and agricultural uses and is unlikely to attract or support individuals of this species, even if they do persist in the vicinity.

TABLE 2. LIST OF SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT VICINITY

ANIMALS

Species Listed under the State and/or Federal Endangered Species Act

Species	Status	Habitat	Occurrence on the Project Site
Temblor Legless Lizard (*Anniella alexanderae*)	CCE, CSC	A burrowing lizard that occurs in alkali desert scrub and annual grasslands of southwestern San Joaquin Valley within Kern and Fresno Counties. Consumes insects and other small invertebrates.	**Possible.** There is a recent (2022) CNDDB occurrence of this species from Warthan Creek, approximately 0.3 mile outside of Coalinga city limits and 1 mile south of project boundaries. Although the project site consists entirely of urban, agricultural, and other highly modified lands that do not constitute Temblor legless lizard habitat, there is some chance for individuals of this species to occur along Warthan or Los Gatos Creeks in the immediate vicinity and to occasionally wander onto the WWTP work area or rural portions of the sewer main work area.
Burrowing Owl (*Athene cunicularia*)	CCE	Frequents open, dry annual or perennial grasslands, deserts, and scrublands characterized by low-growing vegetation. May also utilize cropland, foraging in fields and roosting or nesting at field margins. Dependent upon burrowing mammals, most notably the California ground squirrel, for nest burrows.	**Possible.** Burrowing owls are not often documented in the project vicinity; the closest CNDDB record is approximately 3 miles northeast of the site, recorded at the Coalinga airport in 2009, and the closest eBird occurrence is approximately 9 miles northeast, recorded near an Interstate 5 off-ramp in 1983 (CDFW 2025, eBird 2026). Nevertheless, this species has some potential to forage and nest in rural portions of the project site.
Swainson's Hawk (*Buteo swainsoni*)	CT	This breeding migrant to California nests in mature trees in riparian areas and oak savannah, and occasionally in lone trees at the margins of agricultural fields. Requires adjacent suitable foraging areas such as grasslands or alfalfa fields supporting rodent populations.	**Likely.** This species is fairly well-documented in the project vicinity. There are three recent eBird sightings within 3 miles of project boundaries; two of these were logged at George E. Olson Memorial Park in Coalinga, between 300 and 700 feet from project boundaries (eBird 2025). A historic (1941) CNDDB record documented two Swainson's hawk nests in the general Coalinga area, while a modern (2016) record describes a nest along Jacalitos Creek, approximately 3.5 miles southeast of project boundaries. This species has the potential to nest in trees on or near the project site, particularly outside of the urban core of Coalinga, and to forage in rural portions of the site.
California Condor (*Gymnogyps californianus*)	FE, CE	Found in chaparral and valley and foothill grassland habitats; requires vast expanses of open natural land to meet its foraging needs. Nests in rock crevices, on overhung cliff ledges, and in old-growth conifers.	**Absent.** The project site lacks suitable condor nesting and roosting habitat, and does not contain or adjoin large blocks of natural land that could support foraging by this species.

TABLE 2. LIST OF SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT VICINITY

ANIMALS

Species Listed under the State and/or Federal Endangered Species Act

Species	Status	Habitat	Occurrence on the Project Site
Tricolored Blackbird (*Agelaius tricolor*)	CT, CSC	Breeds colonially near fresh water in dense bulrush, cattails, or thickets of willows or shrubs, and increasingly in grain fields. Forages in grassland and cropland areas.	**Possible.** This species may forage in rural portions of the site, but nesting habitat is absent. The CNNDB lists one occurrence of this species in the project vicinity, a 2014 observation of a small nesting colony at a gravel pit approximately 1 mile north of project boundaries (CDFW 2025).
San Joaquin Antelope Squirrel (*Ammospermophilus nelsoni*)	CT	Found in arid upland scrub communities, and to a lesser extent grasslands, along the western margin of the San Joaquin Valley and in the adjoining hills and plains. Occupies modified kangaroo rat burrows or self-constructed burrows. Not usually found on steep slopes or in areas prone to flooding.	**Absent.** The project site consists entirely of urban, agricultural, and other highly modified lands that would not attract or support this species. There are four CNDDB occurrences of the San Joaquin antelope squirrel in the general vicinity, located between 3 and 5 miles south of the site in the Jacalitos Hills. All are from more than 30 years ago and are associated with natural lands typical of this species' habitat preferences (CDFW 2025). The nearest iNaturalist sightings are more than 20 miles from project boundaries (iNaturalist 2025).
Giant Kangaroo Rat (*Dipodomys ingens*)	FE, CE	Historically occurred from Merced County to Kern County and Carrizo Plain and Cuyama Valley in San Luis Obispo County, but has been reduced to fragmented populations encompassing only 5 percent of its historic range (USFWS 2010). Prefers annual grassland and shrubland communities where vegetation is sparse and soils are well drained fine, sandy loams. Does not inhabit areas where slopes exceed 10 percent or where water may pool.	**Absent.** The project site consists entirely of urban, agricultural, and other highly modified lands that would not attract or support giant kangaroo rats. The nearest CNDDB and iNaturalist records of this species are more than 20 miles from project boundaries (CDFW 2025, iNaturalist 2025).
San Joaquin Kit Fox (SJKF) (*Vulpes macrotis mutica*)	FE, CT	Frequents desert alkali scrub and annual grasslands and may forage in adjacent agricultural habitats. Utilizes enlarged ground squirrel burrows as denning habitat. May become adapted to urban environments, as has occurred in the cities of Bakersfield, Taft, and Coalinga. Urban-adapted kit foxes commonly use vacant lots, industrial and commercial areas, parks, golf courses, and lightly-disturbed rights-of-way such as canals and utility corridors. Residential areas are not commonly used as they have high levels of disturbance, numerous dogs, and fences and other features that limit movement (Cypher et al. 2012).	**Possible.** Coalinga is known to support a population of urban-adapted SJKF (Cypher et al. 2012). This species is also fairly well documented in outlying areas, with 12 CNDDB occurrences located within 10 miles of project boundaries (CDFW 2025). There is considerable potential for the SJKF to forage and den on the project site. Although this is a theoretical possibility for any portion of the site, Cypher et al. (2012)'s work suggests a higher potential for SJKF occurrence outside of Coalinga's residential neighborhoods.

TABLE 2. LIST OF SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT VICINITY

ANIMALS

State Species of Special Concern

Species	Status	Habitat	Occurrence on the Project Site
Coast horned lizard (*Phrynosoma blainvillii*)	CSC	Ranges from the central and southern California coast inland through the western Sierra Nevada, where it is found in grassland and open areas within woodland and forest habitats. Often found in sandy areas including washes and floodplains.	**Unlikely.** The coast horned lizard is not known from the near project vicinity. There are several iNaturalist records in the hills generally west of Coalinga, but none from the Pleasant Valley floor (iNaturalist 2025). The closest CNDDB occurrences are more than 15 miles away (CDFW 2025). The project site consists entirely of lands heavily modified by urban and agricultural uses and is unlikely to attract or support individuals of this species, even if they do occur in the vicinity.
Northern California Legless Lizard (*Anniella pulchra*)	CSC	Occurs in sparsely vegetated areas of beach dunes, chaparral, pine-oak woodlands, desert scrub, sandy washes, and stream terraces with sycamores, cottonwoods, or oaks. Requires moist soils.	**Unlikely.** The northern California legless lizard is not known from the near project vicinity. The nearest iNaturalist records are more than 9 miles southwest of project boundaries, at undisclosed locations in the Inner Coast Range (iNaturalist 2025). The closest CNDDB occurrence is approximately 7 miles southwest in the Curry Mountain area (CDFW 2025). The project site consists entirely of lands heavily modified by urban and agricultural uses and is unlikely to attract or support individuals of this species, even if they do occur in the vicinity.
California glossy snake (*Arizona elegans occidentalis*)	CSC	Inhabits arid scrub, rocky washes, grasslands, and chaparral, where it forages nocturnally, hiding in underground burrows during the day. Prefers loose, sandy soils.	**Possible.** This species has been documented in the near project vicinity. Two historic (1935 and 1951) CNDDB records intersect the project site itself, while two additional records are located within 4 miles west and south of the WWTP work area (CDFW 2025). There are several iNaturalist records at undisclosed locations in the general project vicinity; at least one of these is along Los Gatos Creek on the floor of Pleasant Valley (iNaturalist 2025). Although the project site consists entirely of urban, agricultural, and other highly modified lands that do not constitute California glossy snake habitat, there is some chance for individuals of this species to occur along Warthan or Los Gatos Creeks in the immediate vicinity and to occasionally wander onto the WWTP work area or rural portions of the sewer main work area.

TABLE 2. LIST OF SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT VICINITY

ANIMALS

State Species of Special Concern

Species	Status	Habitat	Occurrence on the Project Site
San Joaquin coachwhip (*Masticophis flagellum ruddocki*)	CSC	Occurs in open, dry areas including grassland and saltbush scrub. Takes refuge in rodent burrows and under shaded vegetation.	**Possible.** There are historical observations of this species in the near project vicinity. Two CNDDB records from the 1980s are located between 1 and 2 miles from project boundaries. Although the project site consists entirely of urban, agricultural, and other highly modified lands that do not constitute San Joaquin coachwhip habitat, there is some chance for individuals of this species to occur along Warthan or Los Gatos Creeks in the immediate vicinity and to occasionally wander onto the WWTP work area or rural portions of the sewer main work area.
Long-eared Owl (*Asio otus*)	CSC	Nests in dense patches of trees or tall shrubs and forages in adjacent open habitats such as grassland, shrubland, and fields. Utilizes nests built by other birds, particularly those built by corvids. Occurs year-round in California.	**Possible.** Suitable nesting habitat for the long-eared owl is absent from the project site itself, but occurs immediately adjacent to the WWTP work area along Los Gatos Creek. This species could forage over rural portions of the site. There is a CNDDB nesting occurrence of the long-eared owl along Los Gatos Creek approximately 6 miles downstream of the project site, logged in 2005, and an eBird sighting from the last ten years that is generally mapped to the Coalinga area (CDFW 2025, eBird 2025).
Le Conte's Thrasher (*Toxostoma lecontei*)	CSC	Occupies desert flats with scattered low shrubs. Requires well-drained, bare ground areas with litter layers near shrubs for foraging. Primarily eats insects but will occasionally eat plant seeds, bird eggs, and small lizards. Nests deep into dense shrubs where direct sunlight rarely reaches.	**Unlikely.** The project site does not contain suitable habitat for the Le Conte's thrasher. Although the dry channels of Warthan and Los Gatos Creeks may theoretically provide some habitat value, the creeks in the project vicinity are situated in a landscape highly modified for anthropogenic use and are therefore unlikely to support this species. The only known occurrence in the general vicinity is a historic (1934) CNDDB nest sighting along Los Gatos Creek, approximately 3 miles east of the WWTP work area (CDFW 2025).
Yellow-headed Blackbird (*Xanthocephalus xanthocephalus*)	CSC	Occurs in California primarily as a breeding season migrant; however, small numbers winter in the southern Central Valley and the Imperial and Colorado River Valleys. Requires deepwater marshes and wetlands with tall emergent vegetation such as tules or cattails for breeding. Forages in wetlands and surrounding grasslands, croplands, and savanna.	**Unlikely.** The yellow-headed blackbird is not known from the project vicinity; all CNDDB, eBird, and iNaturalist occurrence records are more than 15 miles from project boundaries (CDFW 2025, eBird 2025, iNaturalist 2025). Suitable breeding habitat for this species is absent from the project site and surrounding lands.

TABLE 2. LIST OF SPECIAL STATUS SPECIES POTENTIALLY OCCURRING IN THE PROJECT VICINITY

ANIMALS

State Species of Special Concern

Species	Status	Habitat	Occurrence on the Project Site
Short-nosed Kangaroo Rat (*Dipodomys nitratoides brevinasus*)	CSC	Historically occurred on the western, southern, and extreme southeastern sides of the San Joaquin Valley typically above the valley floor. Currently, fragmented populations exist near Los Banos, Panoche and San Joaquin Valleys, Kettleman Hills, Antelope and Carrizo Plains, and Cuyama Valley. Prefer friable soils on flat or gently rolling terrain in grassland and desert-scrub vegetation.	**Absent.** The project site consists entirely of urban, agricultural, and other highly modified lands that would not attract or support short-nosed kangaroo rats. There are three CNDDB occurrences of this species in the general vicinity; all were recorded in 1992 between 3 and 4 miles east and northeast of the WWTP work area (CDFW 2025). While located on the Pleasant Valley floor, all three of these occurrences were in or immediately adjacent to large blocks of natural land.
Tulare Grasshopper Mouse (*Onychomys torridus tularensis*)	CSC	Known from arid shrubland communities in hot, arid grassland and scrub desert associations. Intensive trapping surveys conducted in the 1980s and 1990s suggest that this species no longer occupies fragmented native habitats, large or small, on the floor of the San Joaquin Valley (Bolster 1998).	**Absent.** The project site consists entirely of urban, agricultural, and other highly modified lands unsuitable for the Tulare grasshopper mouse. There is a historic (1905) CNDDB occurrence of this species that is generally mapped to Coalinga. The Tulare grasshopper mouse is unlikely to have persisted in this area following urban and intensive agricultural development.
Townsend's Big-eared Bat (*Corynorhinus townsendii*)	CSC	Found throughout California. Roosts most frequently in caves and cave-like structures, but has also been reported to utilize bridges, buildings, rock crevices, and hollow trees. Occurs in a variety of habitats.	**Possible.** This species has some potential to roost in buildings or trees within or adjacent to the project site, and to forage over the site.
Western Mastiff Bat (*Eumops perotis californicus*)	CSC	Frequents open, semi-arid to arid habitats, including conifer, and deciduous woodlands, coastal scrub, grasslands, palm oasis, chaparral and urban. Roosts in cliff faces, high buildings, and tunnels.	**Possible.** This species has some potential to roost in buildings within or adjacent to the project site, and to forage over the site. There is a 1995 CNDDB occurrence from central Coalinga, within a few hundred feet of the sewer main work area.
American Badger (*Taxidea taxus*)	CSC	Found in drier open stages of most shrub, forest, and herbaceous habitats with friable soils. Adult badgers are primarily nocturnal, foraging at night and remaining underground in sleeping dens during the day. Badgers mate in late summer to early fall, and the young are born in natal dens in March and April. While badgers rarely remain in a sleeping den for more than a day, natal dens may be used for a period of 4-8 weeks as the female gives birth to and raises her young.	**Possible.** This species has been documented in the general vicinity; there is a historic CNDDB occurrence approximately 4 miles southwest of the project site along Warthan Creek, and a more modern (2005) occurrence approximately 5 miles east of the site along Los Gatos Creek. This wide-ranging species has some potential to den and forage in rural portions of the sewer main work area. Degraded habitats and high levels of ambient disturbance are expected to preclude its occurrence from the WWTP work area and urban portions of the sewer main work area.

OCCURRENCE DESIGNATIONS AND STATUS CODES

Present: Species observed on the site at time of field surveys or during recent past.
Likely: Species not observed on the site, but it may reasonably be expected to occur there on a regular basis.
Possible: Species not observed on the site, but it could occur there from time to time.
Unlikely: Species not observed on the site, and would not be expected to occur there except, perhaps, as a transient.
Absent: Species not observed on the site and precluded from occurring there because habitat requirements not met.

STATUS CODES

FE	Federally Endangered	CE	California Endangered
FT	Federally Threatened	CT	California Threatened
FC	Federal Candidate	CCE	California Candidate Endangered
FPT	Federal Proposed Threatened	CFP	California Fully Protected
		CSC	California Species of Special Concern
		CR	California Rare

CRPR CODES

1A	Plants Presumed Extinct in California	2B	Plants Rare, Threatened, or Endangered in California, but more common elsewhere
1B	Plants Rare, Threatened, or Endangered in California and elsewhere		

2.5 JURISDICTIONAL WATERS

Jurisdictional waters are those rivers, creeks, drainages, lakes, ponds, reservoirs, and wetlands that are subject to the authority of the USACE, CDFW, and/or the RWQCB. In general, the USACE regulates navigable waters, tributaries to navigable waters, and wetlands with a continuous surface connection to these waters, where wetlands are defined by the presence of hydric soils, hydrophytic vegetation, and wetland hydrology. All waters under USACE jurisdiction are also regulated by the RWQCB as waters of the State. Additionally, the RWQCB asserts jurisdiction over certain isolated features disclaimed by the USACE. The CDFW has jurisdiction over waters that have a defined bed and bank. The regulation of jurisdictional waters is discussed in more detail in Section 3.9.

Waters subject to the jurisdiction of the USACE and CDFW are absent from the project site; however, the RWQCB may regulate activities within the site's wastewater treatment ponds and the irrigation ditch crossed by the sewer main alignment between urban Coalinga and the WWTP.

2.6 DESIGNATED CRITICAL HABITAT

As will be discussed further in Section 3.0, the USFWS often designates areas of "critical habitat" when it lists species as threatened or endangered. Critical habitat is a specific

geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection.

Designated critical habitat is absent from the project site and surrounding lands. The nearest units of critical habitat are located some 30 miles from project boundaries in the Inner Coast Range, and are designated for the protection of the vernal pool fairy shrimp (*Branchinecta lynchi*) and California red-legged frog (*Rana draytonii*).

2.7 SENSITIVE NATURAL COMMUNITIES

California contains a wide range of natural communities, or unique assemblages of plants and animals. These communities have largely been classified and mapped by CDFW as part of their Vegetation Classification and Mapping Program (VegCAMP). Natural communities are assigned state and global ranks according to their rarity and the magnitude and trend of the threats they face. Any natural community with a state rank of 3 or lower (on a 1 to 5 scale) is considered "sensitive" and must be considered in CEQA review.

Sensitive natural communities are absent from the project site.

2.8 WILDLIFE MOVEMENT CORRIDORS

Wildlife movement corridors are routes that animals regularly and predictably follow during seasonal migration, dispersal from native ranges, daily travel within home ranges, and inter-population movements. Movement corridors in California are typically associated with valleys, ridgelines, and rivers and creeks supporting riparian vegetation. Certain features of the project area have the potential to function as movement corridors for resident and migratory fish and wildlife species.

Wildlife movement corridors are absent from the project site itself, but Los Gatos Creek, immediately adjacent to the WWTP work area, is likely to function as an important movement corridor for locally-occurring wildlife.

3.0 RELEVANT GOALS, POLICIES, AND LAWS

3.1 CALIFORNIA ENVIRONMENTAL QUALITY ACT

In California, any project carried out or approved by a public agency that will result in a direct or reasonably foreseeable indirect physical change in the environment must comply with CEQA. The purpose of CEQA is to ensure that a project's potential impacts on the environment are evaluated and methods for avoiding or reducing these impacts are considered before the project is allowed to move forward. A secondary aim of CEQA is to provide justification to the public for the approval of any projects involving significant impacts on the environment.

According to Section 15382 of the CEQA Guidelines, a significant effect on the environment means a "substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic interest." Although the lead agency may set its own CEQA significance thresholds, project impacts to biological resources are generally considered to be significant if they would meet any of the following criteria established in Appendix G of the CEQA Guidelines:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS.
- Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Furthermore, CEQA Guidelines Section 15065(a) requires the lead agency to make "mandatory findings of significance" if there is substantial evidence that a project may:

- Substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or substantially reduce the number or restrict the range of an endangered, rare or threatened species.

- Achieve short-term environmental goals to the detriment of long-term environmental goals.

- Produce environmental effects that are individually limited but cumulatively considerable, meaning that the incremental effects of the project are significant when viewed in connection with the effects of past projects, other current projects, and probable future projects.

3.2 NATIONAL ENVIORNMENTAL POLICY ACT

Projects that are proposed, funded, or authorized by federal agencies are generally subject to the provisions of NEPA. Signed into law in 1970 and amended by the Fiscal Responsibility Act of 2023, NEPA requires federal agencies to evaluate the environmental effects of their proposed actions prior to making decisions. Agencies must utilize systematic, interdisciplinary approach that includes the review of technically and economically feasible alternatives to the proposed action, and must ensure professional and scientific integrity in the environmental documents they prepare.

The level of NEPA review that is required is related to a project's potential to cause "significant" environmental effects. Projects with reasonably foreseeable significant effects on the quality of the human environment require an Environmental Impact Statement (EIS). Among other elements, an EIS requires detailed analyses of the project's environmental effects, development and study of a reasonable range of alternatives to the proposed action, and consideration of public comments received during the scoping process. Projects that do not have reasonably foreseeable significant effects on the quality of the human environment, and projects for which the significance of such effects is unknown, may meet their NEPA obligations with the

preparation of an Environmental Assessment (EA). An EA is a concise public document that either provides the basis for a federal agency's finding of no significant impact or culminates in a determination that an EIS is necessary.

3.3 GENERAL PLAN POLICIES OF THE CITY OF COALINGA

In compliance with CEQA, the lead agency must consider conformance with applicable goals and policies of the General Plan of the City of Coalinga. The City of Coalinga General Plan was adopted in 2009 and was intended to guide planning decisions through 2025. It presents the City's vision for long-term growth and development and establishes goals and policies to accomplish this vision. Current policies relevant to biological resources include (1) establishment/protection of a diverse network of open lands encompassing valuable natural and agricultural resources within and around urban Coalinga, (2) protection of streams, riparian corridors, and unique or sensitive habitats, (3) protection of special status plant and animal species and their habitats in accordance with local, state, and federal regulations, (4) preservation and enhancement of habitat linkages recognized by regulatory agencies and/or identified during the City's development review process, and (5) protection of threatened and endangered species and their habitats addressed in the future Coalinga Habitat Conservation Plan (HCP).

3.4 THREATENED AND ENDANGERED SPECIES

In California, imperiled plants and animals may be afforded special legal protections under the California Endangered Species Act (CESA) and/or Federal Endangered Species Act (FESA). Species may be listed as "threatened" or "endangered" under one or both Acts, and/or as "rare" under CESA. Under both Acts, "endangered" means a species is in danger of extinction throughout all or a significant portion of its range, and "threatened" means a species is likely to become endangered within the foreseeable future. Under CESA, "rare" means a species may become endangered if their present environment worsens. Both Acts prohibit "take" of listed species, defined under CESA as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture or kill" (California Fish and Game Code, Section 86), and more broadly defined under FESA to include "harm" (16 USC, Section 1532(19), 50 CFR, Section 17.3). The USFWS commonly interprets "take" to include the loss of habitat utilized by a listed species.

When state and federally listed species have the potential to be impacted by a project, the USFWS and CDFW must be included in the CEQA process. These agencies review the environmental document to determine the adequacy of its treatment of endangered species issues and to make project-specific recommendations for the protection of listed species. Projects that may result in the "take" of listed species must generally enter into consultation with the USFWS and/or CDFW pursuant to FESA and CESA, respectively. In some cases, incidental take authorization(s) from these agencies may be required before the project can be implemented.

3.5 MIGRATORY BIRDS

The Federal Migratory Bird Treaty Act (FMBTA: 16 USC 703-712) prohibits killing, possessing, or trading in any bird species covered in one of four international conventions to which the United States is a party, except in accordance with regulations prescribed by the Secretary of the Interior. The name of the act is misleading, as it actually covers almost all birds native to the United States, even those that are non-migratory. The FMBTA encompasses whole birds, parts of birds, and bird nests and eggs.

Native birds are also protected under California state law. The California Fish and Game Code makes it unlawful to take or possess any non-game bird covered by the FMBTA (Section 3513), as well as any other native non-game bird (Section 3800), even if incidental to lawful activities.

3.6 BIRDS OF PREY

Birds of prey are also protected in California under provisions of the State Fish and Game Code, Section 3503.5, 1992), which states that it is "unlawful to take, possess, or destroy any birds in the order *Falconiformes* or *Strigiformes* (birds of prey) or to take, possess, or destroy the nest or eggs of any such bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Disturbance that causes nest abandonment and/or loss of reproductive effort is considered "taking" by the CDFW.

3.7 NESTING BIRDS

In California, protection is afforded to the nests and eggs of all birds. California Fish and Game Code (Section 3503) states that it is "unlawful to take, possess, or needlessly destroy the nest or eggs of any bird except as otherwise provided by this code or any regulation adopted pursuant thereto." Breeding-season disturbance that causes nest abandonment and/or loss of reproductive effort is considered a form of "take" by the CDFW.

3.8 HABITAT CONSERVATION PLANS AND NATURAL COMMUNITY CONSERVATION PLANS

Section 10 of the federal Endangered Species Act establishes a process by which non-federal projects can obtain authorization to incidentally take listed species, provided take is minimized and thoroughly mitigated. A Habitat Conservation Plan (HCP), developed by the project applicant in collaboration with the USFWS and/or NMFS, ensures that such minimization and mitigation will occur, and is a prerequisite to the issuance of a federal incidental take permit. Similarly, a Natural Community Conservation Plan (NCCP), developed by the project applicant in collaboration with CDFW, provides for the conservation of biodiversity within a project area, and permits limited incidental take of state-listed species.

3.9 WETLANDS AND OTHER JURISDICTIONAL WATERS

Section 404 of the federal Clean Water Act (CWA) regulates the discharge of dredged or fill material into "navigable waters" (33 U.S.C. §1344), defined in the CWA as "the waters of the United States, including the territorial seas" (33 U.S.C. §1362(7)). The CWA does not supply a definition for waters of the U.S., and that has been the subject of considerable debate since the CWA's passage in 1972. A variety of regulatory definitions have been promulgated by the two federal agencies responsible for implementing the CWA, the Environmental Protection Agency (EPA) and USACE. These definitions have been interpreted, and in some cases, invalidated, by federal courts.

Waters of the U.S. are presently defined by the EPA and USACE's joint 2023 Revised Definition of 'Waters of the U.S.' Rule (2023 WOTUS Rule), issued in January 2023 and amended in August 2023. Generally speaking, waters of the U.S. include:

- Waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide
- The territorial seas
- Interstate waters
- Impoundments of waters otherwise defined as waters of the United States
- Tributaries to other waters of the U.S. that are relatively permanent, standing or continuously flowing bodies of water
- Wetlands adjacent to other waters of the U.S. that have a continuous surface connection to those waters

The 2023 WOTUS Rule also defines a number of exclusions from the definition of waters of the U.S., many of which are longstanding exclusions from earlier regulatory regimes. These generally include:

- Waste treatment systems
- Prior converted cropland
- Ditches excavated wholly in and draining only dry land that do not carry a relatively permanent flow of water
- Certain artificial features, e.g. irrigation basins, swimming pools, borrow pits, and artificially irrigated areas
- Swales and erosional features characterized by low volume, infrequent, or short duration flow

All activities that involve the discharge of dredge or fill material into waters of the U.S. are subject to the permit requirements of the USACE. Such permits are typically issued on the condition that the applicant agrees to provide mitigation that result in no net loss of wetland functions or values.

Under the Porter-Cologne Water Quality Control Act of 1969, the State Water Resources Control Board (SWRCB) has regulatory authority to protect the water quality of all surface water and groundwater in the State of California ("waters of the State"). Nine RWQCBs oversee water quality at the local and regional level. The RWQCB for a given region regulates discharges of

fill or pollutants into waters of the State through the issuance of various permits and orders. Discharges into waters of the State that are also waters of the U.S. require a Section 401 Water Quality Certification from the RWQCB as a prerequisite to obtaining a Section 404 Clean Water Act permit. Discharges into waters of the State that are not also waters of the U.S. require Waste Discharge Requirements (WDRs), or waivers of WDRs, from the RWQCB.

The SWRCB and RWQCBs also administer the federal National Pollution Discharge Elimination System (NPDES) program, which is concerned with the discharge of stormwater and other pollutants into water bodies. Projects that disturb one or more acres of soil must obtain coverage under the SWRCB's current NPDES Construction Stormwater General Permit. A prerequisite for permit coverage is the development of a Storm Water Pollution Prevention Plan (SWPPP) by a certified Qualified SWPPP Developer. Other types of pollutant discharges into waters of the U.S., such as wastewater, may require coverage under a different NPDES general permit, and in some cases an individual permit.

CDFW has jurisdiction over the bed and bank of natural drainages and lakes according to provisions of Section 1601 and 1602 of the California Fish and Game Code. Activities that may substantially modify such waters through the diversion or obstruction of their natural flow, change or use of any material from their bed or bank, or the deposition of debris require a Notification of Lake or Streambed Alteration. If CDFW determines that the activity may adversely affect fish and wildlife resources, a Lake or Streambed Alteration Agreement will be prepared. Such an agreement typically stipulates that certain measures will be implemented to protect the habitat values of the lake or drainage in question.

4.0 IMPACTS AND MITIGATIONS

This impact assessment assumes that: (1) all project-related disturbance associated with sewer mains in roadways will be confined to the traveled way, (2) all project-related disturbance associated with sewer mains outside of roadways will be confined to a 20-foot-wide corridor centered on the pipe segment, (3) the entirety of the project site's WWTP work area may be permanently or temporarily impacted by proposed activities at that location, (4) no tree or building removal will be required for any project component, and (5) where the sewer main alignment crosses an irrigation ditch between urban Coalinga and the WWTP, the ditch will not be physically disturbed because the pipe will be rehabilitated within its existing footprint using trenchless techniques.

4.1 POTENTIALLY SIGNIFICANT PROJECT IMPACTS

4.1.1 Project Impacts to Monarch Butterfly

Potential Impacts. As discussed, the monarch butterfly (*Danaus plexippus*) has some potential to reproduce, forage, and roost within the project site (see Table 2). Reproduction takes place solely on milkweed (*Asclepias* sp.) plants, which could conceivably be found in those portions of the sewer main work area that pass through residential yards or park land (urban land use type) or ruderal/fallow fields (rural land use type). Milkweed, and by extension breeding, is not expected in the highly degraded habitats of the WWTP work area. Foraging may take place in any vegetated portion of the project site; this includes portions of the WWTP work area that do not experience regular vegetation management. Finally, roosting is a possibility in the few trees of the sewer main work area.

If milkweed occurs in portions of the project site that are planned for impact, the project may result in mortality of monarch eggs, larvae, and pupae, as well as loss of monarch reproductive habitat. These are considered potentially significant impacts under CEQA and NEPA.

Project construction is not expected to adversely affect foraging or roosting monarchs. Monarchs are highly mobile while foraging and would presumably have the ability to avoid active construction zones. After construction, any habitats that provide nectar resources for monarchs

under existing conditions would be expected to naturally revegetate and return to their pre-project level of suitability for this species. Because the project will not remove any trees, it will not impact any monarchs that happen to be roosting on site at the time of construction and will not result in loss of monarch roosting habitat.

Mitigation. The following measures will be implemented to reduce the magnitude of potential project impacts to the monarch butterfly.

> ***Mitigation Measure 4.1.1a (Milkweed Survey).*** Prior to the start of construction, a qualified biologist will conduct a survey for milkweed plants in any portion of the sewer main work area that passes through residential yards, park land, ruderal/fallow fields, or other potentially suitable habitats. The survey will be conducted at a time of year when milkweed is readily identifiable. The objective of the survey will be to tally and map all milkweed plants that could potentially be impacted by project activities.
>
> ***Mitigation Measure 4.1.1b (Construction Timing).*** If feasible, no milkweed plants will be removed during the period when monarchs may be breeding in the project vicinity, March 15-October 31 (The Xerces Society 2019).
>
> ***Mitigation Measure 4.1.1c (Compensatory Mitigation).*** Any milkweed plants located within areas proposed for impact will be replaced at a 3:1 ratio in accordance with a revegetation plan prepared by a qualified biologist. The planting site(s) must be in similar or higher quality habitat to the habitat that was impacted, in area(s) that will not be treated with pesticides or herbicides.

Implementation of the above measures will reduce impacts to the monarch butterfly to a less than significant level under CEQA and NEPA.

4.1.2 Potential Project Impacts to the Southwestern Pond Turtle

Potential Impacts. As discussed, the southwestern pond turtle (*Actinemys pallida*) is present at the WWTP. At the time of LOA's survey, 36 individuals of this species were observed, evenly distributed among the three stabilization ponds. The turtles were of various growth stages, indicating that this is a breeding population. No turtles were observed in the aerated lagoons, and these features are presumably not suitable for this species due to surface turbulence and reduced water quality; the aerated lagoons represent an earlier stage of water treatment than the stabilization ponds. Pond turtles are likely to regularly bask in upland areas surrounding the three occupied ponds and may even nest within the fenced facility, as has been documented at

wastewater treatment facilities elsewhere in California (Davidson and Alvarez 2020; M. Jennings, Rana Resources, pers. comm.). Water temperatures at the WWTP are likely warm enough that pond turtles would be able to remain active through much of the winter; however, during the coldest periods individuals may brumate underwater (M. Jennings, Rana Resources, pers. comm.).

During construction activities at the WWTP, resident pond turtles will be at considerable risk of direct injury or mortality, as well as disturbance leading to indirect mortality. Direct injury or mortality may result from heavy equipment operation in and around the occupied ponds. Subterranean eggs or hatchlings may be crushed, and migrating turtles may be struck and killed. Turtles may also respond to pond dewatering and construction-related noise and vibration by attempting to leave the area, making them vulnerable to predation and vehicle strikes. Construction-related injury and mortality of southwestern pond turtles, both direct and indirect, is a potentially significant impact of this project under CEQA and NEPA.

During operation of the upgraded WWTP, pond turtles would not be at heightened risk of direct injury or mortality because operational activities will be similar to existing. However, indirect mortality is likely to be higher than under baseline conditions due to periodic dry-down of the percolation ponds. Following construction, any given percolation pond will receive treated effluent until percolation rates drop, at which point the pond will be allowed to dry down and will be disked prior to being placed back in service. Pond dry-down will force turtles on to land and potentially out of the WWTP facility altogether, increasing their vulnerability to predation and vehicle strikes. Indirect mortality of southwestern pond turtles during the operations phase is also a potentially significant impact of the project under CEQA and NEPA.

Proposed WWTP upgrades will increase the extent of potential aquatic habitat for the western pond turtle while decreasing its habitat value. Specifically, the project will convert approximately 12.5 acres of suitable, occupied ponds and approximately 6 acres of unsuitable, unoccupied ponds to approximately 18.5 acres of ponds with fluctuating suitability for southwestern pond turtles. On the one hand, the percolation ponds will have higher water quality than existing, with lower levels of biochemical oxygen demand (BOD), total suspended solids (NSS), and nitrogen. Improved water quality in the future percolation ponds may boost

invertebrate prey populations (M. Jennings, Rana Resources, pers. comm.) and otherwise benefit pond turtle fitness. On the other hand, unlike the stabilization ponds, the percolation ponds will not have a perennial inundation regime, but will cycle through inundated and dry periods based on percolation rates. At present, it is unknown how many months of the year any given pond will retain water. Habitat impacts are expected to have a net negative effect on southwestern pond turtles and are potentially significant under CEQA and NEPA.

Mitigation. The following measures will be implemented to reduce the magnitude of project-related impacts to the southwestern pond turtle.

> ***Mitigation Measure 4.1.2a (Construction Timing).*** Construction activities at the WWTP will take place entirely between the months of November and March to avoid the typical timeframe for southwestern pond turtle nesting and egg incubation in this locality.
>
> ***Mitigation Measure 4.1.2b (Preconstruction Survey).*** Within 24 hours prior to the start of construction at the WWTP, a qualified biologist will survey the WWTP work area to identify any locations of possible underground nests, as would be indicated by eggshells on the surface from predation. Because hatchlings sometimes overwinter underground in their nests, this survey is required even with the implementation of Mitigation Measure 4.1.2a above.
>
> ***Mitigation Measure 4.1.2c (Environmental Awareness Training).*** Prior to the start of construction at the WWTP, construction personnel will be trained on the identification, behavior, and ecology of the southwestern pond turtle, and the project-specific measures adopted for its protection. Attendees will be given a handout that summarizes the training material and provides a photographic key to differentiating between the southwestern pond turtle and the common non-native red-eared slider. Attendance at all training sessions will be documented on sign-in sheets.
>
> ***Mitigation Measure 4.1.2d (Refuge Ponds).*** Construction activities at the WWTP will be staged so that, at any given time, at least two ponds suitable for the southwestern pond turtles will be inundated to their full operational depth ("refuge ponds"). In the first stage, at least two of the existing stabilization ponds will remain inundated, as these (and not the aerated lagoons) are presently occupied by pond turtles. Construction activities may proceed at the remaining features. As any given feature is converted to a percolation pond and inundated to its full operational depth, it will become a refuge pond and one of the previous refuge ponds may be released for dewatering and construction.
>
> ***Mitigation Measure 4.1.2e (Construction Monitoring).*** One or more qualified biologists will continuously monitor construction activities at the WWTP for the protection of southwestern pond turtles. The biologist(s) will look for pond turtles attempting to leave the ponds or otherwise traveling through upland areas of the WWTP, and will hand-capture and relocate these individuals to the nearest refuge pond. Any red-eared sliders or

other introduced turtles that are discovered during this effort will be removed from the WWTP and either permanently rehomed or humanely dispatched. The biologist(s) will monitor all ground-disturbing activities in upland areas, looking for any subterranean nests or hatchlings that may be unearthed. The biologist(s) will have the authority to stop work if any nests or hatchlings are detected, and will appropriately secure the area before construction resumes. The number of biologists on site at any given time will be determined by the scope and extent of construction activities.

Mitigation Measure 4.1.2f (WWTP Operational Practices to Ensure No Net Loss of Aquatic Habitat). During operation of the upgraded WWTP, periodic dry-down and disking of the percolation ponds will be staged so that, at any given time, at least three ponds encompassing a minimum of 12.5 acres will be inundated to their full operational depth.

Mitigation Measure 4.1.2g (Habitat Enhancement). When inundated, each percolation pond will be equipped with at least three turtle basking structures. Such devices may consist of logs or floating boards, anchored with chains and weights, that can be removed during periods of dry-down and reinstalled once the pond is ready to be placed back in service.

Mitigation Measure 4.1.2h (Annual Monitoring). For the first five years post-construction, a qualified biologist will conduct annual monitoring of the WWTP's southwestern pond turtle population. Monitoring surveys will be conducted between May and July, when pond turtles are most active, and will target favorable weather conditions for basking. The biologist will assess aquatic habitat suitability by noting inundation levels, recording the species composition and cover of any emergent vegetation, conducting a dipnet survey for invertebrate food sources, and evaluating other parameters as appropriate. The biologist will record the number of all turtles observed by species and age class. An attempt will be made to capture any red-eared sliders or other introduced turtles that are discovered during annual monitoring; captured individuals will be removed from the WWTP and either permanently rehomed or humanely dispatched. The biologist will document their findings in an annual report, to be submitted to the City of Coalinga and other agencies as necessary. If any corrective actions are needed, they will be identified in the annual report and promptly implemented by the City.

Implementation of the above measures will reduce potential project impacts to the southwestern pond turtle to a less than significant level under CEQA and NEPA.

4.1.3 Potential Project Impacts to the Temblor Legless Lizard, California Glossy Snake, and San Joaquin Coachwhip

Potential Impacts. As discussed, three special status terrestrial reptiles, the Temblor legless lizard (*Anniella alexanderae*), California glossy snake (*Arizona elegans occidentalis*), and San Joaquin coachwhip (*Masticophis flagellum ruddocki*), have some potential to occur along the

Warthan and Los Gatos Creek corridors in the immediate project vicinity, and to wander onto the WWTP work area and/or rural portions of the sewer main work area from time to time. If any individuals of these species are present at the time of construction, they could be injured or killed by project activities. Construction-related injury or mortality of these three species is a potentially significant impact under CEQA and NEPA.

The project will not adversely affect the Temblor legless lizard, California glossy snake, or San Joaquin coachwhip through loss of habitat. The site consists of highly modified lands that do not constitute habitat for these special status reptiles but may nevertheless experience occasional use based on these species' potential presence along the adjoining creek corridors. Nearly all project impacts will be temporary, with the sewer mains located belowground and any disturbed surface habitats expected to return to their pre-project level of suitability following project implementation. Considerable habitat of similar or higher quality for these species will remain available in the project vicinity. Project-related loss of habitat for the Temblor legless lizard, California glossy snake, and San Joaquin coachwhip is not considered a significant impact under CEQA and NEPA.

Mitigation. The following measures will be implemented to avoid and minimize construction-related impacts to the Temblor legless lizard, California glossy snake, and San Joaquin coachwhip.

> ***Mitigation Measure 4.1.3a* (*Preconstruction Surveys*).** Within 24 hours prior to the start of construction activities at the WWTP and in rural portions of the sewer main work area, a qualified biologist will conduct preconstruction surveys for the Temblor legless lizard, California glossy snake, and San Joaquin coachwhip. The biologist will make an attempt to hand-capture any individuals of these species that are found and relocate them to suitable alternative habitat away from the work area.
>
> ***Mitigation Measure 4.1.3b (Environmental Awareness Training).*** Prior to the start of construction at the WWTP and in rural portions of the sewer main work area, construction personnel will be trained on the identification, behavior, and ecology of the Temblor legless lizard, California glossy snake, and San Joaquin coachwhip, and the project-specific measures adopted for its protection. Attendees will be given a handout that summarizes the training material. Attendance at all training sessions will be documented on sign-in sheets.
>
> ***Mitigation Measure 4.1.3c* (*Protective Measures During Construction*).** Workers will regularly inspect the work area for reptiles. At a minimum, this will include (1) checking

for reptiles under and around any parked vehicles or equipment prior to their operation, (2) scanning the ground for reptiles while operating vehicles or equipment, and (3) checking any open trenches or other excavations for trapped reptiles at the beginning and end of each work day. Any reptiles found during these inspections will be allowed to leave the area of their own volition, or will be captured and relocated out of harm's way.

Implementation of these measures will reduce project-related impacts to the Temblor legless lizard, California glossy snake, and San Joaquin coachwhip to a less than significant level under CEQA and NEPA.

4.1.4 Potential Project Impacts to the Swainson's Hawk

Potential Impacts. The Swainson's hawk, a California Threatened species, is likely to forage in rural portions of the project site from time to time, and may also nest in mature trees on or near the site, particularly outside of the urban core of Coalinga. No trees will be removed by the project; therefore, there is no appreciable potential for direct injury or mortality of nesting Swainson's hawks or their young. However, construction activities proximate to active nests may disturb the nests to the extent that the nests could fail or have reduced success. Project activities that injure, kill, or reduce the nesting success of Swainson's hawks would violate state and federal laws and be considered a significant impact under CEQA and NEPA.

Swainson's hawks would not be vulnerable to construction-related injury or mortality while foraging because they are highly mobile during this activity and are expected to avoid active work areas. The project is not expected to adversely affect this species through loss of foraging habitat. All impacts to potential Swainson's hawk foraging habitat will be temporary, as the sewer mains will be buried and surface habitats will be allowed to return to pre-project conditions. Loss of habitat for the Swainson's hawk is considered a less than significant impact of the project under CEQA and NEPA.

Mitigation. The following measures will be implemented to avoid and minimize construction-related impacts to Swainson's hawk.

***Mitigation Measure 4.1.4a* (*Construction Timing*).** If feasible, project construction will occur entirely outside of the March -September 15 Swainson's hawk nesting season.

***Mitigation Measure 4.1.4b* (*Protocol Nesting Surveys*).** If construction activities must occur between March 1 and September 15, then a qualified biologist will conduct protocol nesting surveys in accordance with the Swainson's Hawk Technical Advisory Committee (SHTAC) 2000 *Recommended Timing and Methodology for Swainson's Hawk Nesting Surveys in California's Central Valley*. Surveys will be conducted in at least the two SHTAC-defined survey periods immediately preceding construction. The survey periods are Period 1: January-March 20, Period II: March 20-April 5, Period III: April 5-20, Period IV: April 21-June 10, Period V: June 10-July 30.

***Mitigation Measure 4.1.4c* (*Avoidance of Active Nests*).** Should any active nests be discovered within the survey area, an appropriate disturbance-free buffer will be established by the biologist based on local conditions and agency guidelines. Disturbance free buffers will be identified on the ground with flagging, fencing, or by other easily visible means and will be maintained until a qualified biologist has determined that the young have fledged and are capable of foraging independently.

Implementation of these measures will reduce project-related impacts to the Swainson's hawk to a less than significant level under CEQA and NEPA and facilitate compliance with state and federal laws protecting this species.

4.1.5 Potential Project Impacts to the Burrowing Owl

Potential Impacts. Although LOA is not aware of any recent, nearby sightings of the burrowing owl, rural portions of the sewer main work area could potentially be used by individuals of this species if it occurs in the vicinity. Burrowing owls are particularly vulnerable to construction-related impacts while occupying underground burrows, either for nesting or roosting. In the unlikely event that one or more burrowing owls were to be occupying burrows within the project site at the time of construction, they could be injured or killed by construction activities, or, if nesting, could be disturbed such that they would abandon their eggs or young. Such an event would constitute a violation of the Migratory Bird Treaty Act and California Endangered Species Act, and would represent a significant impact of the project under CEQA and NEPA. Individuals of this species would not be vulnerable to construction-related injury or mortality while foraging because they are highly mobile foragers and would presumably avoid active work areas.

The project will not result in the loss of burrowing owl nesting or foraging habitat. All impacts to such habitats will be temporary, as the sewer mains will be buried and surface habitats will be allowed to return to pre-project conditions. Loss of habitat for the burrowing owl is considered a less than significant impact of the project under CEQA and NEPA.

Mitigation. The following measures will be implemented to avoid and minimize construction-related impacts to burrowing owls.

> ***Mitigation Measure 4.1.5a (Take Avoidance Survey).*** A take avoidance survey for burrowing owls will be conducted by a qualified biologist within 14 days prior to the start of construction, following methods described in the *Staff Report on Burrowing Owl Mitigation* (CDFG 2012). The survey area will include all potential roosting and nesting habitat on or within 200 meters of the project site.
>
> ***Mitigation Measure 4.1.5b (Avoidance of Active Burrows).*** If project activities are undertaken during the breeding season (February 1-August 31) and active nest burrows are identified within or near project impact areas, a 200-meter disturbance-free buffer will be established around these burrows. The buffers will be enclosed with temporary fencing to prevent construction equipment and workers from entering the setback area. Buffers will remain in place for the duration of the breeding season. During the non-breeding season (September 1-January 31), active burrowing owl burrows will be avoided by a minimum distance of 50 meters.
>
> ***Mitigation Measure 4.1.5c (CDFW Consultation)***. If it is not feasible to avoid burrows by the setback distances specified above, the applicant will develop other measures to fully avoid take of burrowing owls in consultation with CDFW. If full take avoidance is not possible, the applicant will obtain a Section 2081 Incidental Take Permit (ITP) for this species. If an ITP is required, it would include minimization and mitigation measures including a passive relocation effort, construction monitoring, replacement burrow creation/enhancement, and/or other forms of compensatory mitigation.

Implementation of these measures will reduce potential project impacts to the burrowing owl to a less than significant level under CEQA and NEPA and facilitate compliance with state and federal laws protecting this species.

4.1.6 Potential Project Impacts to the San Joaquin Kit Fox

Potential Impacts. Coalinga is known to support an urban-adapted population of the SJKF (Cypher et al. 2012). Individuals of this species have some potential to forage and den in both urban and rural portions of the sewer main work area, particularly outside of residential neighborhoods. SJKF are unlikely to occur within the fenced WWTP, but may occur within those portions of the WWTP work area outside of the fenceline. In the event that one or more SJKF individuals were to be occupying the project site at the time of construction, they could be injured or killed by construction activities. Such an event would constitute a violation of federal and state law and would represent a significant impact of the project under CEQA and NEPA.

The project will not result in the loss of denning or foraging habitat for this species. All impacts to such habitats will be temporary, as the sewer mains will be buried and surface habitats will be allowed to return to pre-project conditions. Loss of habitat for the SJKF is considered a less than significant impact of the project under CEQA and NEPA.

Mitigation. The applicant will implement the following measures derived from the USFWS 2011 *Standardized Recommendations for Protection of the San Joaquin Kit Fox Prior to or During Ground Disturbance*.

> ***Mitigation Measure 4.1.6a (Pre-construction Surveys).*** Between 14 and 30 days prior to the start of any project activity that could potentially affect the SJKF, a qualified biologist will conduct preconstruction surveys for this species following the USFWS 2011 *Standardized Recommendations for Protection of the Endangered San Joaquin Kit Fox Prior to or during Ground Disturbance* ("Standardized Recommendations"). The primary objective will be to identify potential SJKF habitat features and evaluate their use by kit foxes.
>
> ***Mitigation Measure 4.1.6b (Avoidance).*** Should one or more active kit fox dens be detected during preconstruction surveys, the USFWS and CDFW will be notified immediately. A disturbance-free buffer will be established around the dens in consultation with the USFWS and CDFW, to be maintained until an agency-approved biologist has determined that the dens have been abandoned.
>
> ***Mitigation Measure 4.1.6c (Minimization).*** The applicant will implement all minimization measures presented in the *USFWS Standardized Recommendations*. Such measures include, but are not limited to: restriction of project-related vehicle traffic to established roads, construction areas, and other designated areas; measures to prevent the inadvertent entrapment of kit foxes in holes, trenches, and pipes; restriction of rodenticide and herbicide use; and proper disposal of food items and trash.
>
> ***Mitigation Measure 4.1.6d (Environmental Awareness Training).*** A qualified biologist will provide training to all personnel who will be working on site. The training will include a description of the kit fox and its habitat needs; a report of the occurrence of kit fox in the project vicinity; an explanation of the status of the species and its protection under the Endangered Species Act; and a list of the measures being taken to reduce impacts to the species during project construction and implementation. A handout will be provided to all attendees that summarizes the information presented in the training and presents the contact name and number of a designated representative to contact in case SJKF individuals are observed in or near the work area during construction.

Implementation of these measures will reduce potential project impacts to the SJKF to a less than significant level under CEQA and NEPA and facilitate compliance with state and federal laws protecting this species.

4.1.7 Potential Project Impacts to the American Badger

Potential Impacts. Although badgers do not appear to be regularly sighted in the project vicinity, this wide-ranging species has some potential to pass through the area from time to time. If present in the vicinity, then individuals could potentially forage and den in rural portions of the sewer main work area and/or in that portion of the WWTP work area outside of the fenceline. Badgers are particularly vulnerable to construction-related impacts while in their dens. In the unlikely event that one or more badgers were to be occupying dens within the project site at the time of construction, they could be injured or killed by construction activities. Construction mortality of denning badgers is considered a potentially significant impact of the project under CEQA and NEPA. Individuals of this species would not be vulnerable to construction-related injury or mortality while foraging because they would presumably avoid foraging within active work areas, and because their nocturnal foraging behavior should prevent them from overlapping temporally with construction activities.

The project will not result in the loss of American badger denning or foraging habitat. All impacts to such habitats will be temporary, as the sewer mains will be buried and surface habitats will be allowed to return to pre-project conditions. Loss of habitat for the badger is considered a less than significant impact of the project under CEQA and NEPA.

Mitigation. The following measures will be implemented to avoid and minimize construction-related impacts to American badgers.

> ***Mitigation Measure 4.1.7a (Preconstruction Surveys).*** A preconstruction survey for American badgers will be conducted by a qualified biologist within 7 days prior to the start of construction activities in rural portions of the sewer main work area and at the WWTP. The surveys will target all potential denning habitat on or within 50 feet of these areas.
>
> ***Mitigation Measure 4.1.7b (Avoidance).*** Should an active sleeping den be identified during the preconstruction surveys, the den shall be identified in the field with brightly-colored fencing or flagging, and avoided until a qualified biologist has determined that it

has been abandoned. Should an active natal den be identified during the preconstruction surveys, a suitable disturbance-free buffer will be established around the den and maintained until a qualified biologist has determined that the cubs have dispersed or the den has been abandoned.

Implementation of the above measures will reduce potential project impacts to the American badger to a less than significant level under CEQA and NEPA

4.1.8 Potential Project Impacts to Nesting Migratory Birds and Raptors including the Long-eared Owl

Potential Impacts. The project site and adjoining lands have the potential to be used for nesting by a variety of migratory birds and raptors protected by the federal Migratory Bird Treaty Act and related state laws. This includes common species such as the mourning dove, killdeer, and American robin, but may also include several uncommon species. An example of the latter is the special status long-eared owl (*Asio otus*), which could nest immediately adjacent to the WWTP work area along the riparian corridor associated with Los Gatos Creek. If project construction takes place during the nesting season, birds nesting on the site could be injured or killed by construction activities, while birds nesting on or adjacent to the site could be disturbed such that they would abandon their nests. Construction-related mortality of nesting birds and disturbance leading to nest abandonment would violate state and federal laws and be considered a significant impact of the project under CEQA and NEPA.

The special status long-eared owl also has the potential to forage in rural portions of the project site. Individuals of this species would not be vulnerable to construction-related injury or mortality while foraging because they are highly mobile during this activity and because their nocturnal foraging behavior should prevent them from overlapping temporally with construction. The project is not expected to adversely affect this species through loss of foraging habitat. All impacts to such habitats will be temporary, as the sewer mains will be buried and surface habitats will be allowed to return to pre-project conditions. Loss of habitat for the long-eared owl is considered a less than significant impact of the project under CEQA and NEPA.

Mitigation. The following measures will be implemented to avoid and minimize construction-related impacts to nesting migratory birds and raptors including the long-eared owl.

Measure 4.1.8a (Construction Timing). If feasible, project construction will occur entirely outside of the February 1-August 31 general avian nesting season.

***Measure 4.1.8b (Preconstruction Surveys*).** If construction must occur between February 1 and August 31, a qualified biologist will conduct pre-construction surveys for active bird nests within 7 days prior to the start of any work within this period. The survey area will encompass the work area and surrounding lands within 250 feet for nesting migratory birds and 500 feet for raptors.

***Measure 4.1.8c (Avoidance of Active Nests*).** Should any active nests be discovered in or near proposed construction zones, the biologist will identify a suitable construction-free buffer around the nest. The buffer distance will be determined based on species biology, site-specific conditions, and the level of project-related disturbance that is anticipated near the nest(s) in question. Buffers will be identified on the ground with flagging or fencing and will be maintained until the biologist has determined that the young have fledged and are capable of foraging independently.

Implementation of the above measures will reduce project impacts to nesting migratory birds and raptors, including the special status long-eared owl, to a less than significant level under CEQA and NEPA and facilitate compliance with state and federal laws.

4.2 LESS THAN SIGNIFICANT PROJECT IMPACTS

4.2.1 Project Impacts to Special Status Plant Species

Potential Impacts. Eighteen special status plant species have been documented in the regional vicinity of the project site (see Table 2). All are considered absent from the project site due to the absence of suitable habitat and/or the site's being located outside of the species' distribution. The project is not expected to affect individuals or regional populations of these 18 species because they have no appreciable potential to occur on site.

Mitigation. Mitigation measures are not warranted.

4.2.2 Project Impacts to Special Status Animal Species that Would Use the Site for Non-sensitive Activities Only

Potential Impacts. Of the 13 special status animal species potentially occurring on site, one species, the tricolored blackbird (*Agelaius tricolor*) is not expected to use the site for sensitive activities such as breeding, nesting, or communal roosting, nor is it likely to breed, nest, or

communally roost close enough to the site that it would be vulnerable to construction-related disturbance during these activities (see Table 2). Any tricolored blackbird use of the site would be limited to foraging. Tricolored blackbirds are highly mobile during this activity and would be expected to simply avoid active work areas.

The project will not adversely affect tricolored blackbirds through loss of habitat. The site does not offer unique habitat for this species; similar and higher quality habitats are regionally abundant. Moreover, all impacts to potential tricolored blackbird foraging habitat will be temporary, as the sewer mains will be buried and surface habitats will be allowed to return to pre-project conditions. For these reasons, project-related impacts to the tricolored blackbird are considered less than significant under CEQA and NEPA.

Mitigation. Mitigation is not warranted.

4.2.3 Project Impacts to Roosting Bats including Townsend's Big-eared Bat and Western Mastiff Bat

Potential Impacts. The project site's trees and buildings have the potential to be used by roosting bats, possibly including the Townsend's big-eared bat (*Corynorhinus townsendii*) and western mastiff bat (*Eumops perotis californicus*), both California Species of Special Concern. No trees or buildings will be removed under current project design; therefore, roosting bats will not be at risk of construction-related injury or mortality.

The Townsend's big-eared bat and western mastiff bat may also forage over the project site. These species would not be vulnerable to construction-related injury or mortality while foraging because they are highly mobile during this activity and would be expected to simply avoid active work areas. Moreover, these species forage nocturnally, when construction will presumably not be taking place. The project will not adversely affect the Townsend's big-eared bat and western mastiff bat through loss of habitat. The site does not offer unique habitat for these species; similar and higher quality habitats are regionally abundant. Nearly all project impacts will be temporary, with the sewer mains placed belowground and surface habitats allowed to return to pre-project conditions.

For these reasons, project-related impacts to roosting bats, including the Townsend's big-eared bat and western mastiff bat, are considered less than significant under CEQA and NEPA.

Mitigation. Mitigation is not warranted.

4.2.4 Project Impacts to Special Status Animal Species Absent from, or Unlikely to Occur within, the Project Site

Potential Impacts. Of the 29 special status animal species that potentially occur in the general vicinity of the site, 16 are considered absent or unlikely to occur within the project site due to the absence of suitable habitat, and/or the project site's being situated outside of the species' known distribution (see Table 2). These are the Crotch's bumble bee (*Bombus crotchii*), vernal pool fairy shrimp (*Branchinecta lynchi*), California tiger salamander (*Ambystoma californiense*), foothill yellow-legged frog (*Rana boylii*), California red-legged frog (*Rana draytonii*), western spadefoot (*Spea hammondii*), blunt-nosed leopard lizard (*Gambelia sila*), California condor (*Gymnogyps californianus*), San Joaquin antelope squirrel (*Ammospermophilus nelsoni*), giant kangaroo rat (*Dipodomys ingens*), coast horned lizard (*Phrynosoma blainvillii*), northern California legless lizard (*Anniella pulchra*), Le Conte's thrasher *(Toxostoma lecontei*), yellow-headed blackbird (*Xanthocephalus xanthocephalus*), short-nosed kangaroo rat (*Dipodomys nitratoides brevinasus*), and Tulare grasshopper mouse (*Onychomys torridus tularensis*). The project has no appreciable potential to affect these species through construction mortality/disturbance or loss of habitat because there is little or no likelihood that they utilize the site.

Mitigation. Mitigation is not warranted.

4.2.5 Project Impacts to Riparian Habitat and Sensitive Natural Communities

Potential Impacts. The project does not contain riparian habitat or any sensitive natural communities. There will be no impact to such resources.

Mitigation. Mitigation measures are not warranted.

4.2.6 Potential Project Impacts to Waters of the State and U.S.

Potential Impacts. The project site's wastewater treatment ponds and irrigation ditch may be regulated by the RWQCB but do not meet the definition of a Water of the U.S. Although the treatment ponds will be impacted through the removal of clay liners and changed inundation regimes, the project is not expected to substantially alter the ecological function and value of these manmade features. The sewer main that crosses the irrigation ditch is proposed for rehabilitation using trenchless techniques; the ditch will not be physically disturbed. For these reasons, project impacts to Waters of the State are considered less than significant under CEQA and NEPA. The project will have no impact on Waters of the U.S.

Mitigation. Mitigation is not warranted.

4.2.7 Project Impacts to Wildlife Movement Corridors

Potential Impacts. As discussed, the project site itself does not contain any wildlife movement corridors, but Los Gatos Creek adjoins the WWTP work area and is likely to function as a regionally important corridor. The subject reach of Los Gatos Creek is likely to experience some amount of ambient disturbance under existing conditions, as WWTP operational activities include daily vehicular travel and occasional heavy equipment use. Noise disturbance during construction will exceed baseline levels, but for a relatively short period of time. Animals may temporarily shift their use of or movement along this reach of Los Gatos Creek while work is occurring, but following construction, wildlife use of the creek corridor is expected to return to baseline conditions. Project-related impacts to wildlife movement corridors are considered less than significant under CEQA and NEPA.

Mitigation. Mitigation is not warranted.

4.2.8 Project Impacts to Designated Critical Habitat

Potential Impacts. The project will have no effect on designated critical habitat because critical habitat is absent from the project site and adjacent lands.

Mitigation. Mitigation is not warranted.

4.2.9 Local Policies or Habitat Conservation Plans

Potential Impacts. It is assumed that the project will be implemented in a manner consistent with the City of Coalinga General Plan policies related to biological resources. No habitat conservation plans are known to pertain to the area containing the project site.

Mitigation. No mitigation is required.

4.3 SECTION 7 DETERMINATIONS FOR FEDERALLY LISTED SPECIES

Table 3 below presents LOA's preliminary FESA Section 7 effect determinations for federally listed and proposed species found on the USFWS IPaC list and CNDDB list generated for the project, based on currently available information and a level of analysis appropriate for a CEQA Mitigated Negative Declaration and/or NEPA Environmental Assessment. Candidate species are not included in Table 3 because they do not require Section 7 consultation.

TABLE 3: SECTION 7 EFFECT DETERMINATIONS FOR FEDERALLY LISTED SPECIES

Species	ESA Status	Determination	Rationale for the Determination
California Jewelflower *(Caulanthus californicus)*	Endangered	***No effect***	Species is absent (no suitable habitat)
San Joaquin Woollythreads *(Monolopia congdonii)*	Endangered	***No effect***	Species is absent (no suitable habitat)
Monarch Butterfly *(Danaus plexippus)*	Proposed Threatened	***No jeopardy***	This species may occur on site; conservation measures will be implemented to avoid take
Vernal Pool Fairy Shrimp (*Branchinecta lynchi*)	Threatened	***No effect***	Species is absent (no suitable habitat)
California Tiger Salamander *(Ambystoma californiense)*	Threatened	***No effect***	Species is absent (no suitable habitat)
Foothill Yellow-legged Frog *(Rana boylii)*	Threatened	***No effect***	Species is absent (no suitable habitat)
California Red-legged Frog *(Rana draytonii)*	Threatened	***No effect***	Species is absent (no suitable habitat)
Western Spadefoot (*Spea hammondii*)	Proposed Threatened	***No jeopardy***	Species is absent (no suitable habitat)
Southwestern Pond Turtle (*Actinemys pallida*)	Proposed Threatened	***No jeopardy***	This species occupies the WWTP work area; conservation measures will be implemented to avoid take

TABLE 3 (CONT'D)

Species	ESA Status	Determination	Rationale for the Determination
Blunt-nosed Leopard Lizard (*Gambelia sila)*	Endangered	***No effect***	No appreciable potential for species to occur on site (landscape-level factors, unsuitable habitat)
California Condor (*Gymnogyps californianus)*	Endangered	***No effect***	Species is absent (no suitable habitat)
Giant Kangaroo Rat (*Dipodomys ingens)*	Endangered	***No effect***	Species is absent (no suitable habitat)
San Joaquin Kit Fox (SJKF) (*Vulpes macrotis mutica*)	Endangered	***May affect, not likely to adversely affect***	This species may occur on site; conservation measures will be implemented to avoid take

5.0 LITERATURE REFERENCED

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APPENDIX A: VASCULAR PLANTS OF THE PROJECT SITE

APPENDIX A: VASCULAR PLANTS OF THE PROJECT SITE

The plant species listed below were observed on the project site during surveys conducted by Live Oak Associates, Inc. on March 20 and 21, 2025. The wetland indicator status of each plant, derived from the USACE-administered National Wetland Plant List for the Arid West Region, has been shown following its common name if available.

OBL - Obligate
FACW - Facultative Wetland
FAC - Facultative
FACU - Facultative Upland
UPL - Upland
NR - No review
NA - No agreement
NI - No investigation

ANACARDIACEAE – Sumac Family		
Schinus molle	Peppertree	FACU
Searsia lancea	African Sumac	UPL
APOCYNACEAE – Dogbane Family		
Nerium oleander	Oleander	UPL
ARALIACEAE – Ginseng Family		
Hedera helix	English Ivy	FACU
ARECACEAE – Palm Family		
Washingtonia filifera	California Fan Palm	FAC
Washingtonia robusta	Mexican Fan Palm	FACW
ASTERACEAE – Sunflower Family		
Helianthus annus	Sunflower	FACU
Lactuca serriola	Prickly Lettuce	FACU
Matricaria discoidea	Pineappleweed	
Senecio vulgaris	Common Groundsel	FAC
Sonchus oleraceus	Sowthistle	UPL
BETULACEAE – Birch Family		
Alnus rhombifolia	White Alder	FACW
BRASSICACEAE – Mustard Family		
Brassica spp.	Mustard	UPL
Capsella bursa-pastoris	Shepherd's Purse	FACU
Sisymbrium irio	London Rocket	UPL
BUXACEAE – Box Family		
Buxus spp.	Boxwood	UPL
CACTACEAE – Cactus Family		
Opuntia spp.	Prickly Pear	UPL
CHENOPODACEAE – C Family		
Salsola tragus	Russian Thistle	FACU
CUPRESSACEAE – Cypress Family		

Calocedrus decurrens	Incense Cedar	UPL
Juniperus californica	California Juniper	FACU
FABACEAE – Bean Family		
Albizia julibrissin	Mimosa Tree	UPL
Ceratonia siliqua	Carob	UPL
Cercis occidentalis	California Redbud	UPL
FAGACEAE – Oak Family		
Quercus spp.	Oak	
Quercus lobata	Valley Oak	FACU
Quercus suber	Cork Oak	UPL
Quercus wislizeni	Interior Live Oak	UPL
GERANIACEAE – Geranium Family		
Erodium cicutarium	Redstem Filaree	UPL
JUGLANDACEAE – Walnut Family		
Carya illinoinensis	Peacan	FAC
LYTHRACEAE – Mahogany Family		
Lagerstroemia spp.	Crepe Myrtle	UPL
Punica granatum	Pomegranate	UPL
MAGNOLIACEAE – Magnolia Family		
Magnolia spp.	Magnolia	UPL
MALVACEAE – Mallow Family		
Malva parviflora	Cheeseweed	UPL
MELIACEAE – Mahogany Family		
Melia azedarach	Chinaberry	UPL
MORACEAE – Fig Family		
Ficus carica	Fig	UPL
Morus alba	White Mulberry	FACU
MYTACEAE – Myrtle Family		
Eucalyptus spp.	Eucalyptus	
Myrtus communis	Common Myrtle	UPL
OLEACEAE – Olive Family		
Olea europaea	Olive	UPL
Ligustrum lucidum	Glossy Privet	
PINACEAE – Pine Family		
Cedrus deodara	Deodar Cedar	UPL
Pinus brutia	Turkish Pine	UPL
Pinus halepensis	Aleppo Pine	UPL
Pinus sabiniana	Foothill Pine	UPL
Pinus spp.	Pine	
POACEAE – Grass Family		
Bromus diandrus	Ripgut Brome	UPL
Bromus rubens	Red Brome	UPL
Cynodon dactylon	Bermuda Grass	FACU
Echinochloa crus-galli	Barnyard Grass	FACW
Hordeum murinum	Foxtail Barley	FACU
Poa annua	Lawn Grass	FAC

ROSACEAE – Rose Family		
Prunus sp.	Stone Fruit	
Prunus cerasifera	Cherry Plum	
Pyrus calleryana	Bradford Pear	UPL
Rosa spp.	Ornamental Rose	
RUTACEAE – Citrus Family		
Citrus x sinensis	Orange	UPL
Citrus x limon	Lemon	UPL
SALICACEAE – Willow Family		
Populus fremontii	Fremont's Cottonwood	FAC
Populus nigra	Italian Poplar	FAC
Salix spp.	Willow	
SAPINDACEAE – Soapberry Family		
Acer spp.	Maple	
Acer palmatum	Japanese Maple	
TAMARICACEAE – Tamarisk Family		
Tamarix ramossima	Saltcedar Tamarisk	FAC
ULMACEAE – Elm Family		
Ulmus parvifolia	Chinese Elm	UPL
VITACEAE – Elm Family		
Vitis spp.	Grape	

APPENDIX B: TERRESTRIAL VERTEBRATE SPECIES THAT POTENTIALLY OCCUR ON THE PROJECT SITE

APPENDIX B: TERRESTRIAL VERTEBRATE SPECIES THAT POTENTIALLY OCCUR ON THE PROJECT SITE

The species listed below are those that may be expected to routinely and predictably use or pass through the project site during some or all of the year. The list was not intended to include birds that are vagrants or occasional transients. Terrestrial vertebrate species observed on or adjacent to the project site during surveys conducted by Live Oak Associates, Inc. on March 20 and 21, 2025 have been noted with an asterisk.

CLASS: AMPHIBIA (Amphibians)
ORDER: SALIENTIA (Frogs and Toads)
FAMILY: BUFONIDAE (True Toads)
Western Toad (*Bufo boreas*)
FAMILY: HYLIDAE (Treefrogs and relatives)
Sierran Treefrog (*Pseudacris sierra*)
FAMILY: RANIDAE (True Frogs)
Bullfrog (*Lithobates catesbeianus*)

CLASS: REPTILIA (Reptiles)
ORDER: TESTUDINES (Turtles)
SUBORDER: CRYPTODIRA (Hidden-neck Turtles)
FAMILY: EMYDIDAE
*Southwestern Pond Turtle (*Actinemys pallida*)
Red-eared Slider (*Trachemys scripta*)
ORDER: SQUAMATA (Lizards and Snakes)
SUBORDER: SAURIA (Lizards)
FAMILY: PHRYNOSOMATIDAE
Western Fence Lizard (*Sceloporus occidentalis*)
Side-blotched Lizard (*Uta stansburiana*)
SUBORDER: SERPENTES (Snakes)
FAMILY: COLUBRIDAE (Colubrids)
Pacific Gopher Snake (*Pituophis catenifer catenifer*)
Common Kingsnake (*Lampropeltis getulus*)
Common Garter Snake (*Thamnophis sirtalis*)
FAMILY: VIPERIDAE (Vipers)
Western Rattlesnake (*Crotalus viridis*)

CLASS: AVES
ORDER: ANSERIFORMES (Ducks, Geese, and Swans)
FAMILY: ANATIDAE (Ducks, Geese, and Swans)
*Mallard (*Anas platyrhynchos*)
Gadwall (*Anas strepera*)
*American Wigeon (*Mareca americana*)
*Cinnamon Teal (*Anas cyanoptera*)
*Northern Shoveler (*Anas crecca*)
*Green-winged Teal (*Anas cyanoptera*)

Ring-necked Duck (*Aythya collaris*)
Lesser Scaup (*Aythya affinis*)
Bufflehead (*Bucephala albeola*)
*****Ruddy Duck (*Oxyura jamaicensis*)

ORDER: PELECANIFORMES (Wading Birds)

FAMILY: ARDEIDAE (Herons)

*Great Egret (*Ardea alba*)
Snowy Egret (*Egretta thula*)

ORDER: ACCIPITRIFORMES (Hawks, Eagles, Vultures, and Kites)

FAMILY: CATHARTIDAE (New World Vultures)

Turkey Vulture (*Cathartes aura*)

FAMILY: ACCIPITRIDAE (Hawks, Eagles, Kites, Old World Vultures, and Harriers)

Cooper's Hawk (*Accipiter cooperi*)
*Red-tailed Hawk (*Buteo jamaicensis*)
Red-shouldered Hawk (*Buteo lineatus*)
Swainson's Hawk (*Buteo swainsoni*)

FAMILY: FALCONIDAE (Caracaras and Falcons)

Merlin (*Falco columbarius*)
*American Kestrel (*Falco sparverius*)

ORDER: GALLIFORMES (Megapodes, Currassows, Pheasants, and Relatives)

FAMILY: ODONTOPHORIDAE (New World Quails)

California Quail (*Callipepla californica*)

FAMILY: PHASIANIDAE (Pheasants, Chickens, Turkeys and Allies)

Domestic Chicken (*Gallus gallus domesticus*)

ORDER: GRUIFORMES (Cranes and Rails)

FAMILY: RALLIDAE (Rails, Gallinules, and Coots)

American Coot (*Fulica americana*)

ORDER: CHARADRIIFORMES (Shorebirds, Gulls, and relatives)

FAMILY: CHARADRIIDAE (Plovers and relatives)

*Killdeer (*Charadrius vociferus*)

FAMILY: RECURVIROSTRIDAE (Stilts and Avocets)

*Black-necked Stilt (*Himantopus mexicanus*)
American Avocet (*Recurvirostra americana*)

FAMILY: SCOLOPACIDAE (Sandpipers and Allies)

Wilson's Snipe (*Gallinago delicata*)
*Greater Yellowlegs (*Tringa melanoleuca*)
*Least Sandpiper (*Calidris minutilla*)

ORDER: CUCULIFORMES (Cuckoos)

FAMILY: CUCULIDAE (Cuckoos)

*Greater Roadrunner (*Geococcyx californianus*)

ORDER: COLUMBIFORMES (Pigeons and Doves)

FAMILY: COLUMBIDAE (Pigeons and Doves)

*Rock Pigeon (*Columba livia*)
*Mourning Dove (*Zenaida macroura*)
*Eurasian Collared Dove (*Streptopelia decaocto*)

ORDER: STRIGIFORMES (Owls)

FAMILY: TYTONIDAE (Barn Owls)
Barn Owl (*Tyto alba*)
ORDER: APODIFORMES (Swifts and Hummingbirds)
FAMILY: TROCHILIDAE (Hummingbirds)
Black-chinned Hummingbird (*Archilochus alexandri*)
Anna's Hummingbird (*Calypte anna*)
ORDER: PASSERIFORMES (Perching Birds)
FAMILY: TYRANNIDAE (Tyrant Flycatchers)
*Black Phoebe (*Sayornis nigricans*)
Say's Phoebe (*Sayornis saya*)
Western Kingbird (*Tyrannus verticalis*)
FAMILY: CORVIDAE (Jays, Magpies, and Crows)
California Scrub Jay (*Aphelocoma coerulescens*)
*American Crow (*Corvus brachyrhynchos*)
Common Raven (*Corvus corax*)
FAMILY: ALAUDIDAE (Larks)
Horned Lark (*Eremophila alpestris*)
FAMILY: HIRUNDINIDAE (Swallows)
Cliff Swallow (*Petrochelidon pyrrhonota*)
Barn Swallow (*Hirundo rustica*)
Northern Rough-winged Swallow (*Stelgidopteryx serripennis*)
FAMILY: AEGITHALIDAE (Titmice)
*Oak Titmouse (*Baeolophus inornatus*)
FAMILY: AEGITHALIDAE (Bushtits)
Bushtit (*Psaltriparus minimus*)
FAMILY: TURDIDAE (Thrushes)
Western Bluebird (*Sialia mexicana*)
American Robin (*Turdus migratorius*)
FAMILY: MIMIDAE (Mockingbirds and Thrashers)
*Northern Mockingbird (*Mimus polyglottos*)
FAMILY: PARULIDAE (Wood Warblers and Relatives)
Yellow-rumped Warbler (*Dendroica coronata*)
FAMILY: STURNIDAE (Starlings and Allies)
*****European Starling (*Sturnus vulgaris*)
FAMILY: MOTACILLIDAE (Wagtails and Pipits)
*American Pipit (*Anthus rubrescens*)
FAMILY: EMBERIZIDAE (Sparrows)
*Savannah Sparrow (*Passerculus sandwichensis*)
*White-crowned Sparrow (*Zonotrichia leucophrys*)
Golden-crowned Sparrow (*Zonotrichia atricapilla*)
California Towhee (*Pipilo crissalis*)
FAMILY: ICTERIDAE (Blackbirds, Orioles and Allies)
Western Meadowlark (*Sturnella neglecta*)
Red-winged Blackbird (*Agelaius phoeniceus*)
Great-tailed Grackle (*Quiscalus mexicanus*)
*Brewer's Blackbird (*Euphagus cyanocephalus*)

Brown-headed Cowbird (*Molothrus ater*)
Bullock's Oriole (*Icterus bullockii*)

FAMILY: FRINGILLIDAE (Finches)

*House Finch (*Haemorhous mexicanus*)
*Lawernce's Goldfinch (*Spinus lawrencei*)
Lesser Goldfinch (*Carduelis psaltria*)

FAMILY: PASSERIDAE (Old World Sparrows)

*House Sparrow (*Passer domesticus*)

CLASS: MAMMALIA

ORDER: DIDELPHIMORPHIA (Marsupials)

FAMILY: DIDELPHIDAE (Opossums)

Virginia Opossum (*Didelphis virginiana*)

ORDER: INSECTIVORA (Shrews and Moles)

FAMILY: TALPIDAE (Moles)

Broad-footed Mole (*Scapanus latimanus*)

ORDER: CHIROPTERA (Bats)

FAMILY: VESPERTILIONIDAE (Vespertilionid Bats)

Pale Big-eared Bat (*Corynorhinus townsendii pallescens*)
Big Brown Bat (*Eptesicus fuscus*)
Yuma Myotis (*Myotis yumanensis*)
California Myotis (*Myotis californicus*)
Western Pipistrelle (*Pipistrellus hesperus*)

FAMILY: MOLOSSIDAE (Free-tailed Bat)

Brazilian Free-tailed Bat (*Tadarida brasiliensis*)

ORDER: LAGOMORPHA (Rabbits, Hares, and Pikas)

FAMILY: LEPORIDAE (Rabbits and Hares)

*Audubon's Cottontail (*Sylvilagus audubonii*)
Black-tailed Jackrabbit (*Lepus californicus*)

ORDER: RODENTIA (Rodents)

FAMILY: SCIURIDAE (Squirrels, Chipmunks, and Marmots)

*California Ground Squirrel (*Otospermophilus beecheyi*)

FAMILY: GEOMYIDAE (Pocket Gophers)

Botta's Pocket Gopher (*Thomomys bottae*)

FAMILY: MURIDAE (Mice, Rats and Voles)

Western Harvest Mouse (*Reithrodontomys megalotis*)
Deer Mouse (*Peromyscus maniculatus*)
Norway Rat (*Rattus norvegicus*)
House Mouse (*Mus musculus*)
California Vole (*Microtus californicus*)

FAMILY: HETEROMYIDAE (Kangaroo Rats)

Heermann's Kangaroo Rat (*Dipodomys heermanni*)

ORDER: CARNIVORA (Carnivores)

FAMILY: CANIDAE (Foxes, Wolves, and Relatives)

Red Fox (*Vulpes vulpes*)
Coyote (*Canis latrans*)

*Domestic Dog (*Canis familiaris*)

FAMILY: PROCYONIDAE (Raccoons and Relatives)

Raccoon (*Procyon lotor*)

FAMILY: MUSTELIDAE (Weasels and Relatives)

Striped Skunk (*Mephitis mephitis*)

FAMILY: FELIDAE (Cats)

*Feral Cat (*Felis catus*)

APPENDIX C: SELECTED SITE PHOTOGRAPHS

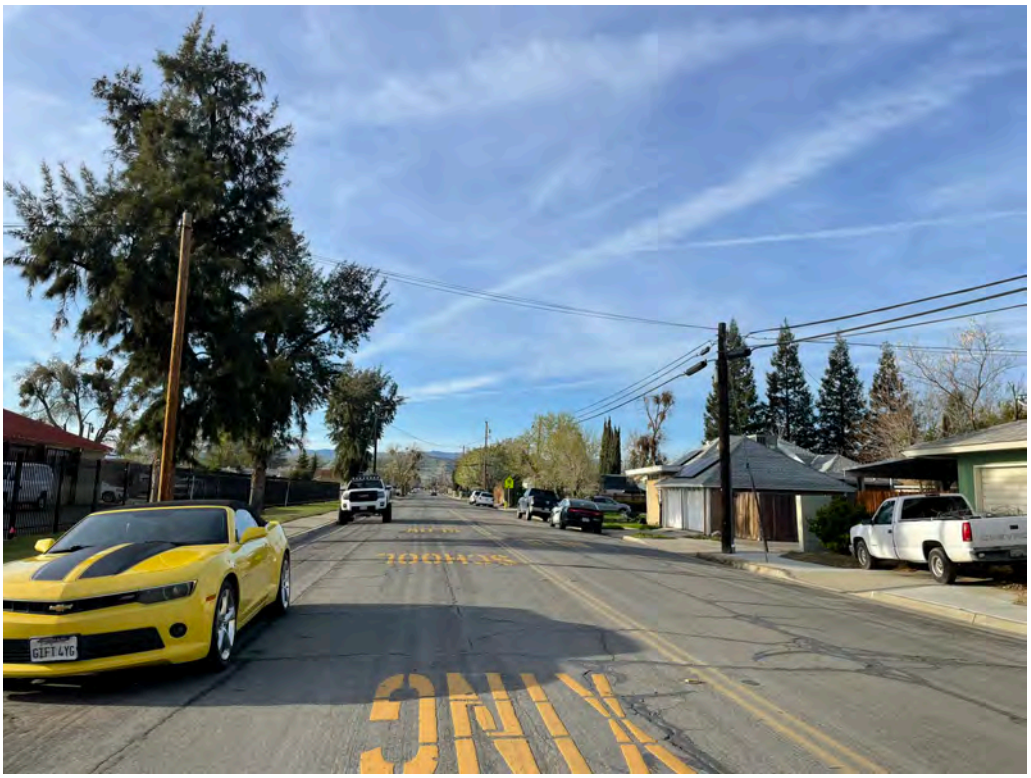

Photo 1 (above): Urban portion of the sewer main work area, showing a paved street. **Photo 2 (below):** Urban portion of the sewer main work area, showing an alley.

Photo 3 (above): Urban portion of the sewer main work area, showing park land. **Photo 4 (below):** Urban portion of the sewer main work area, showing a parking lot.

Photo 5 (above): Rural portion of the sewer main work area, showing unpaved road. **Photo 6 (below):** Rural portion of the sewer main work area, facing west along fallow field (center/right) and irrigation ditch (left). The irrigation ditch is outside of project boundaries at this location, but is crossed by the sewer main alignment farther to the west.

Photo 7 (above): Existing stabilization ponds at the WWTP; pictured are the two easternmost ponds. **Photo 8 (below):** Existing aerated lagoons at the WWTP.

Photo 9 (above): Disturbed uplands of the WWTP work area, inside fenced facility. **Photo 10 (below):** Disturbed uplands of the WWTP work area, outside fenced facility.

Photo 11 (above): Southwestern pond turtle observed at one of the existing stabilization ponds in March 2025.

APPENDIX D: USFWS INFORMATION FOR PLANNING AND CONSULTATION OFFICIAL SPECIES LIST

IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

NOT FOR CONSULTATION

Location

Fresno County, California

Local office

Sacramento Fish And Wildlife Office

(916) 414-6600
(916) 414-6713

Federal Building

2800 Cottage Way, Room W-2605
Sacramento, CA 95825-1846

NOT FOR CONSULTATION

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).
2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

NOT FOR CONSULTATION

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Giant Kangaroo Rat Dipodomys ingens Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6051	Endangered
San Joaquin Kit Fox Vulpes macrotis mutica Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2873	Endangered

Birds

NAME	STATUS
California Condor Gymnogyps californianus There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/8193	Endangered

Reptiles

NAME	STATUS
Blunt-nosed Leopard Lizard Gambelia silus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/625	Endangered
Northwestern Pond Turtle Actinemys marmorata Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/1111	Proposed Threatened

Amphibians

NAME	STATUS

NOT FOR CONSULTATION

California Red-legged Frog Rana draytonii — Threatened

Wherever found

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/2891

California Tiger Salamander Ambystoma californiense — Threatened

There is **final** critical habitat for this species. Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/2076

Foothill Yellow-legged Frog Rana boylii — Threatened

There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat.

https://ecos.fws.gov/ecp/species/5133

Western Spadefoot Spea hammondii — Proposed Threatened

Wherever found

No critical habitat has been designated for this species.

https://ecos.fws.gov/ecp/species/5425

Insects

NAME	STATUS
Monarch Butterfly Danaus plexippus Wherever found There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/9743	Proposed Threatened

Crustaceans

NAME	STATUS
Vernal Pool Fairy Shrimp Branchinecta lynchi Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

NAME	STATUS

NOT FOR CONSULTATION

California Jewelflower Caulanthus californicus Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/4599

San Joaquin Wooly-threads Monolopia (=Lembertia) congdonii Endangered
Wherever found
No critical habitat has been designated for this species.
https://ecos.fws.gov/ecp/species/3746

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and Golden Eagles are protected under the Bald and Golden Eagle Protection Act [2] and the Migratory Bird Treaty Act (MBTA) [1]. Any person or organization who plans or conducts activities that may result in impacts to Bald or Golden Eagles, or their nests, should follow appropriate regulations and implement required avoidance and minimization measures, as described in the various links on this page.

The data in this location indicates that no eagles have been observed in this area. This does not mean eagles are not present in your project area, especially if the area is difficult to survey. Please review the 'Steps to Take When No Results Are Returned' section of the Supplemental Information on Migratory Birds and Eagles document to determine if your project is in a poorly surveyed area. If it is, you may need to rely on other resources to determine if eagles may be present (e.g. your local FWS field office, state surveys, your own surveys).

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management

NOT FOR CONSULTATION

- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf
- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Bald & Golden Eagles FAQs

What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are an eagle (Bald and Golden Eagle Protection Act requirements may apply).

Proper interpretation and use of your eagle report
On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort line or no data line (red horizontal) means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide you in knowing when to implement avoidance and minimization measures to eliminate or reduce potential impacts from your project activities or get the appropriate permits should presence be confirmed.

How do I know if eagles are breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If an eagle on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

Interpreting the Probability of Presence Graphs

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:

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The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

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Migratory birds

The Migratory Bird Treaty Act (MBTA) [1] prohibits the take (including killing, capturing, selling, trading, and transport) of protected migratory bird species without prior authorization by the Department of Interior U.S. Fish and Wildlife Service (Service). The incidental take of migratory birds is the injury or death of birds that results from, but is not the purpose, of an activity. The Service interprets the MBTA to prohibit incidental take.

---

1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Eagle Management https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide avoidance and minimization measures for birds

- Supplemental Information for Migratory Birds and Eagles in IPaC https://www.fws.gov/media/supplemental-information-migratory-birds-and-bald-and-golden-eagles-may-occur-project-action

Measures for Proactively Minimizing Migratory Bird Impacts

Your IPaC Migratory Bird list showcases birds of concern, including Birds of Conservation Concern (BCC), in your project location. This is not a comprehensive list of all birds found in your project area. However, you can help proactively minimize significant impacts to all birds at your project location by implementing the measures in the Nationwide avoidance and minimization measures for birds document, and any other project-specific avoidance and minimization measures suggested at the link Measures for avoiding and minimizing impacts to birds for the birds of concern on your list below.

Ensure Your Migratory Bird List is Accurate and Complete

If your project area is in a poorly surveyed area, your list may not be complete and you may need to rely on other resources to determine what species may be present (e.g. your local FWS field office, state surveys, your own surveys). Please review the Supplemental Information on Migratory Birds and Eagles document, to help you properly interpret the report for your specified location, including determining if there is sufficient data to ensure your list is accurate.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, see the "Probability of Presence Summary" below to see when these birds are most likely to be present and breeding in your project area.

Review the FAQs

The FAQs below provide important additional information and resources.

NAME	BREEDING SEASON
Belding's Savannah Sparrow *Passerculus sandwichensis beldingi* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/8	Breeds Apr 1 to Aug 15
Nuttall's Woodpecker *Dryobates nuttallii* This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA https://ecos.fws.gov/ecp/species/9410	Breeds Apr 1 to Jul 20
Yellow-billed Magpie *Pica nuttalli* This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9726	Breeds Apr 1 to Jul 31

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Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read "Supplemental Information on Migratory Birds and Eagles", specifically the FAQ section titled "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

Breeding Season (■)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)

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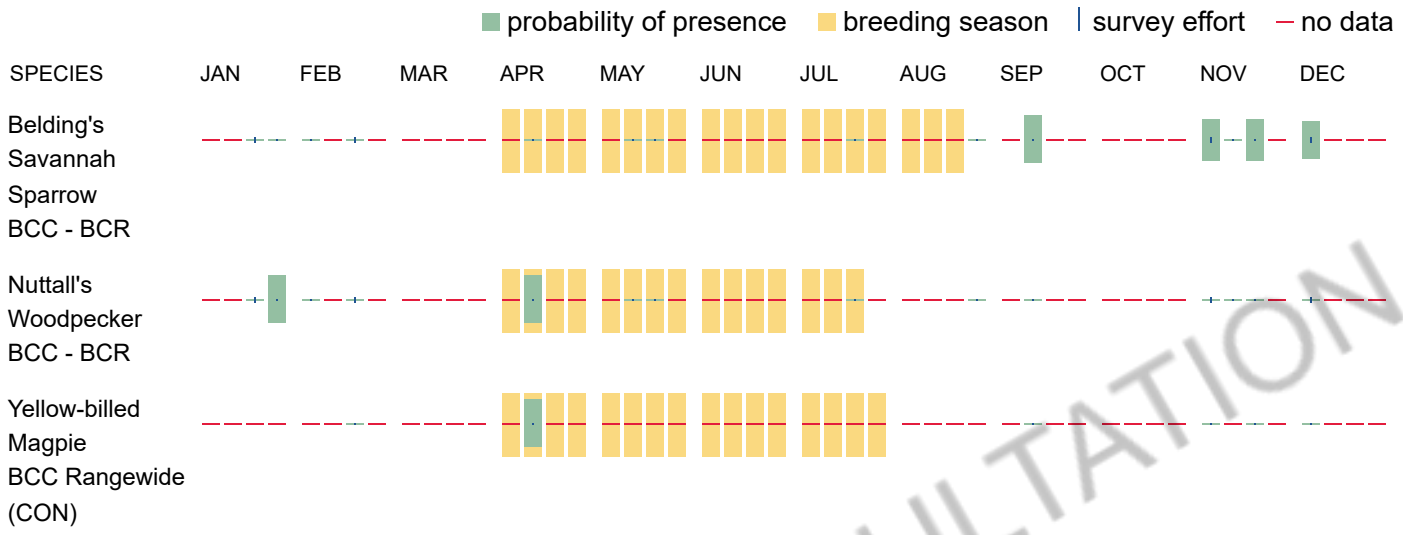
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe

Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



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Migratory Bird FAQs

Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Avoidance & Minimization Measures for Birds describes measures that can help avoid and minimize impacts to all birds at any location year-round. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is one of the most effective ways to minimize impacts. To see when birds are most likely to occur and breed in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location, such as those listed under the Endangered Species Act or the Bald and Golden Eagle Protection Act and those species marked as “Vulnerable”. See the FAQ “What are the levels of concern for migratory birds?” for more information on the levels of concern covered in the IPaC migratory bird species list.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) with which your project intersects. These species have been identified as warranting special attention because they are BCC species in that area, an eagle (Bald and Golden Eagle Protection Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, and to verify survey effort when no results present, please visit the Rapid Avian Information Locator (RAIL) Tool.

Why are subspecies showing up on my list?

Subspecies profiles are included on the list of species present in your project area because observations in the AKN for **the species** are being detected. If the species are present, that means that the subspecies may also be present. If a subspecies shows up on your list, you may need to rely on other resources to determine if that subspecies may be present (e.g. your local FWS field office, state surveys, your own surveys).

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go to the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering, or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating, or resident), you may query your location using the RAIL Tool and view the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your IPaC migratory bird species list has a breeding season associated with it (indicated by yellow vertical bars on the phenology graph in your “IPaC PROBABILITY OF PRESENCE SUMMARY” at the top of your results list), there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Bald and Golden Eagle Protection Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially BCC species. For more information on avoidance and minimization measures you can implement to help avoid and minimize migratory bird impacts, please see the FAQ “Tell me more about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds”.

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Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Proper interpretation and use of your migratory bird report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please look carefully at the survey effort (indicated by the black vertical line) and for the existence of the "no data" indicator (a red horizontal line). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list does not represent all birds present in your project area. It is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list and associated information help you know what to look for to confirm presence and helps guide implementation of avoidance and minimization measures to eliminate or reduce potential impacts from your project activities, should presence be confirmed. To learn more about avoidance and minimization measures, visit the FAQ "Tell me about avoidance and minimization measures I can implement to avoid or minimize impacts to migratory birds".

Interpreting the Probability of Presence Graphs
Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. A taller bar indicates a higher probability of species presence. The survey effort can be used to establish a level of confidence in the presence score.

How is the probability of presence score calculated? The calculation is done in three steps:
The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.

To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

Breeding Season ()
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

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Survey Effort ()
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps.

No Data ()
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.

Facilities

Wildlife refuges and fish hatcheries

Refuge and fish hatchery information is not available at this time

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

This location overlaps the following wetlands:

FRESHWATER POND
- PUBKx

LAKE
- L2UBKx

RIVERINE
- R4SBA
- R4SBC

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R5UBF

A full description for each wetland code can be found at the National Wetlands Inventory website

NOTE: This initial screening does **not** replace an on-site delineation to determine whether wetlands occur. Additional information on the NWI data is provided below.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

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Appendix D

Cultural Resources Survey

Draft

CLASS III INVENTORY/PHASE I SURVEY, COALINGA SANITARY SEWER COLLECTION SYSTEM AND WASTEWATER TREATMENT PLANT IMPROVEMENTS PROJECT FRESNO COUNTY, CALIFORNIA

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MANAGEMENT SUMMARY

This report documents the results of an intensive Class III inventory/Phase I survey for the Coalinga Sanitary Sewer Collection System and Wastewater Treatment Plant Improvements Project (Project) Fresno County, California.

The Project is within the city of Coalinga in Fresno County. This places the Project on the open flats of the San Joaquin Valley, directly east of the Coast Range. Specifically, the Project is within Sections 31, 33, 34, Township 20 South, Range 17 East (T20S/R15E) and Section 4 and 5 T21S/ R15E, Mount Diablo Base and Meridian (MDBM), as illustrated on the Coalinga USGS 7.5-minute topographic quadrangle. The proposed Project site consists of developed infrastructure including a water treatment facility, unpaved and paved roads throughout the city of Coalinga, as well as agricultural fields. Elevations within the Project area, which is mostly flat, range from 640 feet (ft.) above mean sea level (amsl) to 690 ft. amsl. The Area of Potential Effect (APE) for the Project was defined as the area of potential ground surface disturbance. The horizontal APE for the Project totals approximately 174.7 acres (ac.) and contains all construction areas, staging and laydown areas, and access roads. The vertical APE, defined as the maximum depth of excavation of the Project, is not expected to exceed 10 ft. below ground surface.

ASM Affiliates (ASM) conducted this study, with Senior Archaeologist Dustin Merrick, MA, RPA, serving as principal investigator and main author of this report. Associate Archaeologist Robert Azpitarte, BA, and Assistant Archaeologist Margarita Medina Lemus, BA, conducted the fieldwork. Geoarchaeologist Maya Klinger, MA, RPA, prepared the geoarchaeological sensitivity and environmental background. Architectural Historian Madeline Gonzalez, MA, prepared the evaluation of the built environment resources under National Register of Historic Places (NRHP) and California Register of Historic Resources (CRHR) criteria. Sarah Stringer-Bowsher, MA, RPH, was the peer reviewer of the built environment evaluations. The study was undertaken to assist with compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and the California Environmental Quality Act (CEQA).

To determine whether the Project APE had been previously surveyed for cultural resources, and/or whether any such resources were known to exist within or near to it, staff of the Southern San Joaquin Valley Information Center (SSJVIC) conducted an archival records search on May 29, 2024. According to the SSJVIC, six previous studies have been conducted within the Project APE, and 31 previous studies were identified within a 0.5-mile (mi.) buffer. Based on SSJVIC data, approximately 30 percent of the Project APE has been previously surveyed. Dates for previous studies in the APE range from 1995 to 2016 with the majority of studies being greater than 20 years old. The SSJVIC results identified a single previously recorded cultural resource (P-10-003930) within the APE. An additional 17 resources were identified within the 0.5-mi. buffer.

Geoarchaeological review of the project indicates the deposits within the APE(s) formed between the historical era/modern times (<150 years before present [YBP]), and latest Holocene (2000–150 YBP). Whereas the Pipelines APE is marked by high buried site potential, the Waste Water Treatment Plant (WWTP) APE is marked as having low buried site potential (Meyer et al. 2010:140, Table 18). Historic aerial and topographic map review shows the project APE has been

heavily disturbed by agricultural activities and industrial development as far back as the mid-twentieth century.

As part of the CEQA process, a search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed on May 9, 2024. Based on the NAHC records, the APE is negative for sacred sites or traditional cultural places. Outreach letters were sent on July 23, 2024, to tribal organizations on the NAHC contact list. Follow-up emails were sent on April 16, 2024. On August 12, 2024, Table Mountain Rancheria responded stating the Project was out of their area of interest. No other responses were received as a result of this outreach.

The Class III inventory/Phase I survey of the Project APE was conducted from August to September 2024. Parallel survey transects spaced at maximum intervals of 15 meters (m) apart were employed for pedestrian survey of the 174.7-ac. Project APE, which consists of two areas referred to as the Pipeline APE and the WWTP APE. The proposed Project consists of improvements to a water treatment plant first constructed in 1963 and its associated pipelines. The Pipeline APE consists largely of paved roads. As such, the vast majority of the Pipeline APE has been hardscaped over. Approximately 1,700 ft. of the Pipeline APE, along both O Street and 16th Street, is undeveloped. Visibility within undeveloped areas was good (approximately 75 percent).

The majority of the WWTP APE was developed between 1963 and 1991. The visibility within the water treatment facility was excellent (approximately 90 percent) outside of developed areas. Diffuse modern refuse was observed throughout the APE. Non-native vegetation inhibited visibility in undeveloped areas.

One previously recorded resource, a segment of the Southern Pacific Railroad (P-10-003930), was observed within the Pipeline APE, and is described in Section 4.2.1. The Project proposes trenchless drilling under P-10-003930. As such, it is outside of the APE. No other previously recorded resources and no further cultural resources were identified within the Pipeline APE.

ASM was tasked with the evaluation of all buildings and structures within the WWTP APE. In this report, buildings and structures that were constructed more than 45 years ago are individually evaluated for their eligibility for the NRHP, CRHR, and as CEQA historical resources, and buildings and structures that were constructed less than 45 years ago were considered under NRHP Criterion Consideration G. ASM additionally considered the potential for a historic district associated with the Coalinga WWTP. ASM considered the possibility of a historic district within the WWTP APE, but there is no historic district. The buildings and structures within the WWTP APE are recommended not individually eligible for the NRHP and CRHR. Therefore, the buildings and structures are not considered historic properties pursuant to the NHPA, and they are not considered historical resources pursuant to CEQA. These resources are further described in Section 4.2.1. ASM was not tasked with the evaluation of the pipelines within the Pipelines APE.

Based on the above analyses and findings, the proposed Coalinga Sanitary Sewer Collection System and WWTP Improvements Project will not result in adverse effects to historic properties or significant impacts to historical resources. ASM recommends a determination of ***no adverse effect*** under Section 106 and ***no significant impact*** under CEQA. It is further recommended that, in the unlikely event that previously unrecorded cultural resources are identified during Project

construction, work be halted within a 100-ft. radius of the find and a qualified archaeologist be contacted to evaluate the newly discovered resource.

1. INTRODUCTION AND REGULATORY CONTEXT

ASM Affiliates (ASM) was retained by Crawford & Bowen Planning, Inc. to conduct an intensive Class III inventory/Phase I survey for the Coalinga Sanitary Sewer Collection System and Wastewater Treatment Plant (WWTP) Improvements Project (Project) Fresno County, California (Figure 1). The study was undertaken to assist with compliance with Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, and the California Environmental Quality Act (CEQA). The investigation was conducted, specifically, to ensure that significant impacts or adverse effects to historic properties or historical resources do not occur as a result of Project construction.

This current study included:

- A background records search and literature review to determine if any known cultural resources were present in the project zone and/or whether the area had been previously and systematically studied by archaeologists;
- An on-foot, intensive inventory of the Project site to identify and record previously undiscovered cultural resources and to examine known sites; and
- A preliminary assessment of any such resources found within the subject property.

Senior Archaeologist Dustin Merrick, MA RPA, served as principal investigator and main author of this report. Associate Archaeologist Robert Azpitarte, BA, and Assistant Archaeologist Margarita Medina Lemus, BA, conducted the fieldwork. Geoarchaeologist Maya Klinger, MA, RPA, prepared the geoarchaeological sensitivity and environmental background. Architectural Historian Madeline Gonzalez, MA, prepared the evaluation of the built environment resources according to NRHP and CRHR criteria. Sarah Stringer-Bowsher, MA, RPH, was the peer reviewer of the built environment evaluations.

This document constitutes a report on the Class III inventory/Phase I survey. Subsequent chapters provide background to the investigation, including historic context studies; the findings of the archival records search; a summary of the field surveying techniques employed; and the results of the fieldwork. We conclude with management recommendations for the Project.

1.1 PROJECT LOCATION

The Project is within the city of Coalinga (City) in Fresno County, spanning throughout the city. This places the Project on the open flats of the San Joaquin Valley, directly east of the Coast Range. Specifically, the Project is within Sections 31, 33, 34, Township 20 South, Range 17 East (T20S/R15E) and Section 4 and 5 T21S/ R15E, Mount Diablo Base and Meridian (MDBM), as illustrated on the Coalinga USGS 7.5-minute topographic quadrangle. The proposed Project site consists of developed infrastructure including a water treatment facility, unpaved and paved roads throughout the city of Coalinga, as well as agricultural fields. Elevations within the Project area, which is mostly flat, range from 640 feet (ft.) above mean sea level (amsl) to 690 ft. amsl.

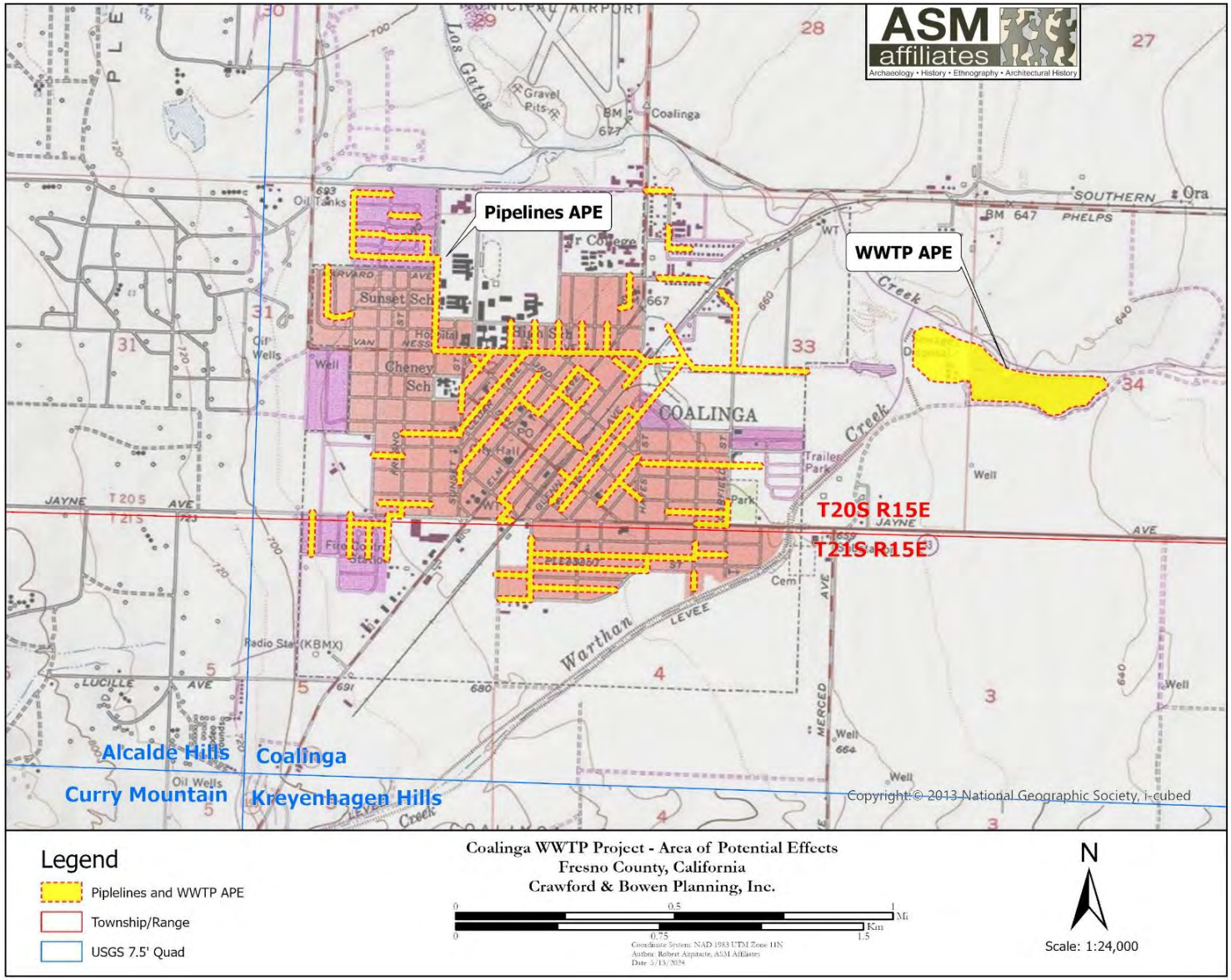

Figure 1. Coalinga Sanitary Sewer Collection System and WWTP Improvements Project, Fresno County, California.

1.2 PROJECT DESCRIPTION AND AREA OF POTENTIAL EFFECTS

Based on the condition assessment conducted, the recommended improvements for the City's sewer collection system are summarized in the following paragraphs.

1.2.1 Sewer Main Replacement

CCTV inspection conducted on 104,618 linear feet (LF) of the City's sewer collection system revealed several defects in portions of the collection system. Defects found in the sewer mains included root intrusion, fractured and broken pipe, cracked pipe, sags greater than 60 percent, defective and intruding laterals, joint displacements, and attached deposits (grease and concrete). The segments of the sewer collection system recommended for replacement have been selected based on sorted NASSCO ratings and the condition of the existing sewer mains. For this proposed Project, it is recommended that approximately 41,073 LF of gravity sewer mains be replaced with new sewer pipes before failure occurs. Table 1 provides a summary of the sewer mains that will be replaced using the conventional construction method of dig and replace.

Table 1. Proposed Sewer Main Replacement

Parameter	Total Length (ft)
6" PVC Pipe	13,838
8" PVC Pipe	4,226
10" PVC Pipe	1,738
Total	19,802

1.2.2 Sewer Main Rehabilitation

Trenchless sewer rehabilitation is recommended where applicable to reduce surface disturbance over traditional dig and replace methods, reduce the number of traffic and pedestrian detours, spare tree removal, decrease construction noise, and reduce air pollution from construction equipment. Table 2 provides a summary of the sewer mains that will be rehabilitated using the trenchless construction method known as cured-in-place (CIP).

Table 2. Proposed Sewer Main Rehabilitation

Parameter	Total Length (ft)
6" PVC Pipe	15,914
8" PVC Pipe	7,297
10" PVC Pipe	2,071
15" PVC Pipe	2,558
18" PVC Pipe	2,975
Total	30,815

1.2.3 Proposed Improvements to Wastewater Treatment Plant

The existing aerated lagoons and stabilization ponds will be decommissioned for the construction of percolation ponds. In this proposed project, an extended aeration system with biological nutrient removal with filtration and disinfection will be constructed. For this proposed project, Aero Mod extended aeration system was selected. The moving aeration chains are equipped with diffuser and provide efficient mixing of the basin contents as well as high oxygen transfer at low energy usage. Aeration will be provided by aeration blowers, which will be operated by VFDs. Mixed liquor will flow across the aerated tank reactor and will enter a distribution box that will split flow between two clarifiers. One clarifier will be required to handle the plant's design flow of 1.34 MGD, while the other will be provided for redundancy. Mixed liquor will settle in the clarifier, and clear liquid will overflow into a peripheral weir channel and into the RAS/WAS pumpstation. Settled sludge will be recirculated back to the aeration basin or wasted to a sludge-drying bed. Treated effluent will be conveyed to the facility's new percolation ponds that will be constructed.

Extended Aeration and Biological Nutrient Removal

The proposed aeration tank will be constructed in the existing WWTP facility. Aero-Mod SEQUOX for biological nutrient removal offers the benefits of sequencing aeration and continuous clarification. Flow enters through an anoxic tank, where the raw sewage is combined with returned activated sludge (RAS) from the clarifiers. The combination of cyclical aeration in the four basins creates excellent aerobic conditions for BOD and ammonia removal when aerating. When the air is off, the nitrate laden MLSS settles and becomes oxygen deprived, creating anoxic conditions for the nitrates to become the oxygen source and allow for denitrification to occur. The plug flow process repeats this cyclical on/off aeration several times as the liquid mass progresses through the SEQUOX process and on to the clarifier. The effluent quality is achieved with TN levels as low as 3 milligrams per liter (mg/L). The process is energy efficient, has a small footprint, and does not require recycling pumps or mixers. Table 3 contains the required dimensions for the aerated treatment system.

Clarifier

The SEQUOX process often incorporates the ClarAtor clarifier where the biomass is settled and returned to the selector tank. The clarified effluent is withdrawn and discharged. This technology is low maintenance, featuring stainless steel and fiberglass components with no moving parts below the water, while its unique flow-regulation system provides in-basin surge storage. For this proposed project, a center configuration will be used for influent entering the secondary clarifier. Mixed liquor will be carried to the center of the clarifier, which will radially distribute flow from the top of the basin. A peripheral weir will collect effluent, and a surface skimmer will collect floating scum.

Effluent Disposal

The purpose of upgrading the existing WWTP to an extended aeration activated system with biological nutrient removal facility is to lower the nitrogen concentration of the effluent before it is discharged to percolate the underground aquifer. Nitrogen is a nutrient normally present in domestic wastewater at a concentration that can degrade groundwater quality. Currently, the

existing WWTP is not protective of the current beneficial use of the groundwater and is not consistent with RWQCB's policy of beneficial reuse. By upgrading the WWTP to include secondary/tertiary treatment and discharging the higher effluent quality to percolation ponds on site, the City will provide an incidental recharge of the groundwater aquifer, which will ultimately help demonstrate groundwater sustainability. By removing nitrogen, treated effluent will be allowed to percolate and be protective of the groundwater's beneficial uses. The City would need to decommission the existing aerated lagoons and stabilization ponds to construct five percolation ponds to increase the facility's disposal capacity. According to the water balance calculations, a total percolation area of 18.34 acres would allow the City to dispose 1.34 MGD. Table 3 displays the surface areas and estimated volumes of each percolation pond.

Table 3. Proposed Evaporation/Percolation Pond Characteristics

Pond No	Top Surface Area (ac.)	Depth (ft.)	Volume (ac. ft.)	Volume (gallon)
Pond 1	3	6	18	5,866,200
Pond 2	3	6	18	5,866,200
Pond 3	2.45	5	12.25	3,992,275
Pond 4	4.83	5	24.15	7,870,485
Pond 5	5.06	5	25.30	8,245,270
Total	18.34	-	97.7	31,840,430

1.2.4 Area of Potential Effect

The Area of Potential Effect (APE) for the Project was defined as the area of potential ground-surface disturbance. The horizontal APE for the Project totals approximately 174.7 ac. and contains all construction areas, staging and laydown areas, and access roads. The vertical APE, defined as the maximum depth of excavation for sewer replacement for the Project, is not expected to exceed 10 ft. below ground surface.

1.3 REGULATORY CONTEXT

1.3.1 National Historic Preservation Act Section 106

NHPA Section 106 is applicable to federal undertakings, including projects financed or permitted by federal agencies regardless of whether the activities occur on federally managed or privately owned land. Its purpose is to determine whether adverse effects will occur to significant cultural resources, defined as "historical properties" that are listed in or determined eligible for listing in the National Register of Historic Places (NRHP). The criteria for NRHP eligibility are defined at 36 CFR § 60.4 as follows:

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that:
>
> (A) are associated with events that have made a significant contribution to the broad patterns of our history; or
>
> (B) are associated with the lives of persons significant in our past; or

(C) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

(D) have yielded or may be likely to yield, information important in prehistory or history.

There are, however, restrictions on the kinds of historical properties that can be NRHP listed. These have been identified by the Advisory Council on Historic Preservation (ACHP), as follows:

> Ordinarily cemeteries, birthplaces, or graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years shall not be considered eligible for the National Register. However, such properties will qualify if they are integral parts of districts that do meet the criteria or if they fall within the following categories:
>
> (a) A religious property deriving primary significance from architectural or artistic distinction or historical importance; or
>
> (b) A building or structure removed from its original location but which is significant primarily for architectural value, or which is the surviving structure most importantly associated with a historic person or event; or
>
> (c) A birthplace or grave of a historical figure of outstanding importance if there is no appropriate site or building directly associated with his productive life.
>
> (d) A cemetery which derives its primary significance from graves of persons of transcendent importance, from age, from distinctive design features, or from association with historic events; or
>
> (e) A reconstructed building when accurately executed in a suitable environment and presented in a dignified manner as part of a restoration master plan, and when no other building or structure with the same association has survived; or
>
> (f) A property primarily commemorative in intent if design, age, tradition, or symbolic value has invested it with its own exceptional significance; or
>
> (g) A property achieving significance within the past 50 years if it is of exceptional importance. (ACHP n.d.)

1.3.2 California Environmental Quality Act

CEQA is applicable to discretionary actions by state or local lead agencies. Under CEQA, lead agencies must analyze impacts to cultural resources. Significant impacts under CEQA occur when “historically significant” or “unique” cultural resources are adversely affected, which occurs when such resources could be altered or destroyed through project implementation. Historically significant cultural resources are defined by eligibility for or by listing in the California Register of Historical Resources (CRHR). In practice, the federal NRHP criteria (below) for significance

applied under Section 106 are generally (although not entirely) consistent with CRHR criteria (see PRC § 5024.1, Title 14 CCR, Section 4852 and § 15064.5(a)(3)).

Significant cultural resources are those archaeological resources and historical properties that:

(1) Are associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;

(2) Are associated with the lives of persons important in our past;

(3) Embody the distinctive characteristics of a type, period, region, or method of construction, or represent the work of an important creative individual, or possess high artistic values; or

(4) Have yielded, or may be likely to yield, information important in prehistory or history.

Unique resources under CEQA, in slight contrast, are those that represent:

> An archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> (1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
>
> (2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.
>
> (3) Is directly associated with a scientifically recognized important prehistoric or historic event or person (PRC § 21083.2(g)).

Preservation in place is the preferred approach under CEQA to mitigating adverse impacts to significant or unique cultural resources.

1.3.3 Eligibility Criteria for Wastewater Treatment Facilities in California

In 2023, JRP Historical Consulting LLC in conjunction with the State Water Resources Control Board prepared the *Drinking Water and Wastewater Treatment Facilities in California Historic Context and Research Design for National Register Evaluation*. This report identified Wastewater Treatment Plants as a distinct Property Type and presented evaluation procedures and processes for the identified property types. Relevant sections from the report are reproduced below:

> ***Property Type: Wastewater Treatment Plants***
> Municipal wastewater treatment plants resemble drinking water treatment facilities in many respects, and they use much of the same equipment for screening, clarifying, filtering, and disinfecting water. The wastewater plants differ chiefly in their use of biological methods during secondary treatment that have no parallel for drinking water systems. Wastewater plants are classified by the level of treatment that they offer. Older plants might offer only primary treatment, using clarifiers to decrease the quantity of suspended matter. All modern plants will also include secondary treatment with trickling filters or activated sludge tanks, and

disinfection by chlorine contact. Some plants will include tertiary treatment for nutrient and contaminant removal using filters or modifications to the activated sludge tanks. As with drinking water plants, separate process chains handle effluent purification and the processing and disposable of sedimentation sludge. And, as always, most major equipment is duplicated to provide flexible capacity and to allow for treatment to continue while one piece of hardware is serviced. The Yountville Wastewater Reclamation Facility that is used as a case study in this project offers a typical example of small-sized municipal plant combining historic-aged components with modern tertiary treatment refinements.

Application of Criteria

Drinking water and wastewater systems or components may be found eligible under any of the NRHP/CRHR criteria, although some criteria are more commonly relevant than others. These systems are more likely to have significance under Criterion A/1 (events) and C/3 (type or style of construction), while Criterion B/2 (people) and D/4 (information potential) will apply in fewer cases. More than one of the criteria may apply to a system or feature, for example when a treatment plant is eligible under both A/1 and C/3 for its association with important events and its engineering values.

Criterion A/1

A drinking water or wastewater system may qualify for listing in the national and/or state register under Criterion A/1 if it has a demonstrably significant association with an important historic event, trend, or theme. Like other kinds of public-works facilities, sanitary water systems are inherently important to the communities they serve, providing infrastructure essential for municipal development. Such value, however, does not necessarily equate to historical significance under Criterion A/1, lest every treatment plant, pumping station, and the like be judged historically important. Rather, this type of infrastructure is best evaluated for significance based on its impact relative to other comparable, contemporaneous systems. This requires determining if a water system feature had historic importance above and beyond fulfilling its ordinary role of purifying water or disposing of sewage as was done by similar systems in innumerable communities.

A wastewater or drinking water facility may have significance if it introduced or proved the efficacy of an important new technology (may also be applicable under Criterion C/3, see below), public health measure, or environmental treatment standard; if it is closely associated with the creation of a type of political organization, such as a municipal utility district, that itself has importance in comparison to earlier organization models; or if it was the clearly identified focus of important social or political conflicts.

This document has established historic contexts for these themes at a state-wide level, but other events may also be significant, and evaluators will need to consider the potential for local historic importance.

Mere coexistence with an important historic trend is not enough to grant a resource significance. Rather, the property must be an important example of the trend or theme. Thus, for example, a plant that provided chlorination of a drinking water supply is not automatically significant merely because disinfection was an important public health advancement. The plant

must have fulfilled an important role in the introduction of chlorination by being a site of experimentation, quelling a major disease outbreak, validating a new regulatory regime, or similar such measure. A resource such as a cistern or pumping station might be eligible under Criterion A/1 if it was important to providing a significant new public service.

If a water or sewer system is evaluated as having significance, it is further required to determine what parts of the system are most directly associated with the significant contribution. A program of drinking water chlorination requires a treatment plant but also watermains, laterals, service connections, and a source of supply. Not all of these are equally important to the chlorination program. The waterlines are necessary for disinfection, but they are not by themselves sufficient for disinfection, as the mere existence of waterlines does not presuppose chlorination treatment. Conversely, the chlorination equipment is both necessary and sufficient for disinfection as the existence of a treatment plant does presuppose a functioning water supply and distribution system. Therefore, while all the parts of the water system—supply, treatment, and distribution—participate in the historically significant introduction of chlorination, as used in this example, only the treatment plant itself might have direct and important association with that significance necessary for individual eligibility under these criteria. Other components could demonstrate a direct, significant association if, for example, they were constructed at the same time and as part of a single program of modernization. An evaluator needs to use judgement in assessing how broadly or narrowly to ascribe direct association with a significant innovation, but should avoid bringing in unrelated system components.

The technologies of drinking water and wastewater purification involve the engineering of both physical structures (mixing basins, sedimentation tanks, etc.) and biological and chemical components (nutrient-digesting microorganisms and flocculants, for example). Engineering innovation is generally recognized under Criterion C/3, but that applies principally to the physical features of a property. If the engineering innovation was primarily of a biological or chemical nature, and the physical structure shows few specific modifications, the innovation might be better recognized under Criterion A/1 if, for example, it demonstrably changed patterns of development of the community it served. A property may qualify under both sets of criteria if the engineering combined structural and biochemical elements.

Criterion B/2

A drinking water or wastewater system that is closely associated with an individual of historic importance may be found eligible for listing in the national and/or state register under Criterion B/2. Standards of significance under Criterion B/2 are very specific and relatively few properties meet them. Eligible properties must be associated with the productive life of the historically important individual and must be the best representation of the person's historic contributions. NRHP guidelines emphasize that Criterion B is only applicable to the achievements of individuals, not groups of persons. Further, if an individual's association with a property was through his or her role in its engineering design, this would be better captured under Criterion C/3 as the work of a master engineer.

A drinking water or wastewater system feature may have significance under this criterion if it is directly associated with a scientific, public policy, or social change that best represents the

productive life of an historically important individual. This historic context has specifically identified individuals of importance within the context of the development of water sanitation including Thomas Logan, Charles Hyde, Wilfred Langelier, Chester Gillespie, and C. E. Grunsky, though other pioneering or influential individuals in the field may certainly exist. The association of one of these individuals with a property could confer historical significance under Criterion B/2 if their involvement was primarily in the realm of science or policy, rather than engineering, and if the property was an important one within the context of their career and contributions to their profession or field. Individuals must also be considered for importance at a local level and might be recognized for such actions as campaigning to extend sanitary services to a neglected community or adding protection for a natural resource.

Drinking water and wastewater systems do not commonly have strong, direct association with single individuals. They are instead usually the creation of municipal governments where credit and responsibility for the planning and construction of infrastructure are diffused among elected officials, city managers, and public works departments.

Criterion C/3

A drinking water or wastewater system or water system feature that exhibits important engineering or design characteristics may qualify for listing in the national and/or state register under Criterion C/3. A property can qualify either by being an important representative example of its type, period, or method of construction, or by having unique value as the work of a master or one that possesses high artistic value.

A water system feature may qualify if it is the earliest, best preserved, or a rare surviving example of its type; if it introduced a design innovation; or if it represents a transition between different expressions of the property type. Examples could include a nineteenth-century sewerage pipe if it is of a type that survives in few locations; an early trickling filter that shows transition between fill-and-drain practices and later continual spray methods; or the first water softening plant constructed in the state. Trade press publications can help to determine if a property was innovative for its time or exceptional for its size, expense, design challenges, unique combination of features, or in some other way. To be considered a good representative of its type, a property must possess “distinctive characteristics” that illustrate either a pattern of features common to the type or an important variation on the common features. It should be kept in mind that many water systems followed standard designs that were widely constructed. It is thus necessary to compare the subject property to other similar surviving examples to establish its importance as a representative of its type.

A water system feature can be significant as the work of a master if it was designed by a figure of acknowledged greatness in the field and is an important example of their work. The individuals listed in Criterion B/2 above were all major figures in the field of sanitary engineering who worked at times as consultants in designing drinking water and wastewater systems. Research will reveal other designers whose importance is evident by the number and types of projects they engaged in or by the testimony of their contemporaries. Not every building or structure designed by a master has historic importance, and it is necessary to situate the evaluated property within the context of the individual’s body of work to determine if it was one of their highest achievements or marked an important phase of their career.

A property with high artistic value is one that articulates a particular concept of design so well that it expresses an aesthetic ideal. While many water systems features were of utilitarian design, it was not uncommon for municipalities to carefully consider issues of architectural style when constructing buildings and structures that required considerable public investment and represented a commitment to the civic good. In general, the styling of water systems followed architectural trends employed in other contemporaneous public or utility buildings, using, for example, Neoclassical design around the turn of the century, the Art Deco style in the 1930s, and Modern styles in the 1940s and later. A water system feature might have significance for its design if it expressed one of these styles with a purity of form and a level of sophistication that exceeded that used in other comparable buildings. A property would not qualify if it made superficial use of a style or was of only average execution.

Not all features of drinking and wastewater systems are equally likely to possess significance under this criterion. Some water system components perform routine functions that remain consistent across treatment eras without showing more than incremental refinement. These include such features as sewer lines, waterline laterals, service connections, and wells. Technological innovation is more likely to be found in the principal components of treatment plants and in such property types as large water storage towers. Ubiquitous property types that were constructed using common designs and materials for their era are highly unlikely to be significant for their engineering. Note, however, that if the significance was for architectural styling, then even the most common storage shed could share in the design and contribute to the property's significance. Additionally, these features may contribute to the significance of a larger historic property (such as a historic district; see below) comprised of multiple elements working in concert as part of a larger system.

Criterion D/4

Drinking water and wastewater systems may be eligible for listing under Criterion D/4 if they are likely to yield information important to the study of history or prehistory. The properties most commonly found eligible under Criterion D/4 are archaeological sites, though historic built-environment features might also qualify for their information potential. These properties must be situated within an appropriate historic context, and they must possess the potential to answer specific important research questions through a study of their physical features. Potentially relevant research issues for water system features include those related to vernacular practices and construction methods and might apply to indigenous, Spanish, Mexican, and early Euro-American systems. For instance, remnants of drinking and wastewater infrastructure from nineteenth century California may exhibit a local variation of a standard construction technique and provide insight into the availability of materials or construction expertise at a time when drinking and wastewater infrastructure were more localized and potentially non-standard. In order to make such a determination, construction dates would need to be ascertained using either the built-environment or archaeological record to identify associated temporally sensitive architectural elements of standing resources, documentation in primary sources, and/or temporally sensitive artifacts.

Certain water sanitation systems may possess research value for their associations with other types of resources. As the use of water and disposal of waste are essential to every form of

settlement and most economic activities, establishing the location and time period of a water feature's use may aid in the broader study of a region's development.

However, oftentimes the archaeological remnants of water and waste disposal features or the material culture of the people that operated these systems, do not contain enough data to impart new knowledge about the design or operation of a facility.

Integrity

Working drinking water and wastewater systems will almost invariably have been altered to meet expanded demand, incorporate new technologies, replace worn-out components, and comply with changing regulations. Over time, these incremental changes leave most working systems with few original components that have not been modified or expanded. It is thus critical that evaluators carefully consider the integrity of historically significant systems and components under consideration. Even when systems meet one or more NRHP/CRHR criteria for significance, they will be ineligible for listing by state and federal standards if they do not retain the integrity needed to convey the significance they may once have possessed.

To retain historic integrity, a system must possess at least several, and usually most, of the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. Determining which of these aspects are most critical to a property requires clearly defining why the property is important and the time period (period of significance, see below) of that importance. The evaluator must weigh the cumulative loss of integrity across the seven aspects, balancing each by its relative importance, and arrive at a conclusion to what is ultimately a yes-or-no question: Does the resource retain adequate integrity to its period of significance to convey its significance? An answer of "yes" makes a significant resource eligible for listing in the NRHP and/or CRHR, while a "no" answer means that the resource is ineligible for listing in either register despite having historical significance.

As with other types of historic properties, the fundamental test of the integrity of a drinking water or wastewater system consists of the relationship between its current appearance and its appearance during the period of significance, which the evaluator will establish after placing the resource in its appropriate historic context and determining which significance criterion or criteria it meets. Integrity will not be lost as the result of modifications made during the system's period of significance, and indeed, these alterations may actually contribute to its importance if they illustrate the adaptability and evolving role of the property. Modifications made after the period of significance may adversely affect the resource's integrity. However, these modifications must be assessed to determine if they are of a scope, scale, and nature sufficient to cause the loss of one or more aspects of integrity.

It will not always be possible to assess the integrity of underground resources. Construction plans or other documentary materials may record the type, age, and materials of below-ground pipes, vaults, and other such features, but it might not be possible to determine if the original items have been replaced or altered without exposing the resource through excavation. The evaluation may then contain language to indicate the uncertainty, noting that the resource would contribute to the significance of the larger property if it was constructed during the period of significance and maintains historic integrity to the period.

Not all alterations made to a system are of equal importance in assessing integrity. Changes that result from routine maintenance are usually less detrimental to integrity than are alterations made to the plant's fundamental processes, and especially so when the changes affect only smaller, secondary components such as motors, pumps, electronic sensors, and computer systems. However, it is necessary to consider the cumulative effect of various additions and alterations over time. At the other extreme, replacing a major component of the treatment process, for example, replacing a septic tank with a separate clarifier and sludge digestor, would greatly degrade resource integrity of design and would likely disqualify it for listing in state and national registers.

Historic Districts

Drinking water and wastewater features may be evaluated as independent resources or as contributors to a historic district composed of related elements. A historic district consists of a significant concentration, linkage, or continuity of sites, buildings, structures, or objects that are interrelated visually or by function. A district may contain resources that are also individually eligible for listing or consist entirely of resources that lack individual distinction, but which achieve significance when grouped as a whole. A drinking water system district might consist of a treatment plant and related support features such as pumping stations and storage tanks, or of a series of wells that are united by common design and function. A district usually consists of a definable geographic area that is distinguishable from surrounding properties, but it may also be discontiguous (composed of two or more areas separated by nonsignificant areas) if the elements are spatially discrete and the space between them is not significant to the district. A discontiguous district may work well for a water system where the piped connections between resources are below ground and not of visual or historic importance to the district. Note, however, that if the district was significant for its engineering achievement and the subsurface pipe configuration or materials were an important part of that accomplishment, then the district might need to include the non-visible pipes within the property boundaries.

Drinking water features may also contribute to historic districts that are significant for reasons unrelated to water development. Indeed, the majority of California water features that have been determined eligible for listing in the NRHP and/or CRHR are of this type and owe their significance to the role they played in a larger enterprise rather than for their merits as engineered water features per se. Examples of this include the water system and sewage treatment plant within the Sonoma State Home Historic District and the water treatment plant in the Presidio National Historic Landmark District. It is thus always necessary to consider how water or sewage infrastructure was used in the pursuit of other economic, social, and cultural ends and to assess if the larger context has independent historic importance.

2. ENVIRONMENTAL AND CULTURAL BACKGROUND

2.1 GEOARCHAEOLOGICAL SENSITIVITY AND ENVIRONMENTAL BACKGROUND

2.1.1 Environmental Setting

The Project area is located within/near the city of Coalinga in Fresno County, California. Located approximately 0.40 mi. apart, the APE consists of two discontinuous parcels: 1) Pipelines APE and 2) WWTP APE (see Figure 1). Whereas the Pipelines APE is associated with the city of Coalinga, the WWTP APE is associated with Coalinga's Wastewater Treatment Plant (see Figure 1). The Pipelines APE is west of the WWTP APE, and the parcels are bisected by Warthan Creek. Elevations within the APE range between 640 ft. and 690 ft. amsl, with slopes ranging between zero and two percent. Both parcels are bounded to the north by Los Gatos Creek, which coalesces with Warthan Creek near the Project area. As outlined below, the APE consists of alluvial fans and historical era/modern anthropogenic deposits.

2.1.2 Geology and Geomorphology

The Project area is located within Pleasant Valley, which consists of a small valley within the southern Diablo Range. Pleasant Valley is technically part of the San Joaquin Valley but is separated from San Joaquin Valley proper via the Guijarral Hills and Anticline Ridge, which is bisected by Los Gatos Creek (Figure 2). Coalinga is partially surrounded by oil fields, with the first oil production beginning in 1890 (Hughes et al. 1990:399). These oil fields, as well as the city of Coalinga, were damaged by a magnitude 6.7 earthquake originating from Anticline Ridge in 1983 (Rymer and Ellsworth 1990). The earthquake engendered several thousand landslides, some of which occurred along the cutbanks paralleling Los Gatos Creek (Harp and Keefer 2017:344). The APE is located within the southwestern portion of Pleasant Valley and is marked by extensive alluvial fans originating from adjacent hillslopes. The APE consists of (Qa) deposits composed of surficial sediments (i.e., alluvial gravel, sand and clay of valley areas; includes gravel and sand of stream channels) (see Figure 2).

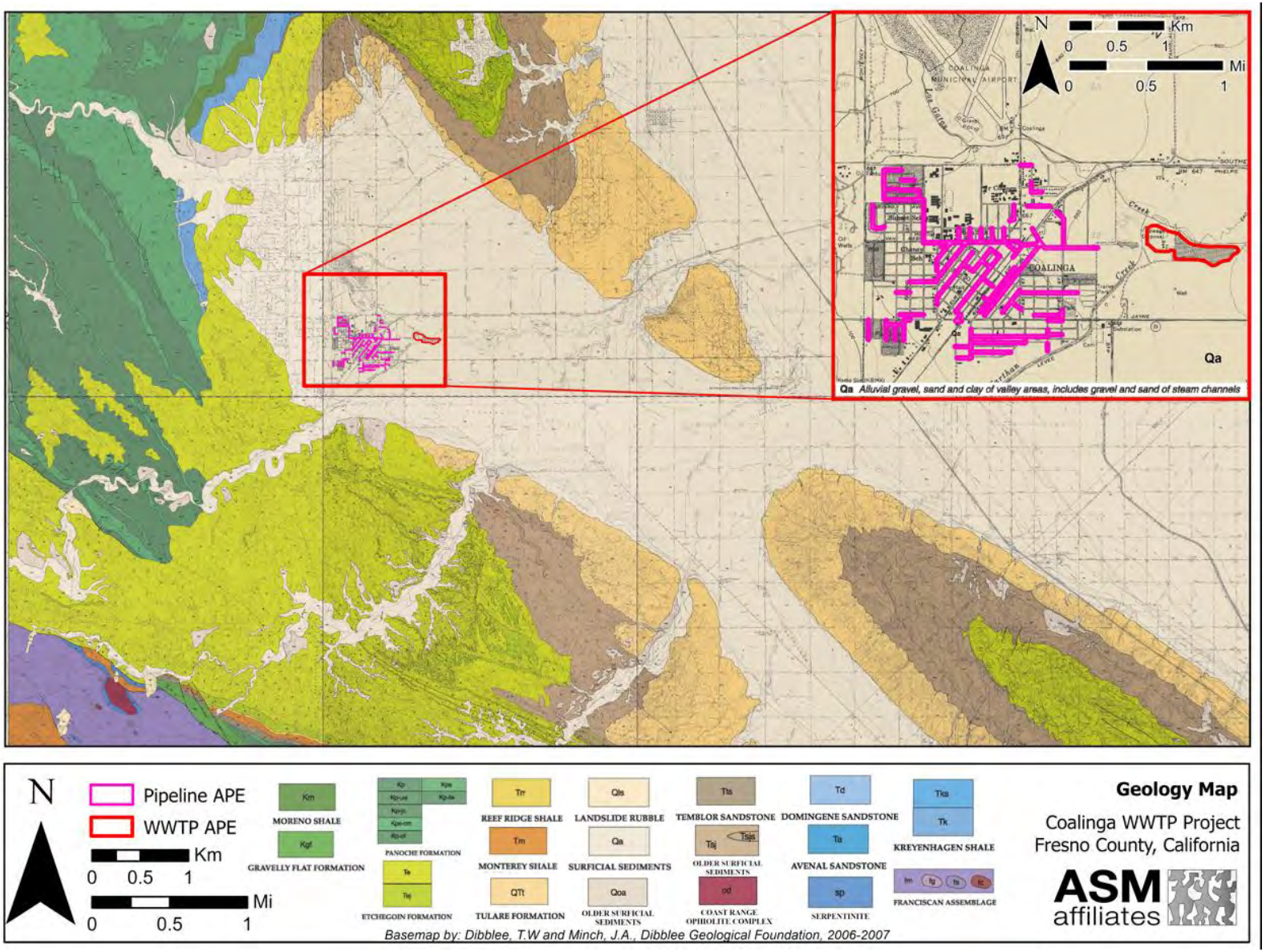

Figure 2. Coalinga Sanitary Sewer Collection System and WWTP Improvements Project Geology Map

2.1.3 Soils

Soils in the APE were identified through the US Department of Agriculture's National Resource Conservation Service (USDA-NRCS 2019) Soil Survey Geographic (SSURGO) soil data. The Pipelines APE is mapped as the Excelsior soil series, which formed during the latest Holocene (2000–150 cal YBP) and consists of mixed alluvium originating from igneous and calcareous sedimentary rocks (Meyer et al. 2010: Appendix C). In contrast, the WWTP APE is mapped as "Sewage Disposal Pond" and dates to the historical era/modern times (<150 YBP) (Meyer et al. 2010: Appendix C). Although SSURGO does not list the native soil type(s) associated with the WWTP APE, the surrounding soils predominantly consist of the Excelsior series. Soil types accounting for less than six percent of the APE were not included. Soil map units are as follows:

<u>Pipelines APE</u>

- Excelsior; (latest Holocene; 2000–1000 cal YBP)

<u>WWTP APE</u>

- Sewage Disposal Pond; (historical era/modern times; <150 cal YBP)

Soils in the APE(s) consist of young to very young soils formed in alluvium originating from adjacent areas of higher elevation. Although both parcels are marked by anthropogenic disturbances, the WWTP APE is mapped entirely as "Sewage Disposal Pond" which Meyer et al. (2010: Appendix C) confirms is a historical era/modern (<150 cal YBP) deposit.

2.1.4 Buried Site Sensitivity

As outlined above, the deposits within the APE(s) formed between the historical era/modern times (<150 YBP), and latest Holocene (2000–150 YBP). Whereas the Pipelines APE is marked by high buried site potential, the WWTP APE is marked as having low buried site potential (Meyer et al. 2010:140, Table 18). It should be noted that areas within the WWTP APE lacking modern disturbances via the construction of Coalinga's Wastewater Treatment Plant would be classified as having high buried site potential, as it likely is marked as the Excelsior soil series.

2.2 ETHNOGRAPHIC BACKGROUND

Penutian-speaking Yokuts tribal groups occupied the southern San Joaquin Valley region and much of the nearby Sierra Nevada. Ethnographic information about the Yokuts was collected primarily by Powers (1971, 1976 [originally 1877]), Kroeber (1925), Gayton (1930, 1948), Driver (1937), Latta (1977) and Harrington (n.d.). For a variety of historical reasons, existing research information emphasizes the central Yokuts tribes who occupied both the valley and particularly the foothills of the Sierra. The northernmost tribes suffered from the influx of Euro Americans during the Gold Rush and their populations were in substantial decline by the time ethnographic studies began in the early twentieth century. In contrast, the southernmost tribes were partially removed by the Spanish to missions and eventually absorbed into multi-tribal communities on the Sebastian Indian Reservation (on Tejon Ranch), and later the Tule River Reservation and Santa Rosa Rancheria to the northeast. The result is a scarcity of ethnographic detail on southern Valley tribes, especially in relation to the rich information collected from the central foothills tribes where native speakers of the Yokuts dialects are still found. Regardless, the general details of indigenous

lifeways were similar across the broad expanse of Yokuts territory, particularly in terms of environmentally influenced subsistence and adaptation and with regard to religion and belief, which were similar everywhere.

Following Kroeber (1925: Plate 47), the Project APE most likely lies in *Tachi* territory. The closest village to the APE for this group was *Udjiu*, northeast of the APE.

The Yokuts settlement pattern was largely consistent, regardless of the specific tribe involved. Winter villages were typically located along lakeshores and major stream courses (as these existed circa 150 YBP), with dispersal phase family camps located at elevated spots on the valley floor and near gathering areas in the foothills.

Most Yokuts groups, again regardless of specific tribal affiliation, were organized as a recognized and distinct tribelet, a circumstance that almost certainly pertained to the tribal groups noted above. Tribelets were land-owning groups organized around a central village and linked by shared territory and descent from a common ancestor. The population of most tribelets ranged from about 150 to 500 people (Kroeber 1925).

Each tribelet was headed by a chief who was aided by a variety of assistants, the most important of whom was the *winatum*, a herald or messenger and assistant chief. A shaman also served as a religious officer. While shamans did not have any direct political authority, as Gayton (1930) has illustrated, they maintained substantial influence within their tribelet.

Shamanism is a religious system common to many Native American tribes. It involves a direct and personal relationship between the individual and the supernatural world enacted by entering a trance or hallucinatory state (usually through the ingestion of psychotropic plants, such as jimsonweed or more typically native tobacco). Shamans were considered individuals with an unusual degree of supernatural power, serving as healers or curers, diviners, and controllers of natural phenomena (such as rain or thunder). Shamans also produced the rock art of this region, depicting the visions they experienced in vision quests believed to represent their spirit helpers and events in the supernatural realm (Whitley 1992, 2000).

The centrality of shamanism to the religious and spiritual life of the Yokuts was demonstrated by the role of shamans in the yearly ceremonial round. The ritual round, performed in the same manner each year, started in the spring with the jimsonweed ceremony, followed by rattlesnake dance and (where appropriate) first salmon ceremony. After returning from seed camps, fall rituals began in the late summer with the mourning ceremony, followed by first seed and acorn rites, and then bear dance (Gayton 1930:379). In each case, shamans served as ceremonial officials responsible for specific dances involving a display of their supernatural powers (Kroeber 1925).

Subsistence practices varied from tribelet to tribelet based on the environment of residence. Throughout Native California, and Yokuts territory in general, the acorn was a primary dietary component, along with a variety of gathered seeds. Valley tribes augmented this resource with lacustrine and riverine foods, especially fish and wildfowl. As with many Native California tribes, the settlement and subsistence rounds included the winter aggregation into a few large villages, where stored resources (like acorns) served as staples, followed by dispersal into smaller camps,

often occupied by extended families, where seasonally available resources would be gathered and consumed.

Although population estimates vary and population size was greatly affected by the introduction of Euro-American diseases and social disruption, the Yokuts were one of the largest, most successful groups in Native California. Cook (1978) estimates that the Yokuts region contained 27 percent of the aboriginal population in the state at the time of contact; other estimates are even higher. Many Yokuts people continue to reside in the southern San Joaquin Valley today.

2.3 PRE-CONTACT ARCHAEOLOGICAL BACKGROUND

The southern San Joaquin Valley region has received minimal archaeological attention compared to other areas of the state. In part, this is because the majority of California archaeological work has been concentrated in the Sacramento Delta, Santa Barbara Channel, and central Mojave Desert areas (see Moratto 1984). Although knowledge of the region's prehistory is limited, enough is known to determine that the archaeological record is broadly similar to south-central California as a whole (see Gifford and Schenk 1926; Hewes 1941; Wedel 1941; Fenenga 1952; Elsasser 1962; Fredrickson and Grossman 1977; Schiffman and Garfinkel 1981). Based on these sources, the general prehistory of the region can be outlined as follows.

Initial occupation of the region occurred at least as early as the *Paleoindian Period*, or prior to about 10,000 YBP. Evidence of early use of the region is indicated by characteristic fluted and stemmed points found around the margin of Tulare Lake, in the foothills of the Sierra, and in the Mojave Desert proper.

Both fluted and stemmed points are particularly common around lake margins, suggesting a terminal Pleistocene/early Holocene lakeshore adaptation similar to that found throughout far western North America at the same time; little else is known about these earliest peoples. More than 250 fluted points have been recovered from the Witt Site (CA-KIN-32), located along the western shoreline of ancient Tulare Lake south of the APE, demonstrating the importance of this early occupation in the San Joaquin Valley specifically (see Fenenga 1993). Additional finds consist of a Clovis-like projectile point discovered in a flashflood cut-bank near White Oak Lodge in 1953 on Tejon Ranch (Glennan 1987a, 1987b). More recently, a similar fluted point was found near Bakersfield (Zimmerman et al. 1989), and a number are known from the Edwards Air Force Base and Boron area of the western Mojave Desert. Although human occupation of the state is well-established during the Late Pleistocene, relatively little can be inferred about the nature and distribution of this occupation with a few exceptions. First, little evidence exists to support the idea that people at that time were big-game hunters, similar to those found on the Great Plains. Second, the western Mojave Desert evidence suggests small, very mobile populations that left a minimal archaeological signature. The evidence from the ancient Tulare Lake shore, in contrast, suggests much more substantial population and settlements which, instead of relying on big-game hunting, were tied to the lacustrine lake edge. Variability in subsistence and settlement patterns is thus apparent in California, in contrast to the Great Plains.

Substantial evidence for human occupation across California, however, first occurs during the middle Holocene, roughly 7500 to 4000 YBP. This period is known as the *Early Horizon*, or

alternatively as the Early Millingstone along the Santa Barbara Channel. In the south, populations concentrated along the coast with minimal visible use of inland areas. Adaptation emphasized hard seeds and nuts with tool kits dominated by mullers and grindstones (manos and metates). Additionally, little evidence for Early Horizon occupation exists in most inland portions of the state, partly due to a severe cold and dry paleoclimatic period occurring at this time, although a site deposit dating to this age has been identified along the ancient Buena Vista shoreline in Kern County to the south (Rosenthal et al. 2007). Regardless of specifics, Early Horizon population density was low with a subsistence adaptation more likely tied to plant-food gathering than hunting.

Environmental conditions improved dramatically after about 4000 YBP during the *Middle Horizon* (or Intermediate Period). This period is known climatically as the Holocene Maximum (circa 3800 YBP) and was characterized by significantly warmer and wetter conditions than previously experienced. It was marked archaeologically by large population increase and radiation into new environments along coastal and interior south-central California and the Mojave Desert (Whitley 2000). In the Delta region to the north, this same period of favorable environmental conditions was characterized by the appearance of the Windmiller culture which exhibited a high degree of ritual elaboration (especially in burial practices) and perhaps even a rudimentary mound-building tradition (Meighan, personal communication, 1985). Along with ritual elaboration, Middle Horizon times experienced increasing subsistence specialization, perhaps correlating with the appearance of acorn-processing technology. Penutian-speaking peoples (including the Yokuts) are also posited to have entered the state roughly at the beginning of this period and, perhaps, to have brought this technology with them (cf. Moratto 1984). Likewise, it appears the so-called "Shoshonean Wedge" in southern California, the Takic-speaking groups that include the Gabrielino/Fernandeño, Tataviam, and Kitanemuk, may have moved into the region at that time (Sutton 2009), rather than at about 1500 YBP as first suggested by Kroeber (1925).

Evidence for Middle Horizon occupation of interior south-central California is substantial. For example, in northern Los Angeles County along the upper Santa Clara River, to the south of the San Joaquin Valley, the Agua Dulce village complex indicates occupation extending back to the Intermediate Period, when the population of the village may have been 50 or more people (King et al n.d.). Similarly, inhabitation of the Hathaway Ranch region near Lake Piru, and the Newhall Ranch near Valencia, appears to date to the Intermediate Period (W&S Consultants 1994). To the west, little or no evidence exists for pre-Middle Horizon occupation in the upper Sisquoc and Cuyama River drainages; populations first appear there at roughly 3500 YBP (Horne 1981). The Carrizo Plain, the valley immediately west of the San Joaquin, experienced a major population expansion during the Middle Horizon (W&S Consultants 2004; Whitley et al. 2007), and recently collected data indicates the Tehachapi Mountains region was first significantly occupied during the Middle Horizon (W&S Consultants 2006). A parallel can be drawn to the inland Ventura County region where a similar pattern has been identified (Whitley and Beaudry 1991), as well as the western Mojave Desert (Sutton 1988a, 1988b), the southern Sierra Nevada (W&S Consultants 1999), and the Coso Range region (Whitley et al. 1988). In all of these areas a major expansion in settlement, the establishment of large site complexes, and an increase in the range of environments exploited appear to have occurred sometime roughly around 4,000 years ago. Although most efforts to explain this expansion have focused on local circumstances and events, it is increasingly apparent this was a major occurrence throughout southern California, and any explanation must

be sought at a larger level of analysis (Whitley 2000). Additionally, evidence from the Carrizo Plain suggests the origins of the tribelet level of political organization developed during this period (W&S Consultants 2004; Whitley et al. 2007). Whether this same demographic process holds for the southern San Joaquin Valley, including the Project APE, is yet to be determined.

The beginning of the *Late Horizon* is set variously at 1500 and 800 YBP, with a growing archaeological consensus for the shorter chronology. Increasing evidence suggests the importance of the Middle-Late Horizons transition (AD 800 to 1200) in the understanding of south-central California prehistory. This corresponds to the so-called Medieval Climatic Anomaly, followed by the Little Ice Age, and this general period of climatic instability extended to about A.D. 1860. It included major droughts matched by intermittent "mega-floods," and resulted in demographic disturbances across much of western North America (Jones et al. 1999). It is believed to have resulted in major population decline and abandonments across south-central California, involving as much as 90 percent of the interior populations in some regions, including the Carrizo Plain (Whitley et al. 2007). It is not clear whether site abandonment was accompanied by a true reduction in population or an agglomeration of the same numbers of peoples into fewer but larger villages in more favorable locations. Population along the Santa Barbara coast appears to have spiked at about the same time that it collapsed on the Carrizo Plain (ibid). Along Buena Vista Lake, in Kern County, population appears to have been increasingly concentrated toward the later end of the Medieval Climatic Anomaly (Culleton 2006), and population intensification also appears to have occurred in the well-watered Tehachapi Mountains during this same period (W&S Consultants 2006).

What is then clear is that Middle Period villages and settlements were widely dispersed across the south-central California landscape, including in the Sierra and the Mojave Desert. Many of these sites are found at locations that lack existing or known historical freshwater sources. Late Horizon sites, in contrast, are typically concentrated in areas where fresh water was available during the historical period, if not currently.

One extensively studied site that shows evidence of intensive occupation during the Middle-Late Horizons transition (~1500 – 500 YBP) is the Redtfeldt Mound (CA-KIN-66/H), located south of the current APE, near the north shore of ancient Tulare Lake. There, Siefkin (1999) reported on human burials and a host of artifacts and ecofacts excavated from a modest-sized mound. He found that both Middle Horizon and Middle-Late Horizons transition occupations were more intensive than Late Horizon occupations, which were sporadic and less intensive (Siefkin 1999:110-111).

The Late Horizon can then be understood as a period of recovery from a major demographic collapse. One result is the development of regional archaeological cultures as the precursors to ethnographic Native California, suggesting that ethnographic lifeways recorded by anthropologists extend roughly 800 years into the past.

The position of southern San Joaquin Valley prehistory relative to patterns seen in surrounding areas is still somewhat unknown. The presence of large lake systems in the valley bottoms appears to have mediated some of the desiccation seen elsewhere. But, as the reconstruction of Soda Lake in the nearby Carrizo Plain demonstrates (see Whitley et al. 2007) environmental perturbations had serious impacts on lake systems too. Identifying certain prehistoric demographic trends for the

southern San Joaquin Valley, and determining how these trends (if present) correlate with those seen elsewhere, is a current important research objective.

2.4 HISTORICAL BACKGROUND

2.4.1 Drinking Water and Wastewater Treatment Facilities in California

JRP Historical Consulting, LLC and AECOM prepared the historic context below:[1]

1. The Pre-Treatment Era: Sanitation in the Nineteenth Century
The mid-nineteenth century saw the emergence of the first social-reform "Sanitarians" in England and America who linked cleanliness and good health. The reformers lacked a specific causal mechanism to explain waterborne disease transmission, but they succeeded in creating state and local boards of health with limited powers to enforce hygienic measures. No practical method for treating drinking water or sewage yet existed, so municipal engineers simply sought to direct sewage away from populated areas as rapidly as possible and to secure safe drinking water drawn from deep wells or remote mountain streams. The ad hoc nature of water procurement and sewer construction meant these efforts frequently failed, and cholera and typhoid fever took a frightful toll on urban populations through the century.

Knowledge
Modern sanitary sewage and drinking water systems first emerged in mid-nineteenth-century England. Prior to that time, systems of water supply and waste disposal were local in nature with limited public oversight. Individuals were responsible for procuring their own water and disposing of their own waste. So long as population densities remained low, these traditional methods functioned satisfactorily. However, as urbanization and industrialization took hold in Victorian England, the streams of human and industrial waste began to overwhelm the limited physical and legal infrastructure that governed the flows of pure and soiled waters. London, Birmingham, and Manchester choked on their own filth and suffered through regular epidemics that the medical theories of the day could neither explain nor ameliorate.

In the 1830s, English social reformers—the so-called Sanitarians—began to link dirt, disease, and moral disorder. A cholera epidemic of 1831–1832 killed great numbers of people and particularly devastated the poorest and dirtiest districts of London. A nascent reform movement that aimed to improve living conditions for the laboring class seized on the moment to promote the idea that cleanliness and health were inextricably linked. Theorists began to conceive of the city as an organic entity that depended upon a regular flow of clean water for nourishment and as an aid in the disposal of waste. They pressed for improved public health systems, with a focus on securing clean sources of drinking water and, to a lesser extent, providing public sewerage systems.

The sanitarian position was associated with miasmic theory, the then-dominant medical model. Miasmic theory held that disease arose from the putrefaction of organic wastes and was transmitted through the inhalation of contaminated airs (miasmas) such as vapors arising from stagnant ponds or sewer gases leaking through a storm grate. Scientists debated the exact nature of miasmas, but

[1] ASM did not include any of the mentioned figures, and Table 2 has been excluded. Please see original source.

were in general agreement that they arose from a combination of warm temperatures, damp environments, and an overabundance of organic matter. A physician's proper duties thus extended beyond individual care to encompass social reform of the unsanitary conditions that endangered public health. Because many of the illnesses that the Sanitarians first combatted were intestinal in nature—cholera, dysentery, typhoid fever—their environmental campaigns produced real improvements that vouched for the theory among scientists, politicians, and the public. However, the miasmic theory always remained vague about the precise vectors of contagion, and by the end of the nineteenth century it had been largely replaced by the germ theory that identified bacterial pathogens as the agents responsible for spreading disease.

Edward Chadwick was the great popularizer of sanitary ideas. A lawyer by profession, Chadwick led several government investigations of epidemics that established firm connections between poor sanitary conditions and disease outbreaks. His 1842 Report on the Sanitary Conditions of the Labouring Population of Great Britain was widely read, selling more copies than any prior government publication. Chadwick argued that improving sanitary conditions required a strong centralized authority with the power to construct comprehensive public works systems that integrated water deliveries and sewage removal. He was too impatient to accept the more limited political realities of his time, and none of his proposals ever achieved full implementation. However, his forceful advocacy of sanitarian ideas shifted the public debate. His work brought together for the first time an environmental context for public health, an argument for the role of government in improving conditions for the greater good, and the identification of infrastructure technologies that could realize those goals.

Sanitarian ideas crossed the Atlantic in the mid-1840s. A small but influential group of American physicians had closely followed developments in Europe and were eager to apply the new environmental models of health to their own country, which was then in the midst of its first great wave of urban expansion. John H. Griscom, the New York City Inspector at the time, corresponded with Chadwick and in 1845 published The Sanitary Conditions of the Laboring Population of New York that was modeled on Chadwick's report. Among other proposed reforms, the study called for an expanded public drinking water system and the construction of underground sewers. Griscom joined with other physicians in organizing the New York Academy of Medicine that made sanitarian reform one of its chief objectives.

The American Medical Association (AMA) established a committee on public hygiene in 1848. The committee took a broad view of public health that included infrastructure improvements alongside quarantine laws, smallpox vaccinations, temperance advocacy, vital statistics gathering, pure food and drink measures, and mental health programs. The group urged the creation of state and local boards of health and called for medical schools to include instruction in the sanitary sciences. In 1857, the AMA staged the first national sanitary convention in Philadelphia, with annual meetings following in Baltimore, New York, and then Boston in 1860. The outbreak of the Civil War interrupted the gathering momentum of the American sanitarian movement, but public health had established itself as a key element in progressive medical thought.

Political Organization

For all the gains that sanitarian ideas made among physicians and social reformers, the movement realized far fewer practical achievements. Americans shrank from accepting the sort of centralized authority that Chadwick and Griscom believed was needed to implement sanitarian reforms. State

and local governments largely assumed public health responsibilities only when compelled to by an epidemic and the resulting regulations were typically allowed to lapse once the crisis had passed. Local governments lacked clear authority to do more even if they had so desired. A lack of definite knowledge about the causes of illness contributed to this reluctance as most early efforts at halting the spread of epidemics proved futile and divisive.

A few Northeastern cities broke from this general pattern of passivity to take an active role in passing sanitary ordinances and establishing public health bodies. The city leaders of Boston in 1634 prohibited the dumping of fish or garbage near the common docks in what was apparently the first formal sanitary law in the American colonies. The city authored quarantine regulations in 1647 and began to regulate the construction of privies five years later. In 1797, Boston established the first permanent local board of health in the nation, though the body had limited formal powers and was staffed by political appointees. The New York state legislature in 1866 passed the New York Metropolitan Health Law that established the Metropolitan Board of Health. This was the first effective board of health in a major city, and it provided a model for subsequent developments. Massachusetts created the first state-level board of health in 1869. Still, few states immediately followed the lead of New York and Massachusetts, and as late as 1875 many major cities had no permanently empowered health departments.

Rather than adopting formal ordinances to regulate sanitary matters, most cities and states chose to rely on broad but vaguely articulated nuisance laws. The State of California later defined a public nuisance as “anything which is injurious to health, or is indecent, or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.”10In most circumstances, noxious odors and unsightly trash dumps posed more of an annoyance than a serious public health threat. However, because these sorts of nuisances were commonly limited to individual properties, they could be more easily addressed than systemic problems. And critically, the courts, rather than politicians, took the lead in enforcing nuisance laws. Americans were willing to accept litigation in private property disputes more so than government-imposed regulations. Thus, public nuisance lawsuits and abatement orders played the chief role through the nineteenth century in protecting water purity.

Nineteenth-Century California

Nineteenth-century California was progressive in establishing public health organizations, but lagged in constructing effective infrastructure. While California generally followed national trends in sanitation and looked towards the Northeastern states and Western Europe for its models, the peculiarities of the Gold Rush in the late 1840s and early 1850s shaped the state’s early experiences with water and sewage systems. The mass movement of population and the sudden emergence of urban centers, especially in San Francisco and Sacramento, fueled pandemics that galvanized early public health campaigns. Physicians strenuously advocated for improved sanitary conditions, but the actual development of water and sewage systems occurred in a piecemeal fashion that befit an era of limited governments. Systems constructed for the “instant cities” of the 1850s remained in use a half century later despite obvious inadequacies. Only in the twentieth century did California emerge as a national leader in sanitation matters.

Boards of Health

The public health systems of nineteenth-century California emerged in response to the severe disorder that accompanied the Gold Rush. The surge of hundreds of thousands of global migrants into a region almost entirely lacking in public health infrastructure produced a calamitous series of disease outbreaks, including most notably the cholera epidemic of 1850. Cholera struck horror wherever it appeared in the nineteenth century. The intestinal illness, transmitted by food and water contaminated with fecal matter, caused violent vomiting and diarrhea that left victims with an unquenchable thirst and dehydration so severe that the skin pulled taut around skeletal features. Nearly half of cases resulted in death, often within hours of the onset of symptoms.

Cholera arrived in San Francisco aboard an unquarantined ship in early October 1850. Within a week and a half, the disease had spread to Sacramento, where it had its most devastating impact. No authority then existed to keep a reliable count of the dead, but an estimated 800 to 1000 people, roughly 15 percent of Sacramento's population, are thought to have perished during the month-long outbreak. Of the 40 physicians based in Sacramento, 17 died while tending to the ill, one of the highest mortality rates ever recorded among medical first responders. This encounter with cholera and subsequent waves of smallpox, diphtheria, typhoid fever, and other communicable illnesses deeply impressed upon the state's physicians the need to organize in support of quarantine laws and public sanitation measures.

Sacramento physician Thomas M. Logan took a leading role in establishing the institutions of public health. Born and educated in South Carolina, Logan spent a year of study in Britain and France during a cholera epidemic that allowed him to learn firsthand the latest in sanitary science. Back in the United States, he served as a university lecturer, authored a compendium on surgery, and accepted a hospital appointment in New Orleans before the Gold Rush lured him to California in time for the 1850 cholera epidemic. Logan began compiling statistics on mortality in Sacramento and was ahead of his time in insisting that the control of disease depended largely upon the sanitation of the community. He took an active role in organizing the Sacramento Medical Society in 1855, the California Medical Society in 1856, and the Sacramento Society for Medical Improvement in 1868. Logan regularly served as corresponding secretary for these organizations, and he ranked among the most prolific writers of medical literature in the state.

Logan and the medical societies campaigned for the organization of boards of health that would place matters of sanitation and quarantine under the direction of medical school-trained physicians rather than political patronage appointees. Both San Francisco and Sacramento established local boards in the mid-1860s, closely following the example set by New York Metropolitan Board of Health. Logan served as a charter member and secretary for the Sacramento board.

Local boards held responsibility for a complex array of health matters. The enacting legislation charged the boards with managing quarantine procedures at the ports; keeping records of birth, deaths, and interments; supervising the sanitary conditions of all public hospitals, jails, almshouses, and schools; providing guidance on the location and staffing of hospitals; and establishing "pest houses" for isolating contagious disease. While the boards held general authority to make and enforce any sanitary regulation deemed necessary, in practice their involvement with municipal water and sewage systems was limited to ordering the abatement of nuisances. The boards did not take a hand in planning such systems or in supervising their construction, which

remained the purview of private developers and municipal engineers. The boards could order an individual source of pollution from a tenement house or butcher shop cleaned up at the owner's expense, but the larger failures common in the ad hoc construction of sewage networks remained unaddressed.

In 1870, Logan authored legislation to establish the California State Board of Health. Massachusetts had created the nation's first state board of health only a year prior in 1869, and California was the second state to take the consequential step. Logan had been frustrated by the smallpox epidemic of 1868-69, when popular resistance to vaccinations cost hundreds of lives that might otherwise have been saved. He desired a strong state board that could coordinate the efforts of mandatory local health boards but accepted that politics required a less powerful organization. The law he crafted created a board of seven physicians, appointed by the governor and hailing from throughout the state. Logan was the first appointee to the board and served as secretary. In his opening address to the newly formed body, he stressed that the board would avoid sanitary measures that "might press too heavily on the individual and lessen too much the freedom of personal action." "Our duties are not executive, but advisory," he declared, and in most all cases, "the observation of our sanitary rules will be voluntary and not compulsory."

As one of its first orders of business, the state board drafted the "Act for Sanitary Purposes," by which it hoped to empower local boards of health to construct and manage sewage collection systems. As drafted, the act would have compelled every incorporated city and town to establish a local board of health staffed by medical professionals. These local boards were to have sole authority over the management of sewage and drainage pipes. All new buildings constructed within incorporated towns would be required to complete sewers that either drained to the sea or connected to a sewage collection system if one were within 100 feet of the building. Those outside of 100 feet from an existing system would need to install privies and covered cesspools with the construction overseen by local health officials "for the preservation of the purity of streams and springs, or other sources of fresh water."

The California Legislature declined to enact such an ambitious bill, and instead merely authorized (rather than required) city governments to appoint boards of health or health officers as they saw fit. County supervisors might likewise appoint boards of health, but only as a temporary measure during epidemics. Few cities immediately availed themselves of their appointment authority and only Stockton and Oakland created new boards to join those previously existing in San Francisco and Sacramento. In 1878, the legislature amended the law to make the formation of a local board of health mandatory for incorporated communities. Enforcement of the measure was limited, and many cities delayed appointing a board that might shift power away from city councilmembers. By the mid-1880s, a total of 19 local boards of health existed, representing less than one third of the 60 incorporated cities and towns in the state. In 15 counties, no incorporated towns existed and therefore there were no boards of health.

The local boards of health had executive power to enforce nuisance abatement laws, but only a few cities had ordinances specific to sanitation. Serving on a health board was generally a thankless task that invited hostility from those who were served with abatement orders, so most boards acted only after receiving a formal complaint. The state board attempted to prompt the local boards into taking greater responsibility for their drinking water and sewage systems by sending out periodic

questionnaires that asked for an assessment of current conditions and plans. However, the survey results tended to be more dispiriting than motiving. Of the 23 cities that responded to an 1879 survey, only one was judged to have a complete sewerage system, while seven others had partial systems that left out many neighborhoods. The remaining cities had no integrated systems but included disconnected sections of sewage pipe that were constructed by private interests to serve individual buildings or small developments. The state board concluded that the responses showed "an absence of a spirit of enterprise to overcome obstacles, and an apparent want of appreciation of the real importance of the subject."

Professorships of Hygiene

In 1873, the regents of the University of California (UC) created a Professorship of Hygiene within the medical school at Berkeley, the fourth such position in the nation, and they appointed Thomas Logan, the founder and secretary of the State Board of Health, to the role. Logan had achieved national prominence in the years following the 1870 creation of the state board. He arranged for the 1871 annual convention of the AMA to be held in San Francisco, and he used his address to the body to tout the state's achievements and urge the nation's 37 medical schools to appoint chairs of hygiene. Logan was elected president of the AMA for the 1872 year. Although the UC regents appointed a leading man of medicine with a record of scientific and administrative innovation to head the new course of study, Logan died three years later without leaving a permanent, substantive plan of research and instruction.

The University of California, Stanford University, and the University of Southern California all created professorships of hygiene or sanitary science in the nineteenth century, but the broad program of instruction gave limited attention to matters of drinking water supply or sewage management. Courses focused largely on what might be termed healthy living, covering such subjects as diet, exercise, sexual relations, and mental health. There was thus little university research conducted on public sanitation in nineteenth-century California that might have shaped the infrastructure being created.

Nineteenth-Century Technology Waterworks

Prior to the 1870s, only about half of American towns had any sort of public water system and these were concentrated in the larger cities of the Northeast. In all other areas, individuals procured their daily water supplies for drinking, cooking, and bathing in essentially the same manner as had European peasants for centuries. They dipped pails in surface streams, drew groundwater from springs or wells, and collected rainwater in cisterns. What public systems did exist, with a few exceptions, were nearly as crude. A town might dig an open ditch from a nearby river or enclose a hillside spring and run a log pipe to a community trough. More commonly, town leaders simply excavated a large central well. The Spanish and Mexican settlements of pre-1850 California made use of such public systems as the Zanja Madre (Mother Canal) in the Los Angeles pueblo and artesian wells and small dams at the missions to meet both agricultural and domestic needs.

Some of these early Spanish and Mexican-period systems included rudimentary treatment facilities; such as the filtration building ("El Caballo") at San Buenaventura Mission, where aqueduct water flowed through layers of sand and charcoal to purify the drinking water. Few towns had any sort of distribution system, so households had to carry their water in buckets or purchase a daily supply from water carriers who hauled water by wagon or hand. Consequently, most

individuals limited themselves to between three and five gallons of water per day, equivalent to a few flushes of a modern toilet.

These local systems functioned adequately so long as populations remained low, but any town looking to grow needed a supply of abundant, reasonably pure water for domestic and industrial consumption as well as firefighting purposes. The challenge of obtaining such a supply frequently served as the catalyst for organizing a municipal government, and for many towns the construction of a public water system was their first and largest financial undertaking. In states dominated by rural legislatures, towns were frequently constrained in their abilities to tax citizens or finance infrastructure projects through debt. Municipal government thus commonly turned to private companies that could borrow from capital markets. In nineteenth-century California, only Sacramento developed a water system that was predominantly publicly owned; all other cities and towns relied on private enterprise to meet their supply needs. Governments regulated the water companies through the granting of franchises. The companies were offered access to water supplies, use of public rights-of-way, monopoly control over distribution networks, the right to exercise eminent domain in constructing their systems, and certain tax privileges. In exchange, the government could specify terms of service to include the distribution area and minimum water pressure requirements, as well as exercise a measure of control over pricing. Franchises also generally required that water be provided free for fire hydrants and public parks.

Selecting a water source required weighing expense, convenience, safety, and palatability. The English River Pollution Commission ranked water supplies with respect to their comparative wholesomeness, palatability, and general fitness for drinking and cooking. Springs, deep wells, and mountain streams or lakes provided the most desirable supply, while lowland rivers and shallow wells were both hazardous to health and undesirable for consumption. Throughout California, wells were the most common source of water and most were relatively shallow at 35 feet of depth or less. Water from such wells was essentially surface water that had been lightly filtered by percolating through the soil. This removed the larger contaminants and the water was generally clear and cool, though shallow filtration did not capture the smaller microorganisms that caused disease. In trickling through stone, the water also acquired quantities of dissolved calcium and magnesium that rendered it hard and alkaline. This decreased the water's palatability and made it less effective in laundering and some industrial uses. In an era when water purity was assessed directly through the senses, the off-putting odor and flavor of hard water suggested contamination to many consumers. Where feasible, towns made use of deep wells, and deep artesian wells remained common in the nineteenth century through such locations as the Santa Clara Valley and the Los Angeles Basin. When located within a reasonable distance of mountains, cities diverted pure water from upland sources and ran it through earthen ditches to reservoirs for distribution.

Infiltration galleries offered one practical method for improving the safety of non-mountainous surface water sources. Infiltration galleries consisted of perforated pipes, generally of concrete construction, that ran horizontally through the sand and gravel bedding that surrounded and lay beneath watercourses. The pipes collected the subsurface river flow and then discharged it by gravity at a lower point or carried it to a pumping station for lifting to the surface. Percolating through the sand and gravel naturally filtered the subsurface flows. This cleansed the water of most organic matter and improved its safety, though the addition of dissolved minerals increased the water hardness and diminished its palatability. Los Angeles constructed an early gallery system in

1886, consisting of two 3,656-foot-long pipes installed 10 to 15 feet beneath the Los Angeles River through the Glendale Narrows, north of downtown. The city expanded the existing system and completed additional galleries in 1904, 1905, and 1906. The largest of these burrowed through bedrock 115 feet beneath the riverbed. Nine vertical wells connected the bedrock tunnel to the river and collected the subsurface flow through their perforated linings. Collectively, these systems drained so much underground flow that the Los Angeles River routinely ran dry at the surface. The improved water quality, however, allowed the city to abandon several chlorine treatment stations that had proven expensive and inefficient to operate.

Diverted water generally flowed first to a service reservoir or water tower before entering the distribution network. This provided a reserve of water for use in firefighting, allowed for pumps to shut down overnight to save on fuel and labor costs, and helped to balance pressure through the distribution system. A typical design for a small municipal system was to place reservoirs at opposite ends of the distribution system, with a main reservoir near the source supply and an elevated tank at the other end of town. Water was pumped overnight across town into the tower, and then during the day water was available at both ends of the distribution system. This prevented a loss of pressure for users at the far end of town. Some small, early water systems dispensed with reservoirs in favor of direct-pressure systems (discussed below), but these fell in popularity as populations increased and towns opted for the flexibility offered by storage. Reservoirs also helped to deal with variable surface-stream turbidity (water clarity) as towns could fill their storage while a stream ran clear and then draw from that supply after a storm when river turbidity increased. Some larger suspended solids might also fall out of the water while in a reservoir, though the regular in and out flow prevented the water from calming enough to deposit the smaller bits of clay and organic matter that caused the most problems with turbidity and off-putting colors and odors.

Reservoir design balanced cost versus storage capacity. Ideally, the system could store several days of water supply, but this required a large area and high construction costs. Earthen reservoirs were serviceable, but they benefitted from being lined on bottoms and slopes to make them watertight. Early linings were principally of puddle, a mixture of clay and sand, with dry stone paving reinforcing the slopes. As concrete quality improved over the nineteenth century, engineers increasingly used it for lining, though the large sheets were subject to cracking if exposed to temperature changes when a reservoir was drained for maintenance. Covering the concrete with asphalt improved its watertightness, and asphalt could also be applied over a brick lining as a sealant. Roofing the reservoir protected it from contamination and freezing during severe weather. Large city reservoirs sometimes featured elaborate groined arches to support roof structures, but simpler construction of brick, wood, or iron was more common. A standpipe was a contained tank, constructed of concrete or steel, that stood at ground level rather than being elevated. The distinction between a reservoir and standpipe was one of relative dimensions: a storage tank that was taller than it was wide was commonly classified as a standpipe while one wider than it was tall was identified as a reservoir.

Water tanks replaced reservoirs in level terrain that lacked an elevation suitable for a storage basin, or where the needed supply was small enough that the expense of a tank was favorable compared to land acquisition and construction costs of an in-ground reservoir. Early tanks were wood barrels set on rooftops or girder platforms. The tanks were constructed of vertical staves bound by steel

hoops, with the hoops more tightly spaced towards the tank bottom where the pressure was greatest. Wood tanks were common features on rooftops in older urban areas through the mid-twentieth century and they continue to serve today in small water systems. Riveted or bolted steel replaced wood for larger municipal tanks beginning in the 1890s. These usually consisted of a steel cylindrical tank with a conical roof mounted on a steel girder platform. A riser pipe delivered water to and from the tank and a ladder provided maintenance access. Enclosing the base of the tower with wood or masonry material improved the tank appearance. Some communities transformed their water towers into monumental works of architecture with Gothic, Neoclassical, or other stylistic design elements. While this practice was more common in the East and Midwest than in California, some examples such as the 1894 tank in Fresno are found in the state.

The construction of a distribution network for delivering water by pipe to individual users was among the first improvements made to any water system. Main lines carried water through the public streets and connected to homes by service pipes. A variety of materials have been used over the decades for manufacturing pipes for municipal use in drinking water and wastewater systems. Table X below includes the major materials used with an approximate date range for their period of peak popularity.

Table 1. Pipe materials and approximate date range of primary usage in United States.

Material	Approximate Date Range of Peak Use
Wood	1600s–1800s
Clay	1800s–present
Lead	1800s–1920s
Cast Iron	Early 1800s–1960s
Wrought Iron	1850s–1930s
Copper	1850s–present
Concrete	1900s–present
Steel	Early 1900s–present
Asbestos Cement	1930s–1980s
Ductile Iron	1950s–present
Thermoplastics (PVC, HDPE)	1950s–present

Early watermains were made principally from bored and charred logs. Later pipes used milled timber of selected dimensions. Wire wrapped spirally along the pipe length added strength, and rings of iron fit around the pipe ends limited splitting. The pipes could be dipped in hot tar and sanded to add a protective coating. Wood pipes were reasonably durable in well-drained soil, but they were bulky, difficult to join, and generally came in only short lengths. Larger banded stave pipes (Figure 5) were introduced around 1850 and these later came into common use in the West for watermains and sewage outfalls, as well as on large irrigation and hydroelectric projects. Stave pipes constructed of redwood continued to be used occasionally for new construction in California into at least the 1930s.

Cast iron pipes were introduced in England around 1800 and began to replace wood pipes for watermains. Philadelphia made the first use of cast iron watermains in the United States in 1807, but the city needed to import the pipe from Great Britain. Iron pipe casting involved considerable technical challenge and the early pipes manufactured domestically were prone to inconsistencies in thickness and strength.

Most pipe continued to be imported from Scotland prior to the Civil War, after which major foundries emerged in Pennsylvania, New Jersey, Ohio, and Kentucky. Pipe from these foundries remained relatively expensive until the financial Panic of 1873; the concomitant reduction in railroad construction caused a steep drop in iron prices and made distribution systems increasingly affordable. The durability, ease of manipulation, and comparatively low cost of cast iron pipe made it the standard product for water distribution by the end of the nineteenth century. As a protection against corrosion, manufacturers commonly dipped pipe in a hot bath of coal tar, asphalt, and linseed oil to create a smooth, hard, glossy coating. Techniques for galvanizing the iron or lining it with concrete or lead were introduced later in the nineteenth century. A confusing and often incompatible variety of pipe thicknesses, dimensions, and connection styles came into use during the following decades of growth before the American Water Works Association finally adopted standardized measurements in 1908. Improvements in the metallurgy of cast iron in the 1940s led to the introduction of ductile iron pipe in the 1950s. Under pressure, this more flexible material would deform slightly rather than cracking, making it more durable. Ductile iron pipe is distinguishable from older cast iron pipe by its smoother texture, gray versus black color, and the ringing sound it produces when struck by a hammer, versus the dull thud of cast iron.

Initially, use of cast iron pipe was rare on the West Coast as no regional foundries existed and transportation costs were prohibitive. Hydraulic mining in California demanded a metal pipe capable of withstanding great pressure, so local manufacturers substituted wrought iron sheets riveted into tubes. When lined internally with concrete or asphalt, these pipes could be used for watermains. Wrought iron bands connected adjacent sections of pipe and a coating of cement mortar encased the whole exterior surface of the pipes. Hermann Schussler drew upon these mining experiences when he laid out the San Francisco Water-Works in the 1860s using concrete-lined wrought iron pipes. The pipes were serviceable but lacked durability as water pressure frequently eroded the poorly-mixed concrete and eventually rusted the metal shell.

Techniques for welding, rather than riveting, wrought iron sheet into pipes developed gradually over the nineteenth century and started to enter common usage in the 1880s. These pipes were light, easily handled, resistant to damage, and came in lengths of up to 20 feet. Their smooth interiors presented low frictional resistance so that a welded pipe could carry more water than a cast iron or riveted pipe of the same diameter. The early joints were formed from iron sleeves welded into place, but these were later replaced by butt weld joints that directly connected two pipe sections. California manufacturers commonly coated the pipes with asphalt, but chemical processes also existed to oxidize the metal or plate it with copper to prevent further corrosion. Steel sheets were rolled and riveted to form pipes beginning in the 1850s, but the low tensile strength of the early steel limited its application. Manufacturers began successfully welding steel sheets into pipes in the 1880s. Gradual refinements to the process brought down costs and improved consistency, so that by the 1930s welded steel pipes largely replaced earlier riveted steel and welded iron for use in transmission and distribution mains.

Clay pipes appeared frequently in sewerage systems but were less common in drinking water systems as they were susceptible to breaking under higher pressures. Manufacturers produced a variety of natural clay pipes that differed chiefly by the firing temperature in the kiln. When fired at comparatively low temperatures (below1,800 degrees Fahrenheit), the material produced was known as earthenware pipe. The material remained somewhat porous and would absorb water,

making it useful for drainage systems but less so for sewage and drinking water systems. Higher firing temperature, up to around 2,300 degrees Fahrenheit, caused the clay to vitrify (turn to glass), making it a dense, durable, corrosion-resistant, non-porous material that was widely used in sewage, irrigation, and drainage systems. This material was generally known as stoneware or as vitrified clay pipe when a specialized mixture of clay and shale was used in manufacturing. To maintain water tightness, bands of wrought iron were wrapped around the joints between pipe segments, and as clay pipes were generally short, the joints needed to be spaced frequently. This increased the amount of friction in the pipes and therefore reduced their carrying capacity.

Concrete pipe was used in sewage systems, storm drains, and agricultural irrigation, but was comparatively rare in drinking water distribution systems. While concrete pipes were inexpensive, easy to maintain, and could be constructed without skilled labor, the pipes could not well withstand the high water pressures of the distribution system and tended to leak. The pipes were also difficult to repair and generally required replacement if damaged. In the 1920s, manufacturers began mixing asbestos fibers into the cement slurry to form composite asbestos-cement pipes, also known as transite. This made for a stronger and more durable material that was resistant to chemical erosion. With the ability to withstand high pressures, asbestos-cement pipes were more widely used for drinking-water mains. A growing recognition of the health effects of asbestos exposure led to declining use in the 1960s and 1970s, until the material was largely phased out in the 1980s.

Because of cost and their physical properties, lead pipes did not appear in main distribution systems, but were used extensively for service connections that linked individual homes and tenement buildings to street mains (Figure 6). These are now commonly referred to as lead service lines. Lead pipe was more expensive than the iron or steel alternatives, but it offered advantages in durability and flexibility. Lead provided superior protection against exterior soil corrosion and was second only to cement-lined iron pipe in guarding against interior corrosion. A line that rusted from the inside could clog, and as no practical means existed for flushing lines prior to 1910, stopped pipes needed to be excavated and manually cleaned or replaced. To avoid such costly and disruptive repairs, many municipalities opted for the higher upfront cost of building with lead pipe. Lead's malleability also favored its use in dense urban areas where water pipes needed to be routed around existing gas and sewer lines and other obstructions. In the early twentieth century, manufacturers introduced lead lining for iron pipes that combined the greater corrosion resistance of lead with the lower cost of iron. Lead pipe was also widely used for household plumbing and in the solder used to connect iron pipes.

The material advantages of lead pipe led to its wide adoption, particularly in large cities. By the end of the nineteenth century, about half of all American municipalities and 70 percent of cities with populations greater than 30,000 used lead service connections either exclusively or in combination with some other pipe type. By contrast, two-thirds of communities with fewer than 8,000 people made no use of lead service connections. Large cities had both the financial resources needed to make an upfront investment in more expensive lead piping and the complicated infrastructure that made the durability and flexibility of the material attractive. Small towns were less likely to have paved roads and could more readily access the buried pipes and handle the occasional failure of an iron service connection. Public water companies were also more likely to invest in lead pipes than were private utility companies, and such public utilities were also more common in large cities.

The chief objection to the use of lead pipe, as was understood at the time, was its potential to contribute to lead poisoning. In low doses, lead exposure produced subtle symptoms that were difficult to diagnosis such as headaches, dizziness, and hypertension. At higher exposures, lead poisoning produced joint and muscle pain, gastro-intestinal distress, infertility, difficulties with memory and concentration, and mood disorders. Extreme levels could cause seizures and death. Children were particularly vulnerable to lead poisoning and could experience serve developmental delays, hearing loss, and a general failure to thrive. Despite this knowledge, most nineteenth-century physicians worried little about the potential for lead poising through the drinking water supply, but focused instead on occupational exposures and the use of lead tubing in distilleries. The sheer ubiquity of lead pipes in major cities and the difficulty in recognizing the signs of low-level lead exposure led many to assume that no major problem existed. Recent studies, however, suggest that the use of lead piping in nineteenth century cities increased stillbirth and infant mortality rates by as much as 400 percent. Effects varied between communities based on the acidity of the water supply and age of the pipes, as older lines developed a protective coating of corrosion that limited the leaching of lead. Upgrading water systems to add filtration and chlorination could increase water acidity, and when combined with new lead pipelines, the results could be disastrous. Lowell and Milton, Massachusetts, for example, overhauled their water systems around the turn of the twentieth century, leading to a sudden increase in lead levels that caused several deaths and multiple documented cases of nerve damage and cognitive disability. These widely publicized cases helped to discourage the use of lead pipe in new construction going into the twentieth century. Copper piping offered the chief alternative, with tin and brass following. Like lead pipe, copper pipe is more expensive and harder to work with that its alternatives, but its strength, corrosion resistance, and heat tolerance make it a common material for household plumbing and the smaller-diameter service lines that connect individual buildings to watermains.

For all the improvements made by water companies, distribution networks remained highly inequitable through the nineteenth century. Frequently, central business districts and wealthy residential neighborhoods were the first to receive pipe service, while Black, immigrant, and working-class districts were more likely to continue to draw water from polluted wells. Even when distribution networks were run to more neighborhoods, individual expense was required to connect the public pipe end to private plumbing fixtures. Tenement owners rarely undertook such efforts, so renters continued to haul buckets of water up steep stairwells from the streetside taps.

Water pressure through distribution networks was also inconsistent, owing to the leaky nature of early piping and plumbing. Many homeowners thus constructed water tanks in their attics or on rooftops to regulate the flow. The tanks would fill with water overnight and then the resident would release it for household use during the day when the distribution system pressure was at its lowest. These tanks, however, were troubling subjects for sanitarians as they often contained decaying organic matter and served as breeding grounds for mosquitos Urban water systems began to proliferate in the 1870s owing largely to the promotional efforts of water-works equipment manufactures. Birdsill Holly of Lockport, New York, was the leading figure in this transition. The Holly Company manufactured steam-powered rotary and gang pumps that injected water at pressure directly into a town's watermains without need for a reservoir. This allowed pipes to maintain a desired pressure with relative consistency, facilitating firefighting and simplifying the

overall waterworks systems, though the lack of flexibility in handling variable demands led to the obsolescence of direct-pressure systems by the end of the nineteenth century.

Holly canvased for towns lacking in water systems and offered to complete waterworks in exchange for an annual payment based on the number of fire hydrants provided. The practical and financial success of his system inspired other manufacturers to follow his example. Increased competition, in turn, spurred rapid innovations in waterworks technology, financing, and promotion, inducing many small towns to install their first public water systems.

Throughout the nineteenth century, most cities had water supplies that were separate from sewage discharges, with the exception being communities that relied entirely upon shallow wells or which were located along major interior rivers downstream from other population centers. In the era before effective water filtration, the usual solution to pollution was simply to go further afield in tapping a supply. The largest cities could accomplish this, such as New York City, which in 1842 completed the Groton Aqueduct which carried water by gravity for 41 miles. Most communities, however, lacked the political and financial power to create such systems.

In California, pollution concerns were particularly acute in Sacramento. The upstream towns of Redding, Red Bluff, Chico, Colusa, Marysville, and Yuba City all sat along the Sacramento River or its tributaries north of the capitol city, and all discharged raw sewage into the waterways. The agricultural land immediately north of Sacramento also posed hazards as dead hogs were routinely disposed of in the river and washed up on sandbars to rot in the heat of summer. The State Board of Health held Folsom Prison responsible for "probably the most flagrant pollution of potable waters in California," as it discharged the raw sewage of several thousand convicts into the American River at a point only 22 miles above Sacramento to the east.52Logan, as board secretary, had recommended constructing a well into the gravels of the Sacramento River so that the water might be at least filtered before being collected by a Holly pump for distribution to the city. However, to his great frustration, the residents of the city expressed a clear preference for softer, if more hazardous, river water over hard well water. The city thus continued to consume surface water from the Sacramento and American rivers, while the State Board of Health redirected its attention to limiting pollution from Folsom Prison and other upriver sources.

Wastewater

Municipal officials paid little attention to waste disposal prior to the mid-nineteenth century. Even as towns began to develop drinking water systems, they saw no need to construct parallel systems for disposing of the wastewater. The ancient civilizations of Babylon, Mesopotamia, and Rome had constructed sophisticated systems of drainage, but these practices had all but vanished in Medieval Europe. Primitive, folk methods of waste management, with an emphasis on individual responsibility, prevailed through the seventeenth and eighteenth centuries, and these habits were reproduced in the American colonies. These practices centered around the so-called "cesspool–privy vault system" (discussed below). The rapid growth of cities in the nineteenth century and particularly the introduction of water closets eventually overwhelmed the system by flooding the cesspools and privies beyond capacity.

While the terms cesspool and privy vault were sometimes used interchangeably, the two structures were intended for different waste types and were designed accordingly. Privy vaults handled

human fecal and urine waste (what is today termed blackwater), while cesspools received graywater from kitchens, laundries, and animal stalls. Cesspools were large pits constructed in the yard or cellar of a building. They were commonly lined with brick or stone, but mortar generally was not used so that the water might leach into the surrounding soil, leaving kitchen scraps behind to decompose. In areas too underdeveloped for cesspools, liquid household waste might be piped to a nearby drainage or merely be cast upon the ground.

Privy vaults were little more than shallow holes dug in the ground, usually without lining. In rural areas, the privy would be covered with soil when filled and a new hole could be dug. In denser settlements, it was necessary to periodically empty privies to keep them in use. Individuals either did this work for themselves or contracted with private scavengers. Later, specialized collection companies employed odorless excavators to rapidly suction privies. Many cities required that privies be emptied only at night, giving rise to "night soil" as a euphemism for human waste. The collected material might be sold to outlying farmers for fertilizer or be dumped in a convenient waterway or refuse pile. In built-up neighborhoods, privies posed a danger to nearby wells as waste leached through the soil. The problems were compounded when heavy rains caused privies to overflow through a neighborhood, mixing their raw waste with the general flooding.

Sewers were uncommon before the mid-nineteenth century, and where they existed, they were used primarily for carrying storm runoff. Early sewers were largely of private construction without any systematic planning. Open ditches or brick-lined street gutters carried away rainwater and allowed for the drainage of cellars. Later the ditches were covered with brick, creating the first partially enclosed sewers. Municipalities began to specify construction techniques and the division of costs among neighbors in the 1820s, and commonly prohibited the dumping of solid waste, and particularly fecal matter, into the systems. However, these regulations were frequently ignored, and the surface sewers frequently carried kitchen waste, offal, manure, and the industrial byproducts of dye works or tanneries.

The introduction of piped water seriously disrupted the cesspool–privy vault system. The availability of freely running water at the household tap led to a surge in per capita use, increasing from the prior three to five-gallon range to between 50 and 100 gallons per day. This increase alone threatened to overwhelm cesspools, but the problem was compounded by the introduction of water closets. Flush toilet technology had been around for some time, but it required the wide availability of piped water to make the system practical. Water closets were introduced in England around 1810 and the first models were patented in the United States in 1833. Affluent homeowners quickly adopted the modern technology which promised greater convenience and sanitation than outhouses and privies. By 1880, approximately one-third of urban households had installed water closets.

The increased flow into cesspools and privy vaults overwhelmed the ability of the soil to absorb the leach water. In city after city through the late nineteenth century, the old regime of waste management collapsed before a new system could be put in place. Cites attempted to order homeowners to empty their cesspools and privies more frequently, but compliance was poor. Many households constructed surreptitious connections to the city sewer system, illegally draining their water closets into pipes that were not designed for the task of carrying off human waste. Fecal matter began to spread over large areas, posing particular problems for low-lying neighborhoods

that were generally populated by the poor and immigrants. Ironically, the piped water and water closet technologies that had been sold with the promise of improved sanitary health had the opposite effect. Incidents of waterborne disease surged as overflowing privies became a ubiquitous feature of urban life.

Sanitarians proposed as a remedy a system of "water carriage," in which waste would be transported by hydraulic flow through a network of self-cleaning sewer lines. This meant abandoning privies and cesspools and repurposing the storm sewers to carry wastewater in addition to rain runoff. New interceptor lines needed to be constructed to tie together the patchwork of existing sewer lines. Brooklyn completed the first American combined sewage–stormwater system in 1857, followed by Chicago in 1859. These sewerage systems dumped the untreated waste into nearby riverways, where it was presumed that dilution would render the stream water safe. It was then widely believed among sanitarians and others that running water was self-purifying, though experiences in London with the highly polluted Thames River had already called that convenient assumption into doubt. The issue was largely a moot one anyway as no practical form of sewage treatment was yet available. (As a term, "sewerage" referred to the drainage and disposal of waste without treatment; when treatment was later introduced, the term "sewage system" was commonly used for the combined process of collection, treatment, and disposal).

As an alternative to the combined sewer system, some engineers proposed constructing separate lines for stormwater and sewage. In England, a great debate over the relative merits of the combined and separate systems had raged since the 1840s, but the separate system got a toehold in America only in 1880, when Memphis, Tennessee, constructed the first such system of large scale in the country. The presumed advantage of the separate system was that it could more quickly evacuate waste from a city, so that the sewage left the populated area in fresh condition before putrefaction of organic material reached a critical point of giving off miasmic gases. The system attracted considerable attention but was not widely duplicated as the National Board of Health held that both combined and separate systems were of equal sanitary value and that the selection of one system over the other depended upon local circumstances. As most cities already had storm sewers, it was less expensive to construct a combined system. Only when sewage treatment became more widely adopted in the late nineteenth century did separate sewage systems begin to be constructed, as it was far easier to treat sewage that was separated from stormwater.

Unlike drinking water systems that were largely constructed by private industry, municipal governments were almost solely responsible for building and operating sewers. Private utility companies naturally gravitated towards services that generated revenue such as providing drinking water, electricity, telegraph or telephone lines, and streetcars or railroads. Non-revenue generating activities such as refuse disposal, street construction, firefighting, and code enforcement remained principally the domain of government. Private industry participated in building sewerage systems as construction contractors and the manufacturers of pipe. Later, industry played important roles as engineering consultants and as patent holders on various mechanical devices and biochemical processes.

California Sewerage

Early sewerage construction in California occurred piece by piece, completed primarily by private interests in an unplanned, unsystematic fashion. At least 59 Californian cities constructed sewerage

systems in the nineteenth century, and while many made efforts to bring order to their network of public and private pipes, few achieved anything more than patchwork solutions. Sanitarians and municipal engineers might have envisioned comprehensive systems that collected and disposed of sewage in an orderly manner, but the reality was far messier. F. Walton Todd, a state board member from Stockton, wryly summarized the usual course of development:

A drain is made from somebody's hotel, and another from a livery stable is allowed to connect with it, and so on until an interest is established that has weight in a Common Council, and thus, from step to step, a system grows up altogether vicious, which sooner or later, and always after large sums of money have been spent, has to give way to another, the work of a competent engineer, but not until some serious damage has been inflicted, which the engineer, Board of Health, and Common Council combined cannot repair.

Table 2. Year of construction for nineteenth-century California sewerage works.

Year	City	Year	City
1850	San Francisco	1895	Belmont
1850 (circa)	Sacramento	1895	Emeryville
1863 (circa)	Los Angeles	1895	Fort Bragg
1869 (circa)	Oakland	1895	Ontario
1876	San Buenaventura	1896 (circa)	Martinez
1877	San Jose	1896	Piedmont
1878	Alameda	1896	San Mateo
1879	Napa	1896	Ukiah
1880 (circa)	San Rafael	1897	Hollister
1880	Santa Barbara	1897	Modesto
1880 (circa)	Suisun	1897	Salinas
1880	Vallejo	1897	Santa Rosa
1885	Coronado	1898	Red Bluff
1887	San Diego	1899	Belvedere
1888	Berkeley	1899	Ferndale
1888	Santa Cruz	1899	Palo Alto
1890	Fresno	1899	Paso Robles
1890	Redding	1899	Ross
1890	Redlands	1899	San Anselmo
1890	Redwood City	1899	Watsonville
1890	San Bernardino	1900	Beverly Hills
1890	Santa Ana	1900 (circa)	Daly City
1890	Woodland	1900 (circa)	Monterey
1892	San Luis Obispo	1900	Nevada City
1893	Auburn	1900	Pomona
1893	Los Gatos	1900 (circa)	Porterville
1893	Stockton	1900 (circa)	Sonora
1894	Mount Shasta	1900	Visalia
1894	Richmond	1900 (circa)	Wheatland
1894	Riverside	n/a	n/a

At the end of the century, the eminent civil engineer C. E. Grunsky surveyed sewage systems throughout the state and found that most remained a tangled web of pipes of various ages, materials, and designs. He concluded that nearly all the works operated by "a haphazard method that is really beyond all comprehension [as quoted from Grunsky 1901]."

Most of the early California sewer systems were of the combined sewage–stormwater variety. It made little sense, at an early date, to construct separate conduits for stormwater runoff as these would receive little use through the long dry season. Combined systems also allowed for subsoil drainage in low-lying areas like the Mission Flats district of San Francisco and downtown Sacramento. This drainage improved public health by limiting the formation of stagnant pools and made cellar storage feasible. The combined sewage pipes were necessarily large to handle winter runoff. The main pipes in Oakland, for example, were five feet wide by five and one-half feet high, while the San Francisco pipes were occasionally wide enough to drive a wagon through. The larger size also allowed sewage workers to physically enter pipes and move through them in a stooped position or by crawling so as to remove the sediment that invariably entered the combined pipes.

Cities began to construct separate sewage systems in the final decades of the nineteenth century. These systems were more common in Southern California where urban development occurred later and rainfall totals averaged lower than in the northern part of the state. San Diego, Los Angeles, Santa Barbara, and San Luis Obispo all had separate sewage systems by the 1890s, as did the campus of Stanford University on the San Francisco Peninsula. These systems utilized smaller pipes, with the main line in San Diego, for instance, being 24 inches in diameter.

Main combined sewer lines were customarily constructed of brick because of their large size. Early construction used whatever bricks and mortar were readily available, but too often these eroded away as sand and silt washed through the pipes. Later work called for hard, thoroughly burnt bricks with smooth surfaces to reduce frictional drag. Where cost was an overriding consideration, common brick might be used on the sides and upper arch of the sewer as these were less subject to wear and tear. Blocks of terra-cotta or stoneware were frequently used at the bottom of the sewer for their enhanced durability and smoothness. Termed “invert blocks,” these came in both solid and hollow forms. The hollow blocks helped drain subsoil moisture during construction, but were weaker than solid forms and builders sometime filled them with cement at the conclusion of work. An egg shape was most frequently used in the main sewer lines as the profile placed low volume flows in the constricted bottom width to maintain velocity while widening above to increase capacity in large flow events.

The smaller branch lines were generally constructed of vitrified clay or concrete, though specially curved bricks could be used for small diameter pipes. Concrete and vitrified clay were favored for their economy, durability, water tightness, and smooth internal surfaces (Figure 10). Concrete pipes could be manufactured locally and allowed for patch repairs in a way that vitrified clay pipes did not, but care had to been taken to ensure that contractors correctly mixed the concrete as a poorly constructed concrete line quickly eroded. Vitrified clay pipes had the smoothest surfaces and were the easiest to work with, but into the 1870s the best quality pipe still had to be imported from Scotland. Redwood pipes were less durable over the long term, but received wide-spread use owing to the ubiquity of the material and low cost. Wooden pipes were also useful where sewer lines crossed marshy terrain as heavier brick sewer lines would require constructing piling foundations. Cast iron pipes were used nationally in sewerage systems in the mid-nineteenth century, but the extent of their employment in California is not well documented.

Manholes were placed at regular intervals along sewer lines to allow for maintenance and the clearing of obstructions. In most cases, this permitted repair work to be done without requiring the expensive and disruptive excavation of roadways. Manholes were generally constructed on a

circular plan, being approximately three to five feet in diameter at bottom and tapering towards the surface, with brickwork lining the manhole well. Square manholes were used occasionally where larger entrances were needed, but these required additional brickwork and were thus more expensive to provide. Smaller lamp holes were added along lines to assist in locating and removing stoppages (Figure 11). A sewer worker would suspend a light in a lamp hole and then enter the adjacent manhole. He would know the obstruction had been cleared when he could see the lamp light shining down the pipe. Manholes also provided a means of ventilating the sewers through the holes left in the manhole covers, though these frequently clogged with dirt and manure on busy streets.

Combined sewer lines required manual clearing or periodic flushing during periods of low rainfall. The low volume of fluid passing through a large pipe during the summer could not generate adequate velocity to clear accumulated silt and organic matter. The problem was compounded by the irregularities of nineteenth-century construction that caused velocities to vary through a sewer line owing to changes in grade, pipe diameter, surface friction, and other variables. The simplest system of flushing involved directing a hose from a fire hydrant into openings that were constructed along the sewer line. The water of several hydrants was combined to flush the main line. Sacramento, as a typical example, constructed flush holes at the head of every branch line and periodically along larger lines. Once or twice a month, maintenance workers began flushing at the bottom of the system and worked their way towards the heads.

Automated flushing systems allowed for daily clearance of the lines and reduced the required labor but involved greater initial expense. These systems consisted of a network of tanks installed at the head of the sewer lines. Taps running from watermains slowly filled the tubs. The fill rate could be adjusted to provide for flushing intervals ranging from every two hours to twice per day. Once full, the tank tipped under its own weight, emptied its contents, and returned to the upright position to fill again. Alameda purchased 130 of these flushing tanks in the late 1880s to clear its 41 miles of sewage line. Each tank held 50 gallons of water and dumped every six hours. The tanks were installed just below sidewalk grade, in brick receptables covered by iron lids, to provide easy access for adjusting the flushing frequency.

More elaborate flushing systems were proposed in San Francisco and implemented in Oakland. San Francisco suffered from particularly bad problems of pooling sewage that ordinary fire hydrant flushing could not clear. In the early 1870s, State Board of Health member A. B. Stout proposed constructing a series of reservoirs along the ridges and hilltops above the city and filling these with salt water pumped from the bay. Great volumes of water could then be released to clear obstructions before flowing back to the sea. City officials never constructed the expensive proposal, but it remained under consideration through the end of the century. In Oakland, City Engineer T. W. Morgan designed an ingenious system that caused waters from Lake Merritt, then still connected to the bay tidelands, to flush the line twice daily. Floodgates in a dam at the bottom of the lake permitted water to enter on the flood tide, but prevented it flowing out with the ebb. Workers manually opened a gate at the head of the main sewer line to send a scouring burst of stored water through the sewer and back to the tidelands. Oakland thus treated Lake Merritt like the tank on a toilet bowl that was flushed and refilled by the regular motion of the earth beneath the moon.

Engineers during this same period devoted considerable attention to finding means of venting sewer gases. Indeed, because of the influence of miasma theory, sanitarians regularly gave greater priority to the control of vapors than to the disposal of liquid waste. When homeowners caught a whiff of sewage coming up from a kitchen sink, they worried about the illnesses that their neighbors might be transmitting to them through the shared sewer lines. Despite intense study, however, sanitarians developed no practical method for dispersing sewer gas. Experiments were made with air vacuums, blowers, furnaces, and charcoal filters, but none were economical to deploy at scale. Oakland considered building towers through the city to vent gases above the rooflines, but never pursued the idea. Attention thus focused on simply keeping the gas out of homes and businesses through the use of drain traps. These basic U-shaped traps were installed beneath sinks and water closets to retain a small quantity of water in the pipe after draining. The trapped water formed a seal against rising gases and odors. While simple drain traps had been in use since the eighteenth century, the design continued to evolve through a great number of patented forms as the quantity and types of drains in households multiplied.

Sewage Farms

The disposal of sewage on land offered the only practical alternative in the nineteenth century to the dumping of raw waste into bodies of water. The practice variously termed "sewage farming," "sewage irrigation," or "broad irrigation" both prevented river pollution and allowed for sewage effluent to be put to beneficial use as fertilizer. Sewage farming proved particularly well adapted to the arid American West, and Californians adopted the practice on a wider scale than did any other state. At least 50 California cities and 39 public and private institutions made use of sewage farms over a span of half a century between the late 1880s and World War II.

Sanitarians were almost universally in favor of the use of sewage farms. The British reformer Edwin Chadwick advocated the practice beginning in the 1840s and argued that the entire cost of municipal sewer systems could be paid for through selling the output to farms. The Massachusetts Sanitary Commission echoed the recommendation in the 1850s, and by the 1870s American scientific journals and the popular press were regularly running articles on the practice. Sewage farming even showed up in the utopian writings of Victor Hugo and Edward Bellamy. The California State Board of Health joined the call for sewage farming beginning with its second annual report in 1873 and remained in support of the method into the 1930s.

The use of human and animal waste on farms to boost productivity was, of course, an ancient practice. The Romans used human waste as fertilizer and the tradition remained common throughout Europe well into the nineteenth century. Particularly refined methods of gardening with night soil were in use in China, Japan, and Korea for centuries. These early methods utilized the waste of privies and cesspools. Scavengers with ladles and buckets or service companies with odorless excavators collected the waste and sold it either directly to farmers for depositing on the land or to processing plants for conversion into compost or fertilizer.

The introduction of water carriage sewer systems (discussed above) in the nineteenth century required a change in practices. By one contemporary estimate, the sewage from a water carriage system consisted of 998 parts water, one part mineral matter, and one part organic matter. The intent of sewage farming was to neutralize that one-thousandth part organic matter while retaining its valuable nitrogen, phosphorous, and potash. The chief challenge was finding a way to dispose

of the water, which could easily run to tens of thousands of gallons a day from even a mid-sized town. The land selected for a sewage farm should be well drained with a sandy or gravelly subsoil, accessible by gravity flow, and of low cost. The character of the surrounding habitations needed to be considered to avoid complaints about nuisance odors, although sewage farming advocates claimed the smells were no worse than those arising from pigsties and barnyards. The practice was particularly valued in the western states because low summer river flows made instream disposal an unbearable nuisance and there was always high demand for any irrigation source.

The method of irrigating with sewage did not differ greatly from ordinary irrigation practices. A somewhat greater degree of care was needed to minimize direct contact between the sewage and growing plants and to control the ponding of sewage when effluent was placed on saturated soils during winter rains. Pipes were generally used to carry sewage to the farming grounds, but then the effluent could be run through ordinary, unlined, earth ditches. The land was leveled and prepared with furrows and ridges for row crops or divided into check basins for flood irrigation. As irrigation was not required during the winter months, it was necessary to set aside some land for uncropped infiltration. Most any crop could be grown by sewage farming, though in 1918 the State Board of Health issued regulations prohibiting the use of sewage on garden vegetables intended to be eaten raw. Fruit trees, melons, grains, and vegetables intended for cooking or canning all remained permissible.

Public institutions were the first to use sewage farming in the United States, beginning in the 1870s. Asylums, prisons, alms houses, and reformatories could supply labor without expense and had a built-in market for the crops produced. Pullman, Illinois, was the first municipality to employ a sewage farm to dispose of its waste in 1881, though the practice did not long endure there owing to the heavy clay soils and natural abundance of rain. Pasadena in 1888 was the second American city to establish a sewer farm and it became a model for many of the other municipal programs that followed. By the early 1890s, municipal sewage farms were operating in Redding, Santa Rosa, Stockton, Fresno, and Los Angeles.

The Redding sewage farm provides a typical example of a medium-scaled municipal operation. The city constructed a separate sewage system in 1889, designed by the city engineer. The system, serving a population of around 2,000, included 2.9 miles of line and seven 112-gallon automatic flushing tanks. The city had intended to dispose of its waste into the Sacramento River, but objections from the State Board of Health led to a search for alternatives. The city called for bids on a contract to dispose of the waste for a 40-year period at a beginning payment of $300 yearly, to be increased in proportion to the community's growth. L. F. Bassett, the former Sacramento city engineer, secured the contract and purchased 100 acres of land at the city fairgrounds, about a mile south of Redding, in the location of today's civic center (Figure 13). About 10 acres were initially prepared for irrigation by leveling the land and running furrows. Bassett laid a 12-inch-diameter pipe through the racetrack grounds and excavated open ditches to carry the sewage to the prepared land. The sewage irrigated a variety of crops including asparagus, turnips, beets, and potatoes, but was used primarily for raising fruit trees as nursery stock. The acreage had a soil of loamy sand underlain with a deep bed of gravel and did not require a separate system of drainage.

Rather than run the sewage continually, Bassett constructed a 75,000-gallon reservoir—equal to one day's average flow—to hold the material overnight. In the morning, the reservoir gate was

opened and the sewage flowed onto the land for two to four hours before the gate was again closed. The reservoir was covered by a wood lid and included a 60-foot-tall timber chimney to disperse odors and prevent the site from becoming a nuisance to the adjacent county road. A screen above the irrigated lands removed any large objects that might obstruct the irrigation ditches. During the winter, when no crops were growing, it was necessary to run the sewage onto one piece of land for several days and then to plough it under when the ground had sufficiently dried. The greatest odor occurred at this time as the sewage ponded before being absorbed into the saturated soil.

The construction and operation of the sewage farm was not without opposition. Neighboring landowners objected to the approval of the farm prior to its completion, and in 1892 they had Bassett arrested for maintaining a public nuisance. The courts, however, sided with the sewage farm, and the local press also offered support. The State Board of Health added its endorsement later in the year when a delegation visited the Redding sewage farm to ascertain its impact on the Sacramento River. Pleased with what they found, they declared the system satisfactory and "commendable to that progressive city [as quoted from State Board of Health 1901]."

Nationally, sewage farming achieved its peak popularity in the 1890s and then declined. The adoption of new and generally superior technologies for sewage treatment around the turn of the century, including septic tanks, chemical precipitation, and sprinkling filters, was the chief cause of the decline. Advocates of sewage farming claimed that these new methods wasted the nutritional and economic value of sewage, but sanitary engineers countered that the fertilizing power of sewage had always been overrated. The large volume of water applied in sewage farming in many cases leached nutrients from the soil quicker than they could accumulate. Public health concerns about applying raw sewage to edible crops had been relatively muted when no better sewage treatment option was available, but the increase in alternatives brought greater attention to the problems. Rising land values on the margins of towns, where sewage farms were initially constructed, also favored abandoning the older plants. Sewage farming remained a viable option only in locations where irrigation water was in great demand, as in much of Southern California. The practice continued there in adjunct to other treatment methods, so that sewage was first processed by a septic tank or sprinkling filter before the treated effluent was discharged as irrigation water. In this way, the method prefigured the later practice of using reclaimed wastewater for irrigating roadsides and other public lands.

2. The Era of Sanitary Engineering, 1900–1949

The first half of the twentieth century witnessed rapid advances in sanitation science and technology, but slower progress in policy. The creation of two new academic and regulatory bodies epitomized the era. In 1905, the University of California established a department of sanitary engineering at Berkeley, headed by Charles Gilman Hyde, and a decade later, the State Board of Health created the Bureau of Sanitary Engineering, led by Hyde's former student, Chester Gillespie. The careers of both men extended into the late 1940s and coincided with the emergence of modern sanitary engineering practices.

The first decades of the twentieth century saw the creation of nearly all the major processes and pieces of infrastructure employed at drinking water and wastewater treatment plants today. These included the processes of chlorine disinfection and rapid sand filtration for drinking water, and the biological wastewater treatment methods used in trickle filters and activated sludge tanks. These

advances largely halted the scourge of typhoid fever except in locations that lacked modern services because of their remoteness or economic marginality. Still, the laxness of state regulations meant that few municipalities constructed modern sewage treatment plants prior to World War II. The newest and most sophisticated systems tended to be constructed in Southern California, where communities were young and growth rapid, while Northern California employed more legacy systems from the nineteenth century.

Knowledge

Germ Theory

By 1900, the germ theory of disease, more formally known as bacteriology, had replaced the earlier miasma theory in sanitary planning. Among public health professionals it became accepted fact that it was not filth in general that caused disease, but the presence of particular microorganisms. Expectations faded for the sort of broad social reforms that had animated the sanitarian movement and were replaced with the more narrowly focused task of ridding public water supplies of disease-causing organisms. The application of this knowledge, particularly through the chlorination of drinking water, produced sharp drops in death rates from typhoid fever and other intestinal illnesses. Ironically, the decline in disease led to greater tolerance for sewage dumping as the public came to see pollution as a mere nuisance rather than a public health crisis. It was only when officials later began to worry about the economic impacts of pollution that they again made efforts to limit raw sewage discharges.

At its core, germ theory held that discrete, microscopic organisms penetrated bodies and caused disease through their growth and reproduction. These pathogens, or “germs,” could be bacterial, viral, or fungal. Ideas related to the germ theory had been in circulation for centuries, but they gained dominance among medical professionals only in the late nineteenth century. The investigations of Louis Pasteur and Robert Koch between the 1860s and 1880s were the first to identify specific organisms responsible for disease and to demonstrate conclusively the shortcomings of alternative theories. Still, the theory was slow to find full acceptance. Most physicians were flexible in their thinking and for decades continued to freely combine the germ theory with their long-standing beliefs about miasmas and the influences of climate and topography on health.

The impact of germ theory on public health measures was thus initially subtle, but it ultimately proved transformative. Physicians shifted their focus from society to the individual and from preventing disease to curing it. Medical practitioners and engineers grew irritable with the efforts of sanitarian reforms, which while well-meant and often at least indirectly beneficial, seemed to miss the essential scientific point. “Smells are not dangerous,” claimed San Francisco engineer Ernest McCullough. “They are rarely, if ever, a cause of illness. They are simply unpleasant to our modern sense of what is right and proper.” Local boards of health shifted their efforts from supervising sanitary systems to measures that more directly aligned with the new science such as vaccination campaigns and inspecting health conditions among the increasing immigrant population. By the First World War, municipal health departments had largely turned over their former responsibility for water and sewage systems to engineers and public works departments.

Sanitary Engineering

Sanitary engineering emerged as a distinct professional field at the start of the twentieth century. The field had its roots in the larger English sanitarian movement, and the term "sanitary engineer" was first used in the 1870s to describe anyone with a concern for using technology to clean the environment, including plumbers, building contractors, asylum superintendents, and municipal engineers. Over the remainder of the nineteenth century, the field gradually shed its association with the building trades and came to define itself as a science-based profession. The series of technological triumphs that emerged from the field in the early twentieth century, from the chlorination of water supplies to the activated sludge treatment of sewage, allowed sanitary engineers to displace physicians and sanitarian reformers as the chief figures in public health.

In 1887, the Massachusetts State Board of Health founded the Lawrence Experiment Station that was transformative to the practice of sanitary engineering in the United States. The station brought together experts in engineering, chemistry, and biology to conduct basic research across disciplines related to water filtration and sewage treatment. The station biologist, William T. Sedgwick, also headed the Department of Biology at the Massachusetts Institute of Technology (MIT). He introduced a public health orientation to his department that drew heavily on the new field of bacteriology, but he knew that applying that knowledge required engineering skill. Engineers had always constructed sanitary systems, but they had taken their direction largely from their clients and built basic systems for water or sewage collection and transport. Sedgwick desired to train engineers in the sciences of biology and chemistry so that they might innovate solutions to the problems of treatment. In 1892, MIT started the first sanitary engineering program in the nation. The University of Illinois followed a year or two later, and in 1905 the University of California president, Benjamin Ide Wheeler, organized the nation's third department of sanitary engineering at Berkeley.

Wheeler hired Charles Gilman Hyde to head the newly created program, and Hyde—the recognized "Dean of Sanitary Engineering of the West"—exercised a profound influence on the development of the field in California. Hyde graduated in the first class of sanitary engineers to emerge from the MIT program in 1896. He worked as an assistant engineer with the Massachusetts State Board of Health for four years and then in Pennsylvania on major water supply projects for the cities of Philadelphia and Harrisburg. When Hyde moved to Berkeley in 1905, he was the first well-trained and experienced sanitary engineer to locate on the Pacific Coast. He remained at UC Berkeley through 1944 except for two years spent with the US Army Sanitary Corps during the First World War. He closely mentored two generations worth of students, and "Hyde's boys" went on to fill major positions in government, industry, research, and education.

Hyde served as Engineering Consultant to the California State Board of Health and advocated for the establishment of a State Bureau of Sanitary Engineering that was then headed by his student Chester Gillespie. He also worked as an industry consultant and designed wastewater and drinking water treatment plants in Sacramento, San Francisco, the East Bay, Los Angeles, San Diego, and beyond. His colleagues remembered him as "an engineer's engineer – a designer, a builder, and an innovator.

To teach the necessary chemistry courses, Hyde recruited Wilfred Langelier in 1916 from the Illinois Water Survey where Langelier had been involved in pioneering work in chlorine

disinfection. The two men comprised almost the entirety of the UC Berkeley sanitary engineering program through World War II and earned a reputation as one of the most effective engineer-chemist teams in the evolving field. Water chemistry was then a neglected subject among municipal engineers, limited to little more than water testing, and Langelier was able to make fundamental advances in the field. In an attic laboratory, Langelier developed methods to "jar test" coagulation procedures that allowed for careful control of variables and became standard scientific practice. His study of the corrosive potential of water is still recognized today through use of the Langelier Saturation Index. And in his work with Hyde in the early 1920s on designing the Sacramento water filtration plant, he developed a process for inducing flocculation (removal of colloidal particles from a suspension to form a sediment) through agitation with mechanical paddles that soon became standard in plants worldwide. In addition to teaching chemistry courses within the specialty, Langelier lectured architectural students on plumbing practices (including future modernist architect William Wurster with whom he later designed the San Leandro Filtration Plant) and taught a basic sanitation class to women students within the gender-segregated Domestic Science program.

Professional organizations emerged concurrently with the creation of the university programs. The American Society of Sanitary Engineers was founded in 1906, though it reflected an earlier understanding of the field in accepting plumbers and building contractors for membership. The American Public Health Association created a sanitary engineering section in 1911, and the US Public Health Service granted civil service classification status to the title "Sanitary Engineer." Finally, in 1922, the American Society of Civil Engineers (ASCE) organized a Sanitary Engineering Division with 526 initial members, offering full recognition of the standing of the field.

Biological Treatment of Sewage

The introduction of biological sewage treatment methods in the 1890s revolutionized sanitary practices, and today's secondary treatment methods all trace their origins to that turn of the century moment. Biological treatment methods were discovered more or less independently on four occasions, giving rise to different technologies. In the early 1890s, the Lawrence Experiment Station in Massachusetts performed the initial studies that led eventually to the trickling filter, while William Joseph Dibdin, chief chemist for the London Metropolitan Board of Works, developed the contact filter. In 1896, Donald Cameron, City Surveyor for Exeter, England, invented the septic tank. And finally, in 1912, a group of scientists and engineers associated with the University of Manchester and the Manchester Disposal Works introduced the activated sludge process, the most advanced of the biological treatment techniques. This section deals with the new knowledge that informed and arose from the experiments; for specifics on the various treatment methods.

Biological treatment methods employed microorganisms to digest (decompose) organic matter within sewage in an orderly and controlled fashion. This largely eliminated the pathogens that cause disease and rendered the effluent safe for discharge. These methods differed fundamentally from prior sewerage techniques that had simply evacuated waste as rapidly as possible from populated areas so as to avoid decomposition and the production of miasmic gases. The greater knowledge of microbiology that developed towards the end of the nineteenth century allowed for a better understanding of both the causes of disease and the biochemical processes of

decomposition. While the microorganisms necessary to digest organic wastes occurred naturally within sewage, researchers learned that their numbers and effectiveness could be greatly increased by providing them with a favorable environment. The biological treatment methods thus consisted principally of supplying the proper living conditions for the desired organisms (largely bacteria) by regulating the food supply, oxygen saturation, temperature, pH levels, and other variables.

Digestion occurred both in the presence of oxygen (aerobic) and in its absence (anaerobic). Anaerobic digestion liquefied organic solids, greatly reducing the volume of waste while producing methane gas as a byproduct. Aerobic digestion allowed for more complete decomposition as it could reduce large organic polymers such as cellulose to carbon dioxide and water, whereas anaerobic processes left behind more complex, partially digested substances. Complete digestion required both aerobic and anaerobic conditions, and sewage treatment plants thus commonly divided the digestion process into two or more parts with each devoted to a particular class of microbes. Biological treatment altered the character of the organic matter in sewage, but it did not necessarily remove the material, and in some circumstances the discharged treated water might contain more suspended matter than the raw influent, though the material had been rendered safe for disposal. Treatment plants thus commonly used additional clarifiers at the end of the treatment process to settle out the remaining material and produce a final, clear effluent.

A sewage farm provided a basic form of biological treatment, though it was not understood as such prior to the late nineteenth century. Sanitarians recognized that filtering sewage through soil cleansed it of some of its organic material. However, they could not agree as to whether this was simply a matter of the soil particles mechanically screening the sewage or if there was some "essence" of the soil that participated in the process. Work conducted at the Lawrence Experiment Station began to demonstrate that the process was essentially a biological one, driven by living microorganisms in the soil. If the soil within an experimental plot was sterilized, for example, it lost its capacity for cleansing organic matter from sewage, though there had been no alteration to its character as a mechanical filter

Near simultaneous work by William Didbin on the Thames River started to develop a practical understanding of the conditions required to nurture populations of beneficial microorganisms. According to historian Christopher Hamlin, Didbin began his experiments without any real understanding of the biology involved or with any conviction that bacteria could effectively deal with the immense stream of pollution flowing from London. Rather, he was under enormous political and legal pressure to show that the city was making efforts to address its problems, and his experiments bought him time without generating costs his employers would be unwilling to pay Didbin placed various filter media (sand, gravel, baked clay, coke) within sewage basins and intermittently filled and drained them, measuring the change in quantities of organic matter and bacteria. He came to recognize that an inverse relationship existed between the two: greater quantities of bacteria meant lower levels of organic matter. And he learned that he could influence the size of the bacterial populations by regulating the rate at which they were fed waste and controlling how often the tanks were reoxygenated by draining the liquid sewage. This led to the realization that the successful use of the contact beds relied entirely upon nurturing and sustaining beneficial bacteria. The bacteria did the real work and the sanitary engineer became a sort of zookeeper, tending to the wants and needs of his microorganisms.

While the work by Didbin and the Lawrence Experiment Station focused primarily on aerobic processes, Donald Cameron discovered the capacity for anaerobic digestion to consume the sludge that accumulated at the bottom of sedimentation tanks. Anaerobic bacteria developed within the tank over a period of a couple weeks to several months, and then worked continuously on digesting the organic matter of the sludge into gases of methane, carbon dioxide, and nitrogen as well as finely divided organic compounds. This greatly reduced the volume of sludge and thus the expense and difficulty involved in disposing of it. Cameron named his invention the "septic tank" to emphasize its reliance on bacteria and to contrast it with the deliberately antiseptic systems that proceeded it. To showcase his discovery, Cameron constructed an observation chamber in the City of Exeter tank so that visiting engineers could descend into the belly of the device and watch the digestion in action through a porthole. Large modern treatment plants use separate sludge digestion tanks, rather than septic tanks, for anaerobic digestion, but the fundamental process remains the same.

In contact or trickling filters, the biological treatment occurred in a narrow film that surrounded the filter particles. The bacteria and algae physically lived upon the bits of stone, plastic, or other media that filled the beds. The breakthrough of the activated sludge process was to realize that the microorganisms could live suspended within the sewage itself, feeding and reproducing rapidly in a highly oxygenated environment. Experiments with aerating sewage had been conducted since the 1870s but without great success. In 1912, Gilbert Fowler of the University of Manchester observed one such experiment at the Lawrence Experiment Station, and he persuaded Edward Ardern and W. T. Lockett, engineers with the Manchester Disposal Works, to add oxygenation to research they were doing on using retained sludge to treat fresh influent.

When sludge from a prior treatment was retained, decanted of its liquid, and returned to a tank of fresh sewage, it arrived preloaded ("activated") with a high concentration of aerobic bacteria that seeded the treatment tank. Blowers or paddles supplied the bacteria with copious oxygen to enhance its metabolism and thoroughly mix it through the sewage. The bacteria attached themselves to bits of suspended matter and served as a flocculant, causing the organic matter to clump together and fall out of suspension. After the sludge was separated in a sedimentation tank, the remaining effluent was clear, odorless, and safe for discharge. A portion of the separated sludge was then returned to the aeration tank, beginning the process anew. A landmark 1914 publication announced the discovery of the activated sludge process and attracted immediate attention. The outbreak of World War I shortly thereafter suspended additional research within Europe and allowed American engineers to take the lead in further developing the process.

The refinement of the biological treatment process, from simple sewage farming to sophisticated activated sludge plants, allowed for ever smaller plants to treat ever greater volumes of sewage. The need to conserve real estate was an overriding concern that justified the higher energy inputs and greater technical skill required to operate the more complex processes. Sewage farming had the advantage of simplicity, but it required access to more land than any decent-sized community could reasonably provide. Turn-of-the-century Berlin, for instance, operated the most efficient sewage farms in all of Europe, but at 23,000 acres, the sewage farms were larger than the city itself.

The adoption of biological treatment methods marked a shift towards a more scientific approach to wastewater management as it required a greater degree of process control and an ever-evolving understanding of microbiology. It spurred the introduction of new technologies in the form of pumps, aeration equipment, and tools for laboratory testing. On the downside, biological treatment methods were vulnerable to greater disruption. Bacteria are living organisms that behave in sometimes unpredictable manners. A cold snap or the inadvertent introduction of a toxic chemical could cause a collapse of bacterial populations. Recovery from such a disaster was slow as the colony needed to rebuild itself organically. Particularly in the early years, when biological knowledge remained limited, many communities were reluctant to embark upon such a potentially perilous course and loose regulations did not require them to make the risky investment. The practical adoption of biological treatment methods thus lagged behind the rapid pace of scientific advancement.

Political Organization

Federal Drinking Water Oversight

The federal government established the first national water quality standards in 1914 when the US Public Health Service (USPHS) set requirements for the water used on common carriers in interstate travel, including ships and trains crossing state lines. The standards initially applied only to bacteriological agents associated with contagious diseases, but they were later revised and expanded in 1925, 1946, and 1962 to cover broader criteria. Every state eventually adopted the standards with minor modifications. By the 1930s, USPHS was certifying nearly a hundred California water supply systems per year to allow for their use in interstate transportation. Even local inspections adhered to the federal standards, so that for decades all water analyses performed in California included a statement about the sample's conformity with USPHS standards for drinking water.

State Oversight

The State of California also increased its oversight of sanitary matters during the first decades of the twentieth century and granted the State Board of Public Health its first formal permitting powers over water and sewage systems. The board had passed through a period of reduced activity at the end of the nineteenth century as it turned largely to managing the state hospital system. The 1906 San Francisco earthquake revived state interest in sanitary issues as a wave of epidemics afflicted the displaced population. The Public Health Act of 1907 required communities to receive a permit from the State Board of Health for new sewage system construction. The Sanitary Water Systems Act of 1913 extended the permit system to water systems having 200 or more connections or supplying a hotel or labor camp. However, the permitting was done on a case-by-case basis rather than establishing general standards that all dischargers had to meet, and it depended on whatever review the underfunded and understaffed board could provide. Permits also applied only to new construction so that systems that predated the 1907 law were not subject to state review.

The state elections of 1910 and 1911 launched California to the forefront of progressive reform. Hiram Johnson was elected governor in 1910 on a promise to end corporate and municipal corruption, and in 1911 the voters approved a sweeping array of progressive voting reforms including women's suffrage, ballot initiatives, referendum, and recall. Collectively these measures displayed an eagerness to have the state tackle issues that previously had been accepted as

intractable. Additional funding and staffing allowed the State Board of Health to expand its reach, and it created six new bureaus or divisions between 1911 and 1920, including the Bureau of Sanitary Engineering. A reorganization of the state government in 1927 to reflect its expanded scope promoted the board to become the Department of Public Health.

The staff of the state board began performing regular sanitary inspections of towns and private establishments in 1913. The inspections aimed at nuisance abatement without making pretext to proposing systematic improvements to water or sewage systems. A typical inspection from 1914 examined conditions at the Gregory Hotel outside of Fresno:

> Said premises consist of a large frame building used as a hotel. The toilet facilities were complained of. They consist of one modern water flushed toilet, located in the building for the women, which discharges into a dilapidated cesspool in the barn yard about three hundred feet from the hotel, also a dilapidated privy in the yard about twenty feet from the building, close to the county road, which is open to flies, etc. and it is in filthy condition, and one urinal inside of the building which discharges into the vault of the privy. The refuse water from the sinks, bathtubs, etc. is being disposed of by means of open wooden drains, which discharge in the yard.

The state inspectors had authority to examine public accommodations and to make recommendations (in the case of the Gregory Hotel to demolish the privy, construct a sealed cesspool, and add a flush toilet for men) but lacked any enforcement powers. Only local authorities could compel the proprietor to comply with the recommendations.

The Progressive Era also saw the state centralize control over utility regulations. The Public Utilities Act of 1911 extended the authority of the California Railroad Commission to cover all private utility and transportation companies. In 1946, the agency was renamed the California Public Utilities Commission to better reflect its expanded scope of authority. Commission approval was required for rate increases, service area expansions, mergers, and changes to service. This effectively replaced the municipal franchise system and reduced the chances for local corruption or favoritism to interfere with the rational development of services. Private water companies generally favored the transition as they expected better, more scientific management from state officials. They also hoped that increased regulation would temper demands for public ownership of water systems. Because state regulation did not extend to municipal systems, the new order conversely provided an incentive for local governments to reassert their authority by taking ownership of utilities.

Municipal Reforms

The multiple impulses of reform that pulsed through Progressive Era California transformed the character of municipal government and its relationship to the delivery of sanitary services. No single, overall plan guided the reform movements and different causes regularly acted at cross purposes to one another. Efforts to strengthen municipal governments, for example, clashed with competing impulses to centralize power in state bureaus. And every water dispute in California came deeply enmeshed in local rivalries with their own idiosyncratic histories that defy easy generalization. More than 700 municipal water and sewage systems operated in California by 1936, along with approximately one hundred smaller institutional systems. Each system had its own distinct set of local circumstances and trajectory of development. Nonetheless, several broad

patterns of change can be identified through the early twentieth century that led to greater public ownership of water supplies, the increased professionalization of municipal utility services, and the creation of special districts to serve multiple communities.

Nineteenth-century Californians largely welcomed private water companies, viewing them as an efficient means of developing resources without high taxation. However, that support gave way to distrust and dissatisfaction in the early twentieth century. The politics of Progressive Era California were largely shaped by opposition to the monopoly powers of the Southern Pacific Railroad and the heavy-handed ways in which it intervened in state and local politics. Anti-monopoly politics then broadened to include resistance to a wide array of corporate interests that were seen as conspiring against the public good. Private water companies found themselves on the defensive as they sought to prevent their systems being forced into competition with public utilities. For decades, the companies were largely successful in that fight as they held monopoly control of local water rights, but they faced rising discontent among consumers as their aging systems struggled to provide water in adequate quantity and quality at a reasonable price.

In the early twentieth century, the largest cities in California all outgrew the local creeks and wells that had fed their water systems. This required them to reach further afield for water sources and opened the possibility for creating new, publicly owned water systems. Los Angeles seized control of the Owens River and later tapped the Colorado River; San Francisco developed the Tuolumne River behind the Hetch Hetchy Dam; and the East Bay communities of Oakland, Berkeley, and Richmond turned to the Mokelumne River in the Sierra Nevada foothills. Each of these far-reaching systems originated through public ownership, financed with municipal bonds. The private water companies that served these cities recognized that a transition had occurred and they generally sold their remaining systems to the public. Many smaller cities followed the example in acquiring private water systems, though not every campaign for public ownership was successful as many voters continued to view local government as more inclined to corruption and ineptitude than was private enterprise.

Ironically, providing better service—making abundant pure water conveniently and cheaply available—led to a surge in demand that frequently exceeded planning expectations for the new municipal water systems. This inevitably produced disappointment among citizens and fueled accusations of political incompetency. To protect vital services from the corrupting influences of patronage politics, many communities transferred control of their systems from politicians to engineers. Progressive reforms had introduced the city manager form of government to California and increasingly a nonpartisan, technocratic class of sanitary workers had responsibility for managing municipal systems and advocating for their improvement.

The expanded reach of water and sewer systems beyond traditional city boundaries led to the creation of regional utility districts. The East Bay Municipal Utility District (EBMUD), organized by Oakland, Berkeley, and Richmond in 1923, and the Metropolitan Water District of Southern California, established in 1928, typified the new organizational model. This trend reflected a national movement towards the creation of special districts in the decades between 1880 and 1930 to provide a wide variety of services from fire protection and flood control to port management and mosquito abatement. Districts enjoyed substantial administrative and financial independence from county or municipal governments in pursuit of a narrowly defined set of functions, and

seemed to offer the best hope for professional, science-based management. Because state law limited cities to bonded debt equal to 15 percent of a community's assessed valuation, independently funded districts appealed to small, fast-growing towns that had many competing needs to meet. Regional districts could also better match services to the natural boundaries that governed the distribution of water and disposal of sewage, rather than requiring a wasteful duplication of services within artificial political boundaries.

Bureau of Sanitary Engineering

The State Board of Health established the Bureau of Sanitary Engineering in 1915 following the advocacy of Charles Hyde. Chester Gillespie, one of "Hyde's Boys" from the class of 1907, headed the bureau and he remained as chief until 1947. The early bureau had a two-year budget of $30,000 and consisted of Gillespie, two sanitary engineers, and a couple of stenographers. The group operated out of the UC Berkeley civil engineering building in an office adjacent to Hyde's and they shared the attic laboratory space with Langelier. The bureau remained on the UC Berkeley campus until 1942 when it moved two blocks west to Shattuck Square. Bureau staff were responsible for reviewing the water and sewage plants plans submitted by cities, conducting field inspections, and making recommendations on permits to the State Board of Health. They also had responsibilities for inspecting shellfish production, mosquito control, and other assorted issues.

The bureau contributed to professionalizing municipal utility operations. Gillespie recognized early on that operating personnel were not advancing in their knowledge as rapidly as was the complexity of sewage science and technology. The turnover rate among sanitary engineers was a problem as those drawn to the field soon mastered the issues and left to find few more meaningful challenges and job prospects. In 1928, Gillespie took the lead in organizing the California Sewage Works Association to encourage the sharing of information among municipal sewage workers and managers. The association began publishing the California Sewage Works Journal. Nationally, the Federation of Sewage Works Association formed in the same year and published Sewage Works Journal.

Typhoid Fever

The Bureau of Sanitary Engineering's strong focus through its first five years was combatting typhoid fever. Chlorinating the public water supply was the chief tool for reducing typhoid fever and was highly effective. Secondarily, bureau staff inspected sewage systems to locate and correct potential sources of cross contamination between sewage and water services. This was the case, for example, during a 1924 outbreak in Santa Ana that was among the worst of the twentieth century in California. An undersized sewer line habitually overflowed on Mondays, the local washday, and the runoff made its way into an open drinking water reservoir, carrying raw sewage with it. Expanding and relocating the line solved the problem. Other practices for reducing outbreaks included pasteurizing milk, improving general sanitation habits, and identifying carriers of typhoid fever through medical examination.

Typhoid fever death rates dropped dramatically with the effort. In 1906, the death rate was calculated at 34.9 per 100,000 population, a number that was somewhat elevated by the aftermath of the San Francisco earthquake. The following year the rate was a more typical 27.9. By 1920, the rate had fallen to 4.9 and it continued a downward trajectory to 1.7 in 1930 and finally below

0.9 in 1937. Within years of starting the campaign, the efforts were saving in excess of a thousand Californian lives annually and municipal water systems had been rendered almost entirely safe.

Still, smaller outbreaks of typhoid fever continued to occur nearly every year in a few specific locations, particularly among the farm labor camps of the Sacramento-San Joaquin Delta and Imperial County. The camps, both temporary and semi-permanent, tended to be located along levees, and irrigation ditches served as both sewers and drinking water sources. The droughts of the 1930s compounded the problem as the Sacramento River fell so low that sewage did not wash out to sea but sloshed back and forth with the tides through an 8–12 mile stretch below the city of Sacramento. The Bureau of Sanitary Engineering installed emergency chlorination units at sites with identified problems, but too many labor camps were remotely located and all but unknown to authorities.

The bureau was inclined to blame the sanitary habits of the farm laborers for these outbreaks, writing in 1938 that "it is not always easy to obtain the cooperation of the some of the foreign-born races in the observance of preventative measures." However, as legal scholar Camille Pannu has demonstrated, many rural communities made deliberate decisions to exclude labor camps from municipal water and sewer systems in order to keep laborers dependent upon farm owners for essential services and to discourage permanent settlement by Dust Bowl migrants or ethnic minority groups. As late as 1971, the Tulare County General Plan continued to argue for underinvestment as a strategy of population removal:

> Public commitments to communities with little or no authentic future should be carefully examined before final action is initiated. These non-viable communities would, as a consequence of withholding major public facilities such as sewer and water systems, enter a process of long term, natural decline as residents depart for improved opportunities in nearby communities.

In 1938, the bureau noted with pride that 94 percent of the population within incorporated cities or service district boundaries had sewage systems. That figure, however, excluded precisely the sort of unincorporated communities on the margins of agricultural towns that were intentionally left beyond the reach of municipal services. Because of de jure and de facto segregation, those communities were largely populated by ethnic minorities. The Central Valley today still has more than 450 unincorporated communities, many of which are a legacy of pre-World War II settlement patterns, and these areas remain among the least well provided with essential sanitary services.

Environmental Pollution

In contrast to the successful campaign against typhoid fever, California's Bureau of Sanitary Engineering had decidedly more limited success in combatting the environmental pollution of streams, rivers, lakes, and bays. This effort took the bureau beyond the immediate issue of public health and was met with resistance from the cities that were being urged to clean up their sewage discharges. Tax funds spent on sewage treatment provided little immediate return to the community making the investment, but instead benefitted downstream areas. Most municipalities thought that the solution to river pollution was for every town to treat their drinking water while cleaning up only the most noxious sources of nuisance dumping. This attitude changed only when economically valuable tourism or industry were directly impacted.

When Gillespie assumed his position as bureau chief in 1915, he found conditions along many of the state's rivers to be deplorable. The Merced River, he wrote, was "receiving sewage in the heart of Yosemite"; Tuolumne River "was a source of endless complaint"; Truckee River "was useless even for fishing"; the upper Sacramento River "was notorious for the piles of sewage along its edge"; Sonoma Creek "was a source of stench through a famous vacation belt"; and Napa River reeked of "offensive odors [that] prevented picnicking on its banks."

Many of the state's famous beaches needed to be closed regularly for quarantines. In Northern California, communities dumped untreated sewage into the shallow water of bays and harbors. Conditions in Southern California were somewhat better as outflows were commonly into deep ocean water where currents could disperse the waste. Most southland cities also provided at least preliminary sewage treatment with sedimentation or screening. San Diego, Long Beach, and the San Pedro Harbor were exceptions, as they continued to use short outfalls into the late 1930s. And even where deep water outfalls existed, regular breaks in the lines meant that sewage periodically washed up onto beaches.

The sanitary bureau had its greatest success in halting environmental pollution where it originated in relatively small institutions, most of which were state or federally operated. Folsom Prison, Sonoma State Home, Patton State Hospital, Yosemite National Park, Weimer Sanitarium, and UC Davis all installed trickling filters or activated sludge plants in the 1910s or 1920s that provided a high level of sewage treatment. Success was also possible in areas valued for their recreational potential. The bureau cooperated closely with the National Forest Service to clean up formerly squalid campgrounds and received support from Lake Tahoe resorts to end the practice of running sewers directly into the lake. Elsewhere, the bureau had to accept partial improvements. Towns such as Gilroy, Watsonville, and Yuba City replaced river dumping with sewage farms, but still provided limited treatment. Ukiah, St. Helena, Winters, and Paso Robles used land disposal during the summer months of low river flow, but continued to dump minimally processed effluent into rivers during the winter. And large areas through the Mother Lode and the California Delta dumped raw sewage into rivers year-round along with large quantities of unprocessed industrial waste from wineries, dairies, and fruit canneries.

Regional Variation

Distinct regional variation in the sophistication of water and sewage systems emerged in the early twentieth century. These systems developed through path-dependent processes so that decisions made in the mid-nineteenth century had an outsized influence on subsequent events well into the middle of the twentieth century. A divide thus opened between the older population centers of Northern California and the newer cities of Southern California that grew out of the oil, citrus, and real estate booms of the early twentieth century. Neither region was monolithic and in both halves of the state the fastest growing communities were most likely to embrace new technologies while outlying areas continued to accept older solutions as adequate. Nonetheless, real differences existed between the cutting-edge practices common in Los Angeles and the creeping progress that was made around the San Francisco Bay.

The location of sewage disposal—whether into freshwater, saltwater, or on land—was important in influencing how rapidly a community advanced its level of sewage treatment and drinking water

chlorination. Few new systems for disposing of raw sewage into freshwater streams were constructed after 1920, and many existing freshwater systems began treating their sewage. Land disposal at sewage farms remained common through the 1920s, though increasing regulation meant that most added partial or advanced treatment methods. The chlorination of drinking water supplies advanced most rapidly in communities that drew their water from wells within groundwater basins that included sewage farms. Treatment advances were slowest in areas that discharged their waste to seawater. Two-thirds of the new disposal projects involving raw sewage through 1930 discharged into bays or sloughs, mostly in Northern California. No advanced treatment of sewage was applied at any seawater location, though partial treatment became the norm along Southern California's recreational beaches.

Physical and economic realities underlay the different trajectories of the regions, but Gillespie and others also saw issues of human psychology playing a major role. In older areas, people had grown accustomed to disposing of raw sewage and it was difficult to persuade them to abandon familiar practices. Older communities through the Mother Lode and the San Joaquin Valley, Gillespie wrote, proved "to be the most refractory cases with which the sanitarian has to deal." Conversely, new cities took it for granted that they would need to treat their sewage before disposing of it, and "once a community puts in sewage treatment, no matter how meager, it has been a psychological truth that the people there are ready for further sewage treatment when plausible reasons appear. "Naturally, the areas most open to change attracted the engineers and managers who were prepared to deliver it.

Southern California

The national idealization of California shifted around the turn of the century so that images of Los Angeles's pristine beaches and suburban orange groves replaced the earlier gold fields and timber empires of the north state. Fitting its reputation as a land of health, Southern California assumed a position of national leadership in innovating practices of drinking water treatment and sewage disposal.

Los Angeles led the state in providing chlorination treatment for drinking water supplies. The region's success was built upon a robust network of public health laboratories that continually monitored water supplies and fine-tuned chlorination levels. The Los Angeles County Health Department alone maintained 11 full-time public health laboratories from the San Fernando Valley to Pomona. There were additionally three city health departments with their own laboratories in Los Angeles, Pasadena, and Long Beach. This contrasted with a single laboratory serving the City and County of San Francisco and four laboratories in the East Bay.

The state's southern region also innovated methods for improving the palatability of drinking water. In part, this was driven by necessity as Southern California could not draw upon pure mountain river water with the same ease as the north state. Large parts of the Los Angeles Basin relied upon well water as their primary supply, and as groundwater levels sank the remaining waters carried high concentrations of minerals that imparted undesirable tastes and appearances. Colorado River water imported into the basin after 1939 also required extensive treatment for its hardness and turbidity. Private water companies experimented with sand and carbon filters to improve the palatability of the supply, and in 1941 the Metropolitan Water District constructed the

world's largest water softening plant in La Verne, with an ultimate capacity of 400 million gallons a day.

In sewage treatment, the southland was particularly active in creating joint sewerage projects that channeled the waste of multiple communities to a central treatment facility. By 1936, nine treatment plants handled the sewage of 43 separate communities. So, while Southern California had built only about one-third of all the high-grade treatment plants in the state, those served one-half of all the communities in the state receiving the top level of sewage processing. Exemplary of this trend was the City of Los Angeles's Hyperion plant near Santa Monica that treated the combined waste from seven cities and several unincorporated communities. The Los Angeles County Sanitation Districts, organized 1923-1925, handled waste from 32 other incorporated cities located through the county, treating most of the sewage at an activated sludge plant near the Palos Verdes Peninsula.

These joint plants had the financial resources to experiment with innovative technologies. The Tri-City plant serving Pasadena, South Pasadena, and Alhambra enjoyed a national reputation as a proving ground for new sewage treatment practices, and the facility constructed an activated sludge pilot plant in 1917, the first in the state. The Los Angeles City Hyperion plant was the first in the state to employ fine sewage screens and its 12-foot-diameter drums were then the largest in the nation.

The cities of Southern California also paid unusual attention to the beautification of their water and sewage treatment plants. The Pasadena Tri-City plant was among the first sewage treatment facilities in the nation to landscape its grounds with lawns and ornamental trees. The City of Beverly Hills water filtration and softening plant, constructed in the mid-1920s, was a particularly ornate example Nicknamed the "Public Water Cathedral," the building resembled a Spanish-Romanesque church and had a soaring Moorish-style bell tower that disguised a chimney used for burning off sulfur above roof level of the surrounding neighborhood. Landscape architect Seymour Thomas designed the grounds in a hacienda layout to serve as a public park for visitors. No longer in use for water treatment, the building now houses a library and film archives for the Academy of Motion Picture Arts and Sciences.

The rapid progress made in drinking water and sewage treatment through Southern California resulted not from a genial consensus about the need for high standards, but from intense conflict between neighboring communities. Pasadena in the nineteenth century operated what was widely regarded as a model sewage farm, but the conversion of surrounding citrus groves into suburban tracts led to increasing odor complaints. The city added a septic tank in 1910 to treat the sewage prior to irrigation, and an Imhoff tank (a two-story septic tank with separate chamber, discussed further below) was completed in 1913. Among sanitary engineers, these improvements were believed to satisfactorily address the problem, but the neighbors were not appeased. In 1916, the areas surrounding the sewage farm incorporated as the City of Monterey Park and promptly passed an ordinance prohibiting sewage treatment facilities within city limits. It was this action that forced the Tri-City partners into developing the activated sludge treatment plant. Later, a plan to dump the dried sludge in Alhambra led 6,000 residents to sign a protest to the Los Angeles County Board of Supervisors and necessitated the addition of a kiln drier that converted the sludge to marketable fertilizer.

Similar conflicts occurred through the southland in the first decades of the twentieth century. When Anaheim began searching for territory for a sewage farm in 1911, the Speaker of the California State Assembly and local resident, Philip Stanton, led an effort to block the project by incorporating 16 square miles of rural land as the community of Stanton. Succeeding in their efforts, the community later disincorporated in 1924 in order to receive state funding for road improvements. West Covina, with a population of less than 1,000, incorporated in 1923 to block Covina from building a sewage project. West Covina later annexed additional territory to frustrate a second proposed plant. The organization of the Los Angeles County Sanitation Districts was in part a response to opposition against local sewage disposal in Compton, Watts, and Huntington Park. Similar experiences in Glendale, Burbank, and among the beach communities from Santa Monica to Hermosa drove the planning of the Los Angeles City Hyperion plant.

As Gillespie wrote in 1936, "Just why this Los Angeles area should be so universally sewered and at the same time be so violently opposed to sewage disposal forms an interesting subject on which to muse." He credited the suburban boom that attracted great numbers of Midwestern migrants who came seeking a better and more modern way of life than what they had left behind. Escalating land values made every corner of the coastal plains a potential subdivision gold mine if the proper utility and transportation connections could be managed. And each subdivision required a sewer system, and yet no developer could tolerate a disposal plant next door. The result was a pattern of growth that consolidated sewage treatment into fewer and fewer plants, while demanding a continually higher level of odor control and facility beautification.

The great sensitivity to sewage and the escalating levels of treatment was a phenomenon largely confined to the major metropolitan areas. In more outlying areas, people adjusted themselves to the realities of sewage disposal and lived at peace with conditions that elicited bitter conflict among suburbanites. There, Gillespie concluded, "the pattern of sewage disposal will probably continue along its present course with sewer farming the rule, accompanied by high grade plants in critical neighborhoods, and cheaper plants elsewhere.

San Francisco Bay Area

The progress made in Southern California was not matched by the communities around the San Francisco Bay. Cities there largely remained tied to antiquated combined sewage systems without treatment plants. On the eve of World War II, some one million people continued to dump raw sewage through short outfalls into the Bay's harbors, sloughs, and mudflats. That accounted for 80 percent of all the raw sewage disposed of by California's urban population. An estimated 205 municipal sewer outlets discharged into the Bay, while oil refineries, industrial manufacturers, and innumerable fruit canneries used it indiscriminately as a dumping ground. Surveys of the Bay shores found them littered with vegetable scraps, chemical slicks, and floating fecal matter. A putrescent sludge covered the mudflats, and on warm days the smell of sewage carried several miles inland.

Still, there were few immediate health problems associated with the sewage and local concerns focused predominately on the economic impacts. The Bay Area drinking water supply was entirely separated from the saltwater sewage disposal, with much of the water being piped in from the Sierra Nevada mountains, and the cold waters of the San Francisco Bay did not attract bathers as

did the beaches of Southern California. The pollution was instead seen as an impediment to industrial development. Hydrogen sulfide that arose from the anerobic digestion of waste caused corrosive damage to ships, buildings, and harbor structures. The oxygen-deprived waters starved nearshore habitats of life, and sewage threatened to contaminate shellfish, making them a potential source of cholera, hepatitis, and other infectious diseases. Trade organizations and local boosters also worried that the foulness of the Bay made the region appear backwards in comparison with their rivals in Southern California.

San Francisco was the largest offender in sewage production, but the city also did the most to address the problem. The first, relatively small, advanced treatment plant was constructed in Golden Gate Park in 1932 using New Deal relief funding Raw sewage had previously been used in the early twentieth century to irrigate the western portion of the park. After odor complaints, a septic tank was installed in 1912 and the treated effluent filled the ornamental lakes of the park. A lawsuit forced the abandonment of that practice in 1931, leading to the construction of the activated sludge plant the following year. The plant operated only during the irrigation season, running from mid-February to November, and produced around 500,000 gallons of treated effluent daily as well as dried sludge for fertilizer. Fitting its location in Golden Gate Park, the facility was beautified with flowerpots and landscaping. The plant (decommissioned in 1982) has been recognized as the first recycled water facility in California.

In 1933, the citizens of San Francisco voted approval for issuing $2.6 million in Public Works Administration (PWA) bonds to improve the sewer network and construct limited sewage treatment plants. When C. E. Grunsky undertook a study of sewage conditions in 1899, he found 125 separate sewer outlets and his plan called for consolidating those into six main outlets. In the intervening years, the expenditure of $17.5 million allowed for the total number of outlets to be reduced to 31, with 19 discharging to the Bay, 11 to the Golden Gate Strait, and one to the Pacific Ocean. With the WPA funds, the city hired a board of consulting engineers that included Charles Hyde of UC Berkeley to prepare a plan for improvement. The board recommended construction of three treatment plants, but had funding adequate to complete only the Richmond-Sunset facility. The 15 million-gallons-a day (mgd) plant was completed in 1939 and provided only basic treatment with an Imhoff tank and sludge digester. Chlorination of raw sewage was used ahead of the tank for odor control year-round, and the final effluent was chlorinated for bacterial disinfection when the beaches were in use. The bulk of the city's sewage, however, remained untreated.

The East Bay communities appreciated the need for sewage improvements, but could not find a way to coordinate their efforts prior to World War II. EBMUD was the obvious agency to manage a joint venture, but the district directors believed they lacked the authority to create special subdivisions for sewage disposal. Only after the state legislature amended its authorizing act in 1941 did the district feel enabled to engage in sewage planning, but then the outbreak of war delayed any further efforts. Nine individual East Bay cities made attempts to apply for WPA funding, but the inability of the applicants to reach agreement on essential issues prevented any of them from receiving funding.

Along the San Mateo Peninsula, Burlingame, Redwood City, and Palo Alto installed limited treatment plants, largely funded with WPA grants, to remove suspended solids from the sewage

before discharging effluent onto mud flats or sloughs. Marin County did the same north of the Golden Gate. These plants, combined with those in San Francisco, provided basic treatment for the sewage of some 230,000 people, less than 20 percent of the region's population. This fell far short of what the Bureau of Sanitary Engineers regarded as minimal conditions, which should include sedimentation, with or without chemicals, and sufficiently long outfalls to reach ocean currents. Grease removal would be required to prevents slicks, and to minimize land use, sludge should be disposed of by digestion and compact mechanical filters.

In reviewing the minimal progress made in the San Francisco Bay Area, Gillespie was sympathetic to challenges faced by the communities. The legacy sewer lines were expensive to operate and maintain. Merely mapping the lines was a challenge and attempting to link them required extensive construction in heavily built-up areas. Treatment plants necessarily needed to be located along the shores, as that was where gravity carried the waste. This meant acquiring expensive real estate and competing with industry for the land. The historic reliance on combined sewer lines also made it impractical to fully treat the flow during winter months and required that some overflow be tolerated. Gillespie was willing to accept lower standards of treatment for Bay pollution over freshwater streams, both because of the lower health hazard posed and because the heavy ship traffic made a certain level of pollution inevitable.

Still, Gillespie saw a dark cloud on the horizon in 1940 in the lack of preparation for dealing with industrial expansion. Already, studies in the East Bay indicated that the organic waste from industry, primarily canneries, was twice as great as that from human sewage. The refineries and heavy manufactures introduced chemical waste that was little understood in terms of effects or potential treatments. And of course, World War II would vastly increase the scale of industry in the San Francisco Bay Area and throughout the state.

Technology

Sewage and water treatment technologies advanced rapidly at the start of the twentieth century, giving rise to most of the processes that are still in use today. Chlorination was introduced for drinking water treatment in 1908 and rapid sand filtration entered common use in the 1920s. The era saw the beginning of the biological treatment of sewage with the introduction of trickling filters around the turn of the century and the activated sludge process in 1914. The biological treatment of sewage marked a shift to a more scientific process as they required a greater degree of control and an understanding of microbiology. It required new technologies in the form of pumps, aeration equipment, and tools for laboratory testing. Still, the technology was adopted only gradually, hindered by the slower rate of regulatory change, and as late as 1929 fewer than 20 percent of all sewage treatment plants used the activated sludge process.

Water Works

Most of the fundamental processes of modern drinking water treatment emerged during a brief period at the beginning of the twentieth century. The years between 1909 and 1916 saw the adoption of three major advances: the application of chlorine for disinfection; the use of rapid sand filters for treating turbidity; and the employment of the zeolite or ion exchange process for reducing water hardness. These techniques allowed municipalities to effectively treat drinking water for the first time, rather than just seeking out ever-more-remote sources of uncontaminated supply. By 1936, nearly 150 Californian communities provided at least some form of water

treatment, predominately chlorine disinfection, and 36 cities had constructed full-scale filtration plants that treated surface waters for public use.

The common methods of water treatment consisted of disinfection, coagulation, sedimentation, filtration, aeration, and softening. The type and level of water treatment provided depended ultimately upon the source of supply. Coagulation, sedimentation, and filtration worked together to reduce turbidity and were used in treating surface waters at large filtration plants. Groundwater extracted by wells, the most common municipal water source, required comparatively little treatment beyond disinfection and thus needed little infrastructure. A chlorinator could fit into a small room at a pumphouse or be located at a centralized collection and distribution facility. If the water had a high mineral content, it might benefit from additional softening and aeration to improve palatability and remove minerals that could interfere with industrial processes. Surface water treatment required a larger investment in infrastructure than did groundwater because of the issues with turbidity, but it generally benefited from greater gravity flow
and thus had lower on-going energy demand and pumping costs.

Water distribution systems, in contrast to water treatment, changed only modestly from the nineteenth into the twentieth century. The physical infrastructure benefited from incremental improvements in materials and energy sources. Pipes of galvanized steel, reinforced concrete, asbestos cement (transite), and ductile iron gradually replaced cast iron pipes, leading to greater durability and lower costs. Thermoplastic pipes, including those of Polyvinyl Chloride (PVC) and later High-Density Polyethylene (HDPE), began being manufactured in the 1930s and entered water system usage from the 1950s onward. The plastic pipes were light weight, corrosion resistant, versatile, and inexpensive and soon found many applications in drinking water and wastewater systems. Electricity replaced steam and oil in operating most pumps, allowing for smaller engines and plant footprints. Of greater direct consequence, engineers improved distribution networks to remove potential sources of contamination. Many of these occurred in factories or institutions that made primary use of a public municipal water supply but maintained a private auxiliary supply of untreated water for backup purposes. If a connection between the two systems lacked an air gap it was possible for untreated, contaminated water to find its way into the public supply. The Bureau of Sanitary Engineering identified and removed more than 1,000 such cross-connections through the first half of the twentieth century. This painstaking and labor-intensive service received little public recognition, though it was essential to ensuring safe municipal water supplies and guaranteeing public health.

Chlorination

The permanent, continual chlorination of American drinking water supplies beginning in 1908 was one of the great public health achievements of the twentieth century. Chlorine is a strong oxidizing agent that, when applied in the correct dosage, can quickly kill the microorganisms that cause cholera, dysentery, typhoid fever, and other illnesses, without causing adverse effects in humans. The introduction of chlorination promptly saved tens of thousands of lives that waterborne illnesses would otherwise have claimed. Chlorination also improved the efficiency and palatability of water systems by reducing the mold, algae, and slime that grew in water intakes and distribution systems.

The first experiments in using chlorine compounds to disinfect water occurred in the late nineteenth century. British and German sanitarians in the 1890s used bleaching powder to sterilize watermains and other equipment following outbreaks of typhoid fever and cholera. These short-term efforts succeeded in preventing reoccurrences of the epidemics, but they did not attempt to provide continual disinfection of the water supply. In 1905, officials again used chlorine to halt a typhoid epidemic in Lincoln, England, but then as a precautionary measure they continued a slow feed of chloride solution for a period of years until a new water source became available. This marked the first continual disinfection of a public water system and prompted further experimentation in Europe and America.

The earliest American efforts at continual disinfection occurred in 1908. Wilfred Langelier of the Illinois Water Survey and later professor of chemistry at UC Berkeley participated in the first experiment at the Union Stock Yards of Chicago. The engineers selected the site as only animals would be affected, and the heavily contaminated water supply made an ideal test case. The introduction of a minute quantity of chlorine continually fed into the supply line almost completely sterilized the stockyard water, leaving it in better condition than Chicago's municipal supply. Shortly after, the same engineers applied the technique to the drinking water of Jersey City, with chlorination beginning on September 26, 1908. The city received many complaints about the odor and taste of chlorine, which could not yet be administered with precise control, but the results were so promising that the objections were overruled. In the years immediately following the experiments, sanitary officials constructed many emergency chlorination plants in areas affected by flooding or disease outbreaks.

The introduction of improved chlorine gas feeders around 1913 allowed the process to spread into wide municipal use. Compressing chlorine gas under pressure converted it into a liquid that could be stored and transported in tightly sealed metal containers. A British officer in the Indian Medical Service was the first to use liquified chlorine gas on a small scale in 1903. The US Army experimented with the technology in the Philippines in the early 1910s, and a Niagara Falls plant began using liquid chlorine for temporary treatment in 1912. Philadelphia installed the first permanent liquid chlorine plant in 1913. The Wallace & Tiernan Company of New Jersey designed nearly all the early chlorinators that allowed for the controlled application of dosages, and according to Langelier, many of the first graduates of the UC Berkeley sanitary engineering program found employment with the firm.

All large treatment plants used liquefied chlorine gas as it was the most economical option. However, as the gas is highly toxic, it could be difficult to safely store and an accidental release would endanger employees and nearby communities. Smaller plants therefore sometimes used chlorine in a powdered bleach form. In either case, the chemical was administered through chlorinators of various and evolving designs that connected to the water main with non-corrosive tubing. The chlorine and water mixed within a baffled chlorine contact basin for a specified period of time to produce effective disinfection. Duplicate equipment allowed chlorination to continue in the event of a failure of the primary apparatuses. The chlorine and dosing equipment occupied a dedicated room so that any leaks could be isolated. This room commonly had a separate entrance from the building exterior and no direct connection between it and any other room in the treatment plant or pumping house. Good ventilation facilitated repairs in case of a minor leak. Because liquified chlorine was commonly delivered in large steel cylinders weighing up to a ton,

chlorination rooms generally included loading docks built to truck bed height for easy on and off loading.

Sedimentation

Sedimentation is an ancient technology used to clarify muddy waters. Most surface waters carry quantities of clay, silt, and sand that are too fine to catch on a screen. Allowing the water to stand in or pass slowly through a settlement basin causes much of the suspended matter to settle to the bottom of the reservoir. This process of plain sedimentation could greatly improve water clarity, and in some cases was sufficient in and of itself to prepare the water for public consumption. However, the finest particles of clay and silt did not settle readily and could remain in suspension even after months of storage. It was therefore more common to use sedimentation as a preliminary treatment step preparatory to more thorough filtration. The addition of coagulating chemicals aided sedimentation, especially in highly turbid waters.

Sedimentation at its most basic required a bare minimum of infrastructure. Any natural or artificial basin with enough capacity to retain water for several hours could remove some portion of the suspended matter. These simple reservoirs could be left as exposed earth or be lined with stone, brick, asphalt, or concrete. The primitive basins lacked means for removing deposited settlement and thus required periodic draining and clearing. Gillespie recalled that, prior to 1915, such "small weed grown settling basins" provided the only form of water treatment through most of California.

More sophisticated sedimentation basins (also known as sedimentation tanks or clarifiers) allowed for greater process control. Early, purpose-built sedimentation basins followed the fill-and-draw method in which tanks were filled, held for a specified retention period, and then drained and cleaned. This method was labor intensive, and managers soon abandoned it in favor of the continual flow method with inlets and outlets always open. The concrete basins came in rectangular, square, and circular forms. Rectangular basins used baffles of concrete, wood, or metal to prevent water flowing directly from the inlet to outlet. A circuitous route ensured an adequate retention time and limited the formation of eddies that would inhibit sedimentation. In circular basins, untreated water entered the center of the tank from below and passed through a perforated baffle. Flow velocities declined rapidly away from the middle of the tank, so most materials fell out into a sump near the tank center. The cleaned water flowed out over an overflow weir that circled the tank and connected to an outlet pipe. As with most items in treatment plants, sedimentation basins generally came in pairs so that one basin could continue to operate while the other was taken offline for cleaning, repair, or maintenance. The use of sedimentation basins increased with the introduction of mechanical equipment for automatically removing sedimentation around 1919. In rectangular basins, chain loops dragged scrapers in a straight line down the tank towards a collection sump and then returned the scrapers raised above the tank bottom. In circular tanks, a series of arms with bottom scrapers revolved around a central axis. In both cases, the scrapers moved at barely perceptible speed to avoid disturbing the calmed water. Numerous patented variations on mechanical cleaning equipment existed to meet different specific needs.

The addition of coagulating chemicals facilitated sedimentation by causing suspended matter to clump together, forming a jelly-like precipitate known as floc. The clumped floc readily settled to the tank bottoms. Sanitary engineers experimented with many chemicals, using the jar test

developed by Langelier, to ascertain their coagulating properties under different conditions. The most widely used substance through the twentieth century was aluminum sulfate, also known as alum. Ferrous sulfate, ferric chloride, ferric sulfate, and chlorinated copperas were common substitutes. The chemicals functioned most efficiently within narrow pH limits, and the addition of soda ash, lime, or similar helped to fine tune acidity.

Small mixing basins, located ahead of the sedimentation tanks, served to thoroughly mix the coagulates and raw water. The basins employed a range of methods for mixing the chemicals including baffles located within the flow stream, mechanical stirring paddles, and air blowers. The simple baffles generally worked adequately, but equipment manufacturers patented and marketed more complex apparatuses that promised some particular advantage.

Sand Filters

British sanitarians began experimenting with sand filters in the early nineteenth century. In 1829, a private water company constructed a sand filter to serve their customers in the London area, creating the world's first treated municipal water supply. These British sand filters, also known as slow sand filters, differed in design and operation from the later rapid sand filters that became dominant in America in the early twentieth century, but they provided a model for subsequent developments.

A slow sand filter consisted of a large watertight basin, generally of concrete, that contained a layer of sand of uniform small size over a bed of gravel with drainage tiles below. The sand layer had a minimum depth of 12 inches up to a maximum of around 40 inches. The slow percolation of water through the sand caused suspended materials to settle out, depositing a thin layer of sediment on the surface of the sand bed. As the sediment layer increased in thickness, it produced increasing resistance to infiltration and operators thus needed to increase the depth of the water above to maintain an even filtration rate. When the sediment layer became too thick, the operators drained the tank, scraped off the top layer of sand, and began the process again with a fresh bed. The layer of sediment, known as shmutzedecke (German for "dirty skin"), functioned as a biofilm that digested organic matter in the water, serving to purify as well as clarify it, though the nature of this biological treatment was not understood in the nineteenth century. Because of their creeping rate of infiltration, slow sand filters required large basins of at least a quarter acre in size, with a half-acre or full acre more common.

Americans constructed their first slow sand filter in 1872 in Poughkeepsie, New York, and completed a number of similar plants through New England over the following decades. However, the design proved ill adapted for American conditions where rivers were far more turbid than the sedate English streams. The filters rapidly filled and choked on sediment, making them inefficient and uneconomical. In the 1890s, the eminent sanitary engineer George Fuller experimented with rapid sand filtration techniques in Louisville, Kentucky, to treat Ohio River water. By introducing a coagulant immediately prior to the sand filter, Fuller was able to process a large quantity of water in a relatively small tank. However, the great quantity of floc that settled on the sand bed required more frequent cleaning than did British slow sand filters, up to several times a day versus a monthly cleaning. To address this problem, Fuller adopted a system of backwashing that forced water under pressure up through the sand layer to cleanse it. This combination of features—small basin size,

use of a coagulant, and backwashing—distinguished the American rapid sand filter from the predecessor models.

Several decades of incremental improvement gradually refined Fuller's process until it operated with enough consistency and efficiency to be widely adopted. Much of the effort focused on improving the backwashing process to avoid forming mudballs that could clog the filter. In the 1920s, John Baylis developed a system of auxiliary scour that used horizontal water spray from a grid of pipes to enhance the cleaning action during backwashing. A decade later, the introduction of rotary sweeps improved the cleansing of the sand bed surface. Both scour types allowed for using aerated water, with air injected under pressure to enhance the scrubbing action. Researchers also adjusted the ordering of the filtration process, adding sedimentation basins ahead of the filtering, and thus reduced the required frequency of cleaning. By the late 1920s, the treatment chain of chemical coagulation, mixing, flocculation, sedimentation, and then filtration became known as "conventional treatment" and was used wherever muddy surface rivers were a principal water source.

The layout of municipal rapid sand filtration plants followed some general conventions, even as the particulars responded to the individual demands of the site, water source, available funding, and the decisions of the designer. Most large plants grouped small, rectangular, concrete tanks into two rows and placed a pipe gallery between the rows and beneath the floor of the tanks. During normal operations, the water level in the beds stood above the top of the lateral half pipe troughs. After trickling through the sand, gravel, and underdrains, the water filled a reservoir or clear-water well below the beds. During backwashing, water from an elevated tank was forced up through the filter beds and drained through the troughs. The plant operators generally piped the removed sludge to a drying basin, where the water content was drawn down prior to disposal. Small plants were more likely to use circular units of concrete or steel, and equipment manufacturers sold many such patented apparatuses ready for rapid assembly and use.

A pressure filter was a variation of rapid sand filter that contained the process within an air-tight cylindrical shell and functioned by virtue of water pressure rather than gravity flow (Figure 25). The small cylinders could operate vertically or horizontally and required little space. With their limited capacity, pressure filters were suited for industrial use or on small private or public water systems with low turbidity sources. Engineers commonly designed such water systems with a single set of pumps that removed water at its source, forced it through a pressure filter, and conveyed it to the point of consumption. When used in combination with chlorine disinfection, pressure filters allowed for small-scale water systems to operate safely and economically. Light weight pressure filters replaced the sand media with engineered fabric or paper filters. These systems lacked durability, but were suited for temporary installation at labor and military camps or the like.

Aeration and Water Softening

Groundwater drawn from certain geological formations by wells could contain high quantities of dissolved minerals including iron, calcium, and magnesium. These dissolved solids make water hard, which detracts from its palatability and interferes with industrial uses by forming scales in boilers and other equipment and requiring greater quantities of soap in laundry applications. Water softening is the process of removing these hardening minerals. The iron from an anaerobic well

occurred in an invisible, soluble form, but as it oxidized following exposure to the atmosphere, it produced rust that gave the water an unappealing color, clogged distribution lines, and made it unfit for some industrial purposes.

Aeration provided the simplest means of oxidizing and removing dissolved iron. Aerators came in a variety of forms as there were many methods of exposing water to air. Spray nozzles could throw water into the air ahead of a storage basin, or a series of baffles, steps, or protruding stones could be placed within a shallow channel leading to the basin. A tray-type aerator (Figure 26) distributed water to the top of a series of shallow trays with perforated bottoms, allowing the water to aerate as it dripped between levels. The trays commonly contained coke or rock on which a coating formed that sped the process of oxidation. A number of patented devices employing nozzles, paddles, and propellers were also available.

Two different techniques existed for softening water: the lime-and-soda-ash process and the zeolite ion-exchange process. Lime and soda ash acted through a series of chemical reactions to convert soluble compounds of calcium and magnesium into insoluble forms that either precipitated out through sedimentation or were removed by filtration. The process was similar to that used in rapid sand filtration. Operators added lime and soda ash to raw water either separately or in combination, and thoroughly stirred the materials together in a mixing basin to produce flocculation. The heaviest material settled out in a sedimentation tank. The partially treated water was then recarbonized by injecting carbon dioxide gas into the water as it flowed from the sedimentation tank towards the filter. The carbon dioxide interacted with any excess lime to form soluble bicarbonates which helped to minimize the buildup of calcium carbonates deposits in the filter and distribution system. A final pass through a filter removed most of the remaining coagulant and prepared the water for consumption.

The zeolite process used ion exchange to replace the soluble calcium and magnesium in water with sodium. Ions are molecules that have acquired a net electrical charge as the result of gaining or losing electrons. As opposite charges attract, positively charged ions, known as cations, will adhere to their negatively charged anion partners. In ion exchange, molecules within solution are swapped with like-charged particles that are adhering to an oppositely charged solid that is immersed in the solution. Ion exchange is a common, natural process that is fundamental to soil fertility as the negative charges of clay soil and organic matter attract and hold plant nutrient cations such as potassium, calcium, and magnesium. British soil scientists in the mid-1840s were the first to study the ion exchange process and to recognize that any single cation in the soil could be replaced with any other cation by saturating the soil with water rich in the replacement nutrient.

European chemists began experimenting with ion exchange using zeolites in the 1850s, but without immediately recognizing the material's potential for water softening. The term zeolite refers to a group of natural materials (and today, synthetic products) that combined iron, aluminum, and sodium in a silicate form. Greensand, a marine sandstone, was the most common natural zeolite. When hardwater ran through a bed of zeolite, it exchanged its calcium and magnesium cations for the sodium cations adhering to the zeolite until the sodium was exhausted. Flooding the zeolite with a brine solution then reversed the process, releasing the calcium and magnesium for disposal and replenishing the sodium for another softening cycle. Coating the zeolite with manganese dioxide allowed it to also strip the water of iron. The potential to use zeolites for water softening

was recognized by the early twentieth century, and the German scientist Robert Gans patented the process in 1906.

Over the next two decades, small zeolite softeners found their way into many industrial processes as they demineralized water for use in steam boilers, laundry plants, pulp mills, and the like. A zeolite softening unit was essentially a rapid sand filter but with a bed of zeolite replacing the sand quartz and with a special lining to protect against corrosion caused by the brines used in regeneration. Depending on the size of the operation, the units could be either of the gravity-fed basin type or pressurized steel tanks. The plant then blended the fully treated water with raw or partially treated water to produce a finished product with a desired level of hardness. The Ohio Valley Water Company constructed the first municipal softening plant below Pittsburgh in 1926.

The company added a second plant in 1929, and the area served as a working laboratory for experimenting with the zeolite process on a large scale. The plants entered wide use in the 1930s, appearing in every part of the country. In 1941, the Metropolitan Water District of Southern California constructed its large water softening plant in La Verne using a combination of lime treatment and zeolite filter beds. After a later expansion, the La Verne facility had the distinction of being the largest zeolite softening plant in the world.

Reservoirs

The design and construction of water tanks and reservoirs evolved in the early twentieth century to make more efficient use of materials. In 1894, Horace E. Horton of the Chicago Bridge & Iron Works constructed the first steel plate water tank with a full hemispherical bottom. The curved shape required less steel and was more watertight than a flat-bottomed tank, and because the rigid bottom was self-supporting, it did not need to sit on a platform. By the early twentieth century, this had become the dominant type of elevated water-storage structure in the United States. In 1905, George T. Horton, son of Horace Horton, created the first tank with an elliptical bottom, which had a shallower profile than the hemispherical form. The ellipsoidal form became nearly flat at its center and allowed for using larger risers that provided greater support. Further innovation in 1922 allowed for using the ellipsoidal shape for both the top and bottom of the tank. This eliminated the need for the interior trusses that supported a conical roof and gave a more pleasing, modern form.

In 1928, Chicago Bridge & Iron (CBI) introduced the first true spherical tank. Set on single pedestal supports, these small tanks, trademarked under the name Watersphere, looked like golf balls sitting on tees. The use of welding, rather than riveting, to join tank plates beginning in 1933 allowed for greater flexibility in design and led to larger forms, including a 100,000-gallon capacity Watersphere introduced in 1939. The Watersphere became the most popular elevated tank design in the 1940s and were especially common for small systems with low storage needs. Other CBI advances allowed for constructing high-capacity tanks holding up to two million gallons. These design types included radial-cone and toro-spherical tanks, both of which placed the convex steel plates under tension to allow for the use of thinner materials.

The tubular steel legs that supported the large tanks also required less material than prior truss support systems. Central towers under the tanks housed risers, overflow pipes, and ladders for access. By World War II, tanks in these modern forms and several other variations became

common on large systems. Form followed function for elevated steel tanks, and while they were frequently painted with town names or high school mascots, they rarely had architectural decoration beyond their own striking industrial forms.

Sewage Works

Public sewerage systems for collecting household waste became nearly universal among incorporated Californian communities in the first half of the twentieth century, while the treatment of sewage advanced somewhat less rapidly. By the eve of World War II, 95 percent of the state's urban population and about three-quarters of the total population benefited from public sewerage systems. However, nearly four in ten of those systems, including most of the older legacy works of Northern California, continued to discharge raw sewage without treatment. Where people had grown accustomed to disposing of raw sewage, state officials found it difficult to persuade them to abandon existing practices. Conversely, newer cities took it for granted that they would need to treat their sewage before disposing of it, and 80 percent of systems constructed after 1913 included treatment from the outset. Naturally, the communities most open to improvement attracted the engineers and managers who were prepared to deliver it.

The location of sewage disposal—whether into freshwater, saltwater, or on land—was important in determining how rapidly a community advanced in sewage treatment. By 1920, state and local officials well understood the hazards of disposing of raw waste into freshwater streams. Nearly every new freshwater-discharge system included treatment, and many existing systems were overhauled to add treatment options. Land disposal at sewage farms remained common through the 1920s, although increasing regulation meant that most added partial or advanced treatment methods. Communities that discharged their waste to seawater were the slowest to advance. Two-thirds of the new disposal projects involving raw sewage through 1930 discharged into bays or sloughs, mostly in Northern California. No seawater location added advanced biological treatment methods prior to 1930, although partial treatment by screening or septic tanks became the norm along Southern California's recreational beaches.

Sanitary engineers experimented with a wide variety of treatment methods as they sought practical means of implementing the scientific advances occurring in the field of microbiology. Septic tanks and the related two-chamber Imhoff tanks dominated the first decades of the twentieth century, but options soon diversified. The era of advanced biological treatment began with two designs by the Bureau of Sanitary Engineering for a trickling filter in Reedley in 1915 and an activated sludge plant at Folsom Prison in 1917. In 1929, Gillespie compiled an inventory of the various treatment plants in operation across the state.

Imhoff and septic tanks were by far the most common, although Gillespie described these as "mostly relics of the past." Trickling filters were the most common advanced treatment option, producing a fully digested final effluent. While only six activated sludge plants were online, these were largely in joint sewerage plants that handled the waste of multiple communities. The somewhat older technologies of sand filters, contact beds, and fine screen continued to exist but in shrinking numbers. The survey did not include sewage farms, though a number remained in use in 1929. "All in all," Gillespie noted, "California has adopted practically everything that has appeared on the horizon for sewage treatment."

Private consultants and equipment manufacturing firms played an increasingly important role in designing sewage treatment systems as their complexity advanced, even as the system remained in municipal or institutional ownership. Academic researchers worked extensively as consultants in the early period because there were few other practitioners experienced in the specialized design of water and sewage treatment plants. Professor Hyde, in particular, consulted on numerous treatment plants throughout the state. Eventually Hyde's students organized their own consulting firms, with Clyde Kennedy (class of 1911) and Harry Jenks (class of 1917) being among the most prominent in Northern California. The larger equipment manufacturers, such as the Dorr Company, employed consulting engineers who could draw plant plans for small towns or institutions that utilized the company's equipment.

The reliance on private consultants had the disadvantage of pushing municipalities towards technologies that benefited patent holders more than the communities. Professor Harold Gray of UC Berkeley noted a tendency for sewage treatment methods to cycle in and out of fashion in a manner unrelated to obvious changes in knowledge or technology. Activated sludge treatment found favor in the late 1930s, followed by increased interest in chemical precipitation and then later a revival in trickling filters. Gray linked this pattern to changes in patent status. Several patents for activated sludge treatment, for instance, ran out around the time that the trend away from it began, while the rediscovered interest in trickling filters coincided with the issuing of new patents for particular filter features.

A P. Banta of the Los Angeles County Sanitation Districts commented drolly on the persistence of equipment salesmen, even as he relied upon their services:

> Larger treatment plants are the Mecca of budding inventive genius. Scarce a week goes by but that some gentleman or salesman arrives with a new panacea of sewage treatment. Sometimes it is the addition of tons of newspaper, or some patented chemical, or some mysterious settling media, or perhaps it is the simpler matter of just distilling the sewage. Paint and building material exponents are legion. Wonder-last-forever metals are nearly as common, and one must expect to have the lubrication system experted [sic] several times a year by all the oil companies.

The following sections highlight the major treatment technologies that came into widespread use during the first half of the twentieth century.

Sewage Pumps

Communities resorted to sewage pumping plants, also called lift stations, in any situation where sewage needed to be lifted above where gravity flow would naturally carry it. This could occur in hilly cities where isolated low-lying districts could not be served by gravity flow outlets. All the sewage through the district would then be collected at a single convenient location and pumped through a force main to join a higher sewer main operating under gravity flow. In flat topography, the need to maintain an adequate grade for flow velocities required excavating continually deeper towards the sewage outlet. In some situations, it proved less expensive to raise the sewage by pumping at one or more places rather than to do deep excavation over long stretches. Pumping stations were also commonly used immediately ahead of treatment plants in order to generate adequate head for plant operation.

A sewage pumping station consisted of a storage well, two or more pumps, and the engines required to operate them. Storage was necessary as pumps operated at a continual rate while sewage inflow varied with the time of day, day of the week, and other factors. Adequate storage capacity also allowed for pumps to be taken offline for maintenance. Pumps could be submerged within the storage well, but it was often preferable to locate them in an adjacent dry well to facilitate servicing.

Screens at the sewage inlets removed large materials that could clog or damage pumps, but smaller materials including toilet paper and organic solids were allowed to pass through as these created odor problems at the stations if retained. Centrifugal pumps were favored over reciprocating pumps as they were less likely to clog from the smaller bits of trash. Any type of motor could be used to operate the pump, but electrical motors became standard as they were the easiest to automate

Sewage pumps generally operated automatically by way of a switch connected to a float within the storage well. When the sewage rose above a certain level, the rising float started the pump, and it operated continually until the sewage fell back below the trigger level. If the sewage continued to rise during pumping, another float would trigger a second pump into operation. A third pump might be present as an emergency reserve and to add additional pumping capacity along lines with high peak flows.

A properly maintained sewage pump plant would produce little odor and thus could be located wherever most convenient. Smaller plants could be contained in below ground vaults, while larger plants frequently had a motor room above ground and pumps below. Early pumping stations were crude, consisting of a wood or brick-lined tank, with a pump mounted on a platform above, and the whole system enclosed in a corrugated metal building. Greater attention was given to the stations as they started to encroach on residential neighborhoods. Some pumping stations constructed in the 1920s adhered to the City Beautiful movement and often featured Neoclassical or period revival design elements and landscaped grounds to emphasize the dignity of municipal service. One design manual argued that “such structures tend to remove the popular prejudice from sewerage and to arouse interest in sewerage questions.” In other cases, pump stations were designed to blend in with their surroundings. A pump station of the Los Angeles County Sanitation Districts near the Palos Verdes Peninsula, for example, was set below ground and landscaped above with a pergola that hid ventilation outlets. Likewise, when Long Beach constructed 14 new pump stations, the city disguised some as common stucco bungalows and built another into the central pier of a canal bridge.

Screens

Coarse or fine screens physically removed large items and some portion of the smaller suspended solids from sewage flows. Coarse screening was the first step in nearly all sewage treatment as it was necessary to remove large material—rags, timber, golf balls, and the like—that could clog or damage machinery. A bar screen, composed of parallel iron bars of one-quarter to one-half-inch thickness with openings of between one-half and six inches, was the simplest device. The screen was set with the bars oriented vertically and at an angle of between 30 and 60 degrees so that captured materials were pushed up the screen for easier removal. The screen was cleaned either

periodically by manual raking or continually by automated processes of various sorts. Chain loops on sprocket wheels pulled a rake up the face of the screen and dumped collected materials into a receptacle for later disposal. Medium-sized mesh screens of galvanized wire fabric provided filtering for smaller objects such as toilet paper and leaves preparatory to passing sewage through reciprocating pumps, trickling filters, or other machinery that were readily clogged.

Fine screens provided a basic form of sewage treatment by removing a portion of the suspended organic solids. Long Beach was the first to use fine screens for sewage treatment in 1915, followed by Santa Barbara in 1916 and Stockton in 1919. Most fine screens consisted of perforated metal plates, rather than wire mesh, for greater strength and ease of replacement in the machines. The perforations ranged between 1/32 and 1/14 of an inch wide by 2 to 4 inches long. Fine screens were estimated to remove approximately 20 percent of suspended organic materials, though results varied with circumstances and the screens often underperformed expectations. For planning purposes, they were used only for treatment requiring less than 10 percent removal of suspended solids. That low level of cleaning was considered sufficient when sewage was discharged into an environment where it would be diluted quickly, such as at the Santa Cruz screening plant designed by Charles Hyde that discharged into the ocean.

Screens were also widely used for industrial waste at pulp mills or fruit canneries where the finer organic material that passed through the screen did not pose an immediate health risk. Because screens removed fewer suspended solids than did sedimentation, there was less sludge requiring disposal, and this could be an advantage where land use was at a premium.

Fine screens operated continuously and were cleaned while in motion by brushes or jets of air, water, or steam. Equipment manufacturers marketed a wide variety of patented screen systems. Among the most common in the United States were the disc and drum types, though many variations existed. In large treatment plants, the fine screens were major pieces of equipment, with sizes ranging from 8–12 feet in length or diameter. Electric motors powered the screen as well as operated sewage pumps and water or air compressors. A dedicated operator was generally required to ensure smooth functioning.

The materials removed by screening were disposed of by incineration or burial. The materials were sometimes dewatered by rolling presses or centrifugal units before disposal. The Hyperion plant in Los Angeles, for example, removed 30 tons of wet screenings per day which dried down to 4.2 tons requiring incineration. Alternately, the screened materials could be sent through a shedder or grinder. Small shredders reduced organic matter to a pulp that could then be fed back into the raw influent, while harder inorganic materials were separated for disposal. Large grinders used toothed disks or swinging hammers to reduce even the hardest matter into particles small enough to be discharged with the effluent. In some cases, grinders were used in lieu of screens so that everything entering the plant was pulverized prior to treatment.

Golf Chambers

In combined storm-sewage systems, large quantities of sand entered the pipes and needed to be removed to avoid clogging the system. Early grit chambers were crude retention basins located along the sewer lines that allowed sand and some organic matter to settle out of suspension. Because organic waste would putrefy in these chambers, they produced considerable odor and

needed to be cleaned regularly. Later refinements allowed for greater control of the flow velocity, maintaining a current of around one foot per second, so that only the heaviest mineral materials settled out.

In sewage treatment plants, grit chambers were generally located immediately behind bar screens at the entrance to the plant. The velocity of the influent was reduced through the grit chamber by gradually flaring the sides and bottom of the channel to increase its width and depth. Grit settled out to the depths of the chamber which was set below the bottom level of the incoming and outgoing pipes. To maintain proper velocity, two or more chambers could be constructed in parallel. During times of low flow, a single chamber was used and the other chambers were put into use as flows increased.

Grit chambers needed to be cleaned periodically and particularly after storms. This could be done manually by temporarily taking the chamber out of service. Apparatuses for mechanical cleaning were introduced in 1927 and became common in the 1930s. Most of these consisted of a scraping device that ran over the bottom of the chamber and a moving rake or elevator that raised the material on an incline while agitating it to wash out any organic matter. Grit that retained any organic waste needed to be buried. Clean grit could be used as fill material or dumped as convenient.

Septic Tanks

The septic tank was the dominant sewage treatment technology of the early twentieth century, from 1900 to approximately 1913, after which it was superseded by the related Imhoff tank. Donald Cameron introduced the septic tank in England in 1896 and received a US patent in 1899. He organized the Cameron Septic Tank Company to license use of the technology in America at a fee of five percent of construction costs. However, Cameron immediately encountered resistance from engineers who objected to his effort to patent the septic process itself rather than a particular tank design. Municipalities refused his royalty demands on the grounds that the septic process was a natural one that relied upon anaerobic bacteria that was already in the sewage itself. The municipal engineers initially prevailed in the ensuing lawsuits, winning a 1907 court decision that generated a boom in septic tank construction, but an appeals court later reversed the ruling and declared the septic process patentable. The drawn-out suit and the uncertainty and animosity that surrounded it caused engineers to ultimately shy away from the technology and welcome the emergence of the Imhoff tank (see below) as an alternative. Only in 1919 did Cameron settle the final outstanding claims, but by then numerous competing technologies existed in the marketplace.

The municipal septic tank was a one-story, continuous-flow sedimentation tank through which sewage was permitted to slowly pass so that suspended matter would settle to the bottom and undergo anaerobic decomposition. The tanks were designed to hold sewage from 6 to 12 hours before discharging the effluent. The tanks thus needed a volume equivalent to a quarter or half-day's average flow. If the tanks were too large and the sewage remained overlong in the chamber, undesirable levels of anaerobic activity would give the effluent an objectionably dark appearance and offensive odor. Too short of a stay and not enough organic matter would settle out of the effluent. As the volume of sewage flows varied, it was desirable to have two or more tanks so that capacity could be added or removed to match flows. Most small plants lacked that flexibility and thus produced results that were less than satisfactory.

Septic tanks were constructed of wood, brick, or concrete in all different sizes and plans. They could be rectangular, square, or circular; deep or shallow; roofed or open-topped. The bottoms could be horizontal, sloping, or contain hoppers for settled sludge. The chief concern in design was to reduce the velocity of flow through the tank and prevent material from moving directly from inlet to outlet. Effluent passed over weir 'c' into the siphon chamber 'd', from which it was discharged by automatic pump 'e' into the outlet pipe 'f'. A baffle near the inlet slowed the sewage entering the tank, while a scum bar near the weir extended 6 to 18 inches below the surface to prevent floating materials from escaping the tank.

Anaerobic bacteria developed within a new septic tank over a period of a couple weeks to several months. It would then work continuously on the layer of sludge that settled to the tank bottom, digesting organic matter into gases of methane, carbon dioxide, and nitrogen as well as finely divided organic compounds that entered solution and left the tank with the effluent. Some organic matter resisted decomposition and formed a permanent layer on the bottom of the tank that needed to be drained or pumped out roughly once or twice a year. The effluent discharged from a septic tank had between 25 to 50 percent less suspended matter than raw sewage, including the bulk of the material that was most inclined to putrefaction and thus public offense. Septic tanks were used both as the sole sewage treatment prior to discharge or as a preparatory stage for further treatment.

In California, Willits of Mendocino County was the first to employ a municipal septic tank in 1904, while Bishop, Santa Rosa, and Fresno added tanks the following year. The municipal use of septic tanks declined after the introduction of the Imhoff tank, though they remained in use for longer at institutions and small treatment works. Septic tanks remain ubiquitous in rural areas without sewage systems. Modern septic tanks are manufactured of concrete, plastic, or fiberglass. They generally operate in connection with a drain field in which subsurface perforated pipes discharge effluent into a porous underlayer.

Imhoff Tanks

Karl Imhoff developed his namesake tank in Germany in 1907 to address a chief failing of the septic tank. As the sludge at the bottom of a septic tank decomposed, it gave off gases that bubbled up through the sludge layer and liquid sewage. During the heat of summer, the bubbling could become vigorous enough to stir up the sludge and mix it into the effluent. This greatly increased the quantity of suspended solids and prevented effective sedimentation.

The Imhoff tank (also known as an Emscher tank) operated by dividing sedimentation and digestion into separate chambers across a two-story structure so that gases, scum, and regurgitate particles from the decomposing sludge could not agitate or reenter the flowing sewage above. The upper sedimentation chambers were long, narrow basins through which the liquid influent flowed at a rate of around a foot per minute, giving a retention period of two to three hours. The chambers had a maximum length of around 100 feet and a relatively narrow width to avoid creating crosscurrents in the flow. Angled bottoms on the sedimentation chambers sloped down to a narrow slot through which the deposited solids fell into the lower digestion chamber. The slot was designed in such a manner to prevent gas from entering from below. Concrete was favored for construction as its smoothness assisted the sludge in slipping down the sedimentation chamber walls. Still, it was necessary to include a walkway on top of the tanks so that workers could scrape

the side walls of accumulated deposits twice a week or so. Two or more sedimentation chambers were sometimes used over a single digestion chamber to avoid the depths required by the long sloping of a single chamber.

The digestion chambers stored sludge for between six and 12 months, with longer times required in small plants or during cold weather. It was desirable to make the digestion chamber as deep as possible as this improved decomposition by maintaining more uniform temperatures. This desire had to be balanced against the increased cost of deep excavation, and tanks generally had a maximum depth of 30 to 35 feet. Gas and scum produced by digestion bubbled up into spaces surrounding the exterior of the sedimentation tanks. Vents of various designs allowed the gas to escape. Digested sludge was removed from the bottom of the tank by gravity where feasible or more commonly by pumping. The bottom of the digestion chamber was in the form of a hopper. A vertical sludge pipe drew digested sludge from the hopper bottom and fed it into a horizontal pipe that led to sludge drying beds. A valve opened the pipe and pressure from the water above forced the digested sludge through the pipes. Operators closed the valve as soon as the emerging sludge showed signs of not being fully digested. The sludge produced by Imhoff tanks was generally in better condition that than from traditional septic tanks and was more easily dried.

Imhoff tanks gained quick popularity in America because of increasing dissatisfaction with septic tanks and weariness of the protracted patent litigation. Fullerton, Hanford, Mill Valley, and Winters constructed the first four tanks in California in 1912. The effluent released from an Imhoff tank was in most circumstances superior to that from septic tanks and lacked dark coloring and offensive odors. The improved quality of digested sludge also made Imhoff tanks attractive to municipalities that hoped to sell the material as fertilizer to partially recoup operating costs. However, the tanks had several notable drawbacks. Because of their great depth, Imhoff tanks required deep excavation during constructing, which made them more expensive than alternatives (Figure 41). Operating costs were also generally higher than for other tank types as Imhoff tanks could not be neglected for more than a few days at a time without detrimental results. The tanks tended to be temperamental and they sometimes failed to produce adequate digestion or generated excessive quantities of scum without clear cause. Imhoff tanks also lacked means of heating the sludge to aid digestion and the fixed relationship between settling capacity and sludge digestion space limited their flexibility. Some very large Imhoff tanks were constructed in the United States, including a 472 mgd tank in Chicago, but they eventually fell out of favor for all but small treatment plants, replaced by plain sedimentation tanks with separate digestors.

Clarifies

Clarifiers or plain sedimentation tanks followed the same basic principle inherent in septic or Imhoff tanks in using a controlled, slow flow of sewage to cause mineral and organic solids to settle out of suspension. They differed in that the sediments were removed before septic conditions could develop and the sludge was digested separately. Settlement basins (also called settling basins) were a basic technology that had been used in the nineteenth century to treat turbidity in drinking water and to provide minimal treatment of sewage before discharge. However, they did not come into wide use until after 1919 when mechanical equipment for removing sludge and grease from the tanks was introduced in the United States. In comparison to Imhoff tanks, clarifiers were simple to operate as they did not require scraping or manual skimming and the separate digestion could be more readily controlled with less unpredictable foaming or digestive failures.

A primary clarifier unit was used with raw sewage at the start of treatment, while a secondary or final clarifier unit was sometimes required to provide additional settlement at the end of treatment following a trickling filter or activated sludge tank. Sludge from final clarifiers was frequently returned by pipe back to the primary clarifier where it again settled and was removed.

Early clarifier-style settlement tanks operated on an intermittent fill-and-drain schedule, but by 1904 it was known that a continual flow in, through, and out of the basin provided just as good results and with increased throughput capacity. Settlement periods were commonly between one and three hours. Less retention time was required ahead of trickling filters and more might be used on a small system with relatively fresh sewage and no secondary treatment. Settlement tanks for sewage systems followed similar designs to those used in drinking water treatment (see above section) and came in rectangular and circular plans. Square tanks featured rounded corners to facilitate sludge collection, but these proved difficult to fully clean and the design fell from favor

A wide variety of devices for mechanical sludge collection were available that promised savings in construction, labor, and maintenance, or particular advantages with different types of sewage. These devices generally consisted of scrapers and skimmers that moved sludge and scum respectively towards collection points. In some designs, a scraper moved across the bottom of the tank from end to end before being raised on a chain loop and returning along the top of the tank as a skimmer. Rotary skimmers sometimes used jets of water rather than physical blades to collect fats from the surface. The collectors could operate continuously or could be used once or twice a day for around half an hour at a time. The collection sumps were pumped at least daily, and pumping continued until sewage started to flow through the outlet pipe.

Intermittent Sand Filters and Contact Beds

Neither intermittent sand filters nor contact beds ever found wide use in California, though both were important transition technologies in introducing biological treatment methods. Intermittent sand filtration offered a refinement on sewage farming in which the wastewater flowed onto specially prepared beds of sand, gravel, or other porous materials.

The practice was first developed in England in the late 1860s and was further studied at the Lawrence Experiment Station in 1886-87. The sand filter treatment area was commonly divided into three or more beds so that sewage distribution could be rotated between fields. This allowed beds to dry out and reabsorb oxygen between uses. Compared to sewage farming, intermittent filters could support ten times the population on the same amount of land, but required more intensive management. Workers needed to carefully grade and rake the beds to ensure even distribution. Organic waste that dried onto the surface of the soil needed to be scraped and removed periodically. In some cases, it was necessary to install drainage tiles beneath the bed surface. The tiles of hard-baked clay admitted water at their joints and removed excess moisture. Intermittent filtration was used extensively on the East Coast and particularly in New England where natural sand beds were abundant, but it was not widely adopted elsewhere in the United States and examples in California are limited. Redlands in San Bernardino County began disposing of raw sewage on natural sand filter beds in 1890, and Monrovia, Manteca, Kingsburg, and Ojai all later disposed of septic, Imhoff tank, or trickling filter effluent on sand beds.

The contact bed, developed by William Didbin in early-1890s London, involved a water-tight basin, four to eight feet deep, that was filled with particles ranging in size from a pea to a walnut. The maximum basin size was around one-half acre as anything larger required too much time to fill. On the bottom of the basin, a network of drains led to an outlet pipe. Experiments were made with a wide variety of filter materials including coal, slag, cinder, gravel, burnt clay, glass, and broken bricks. Roughness, porosity, and small size were desired to increase the surface area to volume, though material that was too small led to clogging. The beds operated on cycles, allowing, for example, an hour for filling, two hours of standing full, an hour to drain, and four hours to stand empty. A degree of sedimentation occurred during the period of slow filling, followed by a degree of anerobic decomposition while the pool was full. The majority of the digestion occurred aerobically on the wet surfaces of the filter materials while the tank stood empty. Aerobic digestion could be increased by operating basins in pairs and passing the effluent from the first-contact filter into a second-contract filter. An experimental plant in Marion, Ohio, achieved a high level of treatment by having sewage receive primary treatment in septic tanks prior to flowing in sequence into two contract beds followed by a final cleaning in a sand filter. Gillespie recorded a total of four contact beds constructed across California, with the first being a 1910 plant in Roseville, followed by Dixon in 1911. Only one contact bed remained in use by 1930.

Trickling Filter

The trickling filter, also known as “trickle filter,” “sprinkling filter,” or “biofilter,” was the most common secondary treatment method employed in California prior to World War II. The method differed from a contact bed in that there was no period where the basin filled with sewage and engaged in anaerobic digestion. Tests at the Lawrence Experiment Station demonstrated that better results were obtained by maintaining a consistent environment that favored aerobic microbes. Early efforts were made at distributing sewage over a contact bed at a slow, trickling pace by use of troughs, but uniform and consistent distribution could not be obtained. Joseph Corbett of Salford, England, first made use of spray jets to create a true trickling filter in 1893. Madison, Wisconsin, constructed the first such filter in the United States for institutional use in 1901, and Redding, Pennsylvania, completed the first municipal plant in 1908. California’s Bureau of Sanitary Engineering designed the first trickling filter in the state in Reedley in 1915.

Early trickling filters were built in much the same fashion as a contact bed. Concrete basins were constructed with depths between six and ten feet and filled with rough, hard, and angular particles, between 1.5 and 3 inches in size, over a drainage system. Multiple units were generally constructed in series to provide flexibility in operation.

The exterior dimensions of the tanks varied with local circumstances and needs. The tanks could be recessed in the ground or built up, as at the plant in Lemoore. The practice at early plants was to provide rest periods between applications of sewage. This required large surface areas as parts of the plant were regularly taken out of use. Later studies showed that the trickling filters could be used continuously around the clock, which allowed for higher rates of throughput and consequently smaller basins. Much of the innovation of design in trickling plants involved the nozzles and the quest to provide even spray coverage. Revolving distributors on circular tanks eventually replaced stationary nozzles in most plants. The distributors could be motorized to revolve or be propelled by the force of the spray emitted from the nozzles.

Trickling filters generally operated in conjunction with automatic dosing tanks to ensure an even spray distribution over the bed. The tanks filled with influent and automatically discharged through a siphon when full. Small air-lock piping (not depicted in the figure) opened and closed the siphon at set levels. The sides of the tanks were angled to cause the head to decline at a rate calculated for even spray distribution. Dosing tanks were usually paired so that one tank was filling while the other was discharging.

Activated Sludge Process

San Marcos, Texas, constructed the first American activated sludge plant shortly after the technology debuted in 1914. The first plant in California followed three years later when the Pasadena Tri-City facility completed an experimental pilot project in January 1917.

Partitions divided the 9-by-20-foot aerating tank (also called an aeration tank) to produce 60 feet of channel for sewage to flow through, while blowers at the bottom of the tank mixed and aerated the liquid. Experiments showed promising bacterial reduction rates between 96 and 99.6 percent. The Bureau of Sanitary Engineering constructed the first full-scale treatment plant at Folsom Prison later in 1917. As the bureau lacked experience with activated sludge treatment, they hired Ralph Hilscher away from the Illinois Water Survey. The prison plant answered the long-standing concern of the Bureau of Public Health with having minimally processed sewage dumped into the American River upstream from the state capitol. Municipal plants followed in Turlock (1921), Lodi (1923), Pasadena (1924—expansion of the pilot project), Los Angeles County Sanitation Districts (1928), and the City of Los Angeles (1930).

The activated sludge process was innovative in its biochemical approach but relatively simple in the required physical infrastructure. Sewage first passed through a primary clarifier or fine screen to remove the largest suspended solids before arriving in a concrete aeration tank. Activated sludge equal to about 20 percent of the sewage volume was added to the partially clarified sewage. Air blowers or (less commonly) mechanical agitators then mixed and aerated the sewage over a retention period of several hours. The concrete aeration tanks came in various shapes and sizes but usually included multiple chambers that could operate in series or independently. An air blower was located near the tanks, sometimes contained within a separate blower house. Perforated pipes or diffuser plates along the sides or bottoms of the chambers maintained a continual flow of air that generated a rotational motion in the liquid sewage.

When these were used in rectangular tanks, the longitudinal flow of the sewage through the tank combined with the rotational motion to produce a spiral flow pattern that mixed the sewage and prevented sludge from accumulating on the tank bottoms. After the prescribed period of aeration, sewage flowed to a secondary clarifier to remove the large volume of sludge generated in the process. A portion of the activated sludge was then returned to the aeration tank to seed the next batch of influent while the remainder was sent to a sludge digestion tank or drying bed for further treatment and disposal.

Sludge Treatment and Disposal

Early sewage management practices focused principally on the liquid effluent that was discharged at the end of treatment and gave comparatively little attention to the sludge that accumulated at the bottom of sedimentation tanks. The goal at most plants was simply to dispose of sludge as quickly

and cheaply as possible, generally by burying it on land or dumping it at sea. Plants could manage this so long as the volume of sludge remained low. However, as operators gained efficiency in removing a larger share of suspended organic solids from liquid sewage, they invariably produced more sludge. The activated sludge process in particular produced very large quantities of waste that required treatment and disposal. Sanitary engineers thus turned towards developing more effective methods of digesting and drying sludge.

Sludge emerged from a sedimentation, Imhoff, or septic tank as a semiliquid slurry with a moisture content of around 95 percent and a strong, offensive odor. Basic treatment required dewatering the sludge to reduce the moisture content to 70 percent or lower, at which point it could be handled as a solid. Plants could then dispose of it through incineration, burial, dumping at sea, or by marketing it as fertilizer. Sludge drying beds, also called sand beds, were the essential tool for dewatering sludge and they remained common at smaller plants. Drying beds have the advantage of low capital costs and require little skill to operate, but need a large amount of land and are labor intensive to empty. In a conventional sand bed, a layer of sand approximately 12 to 24 inches thick lay over a bed of course gravel 6 to 8 inches deep that was drained from below by tile pipes. The walls of the bed could be of earth, wood, or concrete. The area of the bed would depend upon the population served, the characteristics of the sludge, and the local climate. In more recent practice, the beds are divided into multiple cells. Sludge was spread over the sand bed in a layer 8 to 12 inches thick to dry by drainage from below and evaporation from above. The organic matter continued to putrefy during this process and gave off strong odors, so a remote location was required. Greenhouse covers were sometimes installed over the beds to increase heat, keep out rain, and contain the odors. Drying times depended upon the weather. During cold, damp winters, sludge could take months to dry, while two weeks might suffice during summer. Workers could remove the sludge as soon as it was dry enough to be handled by a rake or fork. Sludge drying beds could also be paved with cement. Paved beds required more area than conventional sand beds, but involved lower maintenance costs and allowed for heavy equipment to be used in mixing the sludge for drying and for removing the dried cake.

Mechanical devices aided dewatering, though some time on a drying bed was still generally required. These devices consist of three basic types: presses, centrifuges, and vacuum filters. A sludge press consisted of metal plates that could be hand-tightened by screws or compressed by machine to force water out of sludge. Centrifuges placed wet sludge within a metal tub lined with porous cloth and then spun the tub at high rotation to force the liquid through the cloth. Centrifuges also made use of hollow drums lined with porous cloth but used vacuum pressure to pull liquid from the sludge.

Various chemicals including sulfuric acid, sulfur dioxide, alum, peat, lime, and bone ash could be added to the sludge prior to treatment to aid in drying. With all the processes, the removed liquid was returned to the plant influent for further treatment while the sludge went to the sand beds or drying basin. Manufacturing fertilizer required an exceptionally dry sludge and gas-powered heat dryers helped to reduce the moisture below 10 percent.

Sludge digestion tanks allowed for a more thorough processing of the sludge. Anaerobic bacteria reduced the volume of sludge by liquifying organic matter and producing methane gas. Digestion shrank the sludge layer at the bottom of the tank to about a third of its original volume, while the

liquid that bubbled to the top—referred to as "supernatant liquor"—accounted for most of the remaining two-thirds. The supernatant liquor overflowed the tank as new sludge entered and was piped back to the primary sedimentation tank for further treatment. In some cases, it was necessary to pretreat the liquor by running it through a sand bed filter or adding aluminum sulfate or other chemicals. The byproduct gasses of anerobic digestion, being between 60 and 80 percent methane, collected in a dome at the top of the tank. Plants commonly used the gas as fuel to heat the digestion tanks or to operate gas powered engines.

Early sludge digestion tanks took a variety of forms, including rectangular or square, though circular tanks later became the norm. Tanks were usually covered to minimize odors and allow for greater control. Floating covers helped to maintain a constant, uniform gas pressure and became increasingly common.

Heating and stirring the sludge aided digestion. Heating coils wrapped around the interior walls of the tank and were fed by water heated through the burning of the captured methane gas. Partially or fully burying the tanks helped to maintain uniform temperatures. Because heating increased the speed of digestion, smaller tanks could be used while still maintaining the same volume of processing. In cold climates, heating could reduce the tank size by around half, but gains were less significant in mild winter environments as prevailed through Southern California. A variety of mechanical stirring devices kept the sludge in circulation and ensured even heating and digestion.

A two-stage digester divided the process between primary and secondary tanks. The primary tank handled approximately three-quarters of the digestion and most of the gas production before passing the partially digested sludge through a pipe to the secondary tank. Secondary tanks were larger than the primary tanks but were generally unheated. This allowed for a slow but economical digestion that produced a cleaner final product with lower disposal costs.2

3. The Era of Advanced Treatment, 1950 – c.1980

Regulatory policy evolved rapidly in postwar America, catching up with the technological advances made in the first half of the century. The emergence of environmentalism as a political force compelled higher standards of water and sewage treatment that were codified in state and federal law. By the end of the era, secondary treatment was required for nearly all municipal wastewater discharges and most plants met this standard by using technologies that had been created in the early twentieth century. New environmental and health threats posed by synthetic nutrients and industrial toxins led to advanced wastewater treatment methods that processed effluent to near potable standards. These new processes largely built upon existing biological treatment methods, adding new bacterial populations or coagulating chemicals, rather than representing a fundamental break from established methods.

Knowledge

Environmentalism

Environmental concerns largely supplanted public health as the principal driver of sanitation policy in postwar America. Environmentalism emerged as a major force in popular culture in the early 1960s as it gave form to shifting attitudes about the economic, recreational, scientific,

aesthetic, and spiritual values of nature. It coalesced as a mass political movement in the 1970s and found expression in a series of state and federal acts that provided the basis for modern natural resource policy. For the managers of public drinking water and wastewater systems, this required meeting more exacting standards of chemical and biological purity and led to a greater degree of uniformity across systems. Still, the American public and policy makers continued to trust science and technology to overcome the problems of pollution, and the focus was on improving existing treatment methods to meet rising demands, rather than challenging deeply held ideals of economic growth and material progress.

Environmental policy, as it related to water treatment systems, reflected changing understandings of health risks and new insights from the study of ecology. The advances of the early twentieth century had largely eliminated waterborne disease as an issue for public water systems. Focus thus shifted from biological contaminants to chemical toxins. Canneries, refineries, foundries, and chemical manufacturers had long dumped their waste products into coastal waters and interior rivers, but the scope and scale of industry expanded dramatically leading up to and during America's entry into World War II in 1941. Aircraft plants in Southern California and shipyards around the San Francisco Bay introduced novel chemicals into the water supply with little monitoring or regulation, owing to the emergency nature of wartime production. The thick, acidic smog that filled the Los Angeles basin in the late war years was the most visible sign of increasing pollution, but the problem was also evident in tests of surface and groundwater quality. The eutrophication (excessive growth of aquatic plants) of inland waterways, caused by an excess of synthetic plant nutrients, produced striking evidence of environmental harm in the form of reoccurring toxic algae blooms and fish kills.

Cancer became the defining illness in the new era, replacing typhoid fever as the primary water-quality health concern among the public. By the late 1970s, it was estimated that one in four Americans would contract cancer during their lifetimes and two-thirds of those would die from it. Studies showing cancer rates to be twice as high in cities as in rural districts pointed to the polluted environment as a chief cause. For decades, federal and state authorities were unable to gather even basic data about the chemicals being released into waterways. Industrial interests strenuously resisted disclosing information about their chemical use for fear that it would reveal trade secrets and make them liable for cleanup efforts. Only with the passage of the Clean Water Act in 1972 did the federal government gain legal power to require reporting by industrial dischargers. Court action by the Natural Resources Defense Council later compelled the Environmental Protection Agency (EPA) to begin actively regulating toxic pollutants, and amendments to the Clean Water Act in 1977 established a list of toxins that were subject to strict control on a set timeline.

The science of ecology, which matured during the postwar era, allowed for an intellectual understanding of the threat through its study of natural cycles and complex biological and chemical webs. The 1962 publication of Rachael Carson's Silent Spring on the danger of synthetic pesticides crystalized these concerns and alerted the public to the ability of persistent toxics to accumulate through the food chain. Support for environmental protection cut across partisan and demographic lines, but was strongest among the young, well-educated residents of New England and the Pacific Coast states. California, with its booming population and unrivaled natural riches, emerged as an obvious leader of the movement. The state pioneered environmental legislation including creating air pollution control districts in Los Angeles (1947) and the San Francisco Bay counties (1955);

passing the nation's first automobile anti-smog law (1960); organizing regional planning bodies such as the San Francisco Bay Conservation and Development Commission (1965) and Coastal Zone Conservation Commission (1972); and enacting both the California Endanger Species Act and California Environmental Quality Act in 1970. The key water quality acts, the Dickey Water Pollution Act (1949) and Porter-Cologne Water Quality Control Act (1969), are discussed further below. Federal legislation often coincided with or followed the lead of California, including the Clean Air Act (1963), National Environmental Policy Act (1969), Clean Water Act (1972), and the Endangered Species Act (1973).

Sanitary engineers struggled at times to keep up with the shifting focus. In the 1920s and 1930s, engineers had generally been ahead of the public in advocating for high standards of purity in the state's waterways. By the 1960s, however, the situation had reversed. The public treated almost all forms and quantities of pollution as illegitimate while engineers worried over the economic cost of rigid standards. Wilfred Langelier, the UC Berkeley chemist, expressed what he felt was a common belief among scientists that the public could not appreciate "the exorbitant cost" involved in attempting to remove "the last few degrees of pollution."269Advanced wastewater treatment methods (discussed below) were effective at removing heavy metals, excess nutrients, pathogens, and other potential toxins, but came with high chemical, energy, and construction costs. Langelier and others of his generation regarded environmentalists as lacking in the cleareyed pragmatism needed to confront the problems.

Some younger sanitary engineers, however, found a new center of identity for the discipline in environmentalism. They critiqued the energy- and chemical-intensive methods required for conventional wastewater treatment and advocated for processes more integrated with ecological cycles. They developed an assortment of treatment systems using aquatic plants, natural or constructed wetlands, and various types of lagoons. The Arcata Marsh and Wildlife Sanctuary in Humboldt County is exemplary of this new approach. The City of Arcata and Humboldt State University began experimenting with wastewater aquaculture in 1969 and determined that juvenile salmon and trout could develop in mixtures of partially treated wastewater and

seawater, demonstrating that wastewater could enhance wildlife habitat rather than presenting merely a problem of disposal. Between 1979 and 1983, the city and associated partners developed a test program for using constructed wetlands to treat wastewater in a cost-effective and environmentally sound manner. By 1986, the city had completed 100 acres of freshwater and salt marshes, brackish ponds, tidal sloughs, and estuaries that received treated effluent from the adjacent existing wastewater treatment plant. The marshes further clarified the effluent while providing habitat for fish and wildlife. The wildlife sanctuary is now recognized as one of the premiere locations for seeing migratory birds along the Pacific Coast, and the innovative system has become an international model for ecologically responsible wastewater reuse.

Advanced Wastewater Treatment

Advanced wastewater treatments target nutrients and contaminants that conventional primary and secondary treatments cannot fully remove. These treatments aim at two principal goals: preventing eutrophication in inland waters through the removal of nitrogen and phosphorous, and allowing for the reclamation of wastewater effluent by cleansing it of heavy metals, organic chemicals, inorganic salts, and pathogens. Advanced treatments differ in their specifics from conventional

treatment but largely employ familiar processes of chemical coagulation, biological digestion, and mechanical filtration. While advanced treatment methods are sometimes identified as "tertiary treatments," the two terms are not strictly synonymous. Advanced treatments may follow secondary biological treatment in a plant's flow, but they may also consist of a modification or replacement of an existing conventional treatment step so that they operate concurrently with primary or secondary treatment. Research into advanced treatment methods began in the early 1960s and pilot plants were in operation by mid-decade in the most environmentally sensitive locations such as Lake Tahoe. The tightening of state and federal environmental standards, combined with improved technology and knowledge, spurred wider construction of full-scale plants in the late 1970s and 1980s.

Nutrient Removal

Nitrogen and phosphorous are the primary culprits in human-caused eutrophication. Under natural conditions, algae populations are limited by the available supply of nitrogen and/or phosphorous, both of which are essential for plant growth. When human activities cause an increase in lake, river, or estuary nutrient levels, aquatic plant growth accelerates and the resulting algal blooms can interfere with water uses, in addition to being potentially toxic. Under severe conditions, the bacterial decomposition of algae depletes water of its oxygen supply, leading to fish kills and "dead zones" within water bodies. Eutrophication in the Great Lakes in the 1960s attracted national attention and was a major factor in the passage of the Clean Water Act.

Manufactured fertilizers and synthetic laundry detergents were the chief source of excess nitrogen and phosphorous, respectively, and the production of both increased dramatically in the postwar decades. The United States government invested heavily in nitrogen production during World War II, building large nitrogen-synthesizing factories to manufacture high explosives for munitions; at war's end, these plants shifted to producing fertilizer. The first all-purpose synthetic laundry detergent appeared near the same time, in 1948, and by 1953 the sale of synthetic detergents surpassed those of traditional soaps. The American public made enthusiastic use of these cheap and effective marvels of modern chemistry, but the excess nutrients readily found their way into streams and groundwater basins.

Conventional wastewater treatment removed only a portion of the dissolved nitrogen and phosphorous that entered a plant. Most of the forms taken by phosphorous are soluble and therefore plain sedimentation did not act upon them. In biological treatments, microorganisms absorbed some 20 to 30 percent of the phosphorous in support of their growth, but the remainder passed through to the effluent. Likewise, only about 25 percent of nitrogen was removable by sedimentation or biological uptake. These substances also caused problems within the treatment plants as operators blamed detergents for causing foaming within activated sludge basins and hindering sedimentation by emulsifying solid particles.

Engineers developed chemical methods for removing phosphorous and nitrogen from wastewater in the 1960s. Phosphorous removal was by chemical precipitation using metal salts or lime as a coagulant. Pickle liquor, a waste product of the steel industry, provided an inexpensive source of iron salt in industrial regions and was the most commonly used coagulant. The salts could be added at any stage of the treatment process. Some plants mixed it with raw influent before primary clarification, others added it to their activated sludge tanks as part of secondary treatment, and still

others mixed it with the secondary effluent for a tertiary stage of treatment prior to final clarification. Lime was used in either primary or tertiary treatment. When used as tertiary treatment, the chemicals required mixing and sedimentation basins and the effluent was commonly filtered before discharge.

Nitrogen exists in a variety of forms including as ammonia, nitrate, nitrite, gaseous nitrogen, and bound to organic matter as in ammino acids and DNA. In wastewater, its principal forms were organic from fecal matter and kitchen or agricultural waste and as ammonia from urine. Biological decomposition as part of secondary treatment converted most of the organic nitrogen to ammonia. Ammonia could then be air stripped from wastewater if the pH was first raised to around 11 (extremely alkaline) with a heavy addition of lime. The water was pumped into a stripping tower where it dripped downward while forced air blew around it. This converted liquid ammonia to a gas and released it to the atmosphere, reducing effluent ammonia levels by 90 to 95 percent. This process was fairly simple but involved additional pumping expenses and functioned poorly at low temperatures. Heavy chlorination (called breakpoint chlorination) could also reduce ammonia by converting it to nitrogen gas, nitrous oxide, and other forms. However, the process raised the total level of dissolved solids in the effluent and could leave excessive levels of chlorine, both of which required additional treatment steps before effluent discharge. An ion exchange process, similar to that used in water softening, also existed for nitrogen removal, though it remained a poorly understood and experimental technology.

Chemical treatments were successful and generally uncomplicated to manage, but they were also expensive as they needed continual large chemical inputs and produced copious volumes of sludge that required disposal. In the 1970s, James Barnard, a South African engineer, sought biological methods of nitrogen and phosphorus removal that would be better adapted to the requirements of his country. This required manipulating environmental conditions in biological treatment tanks to encourage the growth of microorganisms that could feed upon the nutrients. Biological treatment had developed with a narrow goal of reducing organic matter, but once the plants were in place, they provided the means for addressing other pollutant problems. Retaining and returning a greater volume of activated sludge to the aeration tanks allowed for slower-growing bacteria to develop. This exposed pollutants to a larger variety of organisms with unique biochemical strategies for converting organic and inorganic matter into the energy and materials needed to sustain life and reproduce.

The digestion of nitrogen involved a two-part nitrification-denitrification process in which bacteria first oxidized ammonia to nitrate and then different groups of bacteria biologically reduced the nitrates to nitrogen gas. Nitrification occurred in presence of oxygen, while denitrification required anoxic conditions with very low oxygen levels. Phosphorous removal relied on microorganisms that stored phosphorous in excess of what they required for biological growth (known as phosphorous-accumulating organisms or PAOs). PAOs also had a two-phased growth cycle that required alternating anoxic and aerobic conditions. Generating the two-phase aerobic and anoxic environments required either modifying existing activated sludge aeration tanks to wall-off an anoxic chamber or constructing new anoxic tanks following the aeration chambers.

By 1974, Barnard had established pilot projects capable of removing nitrogen and phosphorous separately. After several additional years of experimentation, he found means of combining the

processes, allowing for the simultaneous removal of both nutrients through biological means. This process became known as Biological Nutrient Removal or BNR. Florida constructed the first combined phosphorous-nitrogen BNR plant in the nation in 1979. A half-dozen BNR plants operated across the county by the mid-1980s, testing and refining the processes. Ultimately, BNR proved to be less expensive to operate than chemical methods and was capable of purifying effluent to a higher standard. However, these biological methods required much more monitoring and adjusting of environmental conditions, necessitating a high level of technical skill among operational staff. The combination of chemical and biological methods was often the most cost effective, particularly where it allowed for existing equipment to be modified without requiring new construction. By 1994, some 300 BNR plants were in operation, including 16 in California.

Lake Tahoe, on the California-Nevada border, was one of the first bodies of water in the nation to benefit from advanced nutrient control. The clear blue waters of Lake Tahoe were a major tourist draw for the region and warranted a high level of protection. The Bureau of Sanitary Engineering had prohibited all direct sewage disposal to the lake since the 1920s, but effluent continued to be disposed of by spray irrigation to land within the Tahoe Basin and runoff from these sites contributed to eutrophication. In 1961, the South Tahoe Public Utility District began laboratory and pilot plant studies in Oregon to test the effectiveness of chemical coagulation, filtration, and carbon absorption on nutrients. The district constructed a small-scale plant in the Lake Tahoe Basin in 1965 and expanded it over the following years. The plant design mixed secondary effluent from activated sludge tanks with a lime coagulant and then passed it through filter beds and columns of activated carbon. The district added a nitrogen stripping tower in 1969. The plant served as a national testing ground for innovative technologies, both for the direct treatment process and for such secondary tasks as coagulant recovery and carbon regeneration. The recovery of lime saved little on chemical costs, but reduced the volume of sludge requiring incineration by about half.

Additional facilities added throughout the Tahoe Basin in later years included a 1974 biological-chemical phosphorous removal plant to treat the waste returned from sludge digestion at the Truckee Meadows plant; tertiary chemical phosphorous removal and ion exchange ammonia removal facilities at Tahoe-Truckee in 1976; and a denitrifying trickling filter at Truckee Meadows in 1985. Cold winter conditions required that many of these processes be contained in covered tanks or sheltered in buildings. Biological processes later replaced most of the original chemical ones as technology continued to evolve.

Wastewater Reclamation

Californians have made planned reuse of municipal wastewater since at least 1888, when Pasadena established the first municipal sewage farm in the state. The State Board of Health crafted regulations governing the agricultural reuse of wastewater in 1918, and ultimately more than 100 cities or institutions disposed of their wastewater effluent to agricultural users at some point prior to World War II. For the most part, however, these users valued sewage farms as a convenient means of disposing of wastewater and treated the reuse of water as only a secondary, almost incidental benefit. San Francisco's Golden Gate Park activated-sludge treatment plant, completed in 1932, was the first facility in the state specifically created to provide a source of recycled water. The purified effluent irrigated the park landscaping, filled scenic ponds, and cascaded down manufactured waterfalls. In 1961, the Santee County Water District outside of San Diego used treated effluent to fill a series of artificial lakes that provided public access for boating, fishing,

and swimming, making it the first planned use of reclaimed water for recreational purposes. The Santee Lakes did not include tertiary treatment methods, which were not yet economically viable, but instead discharged the activated-sludge treatment plant effluent into a spreading basin a mile from the lakes. The effluent combined with subsurface creek flow and percolated horizontally through the gravel bed to fill the lakes. Extensive testing demonstrated that the water was safe for bodily contact, but the facility struggled with high nutrient levels that caused algae blooms and necessitated expensive deodorizing and disinfecting agents. The introduction of viable tertiary treatment methods in the 1970s increased the diversity of uses for reclaimed water in California to include industrial applications, groundwater recharge, landscape and golf course irrigation, and environmental enhancement.

The term "recycled water" refers to wastewater that has been treated to a quality suitable for beneficial use in either potable (groundwater recharge) or nonpotable (irrigation, industrial) applications. In common practice, recycled water referred chiefly to purified wastewater originating from a municipal treatment plant, while "water reuse" applied to the repeated cycling of graywater at a single facility such as an industrial plant or golf course. Historically, the term did not specify a particular level or type of treatment, nor did it apply to highly treated water that discharged to natural waterbodies. All the processes used in nutrient removal were also employed in treating recycled water (and to a lesser degree vice-versa), so the two differed primarily in the handling of the final effluent by either discharge or reuse. However, because some applications of water reuse involved great probability of human contact, higher standards applied for the removal of organic matter, inorganic salts, heavy metals, and viruses. While recycled water could achieve high levels of purity, public perception remained an obstacle to greater use of the resource. Though some 300,000 visitors made annual use of Santee Lakes, the facility was still jokingly derided as "piss lake." Only one comparable recreational project in Lancaster opened during the historic period and no domestic use was made of recycled water despite it exceeding drinking water standards.

The wastewater recycling process started with conventional treatment in an activated-sludge tank, perhaps with iron-salt coagulant enhancement for nutrient removal. Coagulation with lime commonly followed, using tertiary mixing and sedimentation basins. The lime precipitated heavy metals, suspended and dissolved organics, and phosphates, while the alkaline conditions at a pH above 11 killed bacteria and viruses. The alkaline solution could then be sent to a stripping tower for removal of ammonia and volatile organics. In cold climates, ionic exchange might substitute for air stripping. Recarbonization by injection of carbon dioxide returned pH levels to near neutral (7) to prevent the buildup of calcium carbonate scale in subsequent equipment and to recover some portion of the lime. Filtration beds or pressured tanks with activated carbon then removed fine matter and any remaining coagulant. Disinfection by chlorination, ozone, or ultraviolet (UV) exposure followed. Finally, reverse osmosis, a technology first developed for drinking water desalinization, removed inorganic salts, trace metals, and dissolved organics.

The Central Contra Costa Sanitary District, in conjunction with the Contra Costa County Water District, constructed one of the first modern wastewater recycling plants in the early 1970s in order to supply nearby industrial users along the southern shore of Suisun Bay. The sanitary district constructed a full-scale test facility at its existing wastewater treatment plant in Martinez in 1971. The facility used preliminary lime treatment ahead of an activated sludge tank enhanced for

nitrification, followed by ammonia stripping. On a larger scale, Orange County Water District completed its Water Factory 21 in 1975. The plant, named for the belief that it would serve as a prototype for meeting twenty-first-century water needs, treated wastewater with chemical coagulation, air stripping, filtration, and reverse osmosis. The effluent was blended with deep well water and then injected into the groundwater basin through a series of wells to replenish local groundwater basins and buffer against saltwater intrusion.

Advanced Drinking Water Treatment

Drinking water treatment prior to World War II focused on the major public health impacts caused by pathogenic microorganisms. The heightened environmental consciousness of the 1960s and 1970s shifted attention to other pollutants, including synthetic organic compounds and such inorganic contaminants as arsenic, chromium, fluoride, lead, mercury, nitrates, and silver. These substances entered the water supply either as naturally occurring minerals or as industrial and agricultural waste byproducts. No single treatment method was effective for the removal of all contaminants, so different processes were developed to target particular problems. As relatively little was known about the effectiveness of removal technologies, the EPA conducted pioneering research at its Robert A. Taft Sanitary Engineering Center in Cincinnati, Ohio. The basic philosophy of treatment was to employ conventional techniques such as coagulation and lime-and-soda-ash softening first and to use more advanced techniques only as needed. These new technologies, discussed below, included ion exchange, reverse osmosis, the use of activated carbon, and disinfection by ultraviolet (UV) radiation. Electrodialysis and distillation were also experimented with, but these methods were expensive and were employed only in special cases, such as for industrial processes that required high levels of water purity. All these technologies were also used in wastewater treatment, with some minor modifications of procedures.

Ion Exchange

Ion exchange had been a common feature of water treatment since the early twentieth century when it was introduced for water softening. Subsequent developments expanded the range of materials that ion exchange could strip from the water beyond just the hardwater minerals of calcium and magnesium to include nitrate, tannin, fluoride, barium, arsenic, and uranium. The earliest progress was made by altering the chemical and physical properties of greensand, the rock used in water softening, to increase its effectiveness. Later work experimented with other natural materials that had intrinsic qualities favorable to ion exchange, as for example with bone char's ability to absorb fluoride. USPHS constructed a full-scale deflouridation plant in Britton, South Dakota, in 1953 that utilized ground and charred animal bone for ion exchange with a caustic soda used for regeneration. However, natural materials had limits that were difficult to overcome. Because bone is soluble in acid, the South Dakota plant had to carefully regulate the pH levels of the raw water. This added expense that made the plant cost inefficient and it closed in 1971.

The introduction of synthetic resins allowed for far greater control over the ion exchange process. English chemists manufactured the first synthetic resins in 1935. While greenstone worked only with positively-charged cations such as calcium, magnesium, and barium, the new synthetic material could be modified to attract negatively-charged anions such as nitrate, arsenic, and uranium. Extensive research conducted after World War II led to the discovery of organic polymers that produced a resin of superior strength and stability with less pH sensitivity. Having greater control over the molecular structure of the resin allowed for assembling materials with

large surface-area-to-volume ratios, and the typical resins resembled beads with a porous whiffle ball structure. This permitted processing far greater quantities of water using the same sized tanks, and the tougher materials could withstand stronger salt brines so that regeneration occurred in a matter of minutes rather than hours. Customizable resins also allowed for engineering the ion exchange process to optimally target particular contaminants. By the late-1970s, dozens of different synthetic resins were commercially available to deal with a wide range of mineral removal needs.

Municipalities began to construct full-scale facilities using the new ion exchange processes in the mid-1970s. A 1974 plant constructed by the Garden City Park Water District on New York's Long Island was indicative of these facilities. The plant design was based on a prototype facility operated by Oak Ridge National Laboratory in Tennessee beginning in 1970. Its innovative features included a process for continuous resin regeneration. A hydraulic pulse flow pushed the resin material through a closed loop that included treatment, regeneration, and rinse phases. Each phase lasted around 15 minutes, followed by a hydraulic pulse of a few seconds duration. The sodium chloride regeneration thus operated continuously, recharging a portion of the resin at a time, rather than requiring the ion exchange to halt while the full load of resin was recharged as in conventional batch operations. The continuous regeneration process became standard in desalination plants and was later expanded to other ion-exchange facilities.

The vessels used in the new ion exchange systems did not differ substantially from their water-softening predecessors. The tanks continued to resemble pressure filters with components to regulate the in- and out-flow of treatment water, regeneration solution, and backwash water, along with sampling taps. As with most treatment equipment, the tanks commonly were paired to allow processing to continue while one tank was regenerated. Two nearby holding tanks, constructed with special lining to resist corrosion, contained the fresh and used regeneration solution. As the ion exchange process became increasingly specialized, plants sometimes added multiple pairs of tanks in serial, with each pair focused on removal of a particular contaminant.

Reverse Osmosis

Osmosis is the process by which a solvent liquid naturally moves from an area of low dissolved mineral concentration, through a membrane, to an area of high concentration until an equilibrium is reached with both sides having equal solvent to dissolved mineral ratios. In reverse osmosis, pressure is applied to the high concentration side of the membrane so that the flow of solvent is reversed. The semipermeable membrane was engineered to selectively allow water molecules to pass through but not larger mineral or biological molecules. This process could extract pure water from high-concentration inputs, such as salt water, or treat raw water to remove microbiological pathogens and essentially all dissolved organic or mineral contaminants. Reverse osmosis differed from ordinary water filtration in that it processed solutions at a molecular level and could remove dissolved chemicals, while filters could only screen suspended, not dissolved, matter. Filters also trapped the removed particles and thus required regular backwashing. Membranes acted as a barrier but did not physically capture the impurities, so they remained cleaner and required less maintenance. A chief disadvantage of reverse osmosis technology was its high energy inputs. The pressure required to purify water, using 1970s technology, was usually several orders of magnitude greater than the natural osmotic pressure, and ranged from 200 to 1,500 psi.

Efforts to desalinate seawater drove innovation in reverse osmosis technology. Researchers at the University of California, Los Angeles (UCLA) and the University of Florida created the first workable membranes in the 1950s, though the practice remained impractical until improved membranes became available in the mid-1960s (see discussion of desalination below). Researchers recognized the potential for reverse osmosis to be of use in purifying drinking water, but technical challenges and energy costs prevented it from being widely adopted by public utility companies during the historic period. Instead, industrial manufactures were the leading adopters as they required high-purity water for making pharmaceuticals, semiconductors, and consumer food and beverage products.

A typical reverse osmosis treatment unit consisted of a high-pressure pump connected to a rack of filter cartridges (Figure 61). The cartridges commonly contained two flat sheets of membrane material separated by porous sheets through which the feed water and treated water flowed. The sheets were laid flat then spiral wound within the cartridges like rolls of giftwrap. Most units were automated to regulate flow rates and pump pressure.

Activated Carbon

Carbon's ability to purify water of foul tastes and odors has long been recognized. For centuries, sailors charred the inside of their wooden water barrels to keep the water fresh. However, only in the twentieth century did activated carbon begin to be produced on an industrial scale. Carbon could be made from a variety of substances including wood, nutshells, peat, and petroleum products. Much of the activated carbon used in water treatment was manufactured from coal that was converted to carbon by heating it in the absence of oxygen to prevent burning. The material was then exposed to steam at high temperatures, fracturing the carbon and forming many interconnected pores of various sizes. This gave the activated carbon a very large surface area, so that one pound of activated carbon could have a total surface area of more than 150 acres. Organic compounds of various sizes would adhere to the surfaces and thus be filtered from the water.

Activated carbon came in two commercially available forms, powdered or granular, determined by the particle size. Powdered activated carbon (PAC) was the first form to be used for water treatment beginning in the late 1920s. Plants mixed the dry powder or a prepared slurry into raw water prior to the normal coagulation and sedimentation step. With adequate contact time, the carbon absorbed the organic compounds that caused undesired tastes, odors, and colors. Sedimentation or filtration removed the PAC to prevent it entering the distribution system. The carbon could not be easily recovered, as it mixed with sedimentation sludge, so it was disposed of as a waste product. By 1943, about 1,200 American treatment plants made at least occasional use of PAC for odor and taste control.

The advantage of granular activated carbon (GAC) was that it could be reused, allowing for continual removal of organics. GAC was first mass produced during World War I for use in gas masks, and further manufacturing improvements were realized during the 1940s. A Hopewell, Virginia plant installed the first major GAC filter for odor and taste control in 1961. Where the total organic load of the water source was not exceptionally high, GAC was simply added to an existing rapid sand filter. A layer of GAC, approximately two feet deep, was either laid on top of the filter layers or replaced the existing media, in which case it acted as both an absorbent and a

filter. The effective life of GAC varied between a few months and several years, depending on the quantity and type of organics being removed.

The early use of GAC focused on traditional issues of odor and taste, but by the late 1960s concern had shifted to the presence of synthetic organic compounds (SOCs) in the water supply. These included a wide variety of pesticides, industrial chemicals, and oils. By the late 1970s, the EPA had identified 253 SOCs in municipal water distribution systems, post treatment, that were suspected carcinogens. Reducing the concentration of these compounds to presumed safe levels required more intensive filtration. Carbon columns, also known as GAC contractors, resembled pressure filters, being cylindrical tanks with beds of media through which the water was forced under pressure. These columns were similar in design to those used in wastewater treatment plants, as with the South Tahoe facility. Carbon columns were generally included at the end of the drinking water treatment process, just ahead of final disinfection. Portable GAC contractors, mounted on trucks or skids, allowed for emergency decontamination of small systems, as when a rural well was found to have high pesticide levels. These portable systems were designed for temporary use while permanent solutions were arranged.

UV Disinfection

The use of UV radiation to disinfect drinking water and wastewater emerged from regulatory pressures in the late 1970s that discouraged an overreliance on chlorine. Scientists had known since the late nineteenth century that UV light could kill microorganisms, and UV radiation was used to disinfect drinking water as early as 1906. However, the introduction of chlorination two years later effectively ended experimentation with UV disinfection. Later, as environmental concerns grew, regulators sought to balance the need to control pathogens with the impact of chlorine residuals on the environment. In the late 1970s, the EPA began funding research into chlorination alternatives and making grant funds available for construction. Experiments were made with ozone, bromine chloride, and chlorine dioxide as disinfectants, but UV radiation emerged as the principal alternative to chlorine.

UV light offered several advantages as a disinfectant, chief of which was that it did not produce any toxic by-products during the treatment process. UV light operated with relatively simple equipment, principally mercury arc lamps, and because it killed viruses and bacteria almost instantly, it required shorter retention times and thus smaller contact chambers. UV light also dispensed with the need to handle and store dangerous chemicals and there was no chance of overapplication. However, because UV light left no residual disinfectant in the water, it was necessary to still add a low dose of chlorine to handle any microorganisms living in the distribution system.

Prompted by the EPA research and grant program, several small companies emerged to develop UV light systems that could handle the unique issues of drinking water and wastewater treatment. Many first-generation systems were made operational in the late-1970s and early-1980s, but most suffered from basic design flaws that rendered the equipment inefficient and unreliable. A lack of scientific information and industry standards made it difficult for plant operators to determine the right size and configuration for their equipment, and repairing the rapidly evolving equipment was challenging. As a result, even at the end of the twentieth century, less than one percent of the nation’s drinking water supply was treated with UV radiation.

Fluoridation

The fluoridation of public water supplies proved to be the most controversial water treatment issue in the postwar decades. Fluoride occurs naturally in many groundwaters and is particularly prevalent in mountainous regions with volcanic geology. Where fluoride levels are exceptionally high, dental fluorosis can result, producing an aesthetically undesirable mottling of tooth enamel. It was such cases of excessive fluoridation that first attracted scientific interest, with the earliest studies occurring in Colorado Springs in 1909. Investigations by USPHS linked the condition to water supplies in the 1920s and identified fluoride as the culprit in 1931. During their studies, researchers had noted that children with mottled teeth also had low incidences of tooth decay. This led the National Institute of Health (NIH) to try to determine if there was an ideal level of fluoride that would strengthen teeth without marring them. By the late 1930s, NIH had identified an upper limit of one part per million that would cause only minor fluorosis in a small portion of the population.

In 1945, Grand Rapids, Michigan, installed the world's first municipal fluoridation facility, followed the same year by Newburgh, New York, and Evanston, Illinois. NIH and the US Surgeon General closely studied the pilot programs and found that the rate of tooth decay among children declined by as much as 60 percent. By the end of the decade, USPHS, the AMA, the American Dental Association, and the National Research Council all endorsed drinking water fluoridation as safe, effective, and inexpensive. A major public health breakthrough, fluoridation made tooth decay a preventable disease for the first time in history. Fluoridation of the domestic water supply expanded rapidly between 1950 and 1953. San Francisco and Antioch added fluoride to their water supplies in 1952, the first cities in California to do so.

Popular opposition to fluoridation gained traction in 1953. Some 60 cities nationwide reversed themselves over the next decade, halting fluoridation programs that they had earlier begun. In California, 36 communities held referendums on the matter, and in 25 cases voters rejected beginning or continuing fluoridation. Opponents voiced a variety of concerns. Some objected in principle to the idea of forced medication or challenged the addition of any chemical to a natural water supply, echoing earlier complaints about the use of chlorine in water treatment. Others noted that sodium fluoride in large doses functioned as a rat poison and worried about the potential of accidentally providing a toxic dose to humans. In the context of the Cold War, some feared that saboteurs might use fluoridation as cover for introducing harmful substances into the water supply, while figures on the fringe insisted that fluoridation was a communist plot to weaken Americans.

Nationally, the supporters of fluoridation prevailed in the long run, backed by the unwavering support of public health officials and the clear and measurable dental health improvements in towns that embraced fluoridation. The introduction of fluoridated toothpastes in the early 1970s lessened tensions around the issue and proponents benefited from the greater calm. By 1980, half of the national population consumed water enhanced with fluoride. California, however, lagged the national trend. In a much-watched campaign, Los Angeles voters strongly rejected fluoridation in 1974. As late as 1992, less than 16 percent of the state's population received fluoridated water, the fourth lowest percentage in the nation. That figure has since increased as a result of legislation in 1995, but California still ranks below the national average.

Water treatment plants inject fluoride as one of the final steps of treatment following filtration to avoid any loss that could occur in reaction with other chemicals. For groundwater systems, injection is either at individual well pumps or in a common line leading to a storage reservoir. No specific type of injection equipment is standard across all plants. Small systems commonly use a solution tank and metering pump with a line to the watermain. Larger plants may use dry or solution feeders, depending upon what commercial form of fluoride is most economical for their purposes. The fluoride feed system is frequently automated, with flow meters used to regulate and adjust the feed rate.

Political Organization

Prior to 1949, the California Department of Public Health had been the chief agency responsible for regulating water pollution and it issued permits for all new sewage disposal sites in the state based upon the recommendations of its Bureau of Sanitary Engineering. The permitting process had originated as a means of providing technical engineering review of proposed treatment plants, and it was thus fundamentally oriented towards regulating the means of pollution abatement rather than the end results. The department did not establish general guidelines for the quantity and quality of sewage discharge, but undertook a site-by-site review to ensure that plants operated as designed and did not endanger the public health or cause a nuisance. By the end of World War II, this system was widely understood to be inadequate and in need of replacement.

The California Legislature in 1949 passed the Dickey Water Pollution Act to overhaul the regulation of water quality. The act created a State Water Pollution Control Board and nine regional boards with authority over water pollution and nuisances. The State Board served as a review authority for appeals of regional board decisions, formulated state-wide policy, and directed a research and construction financing program, but it was to defer to the authority of the regional boards for prescribing and enforcing discharge requirements. The regional boards were established in the nine major drainages (hydrologic basins) of the state and each was composed of five individuals appointed by the governor. The boards were to represent the various regional water interests with the five board members drawn one each from the ranks of irrigated agriculture, industry, water supply organizations, municipal government, and country government. In theory, the conflicting interests of the board members would be so balanced as to prevent requirements from being overly stringent or lax.

The Dickey Act repealed the earlier permitting system through the Department of Public Health and replaced it with a method that set overall standards of water quality, but did not specify what means were to be used to meet those ends. Municipalities no longer had to submit their treatment plant designs for technical review by the state so long as they could met the water quality standards. The act defined pollution as “an impairment of the quality of the waters of the State by sewage or industrial waste to a degree which does not create an actual hazard to public health but which does adversely and unreasonably affect such waters for domestic, industrial, agricultural, navigational, recreational, or other beneficial uses.” The pollution control boards thus had jurisdiction over the economic aspects of waste discharge. The definition excluded substances that created an actual hazard to public health through the spread of disease or introduction of a toxic poison, and these remained the jurisdiction of local and state health officials who could order an immediate abatement of such conditions.

In 1969 the state legislature passed the Porter-Cologne Water Quality Control Act that substantially revised the Dickey Act. Described at the time as "the toughest water quality act in the nation," Porter-Cologne added strong enforcement tools, created an enhanced role for public participation, and for the first time recognized aesthetic enjoyment as a legitimate value meriting protection.314The act retained the nine regional boards and the state board under a new name as the State Water Resources Control Board. The regional boards were expanded to nine members with additional representation from water quality experts and private associations concerned with recreation, fish, and wildlife. The act strengthened the state's regulatory role by explicitly redefining the discharge of waste as a privilege that could be revoked, rather than as a right that might enjoy protection as a beneficial use. The definition of pollution was also rewritten so that it applied to any unreasonable impact to beneficial uses, without the requirement that it be an adverse effect, thus allowing for strict standards to protect future uses without having to show present harm. This broadened authority was necessary for protecting a body of water like Lake Tahoe, where the highest standards of treatment were needed to safeguard unique aesthetic values.

The federal government had been slow to engage with water quality issues, historically treating the matter as a concern for local or state government, but this began to change in the postwar era. Through the first half of the twentieth century, Congress repeatedly debated establishing federal water quality standards, but none of the more than 100 introduced bills was ever passed and enacted into law. The US Public Health Service standards for water used in interstate travel, established in 1914, remained the only federal involvement in water quality issues. Then in 1948, Congress passed the Water Pollution Control Act, the first major federal involvement in water quality regulation. The act was limited in scope—it applied only to interstate waters and required consent of the participating states—but it established a precedent for a federal role in pollution disputes.

Debate over the proper federal role in water issues continued through the 1950s and 1960s, coinciding with the emergence of environmentalism as a major political concern. The 1948 act had been regarded as an experiment and it had a sunset provision following a five-year trial period. After extensive negotiations, Congress extended the act in 1953 for another three-year period and then finally made it permanent in 1956, though with major amendments in 1961 and 1965. Federal involvement deepened every step along the way. Federal jurisdiction was extended from interstate waters to all navigable waters in 1961, encompassing every significant waterway in the country. In 1965, a new bureaucracy, the Federal Water Pollution Control Administration (FWPCA), was created to coordinate the federal role. The administration was placed under the Department of Interior in 1966, highlighting the environmental role of water regulation and downgrading the former importance of USPHS. Federal financial assistance also increased regularly, reversing the slump in spending that had come with the end of the New Deal programs and curtailment of emergency wartime funding. Most grant assistance was doled out in modest sums to standalone projects, so that small cities, towns, and institutions were the primary beneficiaries, rather than more comprehensive, regional treatment programs.

In 1972, Congress radically amended the Federal Water Pollution Control Act, creating the modern environmental law commonly known as the Clean Water Act. The act established the federal government's EPA as the leading actor in setting and enforcing water quality standards, with the states in a supporting role. Partially modeled on California's Porter-Cologne Act, the Clean Water

Act asserted a wide range of uses that merited protection including wildlife conservation and recreation, the so-called "fishable-swimmable" goal. The declared objective of the act was "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." This meant rendering the waters safe for wildlife and recreation by 1983 and fully eliminating toxic discharges by 1985. To accomplish this goal, the act focused on individual dischargers rather than establishing general water quality standards that were measured in-stream. Every municipal or industrial point-source emitter of waste was required to obtain a federal permit from the EPA that placed specific limits on the discharged effluent.

A distinctive characteristic of the Clean Water Act was its reliance on technology-based standards. In what was termed "technology-forcing," dischargers were obligated to adopt particular levels of technology regardless of their quantities of discharge or the existing levels of pollution in the absorbing body of water. For municipal treatment plants, this meant adopting secondary treatment methods prior to July 1977 (extendable to 1988). Higher levels of treatment could be required if the permitting agency (EPA or the state) determined secondary treatment to be inadequate. Approximately 86% of municipal plants nationwide met the 1988 deadline and others were placed under court-ordered schedules requiring compliance as soon as possible. The federal law allowed plants that discharged to seawater to apply for waivers from secondary treatment if they could show that natural conditions allowed for waste dilution without unreasonable risk to fish, shellfish, wildlife, or recreational use. California, however, enacted stricter standards in 1974 that prohibited discharge to bays or estuaries unless enhancement of the receiving waters was proven.

Industrial dischargers were required to adopt "best practical technology" (BPT) by July 1977 and upgradable to the "best available technology" (BAT) that was economically available by 1989. In practice, BPT standards were used to control discharges of conventional pollutants that included biodegradable organic substances. BAT controls applied principally to toxic or persistent pollutants. The EPA had authority to define BPT and BAT standards and states had responsibility for enforcing the requirements. To aid compliance with the standards, federal grants were made available for up to 85 percent of construction costs for projects involving innovative technology, versus a maximum of 75 percent for more conventional treatments. These measures spurred innovation in the wastewater treatment industry and led to a fundamental redesign of many industrial processes to decrease the amount of water used, recapture waste byproducts for reuse, and reduce the effluent discharge.

The Clean Water Act addressed only surface waters and did not directly apply to groundwater that provided the drinking water supply for many communities. Investigative reporting in the early 1970s upended assumptions about the safety of municipal water supplies by exposing the existence of potential carcinogens in the tap water of New Orleans and Pittsburgh and lead contamination in Boston. In response, Congress passed the Safe Drinking Water Act of 1974 to coordinate local, state, and federal agencies in protecting drinking water supplies. The program built on the USPHS model of regulating contamination levels in drinking water, but it vastly expanded the scope of the law. While the USPHS regulations had applied to approximately 700 supply systems that provided water for interstate carriers, the Safe Drinking Water Act applied to approximately 40,000 community systems. Under direction of the EPA, the National Academy of Science conducted studies to determine the maximum contaminant levels (MCLs) that were fully protective of human health for biological, chemical, radiological, and physical contaminants. To protect groundwater

aquifers, the act established a permit system regulating underground injections of wastewater, gases, brines, and other potential contaminates.

Under the terms of the Safe Drinking Water Act, states assumed primary responsibility for monitoring public drinking water supply systems and enforcing compliance. States could establish their own MCL standards, so long as they were at least as stringent as federal criteria. The California legislature passed the California Safe Drinking Water Act in 1976. California initially defined a public water system as one having five or more service connections, in comparison to the 15 or more specified in federal law, though the legislature later amended the state code to match the federal definition. The Sanitary Engineering Section of the Department of Health (successor to the Bureau of Sanitary Engineering) regulated an initial 1,084 large water systems, defined as those with 200 service connections or more. Local health departments retained responsibility for the 8,887 smaller systems in the state. The State Water Resources Control Board assumed primary responsibility for the regulation of drinking water in 1994 and has continued to expand and refine the list of substances regulated by MCL criteria through regular updates to the Safe Drinking Water Plan.

Technology

The wastewater treatment technologies developed in the early twentieth century—sedimentation basins, sludge digestors, trickling filters, activated sludge tanks, and the like—remain the primary tools in use today. A sanitary engineer transplanted from the 1930s would immediately recognize and comprehend the purpose and functioning of nearly every major piece of equipment found at a plant constructed in the twenty-first century, although there have been notable improvements to facilities, systems, and processes.

Automation

Automation came late to wastewater and drinking water treatment systems in comparison to such similar industrial processes as oil refining and chemical manufacturing. Basic mechanical automation had been a part of water and sewer systems since the nineteenth century in such forms as floats used for triggering well pumps or automatic flushing tanks used for clearing sewer laterals. Electrically powered systems were employed as early as the late 1920s when the Sanitary District of Chicago installed electric eye monitors in sedimentation tanks to regulate sludge levels. However, treatment plants remained overwhelmingly under manual control into the postwar decades, with operators physically opening and closing valves and gates and taking laboratory measurements of turbidity and pH levels.

Tightening municipal budgets in the 1970s prompted increased adoption of automation to economize on labor, real estate, chemical, and energy costs. The design of prewar plants had followed generally conservative standards and intentionally built-in excess capacity to handle unexpectedly high flows. This added to land acquisition and construction costs and permitted a more loosely controlled operation. Automation promised to maximize efficiency by continually adjusting flow rates, temperatures, pH levels, and other variables to remain within set parameters. This allowed adding treatment capacity to existing facilities, rather than building new plants, and offered savings on chemical, energy, and labor inputs. As an additional benefit, automation held the potential to increase the reliability of the treatment process, necessitating fewer shutdowns and enhancing the quality of the final effluent or water supply.

Treatment plant instrumentation performed two chief tasks: monitoring conditions and automating processes. The first was much more widely practiced than the second. The principal sensors used in the 1970s measured hydraulic flow rates and levels. Of secondary importance were analytical instruments for measuring temperature, pressure, pH levels, turbidity, and chlorine concentrations. These more advanced sensors were not always economical to use as the difficult conditions inherent in sewage treatment generated heavy wear and tear. Air, liquid, and sludge pumps were the principal controllers to be automated. Used in conjunction with autonomous sensors, these could adjust flowrates through the plant and maintain consistent processing rates. Chlorination injections and sludge digester temperature controls were also automated successfully and produced savings in chemical and energy inputs.

By the mid-1970s, every wastewater treatment plant other than the smallest systems had a centralized control room that displayed information gathered from remote sensors, showing the operational status of the plant at a glance (Figure 62). By allowing a single worker to monitor plant operations, control rooms produced labor savings and were the one form of automation almost universally justifiable on economic grounds. A standard control room had display panels and consoles with indicators, recorders, alarms, and automatic and manual controls. The graphic panels frequently were organized into a sequence that followed the plant layout, though as plants increased in complexity this became less feasible. Computers were common at most new plants constructed in the late 1970s, though these primarily served to display and record data, rather than to directly control the treatment process.

Still, automation proceeded more slowly than treatment plant operators and equipment manufacturers expected or desired. When the EPA sponsored a nationwide study of automation in 1976, they found few processes operating by automated control loops and a generally low level of technological adoption. Even where automated systems existed, operators had switched many off to allow for manual override. Experts initially thought that technological limits were the problem and that solutions would emerge as sensors improved, but the biological complexity of sewage treatment proved a larger obstacle. A plant never operated at complete equilibrium, but experienced constant variation as bacterial populations adjusted to diurnal and seasonal changes in inputs and ambient conditions. The underlying biology was only incompletely understood, and even sophisticated models were approximations at best. The objective of plant operations also changed with circumstance. What worked best during ordinary conditions was different from what was required during a storm or following an industrial chemical discharge. The challenge of integrating all these variables presented real limits for automated systems and left most plant operations under human control.

Desalination

Desalination is not a modern concept. Oceangoing vessels have supplemented their fresh water supplies by distilling seawater since at least the early seventeenth century, and humans have understood the principles of desalination for many centuries before then. Distillation methods continued to advance, with small seawater-purification machines becoming ubiquitous among naval ships by the Second World War, but large-scale land-based desalination remained in its infancy into the mid-twentieth century.

In 1952, Congress passed the Saline Water Act, which Secretary of the Interior Oscar Chapman had promoted as a necessary response to an ongoing drought in the Southwest that had begun in 1949. The act initially allocated only $2 million over five years, but with the drought only worsening during that period, Congress increased funding fourfold and created the Office of Saline Water in 1958. They tasked the new office with constructing five demonstration desalination plants in different regions. Coastal regions would desalinate seawater while inland regions would desalinate brackish groundwater. Walter L. Badger Associates designed the first nation's first desalination plant in Freeport, Texas, and construction was completed in 1961. The U.S. Department of the Interior's Office of Saline Water operated the plant, supplying half of its production to Dow Chemical and the other half to the City of Freeport. As a result of the Freeport plants success, support for desalination continued growing over the subsequent decade until the energy crisis of the 1970s made desalination appear less cost-effective.

California's first desalination plant was constructed in Coalinga in 1965. Located in the San Joaquin Valley, the city's water supply came mostly from groundwater, which was growing increasingly brackish. The Freeport plant had purified salt water through distillation, but subsequent research had shown reverse osmosis to be more efficient for treating brackish groundwater. The technology passed the water through semipermeable membranes whose openings were of such a size and shape to permit only water molecules through them, thereby holding back salt and other impurities. Coalinga became home to the first Office of Saline Water demonstration plant that used reverse osmosis in 1965. Though experiments with reverse osmosis had already occurred elsewhere in the United States, two UCLA graduate students developed a new membrane that produced freshwater from saltwater ten times faster than the existing membranes. The Coalinga plant functioned as a test site for the viability of the new membrane, and as such, it was small, supplying only 5,000 gallons per day. Their new membrane was successful, and though only a few additional plants were built in California, they all adopted reverse osmosis. Orange County Water District, for instance, integrated reverse osmosis into its Water Factory 21 completed in 1975. A Santa Barbara plant completed in 1991 had a capacity of 6.7 mgd and was the largest built to date in California. However, the plant was decommissioned after Santa Barbara received a connection to the State Water Project and could more easily import surface water than treat groundwater.

2.4.2 Coalinga Wastewater Treatment Plant Operations

The following is excerpted from the City of Coalinga's Preliminary Engineering Report (AM Consulting Engineers 2023:6-7):

> The City of Coalinga imports its water through the federal Central Valley Project (CVP) supervised by the U.S. Bureau of Reclamation (USBR). Due to the poor groundwater quality in the area, the City does not pump groundwater to supplement the water supply due to its poor quality and high concentrations of sulfates, total dissolved solids (TDS), and sodium. On October 28, 1968, the City entered a 40-year contract with the US Bureau of Reclamation for up to 10,000 acre-feet (ac-ft) of CVP water on an annual basis. This contract expired on December 31, 2008. On January 22, 2021, a long-term contract was signed between the City and the USBR (Contract No. 14-06-200-4173A-IR1-P) that established new rates and extended the City's right to pump up to 10,000 AF of water per year.

Raw water for the City flows from the Sacramento-San Joaquin Delta to the south into either the Delta-Mendota Canal or the CVP California Aqueduct, which discharges in the O'Neil Forebay. From the O'Neil Forebay, water continues to flow south into the California Aqueduct to the point of origination of the Coalinga Canal, approximately 15 miles northeast of the City where Highway 145 crosses over the California Aqueduct. After leaving the California Aqueduct, water is carried in the Coalinga Canal approximately 12 miles south to the City of Coalinga WTP intake. A raw water pump station then lifts the water from the Coalinga Canal to the City's conventional surface WTP.

Surface water from the Coalinga Canal is treated at the City's Water Treatment Plant, which is located approximately 7 miles outside of city limits. The City's surface WTP originally came online in April 1972 with an average daily flow capacity of 8 million gallons per day (MGD) and maximum daily flow capacity of 12 MGD. In anticipation of the increased demands resulting from the construction of the Pleasant Valley State Prison, the capacity of the WTP was increased to receive an average daily flow of 12 MGD and a maximum daily flow of 16 MGD. The Plant provides conventional surface water treatment, with processes that include chemical pretreatment, chlorine disinfection, corrosion control, filtration, flocculation, and sedimentation. As a secondary disinfection, chlorination is used to maintain chlorine residual in the distribution system while reducing further production of disinfection byproducts. Treated water is pumped by a filtered-water pump station into a 27-inch diameter pipeline in Palmer Avenue.

Treated water is pumped by a filtered-water pump station into a 27-inch diameter pipeline on Palmer Avenue. Approximately two miles west of the WTP, the flow tees at Calaveras Avenue. Water flowing west continues for another mile and a half to the Palmer Avenue Reservoir. Water going to the Pleasant Valley State Prison travels south in the 12-inch Calaveras Avenue pipeline to the Calaveras Avenue Reservoir. After flowing through the Calaveras Reservoir, it continues south along Calaveras Avenue another 3.5 miles to Jayne Avenue and then east to the prison. Water can potentially travel from the Calaveras Reservoir westerly into the City; however, this seldom occurs due to the hydraulic conditions. Water leaving the Palmer Reservoir flows through approximately eight miles of 24 and 27-inch transmission mains to the Derrick Avenue Reservoir. Water travels primarily from the Derrick Avenue Reservoir through 18, 24, and 30-inch transmission mains into the City's water distribution system. The distribution system consists of a network of water mains ranging in size from 4 to 14 inches in diameter. The system can supply peak hour needs without excessive losses and can deliver fire flows to main lines.

The City's existing storage reservoirs all consist of steel tanks resting on reinforced concrete ring wall foundations. The following is a description of each of the City's treated water storage reservoirs:

- Palmer Avenue Reservoir – This reservoir is located on the south side of Palmer Avenue and has a capacity of 2.8 MG. This reservoir receives pumped treated water from the WTP.

- Calaveras Avenue Reservoir – This reservoir is located on the east side of Calaveras Avenue and has a capacity of 5.0 MG. Water flows from the WTP to the Calaveras Reservoir and then to the Pleasant Valley State Prison.
- Derrick Avenue Reservoir – This reservoir is located west of the City, on the east side of Derrick Avenue. This reservoir has a capacity of 7.6 MG. Water from the Palmer Reservoir flows to the Derrick Reservoir and then into the City.
- Oil King Reservoir – This reservoir is located west of Highway 33/198, approximately three miles north of Palmer Avenue. The reservoir has a capacity of 0.5 MG and exclusively serves the City's oil company customers.
- Northwest Reservoir – This reservoir is located east of Derrick Avenue, approximately three miles north of Gale Avenue. This reservoir has a capacity of 0.2 MG. Like the Oil King Reservoir, this reservoir is also used exclusively for the City's oil company customers.

Since the Oil King and Northwest reservoirs' sole function is to provide water to oil companies, they are excluded from the evaluation of the City's available storage. The existing combined storage capacity of the Palmer, Derrick and Calaveras reservoirs is 15.4 million gallons (MG).

2.4.3 Coalinga Wastewater Treatment Plant

The WWTP within the APE is part of a wastewater collection and treatment system for the urbanized areas of the City of Coalinga that includes more than 42 miles of sewer pipelines (6 in. to 24 in. in diameter). As of 2023, the WWTP within the APE serves 3,369 residences and 318 businesses. The WWTP "treats and discharges the municipal wastewater generated by residences and businesses within the City. The treatment process at the City's WWTP consists of screening, primary clarification, and secondary treatment (aerated facultative lagoons followed by stabilization lagoons)" (AM Consulting Engineers 2023:16).

The first step in the treatment process is screening the wastewater that enters the system at the headworks, and the large debris is screened out. Then the wastewater continues through a Parshall flume with an ultrasonic-level transducer that measures and records plant flow data.

According to AM Consulting Engineers (2026):

> Pretreated effluent from the headworks flows through a 24-inch gravity line into a clarifier center feed well. The purpose of the feed well baffle is to disperse the incoming wastewater without disturbing the settled sludge in the bottom of the clarifier. As wastewater flows through the clarifier, heavy solids settle to the bottom and are removed as primary sludge. The clarified effluent is collected by a peripheral overflow launder protected by a submerged baffle that retains floatable from entering the effluent channel. Floating material is removed by a surface skimmer that pushes the material into a scum beach. From there, the scum is pumped to the digester. Settled solids, primarily inorganic, and some large organic particles constitute the primary settled sludge. This sludge is scraped and pushed into the center sludge hopper by rotating rake arms. Scum is scraped by a rotating skimmer and deposited into a scum box. Eight spray nozzles are mounted along the clarifier walkway to aid in scum removal. Two 6-inch lines carry sludge from the sludge hopper and scum from the scum box to the primary pump station. From the primary pump station, the sludge is pumped to an aerobic digester by

> two separate plunger pumps. Both pumps are actuated either manually or automatically from a local control panel at the pump station. The piping is arranged in a way that both pumps are capable of pumping sludge (AM Consulting Engineers 2023:17-18).

According to AM Consulting Engineers (2026):

> Aerated facultative lagoons (AFLs) are the main treatment process responsible for the reduction of the soluble BOD. These lagoons, in conjunction with the downstream stabilization ponds, achieve high removal of organic materials, solids that are not removed in primary treatment, and pathogen bacteria.
>
> The AFLs are equipped with surface aerators to supply the required oxygen for treatment and provide mixing of the surface zone. Eight aerators are installed, four in each lagoon. The aerators are driven by constant-speed electric motors. The aerators are controlled where they can be started and stopped to maintain a minimum dissolved oxygen concentration of 1 mg/L in the top layer of the lagoons.
>
> The AFLs are designed to operate in parallel to better distribute the wastewater. The first aerator in each lagoon is a 20 HP unit while the remaining three are 10 HP. This design provides increased aeration in the zones of high oxygen demand at the beginning of the AFLs and inhibits uneven deposition or mounding of sludge (AM Consulting Engineers 2023:18).

According to AM Consulting Engineers (2026):

> Wastewater effluent from the AFLs flows into an effluent control box and then through three stabilization ponds (SPs) operated in series. The main purpose of these stabilization ponds is to provide secondary treatment or further removal of the remaining BOD and TSS not removed in primary treatment and aerated facultative lagoons. The stabilization ponds also act as seasonal storage facilities for the treated wastewater prior to effluent disposal. The water surface elevation in the first two stabilization ponds is controlled by a downstream weir at the end of the second pond. The water level at the third stabilization pond is controlled by the effluent pumping rate used at a given time to meet irrigation needs (AM Consulting Engineers 2023:18).

According to AM Consulting Engineers (2026):

> Sludge collected at the primary clarifiers is regularly pumped into the aerobic digester. The aerobic digester provides an anoxic environment where the organic matter contained in the sludge is decomposed and transformed into stable material that can be air dried without causing objectionable odors. The aerobic digestion process decomposes the organic matter in water and C02, reducing the strength or volatile suspended solids (VSS) in the sludge collected by the primary clarifier. Aeration in the aerobic digester is provided by two positive displacement blowers that feed coarse bubble diffusers located near the bottom of the digester. The aerators are located at the side to impart turnover and mixing in the digester (AM Consulting Engineers 2023:18).

According to AM Consulting Engineers (2026):

> Digested sludge leaving the aerobic digesters is fed to one of two asphalt-bottom sludge drying beds. These beds provide enough air-sludge surface contact to enhance the evaporation of the water contained in the sludge. The sludge is first allowed to settle at the beds, after which the supernatant is decanted by telescopic valves and returned to the headworks. The remaining sludge is allowed to dry before it is scraped and stockpiled on-site. The sludge is then tested for regulated heavy metals before it is transported off-site by truck to a sludge composting facility for final disposal (AM Consulting Engineers 2023:19).

According to AM Consulting Engineers (2026):

Currently, the City's wastewater effluent is transported to adjacent land and used for irrigation of non-food crops such as cotton, alfalfa, and feed grains. Technically, all of Coalinga's wastewater can be said to be recycled since it is used to irrigate crops and a portion of the irrigation water percolates beyond the crop root zone ultimately to become groundwater. However, since groundwater is not a source of drinking water supply, it cannot be considered as offsetting potable water demand (AM Consulting Engineers 2023:19).

According to AM Consulting Engineers (2026):

> The City's WWTP has undergone two major modifications and additions over the last 40 years. According to WDR Order No. 76-180, the WWTP originally consisted of a primary clarifier followed by three oxidation ponds in series. The final disposal consisted of irrigating land controlled by the City and West Hills Community College for agricultural reclamation. At that time, the WWTP's treatment capacity was 0.6 MGD.
>
> In 1980 the City submitted a Report of Waste Discharge for the expansion of the existing treatment capacity from 0.6 MGD to 0.93 MGD. The modifications consisted of influent screening followed by two aerated facultative lagoons and three stabilization ponds. Final effluent disposal was consistent with previous practices on City-owned land and West Hills College grounds. These modifications and additions were implemented in 1982. WDR Order No. 80-064 was adopted on May 26, 1980.
>
> In 1991, the City submitted a Report of Waste Discharge in support of a change in operation and an increase in quantity of discharge from its municipal WWTP. The treatment capacity was increased from 0.93 MGD to the current 1.34 MGD. The City completed the rehabilitation of the primary clarifier and aerobic digester, which were removed from service during the previous plant modification. Effluent is pumped from one of the stabilization ponds to 30 acres of farmland owned by the Discharger (leased and operated by West Hills Community College District) and 102 acres of farmland owned by West Hills Community College (User) for crop irrigation and percolation disposal. The User grows alfalfa, hay, cotton, pasture, and sugar beets (for research only) with reclaimed wastewater. The Discharger owns an additional 96.7 acres of land in the immediate area, which could be used for reclamation if needed (AM Consulting Engineers 2023:16).

2.4.4 Site Specific History

WWTP APE

According to USGS topographic quadrangles, historical aerials, Google Earth imagery, and Nationwide Environmental Title Research, the WWTP APE has undergone significant development since at least the mid-twentieth century. During 1933–1937, land within the APE was largely undeveloped, with several linear features in its near vicinity including the Southern Pacific Railroad, Siskiyou Avenue, and a San Joaquin Light and Power Corporation transmission line (USGS 1933, 1937). An unnamed road runs through the southern portion of the WWTP APE along the same alignment of present-day Palmer Avenue.

Structures are first visible within the WWTP APE circa 1940-1941 (USGS 1944).[2] The structures appear to be in the same general area as the extant structures associated with the WWTP and retain the label of "Sewage Disposal." The WWTP remained in the same configuration by 1953[3] with a main building, a water tank, and an unnamed access road that reaches the buildings from Jayne Avenue to the south. Topographic maps drawn from aerial photographs confirm that minimal changes occurred within the WWTP APE between 1940 and 1956 (USGS 1956) (Figures 3–4).

The Coalinga Wastewater Treatment Plant site underwent its first major expansion beginning in 1963, with an official dedication in 1964. Constructed for $250,000 (approximately $2.7 million adjusted for inflation), the plant was expanded with federal and matching local funds on land purchased from Standard Oil Company and was constructed by the Charles S. McCandless & Company. The opening of the newly expanded plant was seen as a step forward for Coalinga, where it represented community progress as it would permit the city to double in size as well as allow for industry in the area (*The Fresno Bee* 1964:32). These changes are first apparent in the 1967 historic aerial photograph, where the plant site consisting of the operating building, the primary clarifier, and the digester are visible with some minor supporting structures (USDA 1967) (Figure 5).

The plant developed again between this time and 1979, when improvement plans were prepared by John Carollo Engineers. While the plant site remained unchanged, these plans revealed that the plant had expanded to the east with treatment lagoons and ponds that replaced a body of water likely associated with Coalinga WWTP and Los Gatos Creek. Then, between 1981 and 1994, historic aerial photographs confirm further development of the site with construction of several new buildings and a sludge-drying bed to the northeast. This is supported by the Wastewater Treatment Plant Primary Treatment Rehabilitation drawings created by James M. Montgomery Consulting Engineers, Inc. in 1990 and historic photographs from 1991 depicting the construction of the new buildings and machinery at the plant. Construction of new buildings and modifications completed between 1994 and 2024 continued to change the WWTP's configuration, particularly in the large area to the northwest of the plant site, where between 2018 and 2020 three additional sludge beds were constructed (Figures 6–12).

[2] The USGS 1944 topographic map was first surveyed between 1935 and 1936, and again in 1940 and 1941.
[3] The USGS 1956 topographic map was drawn based on 1953 aerial photographs.

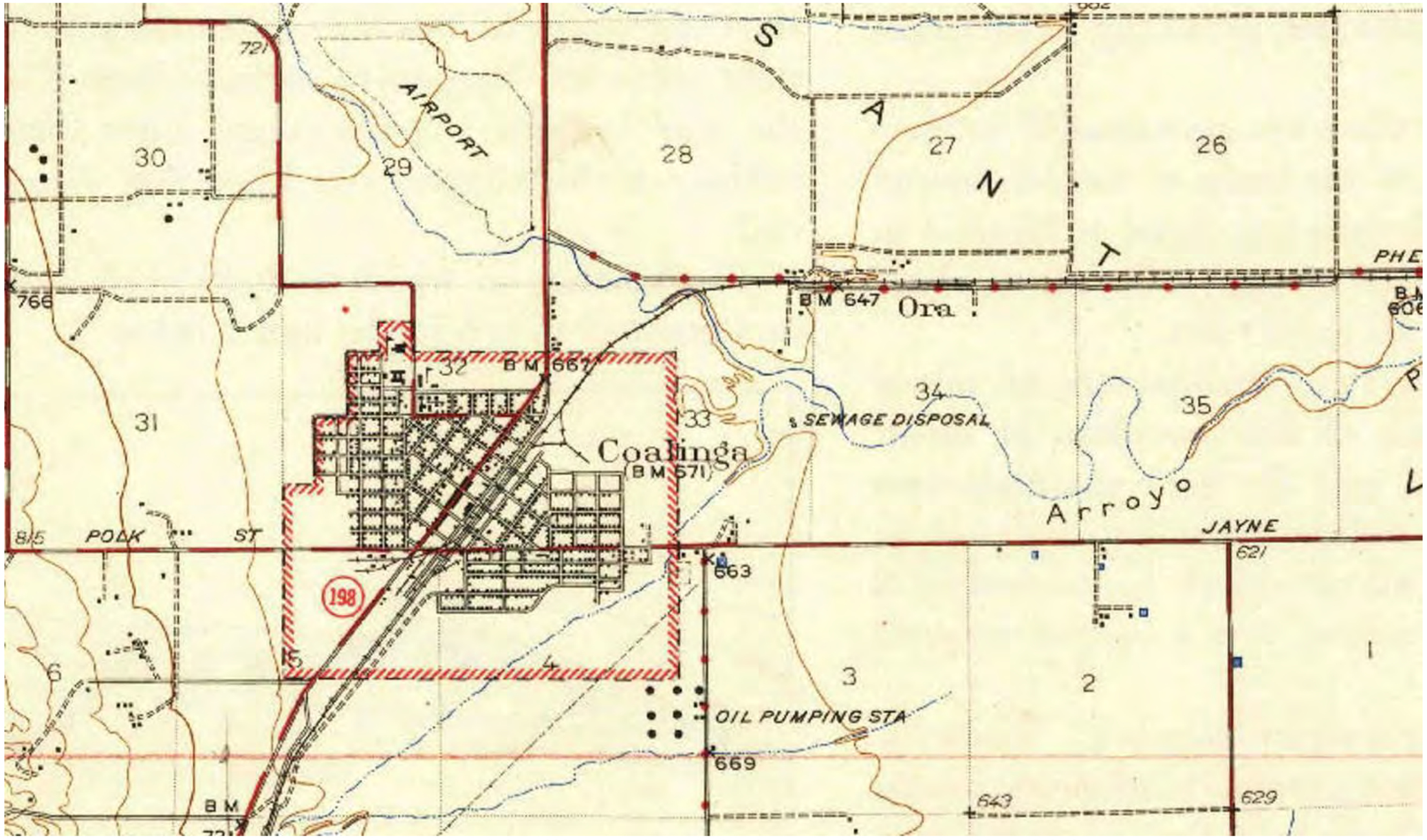

Figure 3. Portion of 1944 USGS Topographic Map Coalinga Quadrangle. Surveyed in 1935-1936 and 1940-1941.

Figure 4. Portion of 1956 USGS Topographic Map Coalinga Quadrangle. Aerial Photographs taken 1953.

Figure 5. 1967 historic aerial photograph of the Coalinga WWTP. Source: USGS 1967.

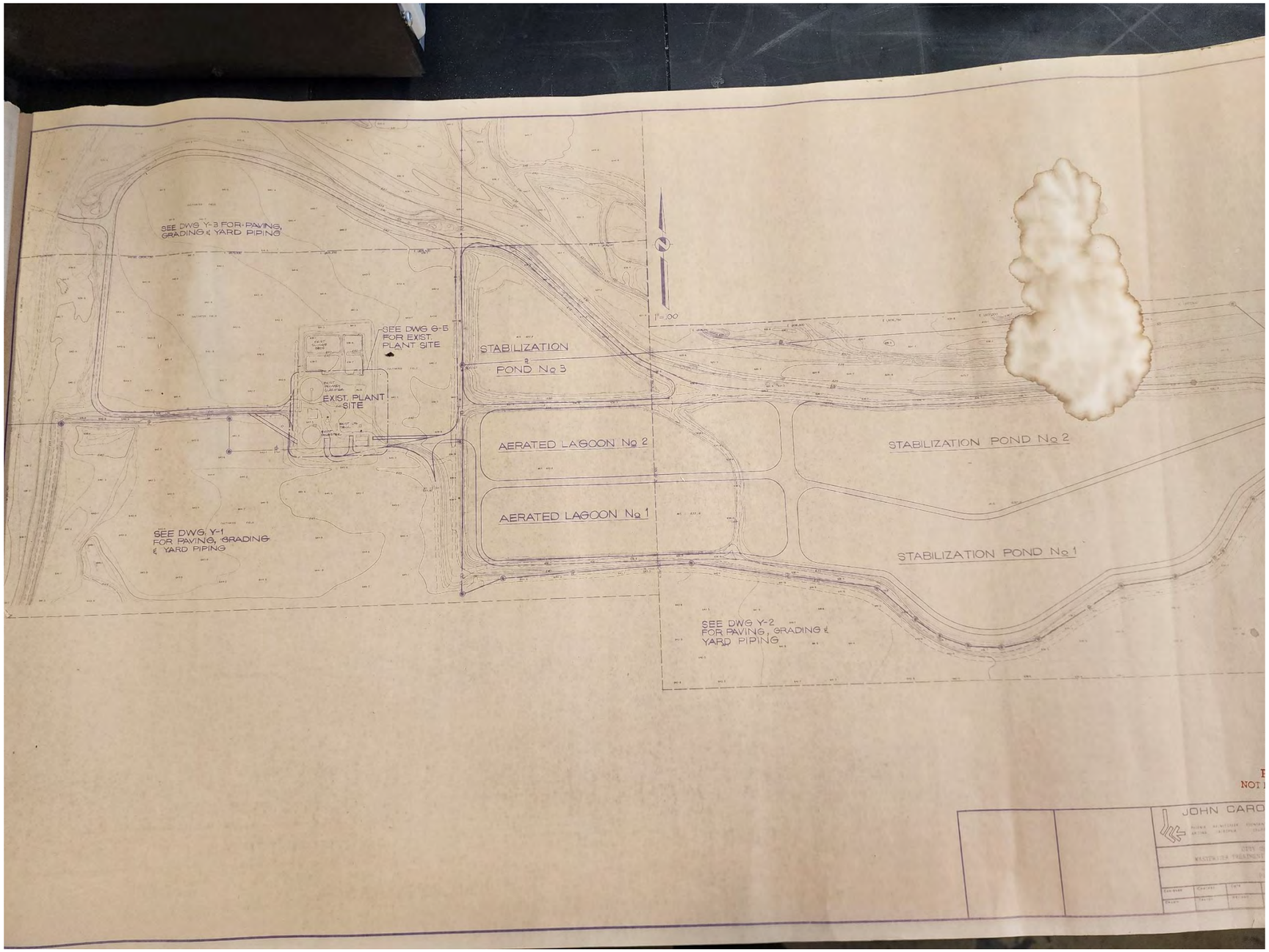

Figure 6. The Coalinga WWTP as depicted in the 1979 drawings by John Carollo Engineers.

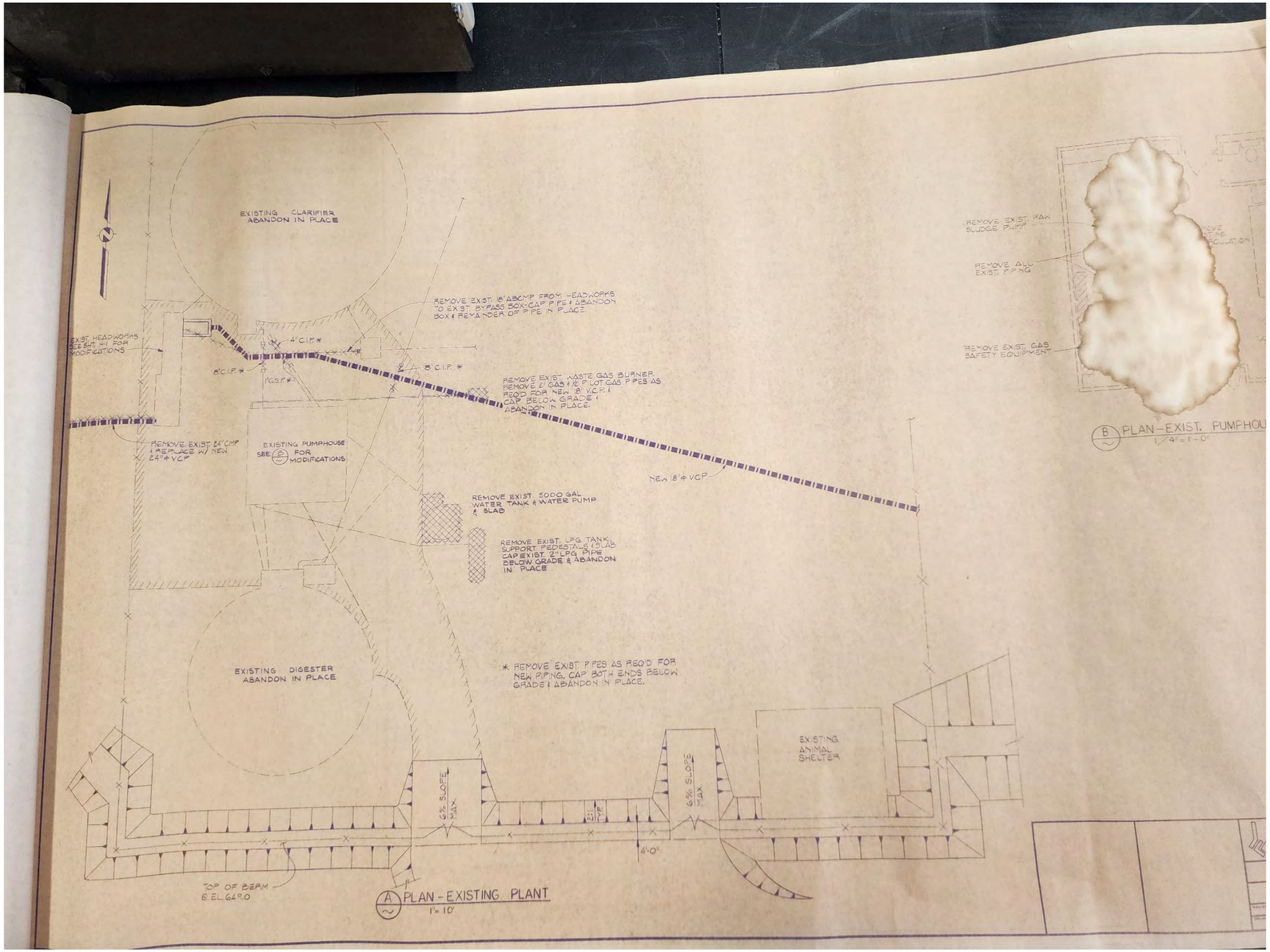

Figure 7. Detail of the plant area of the WWTP as depicted in the 1979 drawings by John Carollo Engineers.

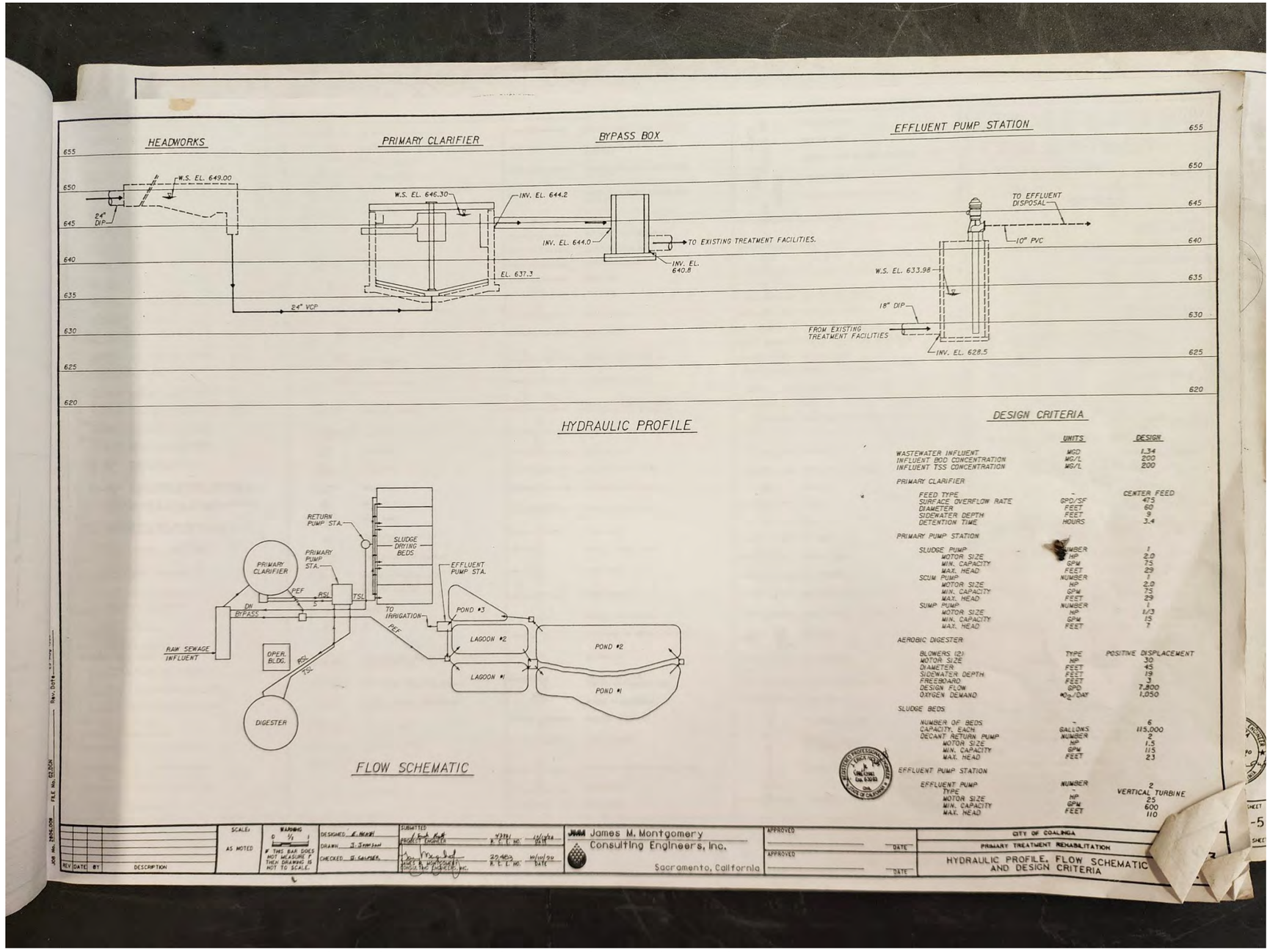

Figure 8. The Coalinga WWTP as depicted in the 1990 drawings by James Montgomery Consulting Engineers.

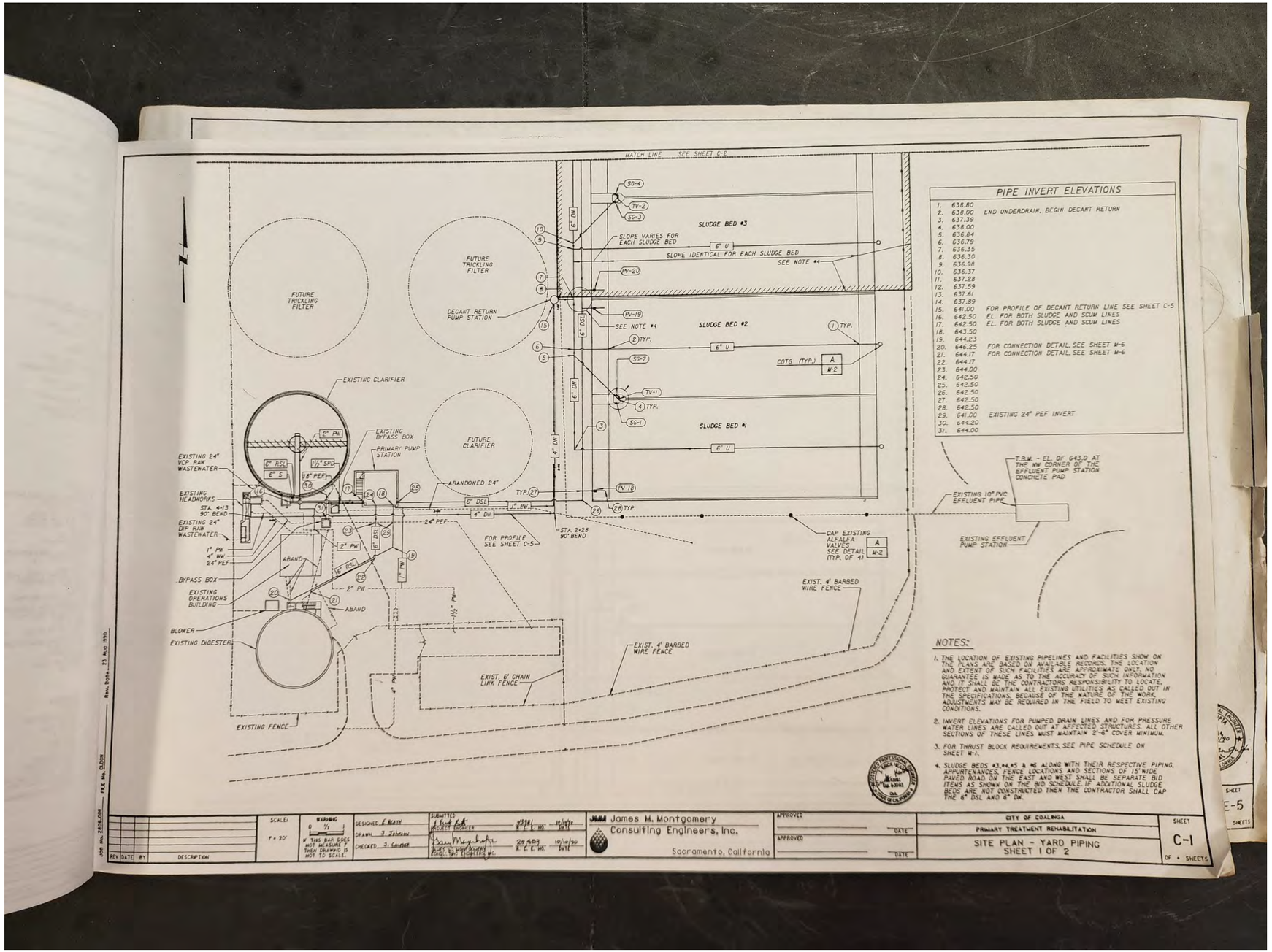

Figure 9. Detail of the WWTP plant area as depicted in the 1990 drawings by James Montgomery Consulting Engineers.

Figure 10. Photograph of the construction occurring at the Coalinga WWTP, dated May 28, 1991. The clarifier is visible in the foreground, and the animal shelter building is visible in the background.

Figure 11. Photograph of the construction occurring at the Coalinga WWTP, dated May 28, 1991. This photograph depicts the materials that were removed for the modernization and expansion of the facility.

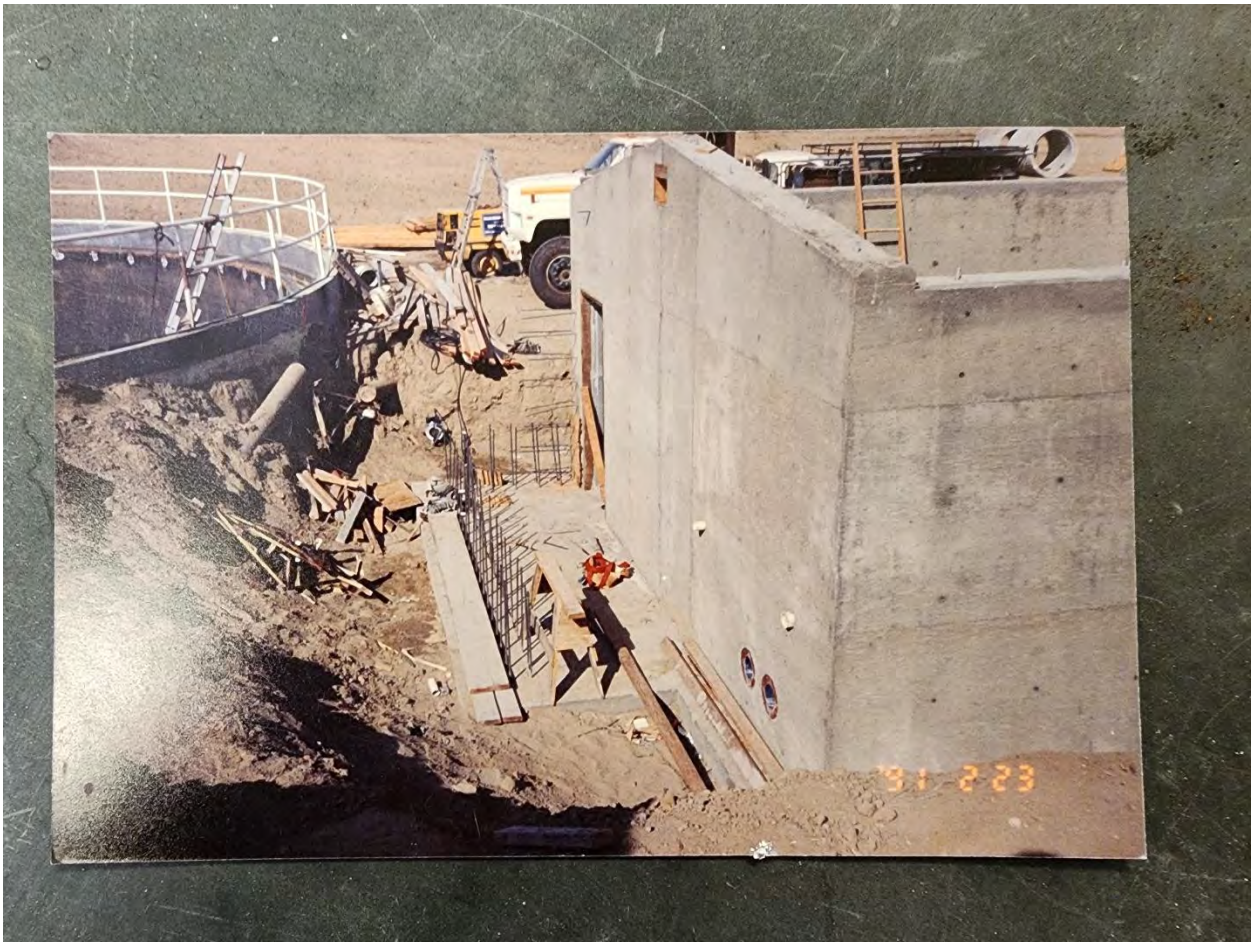

Figure 12. Photograph of the construction occurring at the Coalinga WWTP, dated May 28, 1991. The clarifier structure is depicted, and the primary pump station is visible under construction.

Pipeline APE

Historical topographical maps and aerial imagery that included the Pipeline APE were consulted to identify potential historic-era structures or resources.

According to historical topographic maps, the portions of the APE in the city of Huron and outside of the WWTP have had significant development since at least the mid-twentieth century. The Pipeline APE was largely undeveloped except for the Southern Pacific Railroad northeast-southwest segment that bisected this portion of the APE and Lassen Road that extended north-south through the eastern portion (USGS 1933, 1937). Population growth had spurred incorporation of the City of Coalinga (1951) and by 1956, multiple buildings are depicted adjacent to the Pipeline APE (USGS 1956). Between 1971 to 1981, the Pipeline APE changes very little with an airfield being constructed southeast of the APE along with the realignment of roads east and south of the APE and industrial development in the eastern portion of the city. From 1981 to 2024, aerials confirm that land within the Pipeline APE had not been further developed.

2.5 HISTORIC-ERA ARCHAEOLOGY: REFUSE DEPOSITS

Refuse deposits are a commonly identified site type. Before municipal trash collection and disposal was provided, individual households were responsible for disposing of their own trash. In many rural areas municipal trash collection was never implemented, and individual households remain responsible for disposing of their own trash. In the years before people had automobiles at their disposal, trash was generally disposed of either on the householder's property, preferably at some distance removed from the residence, or on an adjacent vacant piece of land. Often householders dug pits into which they deposited trash until it became too full. Periodically the trash was burned so that it would not attract rodents. The pit was eventually backfilled, and another pit was excavated. Old privy pits were frequently used to dispose of trash before they were backfilled. Trash was also dumped close to the main residence initially before it was moved to a pit for burning or burying. In rural settings, trash pits and trash surface scatters tend to cluster on the edge of the main residential/activity area, at some remove from the house.

Before the automobile, trash was transported in horse-drawn carts to municipal dumps. Farmers could also use carts to remove trash from their property to dump in an adjacent, vacant property, but as the road system was poor and moving trash by horse-drawn cart was a laborious process, rural dwellers did not tend to travel far to dispose of their trash. With the advent of the automobile, however, people experienced greater mobility and disposal of household trash became easier. People could now travel out of town to dump trash on vacant parcels on the outskirts of town, and farmers could also transport their trash more easily to dump outside their property. Improved roads also facilitated trash disposal. Transporting trash for dumping elsewhere required considerably less labor than excavating a pit, transporting the trash to the pit, burning it, and then backfilling it.

Types of Historic Refuse Deposits

Guerrero and Bupp (1996) identify three principal types of trash dumps in the archaeological record: trash dumps associated with a residence; trash dumps associated with an on-site activity, but not a residence; and isolated trash dumps that are not associated with either a residence or on-

site activity. Historic archaeological sites are generally evaluated for their potential to address important regional research issues. Trash deposits associated with a known household have the greatest research potential. Where no historical context can be established for a trash deposit and there is no known association with any household, ethnic group, community or labor group, the lack of a definitive association diminishes its research potential.

Research Questions

These research questions address three main research domains: chronology, subsistence and economy, and structure and integrity of the cultural deposits.

Chronology

- Can the chronological placement of the trash deposit be determined?
- What kinds of chronometric data are available? How well do the different kinds of chronometric data correlate?
- Are there data indicating the presence of multiple dumping episodes at project sites?

Date ranges for individual historic deposits are derived from glass maker's marks, maker's marks on ceramics, technological features of both tin cans and bottles, and chronological markers such as glass color (Clark 1977; Fike 1987, 2002; Fontana and Greenleaf 1962; IMACS 1990; Jones and Sullivan 1985; Kendall 1978, 1979; Kovel and Kovel 1986; Lockhart 2000; Munsey 1972; Rock 1980a-b; Sharley 2002; Simonis 1987; Toulouse 2001). These various kinds of chronological data generally provide a fairly narrow date range for the manufacture of the artifact. To provide a date range for deposition, all of the chronological data from individual artifacts are correlated. The date of deposition is assumed to be sometime after the latest date of manufacture. The time lag between manufacture and discard varies depending on the function of the artifact. For example, an expensive porcelain teapot may be a family heirloom that would remain in the family for decades, while a tin can or milk bottle was likely discarded immediately after use. A date range for the deposit is estimated based on the latest manufacture date and the expected time lag before discard. Where multiple dumping episodes were suspected based on the range of dates of manufacture, an effort is made to differentiate individual dumping episodes and provide an estimated date range for each.

Technology, Subsistence and Settlement Organization

- What is the nature of refuse at historic sites? Is it possible to determine the original activities that resulted in the historic deposit? For trash deposits is it possible to determine the origin of the deposits?

Trash deposits associated with homestead sites tend to be directly associated with the homestead household and therefore can be analyzed for data regarding the date of occupation and abandonment of the homestead, activities that took place within the homestead, household composition and gender, and consumer behavior of the residents. It should be remembered, however, that not all trash present on homestead sites relates to the original homestead occupation. Once sites were abandoned, they were considered vacant, and roadside and opportunistic dumping could take place. It is important that every effort be made to identify post-abandonment trash deposits so that they can be eliminated from analysis of homestead-related activity.

For trash deposits, it is more difficult to make an association with a single household or even group of households. Typically, isolated trash deposits are found on what were vacant lots at the time of deposition. While the trash may have been deposited from a nearby household, this is extremely difficult to establish. Cross-matching of artifacts from adjacent home sites is one method that can be used to associate an isolated trash deposit with a home site. If a portion of an artifact is found on a homesite and another portion found in a nearby dump, this would help to establish the origin of the trash deposit. The association of other trash dumps are difficult to identify and therefore their research potential is poor.

- Is a sufficient range of materials present in the historic deposits to provide data on the consumption patterns of homesteaders and other historic-period residents in the area?

Homesteaders and other settlers in the rural areas of Central Valley in the early decades of the twentieth century faced an uphill struggle in attempting to make a living. These settlers came from a wide catchment area, and surviving in this new environment necessitated adaptation and more than likely frugal living for a number of years.

One important research issue concerns how successful rural farm families defined wealth and spent money compared to middle- and upper-middle-class urban dwellers. Research has indicated that after achieving a basic standard of living that included inexpensive ceramics and a few luxury items, farm families invested in equipment, land, livestock, and outbuildings rather than in status symbols favored by urban dwellers such as fine furniture, table settings and clothes. The difference in household values between successful farm families and middle- and upper-middle-class urban residents is manifested through cross-site comparisons of functional profile and economic indexing data. Profiles of rural assemblages show higher frequencies of hardware, livery items, and equipment and machinery parts than those representing urban sites (Phillips and Van Wormer 1991; Van Wormer 1991; Van Wormer and Schaefer 1991; Van Wormer 1996). In addition, rural site assemblages tend to exhibit reduced ceramic index values (i.e., cheaper ceramic wares), that remain unaffected by fluctuating economic trends, as well as excessive ceramic and bottle manufacture-deposition lag time when compared to urban assemblages from the same period. These patterns indicate that rural households exhibited a different style of consumption from urban residents by spending less money on ceramic tableware and being more conservative about disposing of items only a few years old. Trash deposits from ranch and farmstead sites provide an excellent opportunity to test hypotheses relating to consumption patterns of rural versus urban dwellers. Remote rural dwellers survived in very difficult conditions and the rural consumer pattern may be further accentuated at these sites.

Data requirements for an analysis of consumer patterns include a range of food and drink containers including glass jars, bottles and cans, and a range of domestic tableware, and furnishings. The range of cultural materials can vary from site to site, depending both on the nature of the deposits and the recovery methodology. While controlled collection from a surface scrape provides a representative sample of what is contained in a surface scatter, it can result in large quantities of highly fragmented glass and metal that contributes little to the data analysis. To obtain a representative sample of a wider range of artifact types it is preferable to excavate smaller samples from a number of deposits and to augment those with a larger surface collection.

Structure and Integrity of Cultural Deposits

- Do inclusive chronometric data from the sites permit the identification and definition of temporally and/or spatially discrete historic dumps?
- Are the definitions of discrete components supported by multiple, independent chronological controls and, if so, how similar are their age estimates?
- Is there substantial evidence of occupational “overprinting?” How has this affected the temporal integrity of the refuse deposits?

Later dumping episodes can result in a mixing of historic, submodern, and modern deposits in such a way that differentiation of dumping episodes can be difficult, if not impossible. Since historic trash deposits tend to be largely surface scatters, the sites lack vertical stratigraphy which would help in distinguishing between historic and later deposits. In some cases, the dumping episodes have taken place in different areas of the sites, and it is possible to distinguish between historic and later deposits. However, at many of the sites historic deposits are mixed with submodern and modern dumping. Consequently, chronological control is lacking, and the research potential of the historic deposits is reduced.

3. RECORDS AND SACRED LANDS FILE SEARCHES

3.1 RECORDS SEARCH

To determine whether the Project APE had been previously surveyed for cultural resources, and/or whether any such resources were known to exist within or near to it, staff of the Southern San Joaquin Valley Information Center (SSJVIC) conducted an archival records search on May 29, 2024. The records search was completed to determine: (i) if pre-contact or historic-era cultural resources had previously been recorded within the Project APE; (ii) if the Project APE had been systematically surveyed by archaeologists prior to the initiation of this fieldwork; and/or (iii) whether the area surrounding the proposed Project was known to contain archaeological sites or built environment resources and to thereby be culturally sensitive. Records examined included archaeological site files and maps, the NRHP, Historic Property Data File, California Inventory of Historic Resources, and the California Points of Historic Interest. The records search included the Project APE and a 0.5-mi. buffer.

According to the SSJVIC, six previous studies have been conducted within the Project APE, and 31 previous studies were identified within the 0.5-mi. buffer (Table 4). Based on SSJVIC data, approximately 30 percent of the Project APE has been previously surveyed. Dates for previous studies in the APE range from 1974 to 2021.

The SSJVIC results identified a single previously recorded cultural resource (P-10-003930) within the APE (Table 5). An additional 17 resources were identified within the 0.5-mi. buffer. The results of the SSJVIC records search are available in Confidential Appendix A.

Table 4. Previous Reports within 0.5 mi. of the APE

Report #	Year	Author/Affiliation	Title	APE Relationship
FR-00008	1996	Kus, James S. and Mader, Claudia A.	Negative Archaeological Survey Repot for Proposed Subdivision in Fresno County, California	Outside
FR-00175	1988	Brady, Jon L.	Archaeological Survey Report for Widening of 06-FRE-198 P.M. 16.0/22.4 06253-343310	Outside
FR-00197	1998	Binning, Jeanne Day and Laylander, Don	Road Widening of State Route 33, north of the town of Coalinga	Outside
FR-00198	1996	Nissen, Karen	Negative Archaeological Survey Report for the Warthan Creek Bridge in Coalinga, Fresno County	Outside
FR-00198A	1997	Scott, Gloria	Historical Architectural Survey Report for Warthan Creek Bridge Replacement Project, Fresno County, California	Outside
FR-00198B	1998	Fredericks, Tom	Historical Property Survey Report for Caltrans Proposal to Replace the Warthan Creek Bridge (# 42-0119)	Outside
FR-00251	1998	Binning, Jeanne Day and Laylander, Don	Negative Archaeological Survey Report for the Los Gatos Creek Overflow Bridge Replacement	Outside

Report #	Year	Author/Affiliation	Title	APE Relationship
			Bridge Number 42-0006 and Access Improvement for State Route 33, Coalinga, Fresno County, California	
FR-00251A	1999	Lortie, Frank	Historic Property Survey Report for the Los Gatos Creek Overflow Bridge Replacement Bridge Number 42-0006 and Access Improvement for State Route 33 Coalinga	Outside
FR-00251B	1999	Lortie, Frank	Historic Architectural Survey Report for the Los Gatos Creek Overflow Bridge Replacement Bridge Number 42-0006 and Access Improvement for State Route 33 Coalinga	Outside
FR-00673	1974	Ritchie, Carl W.	An Archaeological Survey of Los Gatos and Warthan Creeks Near Coalinga, California	**Within**
FR-00779	1994	Varner, Dudley M.	An Archaeological Study of Property in the City of Coalinga, In Fresno County, California	Outside
FR-01610	1999	Binning, Jeanne Day and Marine, Mandy	First Supplemental Archaeological Survey Report for the Los Gatos Creek Overflow Bridge Replacement, State Route 33, Coalinga, Fresno County, California	Outside
FR-01869	2001	Nadolski, John A.	Archaeological Investigations for Tower modifications at 34 Cell Tower Sites	Outside
FR-01957	2003	Losee, Carolyn	Cultural Resources Analysis for Cingular Wireless Site No. CC-514-01 "Downtown Coalinga"	Outside
FR-02028	2004	Varner, Dudley M.	A Cultural Resource Study of the Los Gatos Creek Property, Fresno County, California	Outside
FR-02041	2004	Billat, Lorna	Proposed Wireless Telecommunication Service Facility Projects in California (Coalinga/CA-1363A)	Outside
FR-02163	2004	Roper, C. Kristina	A Cultural Resources Survey for the Proposed Warthan Creek Housing Development, Coalinga, Fresno County, California	Outside
FR-02264	2005	Roper, C. Kristina	A Cultural Resources Survey for the 280-Acre Coalinga Parcels, Coalinga, Fresno County, California	Outside
FR-02265	2005	Roper, C. Kristina	A Cultural Resources Survey for the 2,248-Acre Coalinga Parcels, Coalinga, Fresno County, California	**Within**
FR-02267	2005	Roper, C. Kristina	A Cultural Resources Survey of the 296-Acre Old School Farm, Coalinga, Fresno County, California	**Within**
FR-02365	2007	Baloian, Randy and Dalu, Chris	Cultural Resources Inventory for APN 070060-76, 070-060-83, and 070-060-86, North of Coalinga in Fresno County, California	Outside
FR-02374	2007	Nettles, Wendy M. and Baloian, Randy	Cultural Resources Inventory of a 320-acre Parcel Northwest of Coalinga, Fresno County, California	Outside
FR-02400	2010	Brunzell, David	Cultural Resources Assessment and National Register of Historic Places Eligibility Evaluation, Coalinga Library Building, Coalinga, Fresno County, California	**Within**
FR-02652	2014	Greenberg, Gregory	Cultural Resources Survey East Coalinga / CVU4251 1188 Gregory Way Coalinga, Fresno County, California 93210	Outside

Report #	Year	Author/Affiliation	Title	APE Relationship
FR-02671	2014	Dietler, Sara, Gibson, Heather, and Hall, Lee	Cultural and Paleontological Resources Constraints Study for the Coalinga 1 and 2 Reconductoring Project, Fresno County, California	Outside
FR-02720	2015	Peak, Melinda A.	Determination of Eligibility and Effect for the Coalinga Senior Apartments Project, City of Coalinga, Fresno County, California	Outside
FR-02907	2017	Belcourt, Tria Marie, Kelly, Jennifer, and Sifuentes, Sonia	Cultural and Paleontological Assessment: Anderson - Coalinga 1 - 1109 Solar Project CA 17 - 0106 in Ora, Unincorporated Fresno County, California	Outside
FR-03096	2021	Valentin, Sylvere	Archaeological Survey Report for the Coalinga SR 33 2R Rehabilitation Project, Fresno County, California	**Within**
FR-03103	2021	Carr, Paula Juelke	Historic Property Survey Report City of Coalinga Trails Master Plan (TMP)	**Within**
FR-03103A	2021	Laurie, Leroy and Stevens, Nathan	Archaeological Survey Report for the City of Coalinga Trails Master Plan, Segments 3, 4, and 9, City of Coalinga, Fresno County, California	Outside
FR-02652	2014	Greenberg, Gregory	Cultural Resources Survey East Coalinga / CVU4251 1188 Gregory Way Coalinga, Fresno County, California 93210	Outside

Table 5. Previously Recorded Resources

Primary #	Type	Description	NRHP Eligibility Status	APE Relationship
P-10-003930	Historic-era structure	Southern Pacific Railroad	Determined not eligible for NRHP by consensus through Section 106 process. Not evaluated for CRHR or Local Listing	**Within**
P-10-004725	Historic-era building	Wooden Walking Beam Pumping Unit	Determined eligible for NRHP by a consensus through Section 106 process. Listed in the CRHR.	Outside
P-10-004726	Historic-era structure	Coalinga Airport	Determined not eligible for NRHP by consensus through Section 106 process. Not evaluated for CRHR or Local Listing	Outside
P-10-004784	Historic-era building	740 East Polk Street	Determined not eligible for NRHP by consensus through Section 106 process. Not evaluated for CRHR or Local Listing	Outside
P-10-004785	Historic-era building	730 East Polk Street	Determined not eligible for NRHP by consensus through Section 106 process. Not evaluated for CRHR or Local Listing	Outside
P-10-004786	Historic-era building	Southeast Corner East Polk/Thompson Streets	Determined not eligible for NRHP by consensus through Section 106	Outside

Primary #	Type	Description	NRHP Eligibility Status	APE Relationship
			process. Not evaluated for CRHR or Local Listing	
P-10-004787	Historic-era building	712 East Polk Street	Determined not eligible for NRHP by consensus through Section 106 process. Not evaluated for CRHR or Local Listing	Outside
P-10-004788	Historic-era building	Coalinga 4th District Maintenance Yard Bungalow	Determined eligible for NRHP by a consensus through Section 106 process. Listed in the CRHR.	Outside
P-10-004789	Historic-era structure	Coalinga 4th District Maintenance Yard Gateway Arch	Determined eligible for NRHP by a consensus through Section 106 process. Listed in the CRHR.	Outside
P-10-005019	Historic-era building	720 East Polk Street		Outside
P-10-005403	Historic-era building	Coalinga Polk Street School	Determined not eligible for NRHP by consensus through Section 106 process. Not evaluated for CRHR or Local Listing	Outside
P-10-005595	Historic-era building	Old CDF Coalinga Fire Station	Individual property listed in NRHP by the Keeper. Listed in the CRHR	Outside
P-10-005769	Historic-era isolate	Historic-era refuse	Categorically not eligible	Outside
P-10-005771	Historic-era isolate	Historic-era refuse	Categorically not eligible	Outside
P-10-005772	Historic-era isolate	Historic-era refuse	Categorically not eligible	Outside
P-10-005830	Historic-era building	Coalinga Library Building	Recommended not eligible	Outside
P-10-005834	Historic-era site	Refuse scatter	Unknown	Outside
P-10-007414	Historic-era building	779 East Polk Street	Recommended not eligible	Outside

3.2 TRIBAL OUTREACH

As part of the CEQA process, a search of the Native American Heritage Commission (NAHC) Sacred Lands File was completed on May 9, 2024. Based on the NAHC records, the APE is negative for sacred sites or traditional cultural places. Outreach letters were sent on July 23, 2024, to tribal organizations on the NAHC contact list. Follow-up emails were sent on August 30, 2024. On August 12, 2024, Table Mountain Rancheria responded stating the Project was out of their area of interest. No other responses were received as a result of this outreach. NAHC requests, NAHC results, Tribal outreach letters, and Tribal responses can be found in Confidential Appendix B.

4. METHODS AND RESULTS

4.1 FIELD METHODS

The Class III inventory/Phase I survey of the Project APE was conducted from August to September 2024. ASM Associate Archaeologist Robert Azpitarte, BA, conducted the survey with assistance from Assistant Archaeologist Margarita Medina Lemus, BA. Parallel survey transects spaced at maximum intervals of 15 meters (m) apart were employed for pedestrian survey. The Class III inventory/Phase I survey included a review of the Project APE for the presence of built environment features. The field methods employed also included intensive pedestrian examination of the ground surface for evidence of archaeological sites in the form of artifacts, surface features (such as bedrock mortars or historical mining equipment), and archaeological indicators (e.g., organically enriched midden soil or burnt animal bone); the identification and location of any discovered sites, should they be present; tabulation and recording of surface diagnostic artifacts; site sketch mapping; preliminary evaluation of site integrity; and site recording, following the California Office of Historic Preservation (OHP) Instructions for Recording Historic Resources using California Department of Parks and Recreation (DPR) 523 forms. Parallel survey transects spaced at maximum intervals of 15 m. apart were employed for pedestrian survey of the 174.7 ac. Project APE.

4.2 SURVEY RESULTS

4.2.1 Archaeological Results

The proposed Project APE consists of improvements to The Coalinga Wastewater Treatment Plant (WWTP APE), constructed in 1963, and its associated pipelines throughout the city of Coalinga (Pipelines APE). The Project APE outside of the water WWTP consists largely of paved roads (Figure 13 and Figure 14). As such, the vast majority of the APE has been hardscaped over. Within the water treatment facility, the majority of the APE was developed over (Figure 15 and Figure 16). Visibility within the WWTP outside of developed areas was excellent (over 95 percent) due to recent disturbance of the soil (Figure 18). Non-native vegetation inhibited visibility in undeveloped areas. A diffuse refuse scatter (WWTP-SITE-1) was observed on the northwestern edge of the existing aerator ponds in the WWTP APE. This resource is described below. No other archaeological resources were observed within the Project APE.

Figure 13. Project APE overview along Van Ness Street, facing east.

Figure 14. Project APE overview along Cherry Lane, facing west.

Figure 15. WWTP APE infrastructure overview, facing east.

Figure 16. WWTP APE infrastructure overview, facing northwest.

Figure 17. Northwestern WWTP APE overview, facing southwest.

WWTP-SITE-1

The refuse concentration consists of a glass and ceramic scatter located along the northwestern edges of the existing aerator ponds. The scatter measures 1,016 ft. in length and 20 ft. in width and is entirely contained within the sloped pond embankment. Refuse was not identified in other areas of the WWTP. At least 3,000 highly fragmented pieces of assorted glass, including solarized amethyst glass, and dishware fragments were observed. Identified makers marks include Maywood glass (MARK) and Owens-Illinois (MARK)

Evaluation

The AIMS-R evaluation matrix defined in Section 2.5.3 serves as a useful rubric for evaluating historic-era archaeological sites.

Using the AIMS-R evaluation matrix for historic-era sites, the sites can be assessed for NRHP and CRHR eligibility as follows:

1. *Association* – WWTP-SITE-1 is ubiquitous throughout the region and lacks any clear social association. While it may be possible to associate a refuse scatter with an activity type, they lack clear association to any specific individual, and it is often unclear whether they are associated with domestic use or instead resulted from illicit dumping by residents of nearby towns. The only WWTP-SITE-1 is with the structural

WWTP features they are found near. These features themselves have no distinguishable association with any specific individual or group. WWTP-SITE-1 therefore does not have research potential as an individual site due to the lack of a social or functional associative context.

2. *Integrity* – WWTP-SITE-1 includes materials of mixed ages from the early to mid-twentieth century, without an associative context. Although identifiable materials such as bottle bases and ceramic sherds were recorded, many of the artifacts present are very fragmentary and thus lacking in integrity of design, workmanship, or setting.

3. *Materials* – WWTP-SITE-1 has a range in the variety of materials present, but overall the assemblage displays a limited diversity of artifact types that are ubiquitous throughout the region, most of which are mass-produced consumer goods.

4. *Stratigraphy* – Though stratigraphy is possible in historic-era refuse scatters, specifically when a privy is present, WWTP-SITE-1 is a surficial scatter which precludes stratigraphic development.

5. *Rarity* – No rare or unusual features/feature types were identified.

Based on the information above, WWTP-SITE-1 lacks association with important known historical events (Criterion A/CRHR Criterion 1) or individuals (Criterion B/CRHR Criterion 2) and does not represent a distinctive example of structural types or works of master craftsmen (Criterion C/CRHR Criterion 3). In addition, WWTP-SITE-1 lacks research potential beyond its recordation here (NRHP Criterion D/CRHR Criterion 4). Therefore, WWTP-SITE-1 is recommended as not NRHP/CRHR eligible.

Southern Pacific Railroad (P-10-003930)

Research revealed that a segment of the Southern Pacific Railroad (P-10-003930) is located within the Pipeline APE. The Southern Pacific Railroad extended northeast-southwest through the City of Coalinga (reference Confidential Appendix A), between the present streets of Glenn Avenue and Forest Avenue.

Segments of the Southern Pacific Railroad (P-10-003930) have previously been evaluated, and the resource has previously been recommended not eligible for listing in the NRHP or CRHR (Asselin and Baloian 2016; Jones et al. 2018; Schultz and Vanderslice 2007). In addition, the segment of the Southern Pacific Railroad (P-10-003930) that extends through the Pipeline APE has been determined not eligible by consensus through Section 106 process.

An October 2026 survey of the APE revealed no extant features of this resource, and all potentially associated features have been destroyed. The resource is a ruin whereby all the materials of the resource have been removed or deteriorated to the point that it cannot convey physical associations to any identified themes. As such, ASM agrees with the previous evaluations of the resource and no DPR update was completed for this resource.

Figure 18. WWTP-SITE-1 overview, facing north.

Figure 19. WWTP-SITE-1 refuse scatter.

4.2.2 Built Environment Results

Coalinga Wastewater Treatment Plant

Coalinga WWTP is located immediately adjacent to Los Gatos Creek on the north and Warthan Creek on the west and measures 3,100 ft. (east-west) by 920 ft. (north-south).

The WWTP currently consists of four buildings and two primary structures: an operations building, an animal shelter building, a primary pump station building, a shed building, a digester structure, and a primary clarifier structure. It also retains additional secondary resources related to the process of waste treatment, including two aerated lagoons and three stabilization ponds to the east, a sludge bed to the immediate northeast of the plant site, and three sludge beds on the west. Two modern shipping containers, placed in the 2010s, are also within the WWTP APE.

Coalinga Wastewater Treatment Plant Historic District

ASM investigated the potential for a historic district associated with the operations of the Coalinga WWTP. The Coalinga WWTP first appears in a 1944 topographic map of the area labeled as a sewage plant, and 1940 historic aerial photographs show a structure and water basin in the area. By 1951, population growth spurred the incorporation of the City of Coalinga and prompted infrastructure improvements for higher capacity that led to a complete modernization and expansion of what is now the Coalinga WWTP in 1963. This first plant expansion included the Operations Building (Building 1), the Digester and Clarifier tanks (Structures 1 and 2 respectively), and the addition of a large body of water to the east of the plant site that conformed to pre-existing natural topographic configurations from Los Gatos Creek. These buildings and structures were modernized and improved in 1979, when the site was expanded again. This second expansion led to the reconfiguration of the large body of water to the east of the plant site, where three stabilization ponds and two aerated lagoons were added, likely to meet environmental standards. There were few improvements or additions until 1991, when a new primary pump station was constructed (Building 3) and the other buildings and structures were modernized as part of a third expansion, which also included the addition of a sludge-drying bed to the northeast of the plant site.[4]

Based on the statewide historic context of WWTP prepared by JRP (2023) and the local historic context, ASM identified the period of significance (POS) for a potential Coalinga WWTP historic district. Although the presence of the sewage plant was recorded in the area as early as 1940, the contemporary configuration of the site was first constructed in 1963. Research did not reveal any buildings or structures within the plant older than 1963. The second recorded improvements to the site occurred in circa 1979, when some of the buildings and structures within the plant site were modernized to reflect environmental standards, and the area to the east of the plant site was expanded with the construction of additional resources of ponds and lagoons. The third expansion continued modernization of the plant with construction of new buildings and structures in 1991. As such, the potential period of significance of the site as an example of a mid-century wastewater

[4] First plant expansion: 1963; Second plant expansion: 1979; and third plant expansion: 1991.

treatment plant in California begins in 1963, with the construction of the initial buildings and structures that support the incorporated City of Coalinga, and ends in 1979, when it was confirmed via drawings that lagoons and ponds were reconfigured from the existing body of water to the east and expanded the plant's capacity.

According to the JRP (2023) report, wastewater treatment plants are an identified property type. This resource notes that while modern plants "include secondary treatment with trickling filters or activated sludge tanks," older plants "offer only primary treatment, using clarifiers to decrease the quantity of the suspended matter" (JRP 2023: 223). Coalinga WWTP operated under standard conditions and then was modernized to meet contemporary standards during the POS.

ASM then considered the boundary of the potential Coalinga WWTP historic district. To determine the boundary, ASM referenced the 1967 and 1971 historic aerial photographs of the plant site and the contemporary placement of fencing surrounding the plant site. The original plant site from the POS retained a sludge-drying bed directly to the north of the plant site that was removed in the 1991 expansion of the plant. Additionally, during the POS, a lagoon or body of water was extant to the east of the plant site and was likely related to the operations of the Coalinga WWTP. However, this body of water was modified in the c.1979 expansion of the plant. Therefore, the boundaries of the potential historic district that best reflect the extant resources from the POS are the historic boundaries of the plant site (Figures 20 and 21).

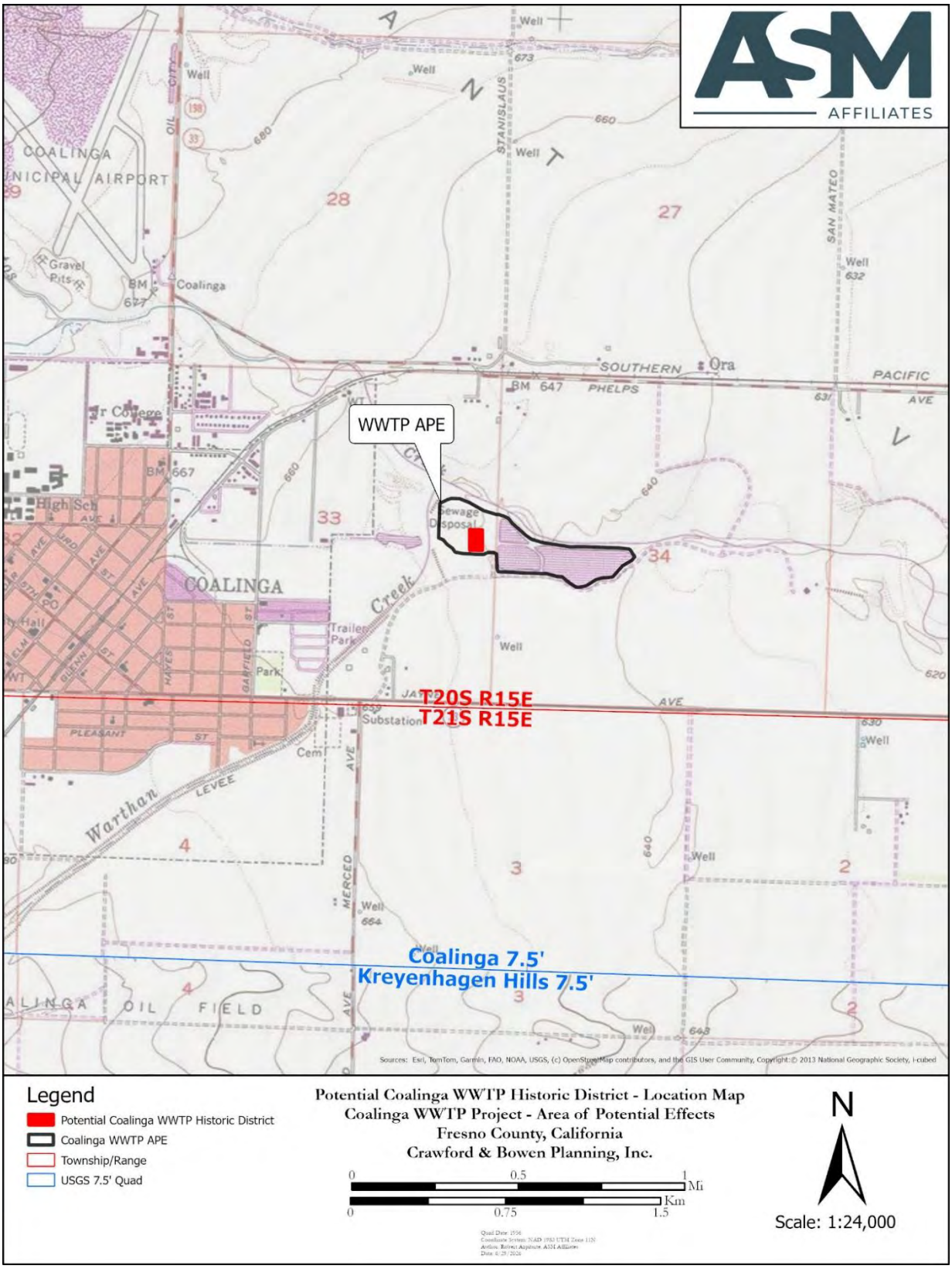

Figure 20. Location Map of Coalinga WWTP APE and potential WWTP historic district boundary

Figure 21. Aerial map that identifies the components of the Coalinga WWTP and the potential WWTP historic district boundary.

Within the boundaries of the potential Coalinga WWTP historic district are several potential contributors. The buildings and structures that could potentially contribute to the potential Coalinga WWTP historic district are the Operations Building (Building 1), the Digester (Structure 1), and the primary clarifier (Structure 2). These buildings and structures were identified as potential contributors as they were constructed within the period of significance and directly contribute to the operations of the Coalinga WWTP.

One other building, the Animal Shelter Building (Building 2), was constructed during the period of significance within the boundary of the potential Coalinga WWTP historic district. However, this building is not a potential contributor as research did not reveal that it directly contributed to the operations of the Coalinga WWTP, and it likely only played a secondary or supporting role to the function of the plant. One other building, the Primary Pump Station (Building 3), was constructed within the boundary of the potential Coalinga WWTP historic district but is not a contributing resource as it was constructed outside of the POS. The various machinery and equipment present within the potential district boundaries, particularly the equipment related to the raw sewage influent located to the southwest of the clarifier, were installed outside of the POS and are therefore non-contributors. An additional building that was likely associated with the Coalinga WWTP was identified, the Shed Building (Building 4), but it is located outside of the potential district boundaries and was constructed outside of the POS and is therefore not considered a contributor. The two aerated lagoons and two stabilization ponds to the east of the plant site, the sludge-drying bed to the northeast of the plant site, and three sludge drying beds to the west of the plant site were all constructed after the POS, and therefore none are considered contributors.

ASM then considered whether the potential Coalinga WWTP historic district is eligible under any NRHP or CRHR considerations. Because wastewater treatment plants are an identified property type as defined by JRP (2023), ASM referenced and followed the evaluation procedures in that report to determine whether the potential historic district retained any historic significance.

ASM first considered whether the potential Coalinga WWTP historic district is eligible under NRHP/CRHR Criterion A/1. The JRP (2023) report notes that a district may be eligible under this criterion if it had “historic importance above and beyond fulfilling its ordinary role,” if it “introduced or proved the efficiency of an important new technology…public health measure, environmental treatment standard,” if it was “closely associated with the creation of a type of political organization,” or finally if it was “the clearly identified focus of important social or political conflicts” (JRP 2023:253). ASM referenced local newspapers and other primary and secondary sources for information regarding the reception of the 1963 modernization and expansion of the Coalinga WWTP. The expansion was popular amid the City of Coalinga and within Fresno County because the improved infrastructure could support greater development within the city and support agricultural growth at a time when the population of the city and county were expanding. Because the impetus of the 1963 modernization was to accommodate for growth, and because the modernization that occurred appears to be standard across California wastewater treatment plants, it does not appear to have retained historic importance beyond its ordinary role and did not introduce any new technology. While the plant was updated in later years to meet environmental standards, these updates appear to be standard, and research did not reveal that the Coalinga WWTP was an important site for the testing or implementation of any new technology.

ASM did not find any reference to political or social conflicts associated with the plant. As such, the Coalinga WWTP appears to be the result of standard mid-century modernization of wastewater treatment plants in California. Therefore, ASM recommends that the potential Coalinga WWTP historic district is not eligible for listing in the NRHP/CRHR under Criterion A/1.

ASM then considered whether the potential Coalinga WWTP historic district is eligible for listing in the NRHP/CRHR under Criterion B/2. Research did not reveal that an individual of historic importance was associated with the Coalinga WWTP. The JRP (2023) report notes that "wastewater systems do not commonly have strong, direct association with single individuals" (JRP 2023:256). This statement applies to the Coalinga WWTP as no specific individual was identified in any announcements related to the plant, nor did research reveal that a specific individual important to the history of the state or nation was directly associated with the Coalinga WWTP. As such, ASM recommends that the potential Coalinga WWTP historic district is not eligible for listing in the NRHP/CRHR under Criterion B/2.

ASM then considered whether the Coalinga WWTP historic district is eligible for listing in the NRHP/CRHR under Criterion C/3. The JRP (2023) report notes that a wastewater treatment plant may be historically significant if it is the "earliest, best preserved, or a rare surviving example of its type," if it "introduced a design innovation," or finally if it "represents a transition between different expressions of the property type" (JRP 2023:256). Because the Coalinga WWTP was completely re-constructed, reconfigured, and modernized in 1963, performs standard operations associated with waste management, and replaced an earlier sewage plant, it is not the earliest, best preserved, nor a rare surviving example of its type. Research did not reveal that the Coalinga WWTP introduced any new design innovations. It appears to have undergone standard mid-century modernization with no reference to unique or new design innovations in relation to the operations and practices of the plant. Based on the historic context of wastewater management in California (JRP 2023), the Coalinga WWTP reflects period appropriate wastewater management practices and does not appear to represent a transition period. The buildings and structures that were constructed within the POS (the operations building, the digester, and the clarifier) represent standard operating practices for the mid-century, and the previous buildings and structures from the earlier decades of the twentieth century that the Coalinga WWTP replaced were removed entirely. Therefore, ASM recommends that the potential Coalinga WWTP historic district is not eligible for listing in the NRHP/CRHR under Criterion C/3.

Finally, the potential Coalinga WWTP historic district includes several buildings and structures that reflect common designs and whose function, use, design, and construction are readily apparent and therefore do not have the potential to provide information about history or prehistory that is not available through historic research. Therefore, ASM recommends that the potential Coalinga WWTP historic district is not eligible for listing in the NRHP/CRHR under Criterion D/4.

In conclusion, the potential Coalinga WWTP historic district does not meet any of the NRHP/CRHR eligibility criteria; therefore, ASM recommends that the potential Coalinga WWTP historic district is not eligible as a historic district associated with the Coalinga WWTP.

Operations Building (Building 1)

The Operations Building was constructed in 1963, which was represented on the USGS (1963) topographic map, and confirmed on the 1967 historic aerial photograph of the area. The 1979 plans labeled the building as both an existing pumphouse and existing utility building and discussed proposed modifications for the building as part of the site expansion. By 1990, this building became known as an operations building.

Before the site expansions that occurred in 1991, this building served as the primary operations building for the site. This is reflected in the plaque that was placed on the building in 1964 when the Coalinga Sewer Plant was dedicated to the City of Coalinga after construction in 1963. This building likely replaced a smaller pump house that once supported the smaller sewer plant before the 1963 expansion. This building continued to provide sole support as the primary building associated with the sewer plant until the plant expanded again in 1991 and more support buildings were constructed. The JRP (2023) report identifies the Operations Building as most closely resembling the Control Building property type element. This building type is described as retaining a "control console that automates plant monitoring and operations," and may include additional support structures such as "vehicle garages, workshops, and storage warehouses" (JRP 2023:230).

An October 2024 survey of the site revealed that the building is one-story and square, features a flat roof, and corrugated metal siding on all façades. The primary façade faces east, and features a covered porch, an entry area composed of two flat, metal doors, and a plaque commemorating the dedication of the building. The extending roof that creates the covered entry area is supported by three equidistant metal beams. The primary entrance doors are on the southern side of the wall, and a row of windows between the top of the entry doors and the roofline provide both light and ventilation into the interior space. Metal screens that appear to have since been added to the windows obscure the materials of the windows in this area. The area under the covered entry area is composed of poured concrete.

The side façade facing north retains the corrugated metal siding and provides additional entrance points into the interior of the building. One entrance point is slightly recessed and features a single flat, metal door. The other entrance point is not recessed; however, it features an extended porch roof covering that provides shade, and double flat, metal doors that appear to have ventilation paneling in the lower half of the door. The side façade facing south also retains the corrugated metal siding but no further architectural details or features beyond the presence of an outdoor lighting fixture and a generator. The rear façade similarly features no architectural details or fixtures beyond the continued use of corrugated metal siding and a utility box that appears to be associated with the nearby equipment (Figures 22–26).

ASM considered whether the Operations Building is individually eligible under any NRHP/CRHR criteria. Because the Operations Building is an identified property type element associated with Waste Treatment Plants as defined by JRP in their 2023 report, ASM referenced and followed the evaluation procedures stipulated in that report in order to determine the historic significance of the building.

Figure 22. Building One, the Operations Building. Primary façade, view toward east.

Figure 23. Building One, the Operations Building. Side and primary façade, view toward southwest.

Figure 24. Building One, the Operations Building. Rear façade, view toward west.

Figure 25. Building One, the Operations Building. Side and primary façade, view toward northeast.

Figure 26. Detail of the plaque on the primary façade of Building One, the Operations Building.

ASM first considered whether the Operations Building is eligible for listing in the NRHP/CRHR under Criterion A/1. The JRP (2023) historic context notes that an individual feature may be eligible under this criterion if it had "historic importance above and beyond fulfilling its ordinary role," if it "introduced or proved the efficiency of an important new technology…public health measure, environmental treatment standard," if it was "closely associated with the creation of a type of political organization" or finally if it was "the clearly identified focus of important social or political conflicts" (JRP 2023:253). Research did not reveal that the Operations Building and its associated role in the wastewater management of the City of Coalinga was associated with the introduction of any new technology, public health measure, or environmental standard. Research additionally did not reveal that the construction and the use of the Operations Building and its associated role in wastewater management was associated with any political organization, nor was it ever a focus of important social or political conflicts. Because eligibility under this Criterion requires that the building must be an important example of a specific trend or theme related to the above described qualifications, the Operations Building does not qualify as historically significant under this criterion. Furthermore, although the building was modernized and was associated with the expansion of the plant, the expansion and modernization did not introduce any new services nor fundamentally change the nature of the municipal water system. Although the Operations Building was constructed as a result of modernization and expansion, the JRP (2023) report notes that "the construction of new, modern infrastructure is a routine function of municipal public

service departments to account for population growth" (JRP 2023:254). This seems to be the case with the construction of the Operations Building in 1963, which replaced an older pump house building. Therefore, ASM does not recommend the Operations Building individually eligible for listing in the NRHP/CRHR under Criterion A/1.

ASM then considered whether the Operations Building is individually significant under NRHP/CRHR Criterion B/2. Research did not reveal that an individual of historic importance was associated with the Operations Building. The JRP (2023) historic context notes that "wastewater systems do not commonly have strong, direct association with single individuals" (JRP 2023:255). This is the case for the Operations Building, and therefore ASM does not recommend the Operations Building is individually eligible for listing in NRHP/CRHR under Criterion B/2.

ASM then considered whether the Operations Building is individually significant under NRHP/CRHR Criterion C/3. The JRP (2023) historic context notes that an individual feature may be historically significant if it is the "earliest, best preserved, or a rare surviving example of its type," if it "introduced a design innovation," or finally if it "represents a transition between different expressions of the property type" element (JRP 2023:256). Because the operations building was constructed in 1963, performs standard operations associated with waste management, and replaced a previous building that likely performed a similar function, it is not the earliest, best preserved, nor a rare surviving example of its type. The building is of utilitarian construction, performs standard operations, and therefore did not introduce any design innovations. Finally, research did not reveal a transition between different expressions of the Operations Building property type element. In comparison to other examples of operations/control buildings in California, the Operations Building associated with this plant retains minimal uses in comparison to others that also retain administration offices and/or laboratory testing spaces, and it did not introduce any new technologies or innovations. Finally, the Operations Building was not associated with a master architect or engineer and is of utilitarian design. Because the JRP (2023) report provides several examples of other Operations/Control buildings that were constructed with the influence of architectural styles such as Spanish Revival style, Neoclassical style, and Art Deco style, the Operations Building retains no significance of design in comparison. The JRP (2023) report notes that property type elements such as Operations Buildings "perform routine functions that remain consistent across treatment eras" and were "constructed using common designs and materials for their era" and are therefore "unlikely to be significant for their engineering" (JRP 2023:258). This appears to be the case for the Operations Building, as research did not reveal any significant feats of engineering associated with the use and operations of the Operation Building. Therefore, ASM does not recommend the Operations Building individually eligible under NRHP/CRHR Criterion C/3.

Finally, the Operations Building is a common property type element that does not have the potential to provide information about history or prehistory that is not available through historic research. Therefore, ASM recommends the property not individually eligible under NRHP/CRHR Criterion D/4.

In conclusion, the Operations Building is recommended not individually eligible under any NRHP/CRHR criteria.

Animal Shelter (Building 2)

The Animal Shelter Building is first visible in the 1967 historic aerial photograph of the area. However, it appears to have historically been a minor support building and was not depicted on any of the USGS topographic maps. It was likely constructed in tandem or in near proximity to the Operations Building and, therefore, received a circa 1963 construction date. The 1979 preliminary plans refer to the building as an animal shelter. Brief research revealed that other cities within Fresno County routinely established animal shelters within the vicinity of sewage plants; however, research could not confirm that to be the case in this instance beyond the notation in the preliminary plans. Additionally, this building was not drawn, noted, nor labeled in the 1990 drawings of the Sewage Plant expansion.

An September 2024 survey of the site revealed that the building is one-story and rectangular, features a shed roof, and has concrete block walls on all sides. The primary façade faces west toward the entrance of the plant, facing a concrete pathway that leads up to a paved driveway/parking area in the vicinity of a tree. The shed roof was constructed to slope down toward the south, the edge of the plant area, and away from the concrete pad along the primary façade. The roof is composed of asphalt shingle. The primary entrance to the building is located along the primary façade and features a centered flat, metal door. Some replacement siding appears to have been installed just below the roof, as the siding materials in this section appear to be a type of metal, wood, or synthetic covering. One side of the building faces north toward a storage container that was placed in the 2010s. This side retains few notable architectural features beyond the continued use of concrete block walls that have since been modified with attached wood plank along the bottom portion of the wall, likely in response to leaks or damage. The extending eaves of the roof are visible along this side and are composed of wood and feature wood rafters. This side additionally faces a poured concrete slab with a drain on the westernmost side.

The rear of the building features no architectural features of note beyond the continued use of concrete-block building materials for the walls and replaced wood siding in the under-eave. The poured concrete extends over to this side of the building as well. The side of the building that faces south toward the chain link fence similarly retains few architectural features beyond one rectangular, centered window that appears to be the only feature that provides natural light and ventilation into the interior of the building (Figures 27–30).

Figure 27. Building Two, the Animal Shelter Building. Rear and side façade, view toward southwest.

Figure 28. Building Two, the Animal Shelter Building. Rear and side façade, view toward northwest.

Figure 29. Building Two, the Animal Shelter Building. View of concrete pad and pathway. View toward east.

Figure 30. Building Two, the Animal Shelter Building. Primary façade, view toward east.

ASM considered whether the Animal Shelter Building is individually eligible for listing in the NRHP or CRHR under any criteria. This building was not an identified property type within the JRP (2023) historic context, and research did not reveal that this building provided direct or indirect support for the operations of the plant. Therefore, it was evaluated under the standard NRHP and CRHR regulatory contexts.

ASM first considered whether the Animal Shelter Building is individually eligible for listing in the NRHP/CRHR under Criterion A/1. ASM considered whether the Animal Shelter Building was associated with a specific event marking an important moment in the history of Coalinga or was associated with a pattern of events that made a significant contribution to the development of Coalinga. Research did not reveal that the Animal Shelter Building was associated with any significant historical events. Its association with the waste management plant appears to be historically minimal as it was not represented in the various drawings and plans of the plant. Research did not reveal that, as an animal shelter, it was notable, such as the first to be constructed in the area, or the first of its type. Therefore, because the Animal Shelter Building did not contribute to the history or development of Coalinga, ASM recommends the Animal Shelter Building is not individually eligible for listing in the NRHP/CRHR under Criterion A/1.

Research did not reveal that the Animal Shelter Building is associated with any historically significant individuals. It is therefore recommended not individually eligible for listing in the NRHP/CRHR under Criterion B/2.

ASM then assessed whether the Animal Shelter Building embodies distinctive characteristics of a type, period, or method of construction, or represents the work of a master. The Animal Shelter Building is primarily utilitarian and, as a result, retains no reference to any specific architectural styles and retains minimal examples of design. Research did not reveal that any type of Animal Shelter Building was identified as particularly important to the history of Coalinga. It also did not reveal that there are elements of construction of the Animal Shelter Building that are unique to Coalinga or utilize local resources. Research additionally did not reveal that a master architect or builder was associated with the construction, design, or development of the building. As such, ASM recommends the Animal Shelter Building is not individually eligible for listing in the NRHP/CRHR under Criterion C/3.

Finally, the Animal Shelter Building is a common property type that does not have the potential to provide information about history or prehistory that is not available through historic research. Therefore, ASM recommends the property is not individually eligible for listing in the NRHP/CRHR under Criterion D/4.

In conclusion, ASM recommends that the Animal Shelter Building is not individually eligible for listing in the NRHP/CRHR under any criteria.

Primary Pump Station (Building 3)

The Primary Pump Station building is first visible on a 1994 historic aerial photograph and is documented in the 1990 Wastewater Treatment Plant Primary Treatment Rehabilitation drawings. This building was constructed in 1991 as a result of the expansion that occurred on the site and replaced the Operations Building as the primary pump building within the plant.

Details from the 1990 Primary Treatment Rehabilitation drawings reveal that the majority of the building is subterranean, with stairs that lead to the lower level (referred to in the drawings as the "pit"). These drawings additionally detail that the building retains a poured concrete foundation, the roof features plywood sheathing and pre-engineered wood roof trusses covered by metal roofing panels, and metal siding along all sides.

An October 2024 survey of the site revealed that little has changed since the 1990 drawings of the building were completed. The Primary Pump Station features a metal, front gabled, roof with vertically oriented corrugated metal siding on all sides. The primary façade faces west and retains a subterranean entrance, the only entrance into the building. Along the primary façade and the rear façade are ventilation panels in the under-gable, also composed of metal. Because this building is largely subterranean, stairs were constructed along the primary facade of the building that provide access from the ground level to the subterranean entrance. These stairs are composed of concrete and feature a metal handrail.

The rear of the building features an additional vent that is covered by metal grating. The side of the building facing south does not have any design features. The side facing north faces a large shipping container that was added after its construction and which now obscures the view of the side of the building (Figures 31–33).

Figure 31. Building Three, the Primary Pump Station. Rear and side façade, view toward northwest.

Figure 32. Building Three, the Primary Pump Station. Primary and side façade, view toward northeast.

Figure 33. Building Three, the Primary Pump Station. Rear façade, view toward west.

Given that this building was likely constructed in 1991, ASM considered whether the Primary Pump Station demonstrates exceptional historical significance for eligibility for listing in the NRHP/CRHR. For the NRHP, ASM applied Criterion Consideration G for properties that are less than 50 years old but demonstrate they possess exceptional significance. Because the Primary Pump Station is an identified property type associated with Waste Treatment Plants as defined by JRP (2023), ASM followed the evaluation procedures in that document to determine the historic significance of the building.

ASM first considered whether the Primary Pump Station meets NRHP/CRHR Criterion A/1. The JRP (2023) historic context notes that an individual feature may be eligible under this criterion if it had "historic importance above and beyond fulfilling its ordinary role," if it "introduced or proved the efficiency of an important new technology…public health measure, environmental treatment standard," if it was "closely associated with the creation of a type of political organization" or finally if it was "the clearly identified focus of important social or political conflicts" (JRP 2023:253). Research did not reveal that the Primary Pump Station and its associated role in the wastewater management of the City of Coalinga was associated with the introduction of any new technology, public health measure, or environmental standard. Research additionally did not reveal that the construction and the use of the Primary Pump Station and its associated role in wastewater management was associated with any political organization, nor was it ever a focus of important social or political conflicts. Because eligibility under this Criterion requires that the building must be an important example of a specific trend or theme related to the qualifications described above, the Primary Pump Station does not qualify as historically significant under this criterion. Furthermore, although the building was associated with the expansion of the plant, the expansion did not introduce any new services nor fundamentally change

the nature of the municipal water system. Although the Primary Pump Station was constructed as a result of expansion, the JRP (2023) report notes that "the construction of new, modern infrastructure is a routine function of municipal public service departments to account for population growth" (JRP 2023:254). This seems to be the case with the construction of the Primary Pump Station in 1991, which replaced the Operations Building as the building primarily associated with the pumping that occurred on the site. Therefore, ASM recommends that the Primary Pump Station is not individually eligible for listing in the NRHP/CRHR under Criterion A/1.

ASM then considered whether the Primary Pump Station meets NRHP/CRHR Criterion B/2. Research did not reveal that an individual of historic importance was associated with the Primary Pump Station. The JRP (2023) historic context notes that individual "wastewater systems do not commonly have strong, direct association with single individuals" (JRP 2023:255). That statement applies to the Primary Pump Station, and, therefore, ASM recommends that the Primary Pump is not individually eligible for listing in the NRHP/CRHR under Criterion B/2.

ASM then considered whether the Primary Pump Station meets NRHP/CRHR Criterion C/3. The JRP (2023) historic context notes that an individual feature may be historically significant if it is the "earliest, best preserved, or a rare surviving example of its type," if it "introduced a design innovation," or finally if it "represents a transition between different expressions of the property type element" (JRP 2023:256). Because the Primary Pump Station was constructed in 1991, performs standard operations associated with waste management, and replaced a previous building that likely performed a similar function, it is not the earliest, best preserved, nor a rare surviving example of its type. The building is of utilitarian construction, performs standard operations, and, therefore, did not introduce any design innovations. Finally, research did not reveal a transition between different expressions of the Primary Pump Station property type. Finally, the Primary Pump Station was not associated with a master architect or engineer and is a utilitarian design. The JRP (2023) historic context notes that property types such as the Primary Pump Station "perform routine functions that remain consistent across treatment eras" and were "constructed using common designs and materials for their era" and are therefore "unlikely to be significant for their engineering" (JRP 2023:258). Research did not reveal any significant feats of engineering associated with the use and operations of the Primary Pump Station. Therefore, ASM recommends that the Primary Pump Station is not individually eligible for listing in the NRHP/CRHR under Criterion C/3.

Finally, the Primary Pump Station is a common property type element that does not have the potential to provide information about history or prehistory that is not available through historic research. Therefore, ASM recommends that the Primary Pump Station is not individually eligible for listing in the NRHP/CRHR under Criterion D/4.

Given that the Primary Pump Station does not meet any NRHP criteria and is not exceptionally important, ASM recommends that the Primary Pump Station is not individually eligible for listing in the NRHP under NRHP Criteria Consideration G. The Primary Pump Station does not meet any CRHR criteria and is not exceptionally important; therefore, ASM recommends that the Primary Pump Station is recommended not individually eligible for listing in the CRHR under any criteria.

Shed Building (Building 4)

The Shed Building was first visible in the 1994 historic aerial photograph of the area, and it was not noted in the 1990 Wastewater Treatment Plant Primary Treatment Rehabilitation drawings. Presently, it appears to act as a large storage unit for the equipment associated with the site and was likely constructed in 1991 as part of the site expansion.

Because this building was not identified in the plans of 1990 Wastewater Treatment Plant drawings, it likely played a supporting role in the function of the site. Due to its open nature and lack of walls, this building likely provided shelter for the equipment associated with the site during its construction and operation.

An September 2024 survey of the site revealed that the building is one story and rectangular, features a front-gabled, metal roof and no walls with the exception of the rear. The rear side façade faces east toward the wastewater treatment plant and is composed of concrete block with the under-gable composed of vertically oriented corrugated metal siding. Along the sides of the building are wooden poles that support the roof. Wood roof trusses support the corrugated metal roof and wood-plank siding along the edge of the roof along all four sides.

The primary façade of the building faces west with a chain-link fence and gate that limits access to the building to this side only. The primary façade features only the chain-link gated entrance and the corrugated metal under-gable, while the rear façade features only the concrete block wall and the corrugated metal under-gable. The rear façade also includes metered equipment with associated pipes/wires attached along the bottom of the wood truss roof (Figures 34–37).

Given that this building was likely constructed in 1991, ASM considered whether the Shed Building demonstrates exceptional historical significance for eligibility for listing in the NRHP/CRHR. For the NRHP, ASM applied Criterion Consideration G. This building was not an identified property type within the JRP (2023) report and research did not reveal direct or indirect support of the operations of the plant. Therefore, it was evaluated under the standard NRHP and CRHR regulatory contexts.

ASM first considered whether the Shed Building is individually eligible for listing in the NRHP/CRHR under Criterion A/1. ASM considered whether the Shed Building was associated with a specific event marking an important moment in the history of Coalinga or was associated with a pattern of events that made a significant contribution to the development of Coalinga. Research did not reveal that the Shed Building was associated with any significant historical events. Its association with the waste management plant appears to be historically minimal as it was not represented in the various drawings and plans of the plant. Research did not reveal that, as a storage shed, it was notable, the first to be constructed in the area, or the first of its type. Therefore, because the Shed Building did not significantly contribute to the history or development of Coalinga, ASM recommends that the Shed Building is not individually eligible for listing in the NRHP/CRHR under Criterion A/1.

Research did not reveal that the Shed Building is associated with any historically significant individuals. It is therefore recommended not individually eligible for listing in the NRHP/CRHR under Criterion B/2.

ASM then assessed whether the Shed Building embodies distinctive characteristics of a type, period, or method of construction, or represents the work of a master. The Shed Building is primarily utilitarian and, as a result, retains no reference to any specific architectural styles and retains minimal design attributes. Research did not reveal that any type of shed building, or similar storage building, was identified as particularly important to the history of Coalinga, nor did it reveal that there are elements of construction of the Shed Building that are unique to Coalinga or utilize local resources. Research additionally did not reveal that a master architect or builder was associated with the construction, design, or development of the building. As such, ASM recommends the Shed Building is not individually eligible for listing in the NRHP/CRHR under Criterion C/3.

Finally, the Shed Building is a common property type element that does not have the potential to provide information about history or prehistory that is not available through historic research. Therefore, ASM recommends the property not individually eligible for listing in the NRHP/CRHR under Criterion D/4.

Figure 34. Building Four, the Shed. View toward south.

Figure 35. Building Four, the Shed. Rear façade, view toward southwest.

Figure 36. Building Four, the Shed. Primary façade, view toward northeast.

Figure 37. Building Four, the Shed. Detail of interior.

Given that the Shed Building does not meet any NRHP criteria and is not exceptionally important, ASM recommends that the Primary Pump Station is not individually eligible for listing in the NRHP under NRHP Criteria Consideration G. The Shed Building does not meet any CRHR criteria and is not exceptionally important; therefore, ASM recommends that the Shed Building is recommended not individually eligible for listing in the CRHR under any criteria.

Digester (Structure 1)

The digester tank is first visible in a 1967 historic aerial photograph and is represented on a USGS topographic map beginning in 1967. This structure was likely constructed as part of the expansion of the site in 1963 and is therefore given a circa 1963 construction date. The 1979 plans labeled the structure as a digester with plans to abandon the structure in place. By the 1990 drawings, this structure was still referred to as a digester.

Within the JRP (2023) report, a digester most closely resembles the sludge digestion property type. This building type is described as part of a "treatment chain [that] continues to process the sludge collected from the clarifiers and filters" and requires a "sealed container" in order to achieve sludge digestion. The context notes that "circular digestion tanks with floating metal lids are common," which the Coalinga Digester reflects (JRP 2023: 229).

The digester is a large concrete tank that presently does not appear to have a top, nor has been filled according to aerial imagery. An September 2024 survey of the site revealed that the majority of the equipment associated with the tank is located on the north side, facing the Operations Building. This includes two pumps with a large pipe connecting the pumps to the interior of the tank, two boxes of staggered heights that are connected to pipes that connect to the inside of the tank as well as the outside, and a set of metal stairs that allow access to the interior of the tank from the top. No further architectural or design details were noted (Figures 38–40).

ASM then considered whether the Digester is individually eligible under any NRHP or CRHR criteria. Because the Digester is an identified property type associated with Waste Treatment Plants as defined by JRP (2023), ASM followed the evaluation procedures in the report to determine the historic significance of the building.

Figure 38. Structure One, Digester Tank. View toward northwest. Building Four visible in background.

Figure 39. Structure One, Digester Tank. View toward southwest.

Figure 40. Structure One, Digester Tank. View toward southeast.

ASM first considered whether the Digester is eligible for listing in the NRHP/CRHR under Criterion A/1. The JRP (2023) report notes that an individual feature may be eligible under this criterion if it had "historic importance above and beyond fulfilling its ordinary role," if it "introduced or proved the efficiency of an important new technology…public health measure, environmental treatment standard," if it was "closely associated with the creation of a type of political organization," or finally if it was "the clearly identified focus of important social or political conflicts" (JRP 2023:253). Research did not reveal that the Digester and its associated role in the wastewater management of the City of Coalinga was associated with the introduction of any new technology, public health measure, or environmental standard. Research additionally did not reveal that the construction and the use of the Digester and its associated role in wastewater management was associated with any political organization, nor was it ever a focus of important social or political conflicts. Because eligibility under this Criterion requires that the building must be an important example of a specific trend or theme related to the qualifications described above, the Digester does not qualify as historically significant under this criterion. Furthermore, although the building was modernized and was associated with the expansion of the plant, the expansion and modernization did not introduce any new services nor fundamentally change the nature of the municipal water system. Although the Digester was constructed as a result of modernization and expansion, the JRP (2023) report notes that "the construction of new, modern infrastructure is a routine function of municipal public service departments to account for population growth" (JRP 2023:254). This seems to be the case with the construction of the Digester in 1963, which was constructed to accommodate the population growth of Coalinga in the mid-century. Therefore, ASM recommends that the Digester is not individually eligible for listing in the NRHP/CRHR under Criterion A/1.

ASM then considered whether the Digester is eligible for listing in the NRHP/CRHR under Criterion B/2. Research did not reveal that an individual of historic importance was associated with the Digester. The JRP (2023) report notes that "wastewater systems do not commonly have strong, direct association with single individuals" (JRP 2023:255). This statement applies to the Digester, and therefore ASM recommends that the Digester is not individually eligible for listing in the NRHP/CRHR under Criterion B/2.

ASM then considered whether the Digester is eligible for listing in the NRHP/CRHR under Criterion C/3. The JRP (2023) notes that an individual feature may be historically significant if it is the "earliest, best preserved, or a rare surviving example of its type," if it "introduced a design innovation," or finally if it "represents a transition between different expressions of the property type element" (JRP 2023:256). Because the Digester was constructed in 1963 and performs standard operations associated with waste management, it is not the earliest, best preserved, nor a rare surviving example of its type. The building is utilitarian, performs standard operations, and therefore does not represent any design innovations. Research did not reveal a transition between different expressions of the Digester property type. Finally, the Digester was not associated with a master architect or engineer. The JRP (2023) report notes that property types such as digesters "perform routine functions that remain consistent across treatment eras" and were "constructed using common designs and materials for their era" and are therefore "unlikely to be significant for their engineering" (JRP 2023:258). This statement applies to the Digester, as research did not reveal any significant feats of engineering associated with the use and operations of the Digester.

Therefore, ASM recommends that the Digester is not individually eligible for listing in the NRHP/CRHR under Criterion C/3.

Finally, the Digester is a common property type element that does not have the potential to provide information about history or prehistory that is not available through historic research. Therefore, ASM recommends the Digester is not individually eligible for listing in the NRHP/CRHR under Criterion D/4.

In conclusion, ASM recommends that the Digester is not individually eligible for listing in the NRHP/CRHR under any criteria.

Primary Clarifier (Structure 2)

The primary clarifier is first visible in a 1967 historic aerial photograph, and it is represented in a USGS topographic map beginning in 1967. This structure was likely constructed as part of the expansion of the site in 1963 and is therefore given a circa 1963 construction date. The 1979 plans labeled the structure a clarifier with a note of plans to abandon the structure in place. According to the 1990 drawings, this structure was still extant and was labeled as a clarifier.

The JRP (2023) report defines a clarifier as a property type that "serves to calm the influent" and "[hold] it without agitation for a period of several hours." Clarifiers are described as "often the largest structures at a treatment plant" where older examples of clarifiers "favored circular form from 20 to 200 feet in diameter" while modern tanks "are more commonly rectangular" (JRP 2023: 225).

An September 2024 survey of the site revealed that the clarifier is largely subterranean, with only small portions of the concrete exterior visible above the ground. During the survey, water was noted at the top of the structure. A metal fence was constructed all around the structure, with a single opening allowing access to the central equipment facing south toward the Operations Building. Poured concrete steps support the walkway, as the ground rises in the southern area of the facility to meet the grading of the site, obscuring portions of the small surrounding concrete exterior. The stairwell leads to a metal catwalk over the clarifier to the center, which retains various equipment associated with the use of the structure. (Figures 41–42).

Additional equipment associated with the clarifier was placed to the southwest of the structure and west of the entrance to the catwalk. This equipment was likely placed during the second expansion of the plant, as it appears for the first time in historic aerial photographs between 1981 and 1994, and was depicted in the 1990 drawings of the plant labeled "headworks."

ASM considered whether the Clarifier is individually eligible for listing in the NRHP/CRHR under any criteria. Because the Clarifier is an identified property type associated with Waste Treatment Plants as defined by JRP (2023), ASM followed the evaluation procedures in that report to determine the historic significance of the building.

Figure 41. Structure Two, Clarifier Tank. View toward southeast.

Figure 42. Structure Two, Clarifier Tank. View toward north. Structure One visible in background.

ASM first considered whether the Clarifier is eligible for listing in the NRHP/CRHR under Criterion A/1. The JRP (2023) report notes that an individual feature may be eligible under this criterion if it had "historic importance above and beyond fulfilling is [sic] ordinary role," if it "introduced or proved the efficiency of an important new technology…public health measure, environmental treatment standard," if it was "closely associated with the creation of a type of political organization," or finally if it was "the clearly identified focus of important social or political conflicts" (JRP 2023:253). Research did not reveal that the Clarifier and its associated role in the wastewater management of the City of Coalinga was associated with the introduction of any new technology, public health measure, or environmental standard. Research did not reveal that the construction and the use of the Clarifier and its associated role in wastewater management was associated with any political organization, nor was it ever a focus of important social or political conflicts. Because eligibility under this Criterion requires that the building be an important example of a specific trend or theme related to the qualifications described above, the Clarifier does not qualify as historically significant under this criterion. Furthermore, although the building was modernized and was associated with the expansion of the plant, the expansion and modernization did not introduce any new services nor fundamentally change the nature of the municipal water system. Although the Clarifier was constructed as a result of modernization and expansion, the historic context notes that "the construction of new, modern infrastructure is a routine function of municipal public service departments to account for population growth" (JRP 2023:254). This statement applies to the Clarifier, which was constructed to accommodate the population growth of Coalinga in the mid-century. Therefore, ASM recommends that the Clarifier is not individually eligible for listing in the NRHP/CRHR under Criterion A/1.

ASM then considered whether the Clarifier is individually eligible for listing in the NRHP/CRHR under Criterion B/2. Research did not reveal that an individual of historic importance was associated with the Clarifier. The JRP (2023) report notes that "wastewater systems do not commonly have strong, direct association with single individuals" (JRP 2023:255). This statement applies to the Clarifier. Therefore, ASM recommends that the Clarifier is not individually eligible for listing in the NRHP/CRHR under Criterion B/2.

ASM then considered whether the Clarifier is individually eligible for listing in the NRHP/CRHR under Criterion C/3. The JRP (2023) report notes that an individual feature may be historically significant if it is the "earliest, best preserved, or a rare surviving example of its type," if it "introduced a design innovation," or finally if it "represents a transition between different expressions of the property type element" (JRP 2023:256). Because the Clarifier was constructed in 1963 and performs standard operations associated with waste management, it is not the earliest, best preserved, nor a rare surviving example of its type. The building is utilitarian, performs standard operations, and therefore does not represent any design innovations. Research did not reveal a transition between different expressions of the Clarifier property type. Finally, the Clarifier was not associated with a master architect or engineer. The JRP (2023) report notes that property types such as Clarifiers "perform routine functions that remain consistent across treatment eras" and were "constructed using common designs and materials for their era" and are therefore "unlikely to be significant for their engineering" (JRP 2023:258). This statement appears to apply to the Clarifier, as research did not reveal any significant feats of engineering associated with the use and operations of the Clarifier. Therefore, ASM recommends that the Clarifier is not individually eligible for listing in the NRHP/CRHR and Criterion C/3.

Finally, the Clarifier is a common property type that does not have the potential to provide information about history or prehistory that is not available through historic research. Therefore, ASM recommends that the Clarifier is not individually eligible for listing in the NRHP/CRHR under Criterion D/4.

In conclusion, ASM recommends that the Clarifier is not individually eligible for listing in the NRHP/CRHR under any criteria.

Aerated Lagoons and Stabilization Ponds

Aerated lagoons and stabilization ponds are necessary components of wastewater treatment and management, and they are first visible as present to the east of the plant site in the 1967 historic aerial photograph (USDA 1967). Constructed abutting Los Gatos Creek, the body of water associated with the Coalinga WWTP in 1967 occupied the entire space to the east of the plant site as a singular body of water (with no islands or separators differentiating the areas). This was likely completed in tandem with the modernization and expansion of the plant site in 1963. The body of water to the east of the plant site remained unaltered until circa 1979 when the Coalinga WWTP expanded again. The 1979 plans of the site reveal an intention to separate the body of water into distinct parts of aerated lagoons and stabilization ponds. While the proposed plans reveal extensive changes that would eventually be reflected, the 1981 historic aerial photograph of the site reveal that the body of water at this point had been separated into three: the largest, easternmost part was the stabilization pond, the large, westernmost part was the aerated lagoon, and to the north was another aerated lagoon. The next available historic aerial photograph of 1994 reveals the aerated lagoons and stabilization ponds in their contemporary iteration of two stabilization ponds on the easternmost area, two aerated lagoons to the west of the ponds, and an additional stabilization pond to the north of the aerated lagoons. This is also reflected in the 1991 drawings of the Coalinga WWTP, which specified the flow of waste between the plant area, the stabilization ponds, and the aerated lagoons.

The aerated lagoons and stabilization ponds are surrounded by unpaved but leveled roads and pathways that provide access throughout the area. Natural rocks are located at the eastern ends of the stabilization ponds. The aerated lagoons and stabilization ponds both appear to have been dug into the earth, and the unpaved and leveled paths between the structures appear to be slightly raised.

While aerated lagoons and stabilization ponds are necessary components in the process of waste management systems, they were not recognized as a distinct property type in the JRP (2023) report. However, because research has revealed the extent to which they directly supported the operations of the plant site, ASM followed the evaluation procedures in the JRP (2023) report to determine the historic significance of the structures. For the NRHP, ASM applied Criterion Consideration G for properties that are less than 50 years old.

ASM first considered whether the aerated lagoon and the stabilization pond structures meet NRHP/CRHR Criterion A/1. The JRP (2023) historic context notes that an individual feature may be eligible under this criterion if it had “historic importance above and beyond fulfilling is [sic] ordinary role,” if it “introduced or proved the efficiency of an important new technology…public

health measure, environmental treatment standard," if it was "closely associated with the creation of a type of political organization," or finally if it was "the clearly identified focus of important social or political conflicts" (JRP 2023:253). Research did not reveal that the aerated lagoons nor the stabilization ponds and their associated role in the wastewater management of the City of Coalinga was associated with the introduction of any new technology, public health measure, or environmental standard. Research additionally did not reveal that the construction and the use of the aerated lagoons and stabilization ponds and their associated role in wastewater management was associated with any political organization, nor was it ever a focus of important social or political conflicts. Because eligibility under this Criterion requires that the structures must be important examples of a specific trend or theme related to the qualifications described above, the aerated lagoons and stabilization ponds do not qualify as historically significant under this criterion. Furthermore, although the structures were associated with the expansion of the plant, the expansion did not introduce any new services nor fundamentally change the nature of the municipal water system. Although the aerated lagoons and stabilization ponds were constructed as a result of expansion, the JRP (2023) report notes that "the construction of new, modern infrastructure is a routine function of municipal public service departments to account for population growth" (JRP 2023:254). This seems to be the case with the construction of the aerated lagoons and stabilization ponds in 1991, which replaced the previous iteration of the body of water that aided in the wastewater management of the site. Therefore, ASM recommends the aerated lagoons and stabilization ponds are not individually eligible for listing in the NRHP/CRHR under Criterion A/1.

ASM then considered whether the aerated lagoons and stabilization ponds meet NRHP/CRHR Criterion B/2. Research did not reveal that an individual of historic importance was associated with the aerated lagoons and stabilization ponds. The JRP (2023) report notes that individual "wastewater systems do not commonly have strong, direct association with single individuals" (JRP 2023:255). That statement applies to the aerated lagoons and stabilization ponds, and, therefore, ASM recommends that the aerated lagoons and stabilization ponds are not individually eligible for listing in the NRHP/CRHR under Criterion B/2.

ASM then considered whether the aerated lagoons and stabilization ponds meet NRHP/CRHR Criterion C/3. The JRP (2023) report notes that an individual feature may be historically significant if it is the "earliest, best preserved, or a rare surviving example of its type," if it "introduced a design innovation," or finally if it "represents a transition between different expressions of the property type element" (JRP 2023:256). Because the aerated lagoons and stabilization ponds were constructed in their present iteration in 1991, perform standard operations associated with wastewater management, and replaced a previous body of water that likely performed a similar function, it is not the earliest, best preserved, nor a rare surviving example of its type. The aerated lagoons and stabilization ponds are utilitarian, perform standard operations, and therefore did not introduce any design innovations. Finally, the aerated lagoons and stabilization ponds were not associated with a master architect or engineer. Research did not reveal any significant feats of engineering associated with the use and operations of the aerated lagoons and stabilization ponds. Therefore, ASM recommends that the Primary Pump Station is not individually eligible for listing in the NRHP/CRHR under Criterion C/3.

Finally, aerated lagoons and stabilization ponds are a common property type that do not have the potential to provide information about history or prehistory that is not available through historic research. Therefore, ASM recommends that the aerated lagoons and stabilization ponds are not individually eligible for listing in the NRHP/CRHR under Criterion D/4.

Given that the aerated lagoons and stabilization ponds do not meet any NRHP criteria and are not exceptionally important, ASM recommends that the aerated lagoons and stabilization ponds are not individually eligible for listing in the NRHP under NRHP Criteria Consideration G. The aerated lagoons and stabilization ponds do not meet any CRHR criteria and are not exceptionally important; therefore, ASM recommends that the aerated lagoons and stabilization ponds are recommended not individually eligible for listing in the CRHR under any criteria.

Sludge-Drying Beds

Sludge-drying beds are necessary components of wastewater management treatment and were part of the Coalinga WWTP plant site likely beginning in 1963 after the Coalinga WWTP expanded for the first time. The first sludge-drying beds were constructed directly to the north of the plant site, are first visible in the 1967 historic aerial photograph, and are noted in the 1979 drawings of the Coalinga WWTP. However, these sludge-drying beds appear to have been abandoned after the site expanded in 1991. Historic aerial photographs from 1994 and onward do not relay the presence of sludge, and contemporary aerial photographs reveal only the old boundaries of the sludge bed with no indication of any active use in any recent period. Further evidence that the sludge-drying beds were abandoned at this time is seen in the construction of new sludge-drying beds to the east and northeast of the plant site and directly adjacent to the old sludge-drying beds around the same time, circa 1991. These sludge-drying beds were expanded to the north in circa 2009, as visible in the differences between the 2009 historic aerial photograph and the 2010 historic aerial photograph. More sludge-drying beds were later constructed beginning in 2018 to the west of the plant site. These sludge-drying beds are longer and are more expansive than the previous sludge-drying beds (circa 1991), and were continuously improved through 2022 with the construction of 10 circular earthen pools at the southern end of the sludge-drying beds.

The JRP (2023) report defines a sludge-drying bed as a property type where the remaining sludge after digestion takes place and is “spread on a bed to dry” where, as it loses water, “comes to resemble thick, cracked mud,” and then is either sent to a landfill, an incinerator, or in some contemporary and historic cases sold as fertilizer. Research did not reveal how the Coalinga WWTP disposes of its sludge.

The circa 1991 sludge-drying beds to the east of the plant site are about 250 ft. long by 160 ft. wide all together and are visually divided into thirds by two walls. Within each walled area, historic and contemporary aerial photographs reveal different stages of sludge digestion, indicating that the sludge-drying beds were used systematically as needed rather than simultaneously.

The circa 2018 sludge-drying beds to the west of the plant site are about 575 ft. long and 475 ft. wide all together and are visually divided into thirds by two walls. Within each walled area, aerial photographs generally show the same stage of sludge digestion, indicating that the sludge-drying beds are in operation consistently and simultaneously. At the southern end of the sludge-drying

beds are 10 earthen circular pools that likely assist in the operation and function of the sludge-drying beds.

ASM considered whether the circa 1991 sludge-drying beds or the circa 2018 sludge-drying beds are individually eligible for listing in the NRHP/CRHR under any criteria. For the NRHP, ASM applied Criterion Consideration G for properties that are less than 50 years old. Because sludge-drying beds are an identified property type associated with WWTPs as defined by JRP (2023), ASM followed the evaluation procedures in the report to determine the historic significance of the structures.

ASM first considered whether the circa 1991 or circa 2018 sludge-drying beds meet NRHP/CRHR Criterion A/1. The JRP (2023) report notes that an individual feature may be eligible under this criterion if it had "historic importance above and beyond fulfilling is [sic] ordinary role," if it "introduced or proved the efficiency of an important new technology…public health measure, environmental treatment standard," if it was "closely associated with the creation of a type of political organization," or finally if it was "the clearly identified focus of important social or political conflicts" (JRP 2023: 253). Research did not reveal that the circa 1991 sludge-drying beds nor the circa 2018 sludge-drying beds and their associated role in the wastewater management of the City of Coalinga was associated with the introduction of any new technology, public health measure, or environmental standard. Research additionally did not reveal that the construction and the use of the circa 1991 sludge-drying beds nor the circa 2018 sludge-drying beds and their associated role in wastewater management was associated with any political organization, nor was it ever a focus of important social or political conflicts. Because eligibility under this criterion requires that the structures must be an important example of a specific trend or theme related to the qualifications described above, neither the circa 1991 sludge-drying beds nor the circa 2018 sludge-drying beds qualify as historically significant under this criterion. Furthermore, although the structures were associated with the expansion of the plant in different eras, neither expansion introduced any new services nor fundamentally changed the nature of the municipal water system. Although the circa 1991 sludge-drying beds and the circa 2018 sludge-drying beds were constructed as a result of expansion, the JRP (2023) report notes that "the construction of new, modern infrastructure is a routine function of municipal public service departments to account for population growth" (JRP 2023:254). This seems to be the case with the construction of both sludge-drying beds in circa 1991 and circa 2018, where the circa 1991 sludge drying beds replaced the original 1963 sludge drying beds, and the circa 2018 sludge-drying beds either replaced or greatly expanded the capacity of the sludge drying beds at the Coalinga WWTP. Therefore, ASM recommends that the circa 1991 sludge drying beds and the circa 2018 sludge-drying beds are not individually eligible for listing in the NRHP/CRHR under Criterion A/1.

ASM then considered whether the circa 1991 or the circa 2018 sludge-drying beds meet NRHP/CRHR Criterion B/2. Research did not reveal that an individual of historic importance was associated with Coalinga WWTP sludge-drying beds from any era. The JRP (2023) report notes that individual "wastewater systems do not commonly have strong, direct association with single individuals" (JRP 2023:255). That statement applies to the circa 1991 and circa 2018 sludge-drying beds, and therefore ASM recommends that the sludge-drying beds from both the circa 1991 and circa 2018 era are not individually eligible for listing in the NRHP/CRHR under Criterion B/2.

ASM then considered whether the circa 1991 or the circa 2018 sludge-drying beds meet NRHP/CRHR Criterion C/3. The JRP (2023) report notes that an individual feature may be historically significant if it is the "earliest, best preserved, or a rare surviving example of its type," if it "introduced a design innovation," or finally if it "represents a transition between different expressions of the property type element" (JRP 2023:256). Because the circa 1991 and the circa 2018 sludge-drying beds perform standard operations associated with waste management, and in the case of the circa 1991 sludge-drying beds replaced a previous structure that performed a similar function, it is not the earliest, best preserved, nor a rare surviving example of its type. Finally, the circa 1991 and the circa 2018 sludge-drying beds were not associated with a master architect or engineer. Research did not reveal any significant feats of engineering associated with the use and operations of either the circa 1991 nor the circa 2018 sludge-drying beds. Therefore, ASM recommends that the circa 1991 and the circa 2018 sludge-drying beds are not individually eligible for listing in the NRHP/CRHR under Criterion C/3.

Finally, sludge-drying beds are a common property type element that do not have the potential to provide information about history or prehistory that is not available through historic research. Therefore, ASM recommends that the circa 1991 and circa 2018 sludge-drying beds are not individually eligible for listing in the NRHP/CRHR under Criterion D/4.

Given that the circa 1991 and the circa 2018 sludge-drying beds do not meet any NRHP criteria and are not exceptionally important, ASM recommends that the sludge-drying beds are not individually eligible for listing in the NRHP under NRHP Criteria Consideration G. The sludge-drying beds do not meet any CRHR criteria and are not exceptionally important; therefore, ASM recommends that the circa 1991 and circa 2018 sludge-drying beds are recommended not individually eligible for listing in the CRHR under any criteria.

5. SUMMARY, ASSESSMENT OF EFFECTS, AND RECOMMENDATIONS

5.1 SUMMARY

A Class III inventory/Phase I survey was conducted for the Coalinga Sanitary Sewer Collection System and WWTP Improvements Project, Fresno County, California. A records search was conducted at the SSJVIC. This search indicated that the portions of the Project APE had been previously surveyed, and a single previously recorded cultural resource (P-10-003930) was observed within the Project APE; however, there are no extant features related to the resource within the current Project APE. An NAHC SLF search was conducted for the Project APE and the NAHC responded with negative SLF results. Geoarchaeological review of the project APE indicates that the pipeline portion of the APE is potentially likely to contain buried deposits; however, historic aerial and topographic map review indicates the APE has been heavily disturbed by development as far back as the mid-twentieth century.

A Class III inventory/Phase I survey fieldwork of the Project APE was conducted in August and September 2024, with parallel transects spaced at 15-m intervals. A single refuse scatter was observed along the northwestern edges of the existing aerator ponds. This refuse scatter was recommended not eligible for the NRHP/CRHR. No other archaeological resources of any kind were identified within the Project APE.

ASM considered the potential for a historic district associated the Coalinga WWTP with six primary buildings and structures, and additional ponds, lagoons, and sludge beds associated with the operations of Coalinga WWTP identified within the APE. ASM evaluated Coalinga WWTP for eligibility for listing in the NRHP/CRHR as a potential historic district and evaluated all buildings and structures associated with the WWTP within the APE. ASM recommended that a potential Coalinga WWTP historic district within the APE is not eligible for listing in the NRHP/CRHR under any criteria. ASM also recommended that none of the buildings, structures, lagoons, or ponds associated with the WWTP are individually eligible for listing in the NRHP/CRHR under any criteria.

Pipelines Associated with the Coalinga WWTP in the Pipelines APE

During the September 2024 survey, archeologists identified WWTP-Linear-1 as the only exposed linear feature as the rest of the underground pipelines were inaccessible. ASM was not tasked with evaluation of any pipeline or ditch within the Pipelines APE.

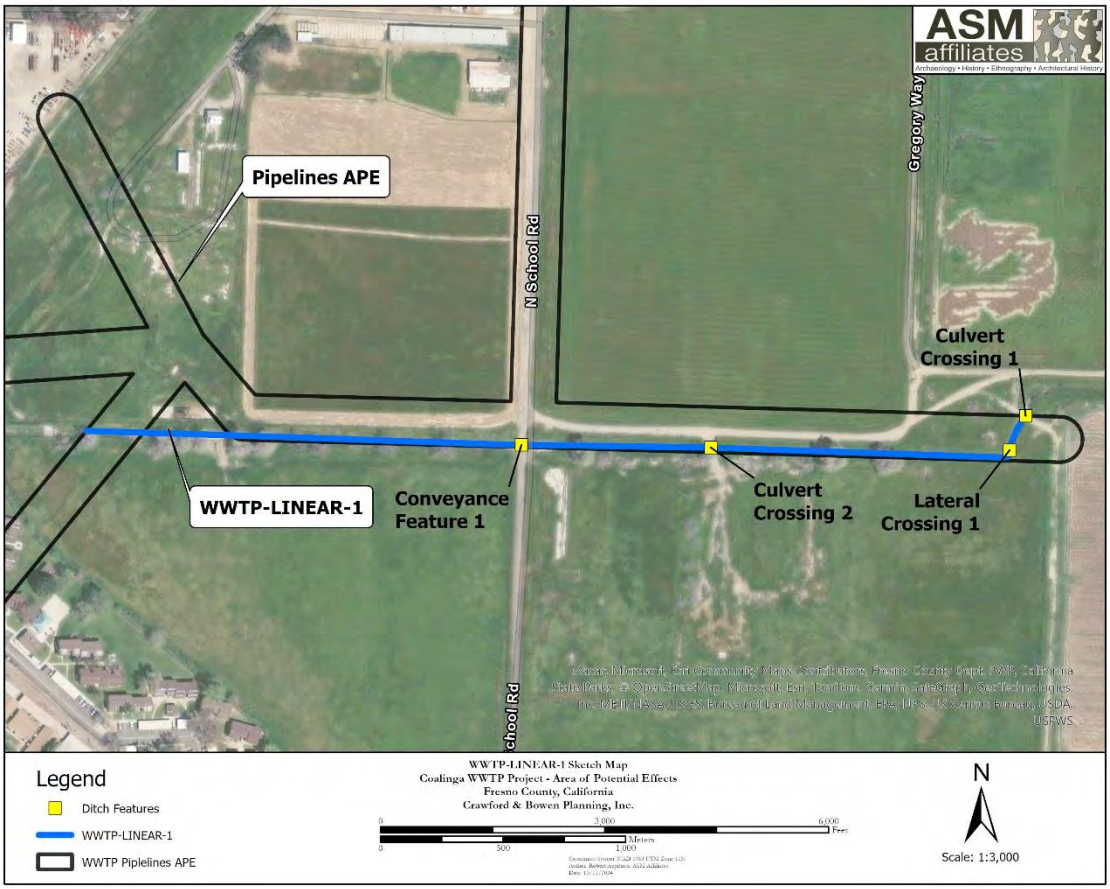

Figure 43. Showing exposed ditch feature within the Pipelines APE.

5.2 ASSESSMENT OF EFFECTS

A single previously recorded historic-era archaeological site and an unrecorded historic-era archaeological site and a historic-era built structure were recorded during the Class III inventory/Phase I survey. All 3 have been evaluated for eligibility to the NRHP/CRHR as a result of this study and previous studies and are recommended not eligible for inclusion in the NRHP/CRHR. As such, none of these resources are considered historic properties under NHPA nor historical resources under CEQA. and there will be no adverse effect or significant impact.

No cultural resources identified within the APE were recommended eligible for inclusion in the NRHP/CRHR under any criteria. Therefore, ASM recommends that there are no adverse effects or significant impacts as a result of the Project.

5.3 RECOMMENDATIONS

Based on the above analyses and findings, the proposed Coalinga Sanitary Sewer Collection System and WWTP Improvements Project will not result in adverse effects to historic properties

or significant impacts to historical resources. ASM recommends a determination of ***no adverse effect*** under Section 106 and ***no significant impact*** under CEQA. It is further recommended that, in the unlikely event that previously unrecorded cultural resources are identified during Project construction, work be halted within a 100-ft. radius of the find and a qualified archaeologist be contacted to evaluate the newly discovered resource.

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CONFIDENTIAL APPENDICES

STAFF REPORT - CITY COUNCIL/SUCCESSOR AGENCY/PUBLIC FINANCE AUTHORITY

Subject:	Check Register: 7/01/2026-7/31/2026
Meeting Date:	Thursday, September 3, 2026
From:	Sean Brewer, City Manager
Prepared by:	Yasmin Gonzalez, Financial Services Supervisor

I. RECOMMENDATION:

II. BACKGROUND:

III. DISCUSSION:

IV. ALTERNATIVES:

V. FISCAL IMPACT:

ATTACHMENTS:

File Name	Description
2026-07_Check_Register_Cover_Sheet_for_Council.pdf	Check Register Cover Sheet - July 2026
2026-07_Check_Register.pdf	Check Register - July 2026

CITY OF COALINGA
The Sunny Side of the Valley

CHECK REGISTER

COUNCIL MEETING OF
Thursday, September 3, 2026

EXPENSES: 7/1/2026 through 7/31/2026

ACCOUNTS PAYABLE:

Month Ending:	7/31/2026	Registers: # 81900- # 82137	**$**	**2,195,774.58**

PAYROLL:

Pay Period Ending:	6/28/2026	Payroll Check # 19119-19121	$	2,646.54
Pay Date:	7/3/2026	Direct Deposit	$	256,781.73
		Payroll Total:	**$**	**259,428.27**
Pay Period Ending:	7/12/2026	Payroll Check # 19122-19125	$	2,096.75
Pay Date:	7/17/2026	Direct Deposit	$	254,204.40
Separation:	7/17/2026	Payroll Check # 19126	$	1,413.37
		Payroll Total:	**$**	**257,714.52**
Pay Period Ending:	7/26/2026	Payroll Check # 19127-19130	$	2,732.36
Pay Date:	7/31/2026	Direct Deposit	$	264,945.95
		Payroll Total:	**$**	**267,678.31**

TOTAL CHECK REGISTERS THROUGH: 7/31/26 $ 2,980,595.68

City of Coalinga

Check Register
By Payment Number
Payment Dates 7/1/2026 - 7/31/2026

Payment Number	Payment Date / Payable Number	Vendor # / Description	Vendor Name	Account Number	Payment Amount / Item Amount
81900	7/1/2026	1220	COALINGA AREA CHAMBER OF COMMERCE		19,350.19
	0015935	6/26America's 250thAnniversaryCommunityCelebra		101-401-92081	19,350.19
81902	7/9/2026	03204	ADVANCED MONITORING, INC		240.00
	63417	7/26 Fire Alarm Monitoring		101-432-72030	240.00
81903	7/9/2026	1037	ALLIANT INSURANCE SERVICES		4,186.00
	3584807	7/26 Airport Insurance Premium Coverage		101-435-90010	4,186.00
81904	7/9/2026	02197	CD-DATA, INC.		5,997.00
	8846-6-2026	7/26 Parcel Quest Annual Subscription		101-404-86030	1,999.00
	8846-6-2026	7/26 Parcel Quest Annual Subscription		101-405-86030	1,999.00
	8846-6-2026	7/26 Parcel Quest Annual Subscription		501-406-86030	799.60
	8846-6-2026	7/26 Parcel Quest Annual Subscription		502-406-86030	699.65
	8846-6-2026	7/26 Parcel Quest Annual Subscription		503-406-86030	459.77
	8846-6-2026	7/26 Parcel Quest Annual Subscription		504-406-86030	39.98
81905	7/9/2026	1224	COALINGA HARDWARE		84.84
	842607	7/26 PW Rear Door Repair Sweeper		504-535-84060	55.87
	842614	7/26 PW Sweeper 89 Repairs		504-535-84060	28.97
81906	7/9/2026	02667	ENTERPRISE FM TRUST		1,312.18
	633289-070326	7/26 PD Chf/Commdr Vehicle Leases		101-413-98040	1,312.18
81907	7/9/2026	03109	ICHI PLAN, INC.		4,800.00
	1438	7/26 Bldg AI Plan Review		101-404-86030	4,800.00
81908	7/9/2026	1565	KRC SAFETY COMPANY, INC.		1,073.67
	74644	7/26 PW Speed Hump Sign & 10MPH Signs		107-422-70130	1,073.67
81909	7/9/2026	02554	PACE SUPPLY CORPORATION		378.39
	1911560834	7/26 PW Water Line Repair Clamps		501-508-70140	378.39
81910	7/9/2026	02586	PINNACLE PUBLIC FINANCE, INC.		153,780.30
	50713	7/26 Fire Equipment Lease Pmt #10		101-416-97061	153,000.00
	50713	7/26 Fire Equipment Lease Pmt #10		101-416-97062	780.30
81911	7/9/2026	02637	PTS COMMUNICATIONS, INC.		30.00
	2155124	7/01-7/31/26 Airport Payphone July 2026		101-435-72030	30.00
81912	7/9/2026	02637	PTS COMMUNICATIONS, INC.		100.00
	2155066	7/01-7/31/26 PD Telephones		101-413-72030	100.00
81913	7/9/2026	1804	SAN LUIS & DELTA-MENDOTA WATER AUTHORITY		59,968.00
	SLDMWA-AUG2026	7/26 August 2026 Water Estimate		501-503-80010	59,968.00
81914	7/9/2026	1810	SAVE MART SUPERMARKETS		28.92
	011868	7/26 PD Drinks		101-413-70440	28.92
81915	7/9/2026	03065	TOWNSEND PUBLIC AFFAIRS INC		5,000.00
	25522	7/26 Lobbying & Econ Development Svcs FY26/27		101-401-88100	500.00
	25522	7/26 Lobbying & Econ Development Svcs FY26/27		107-422-88100	750.00
	25522	7/26 Lobbying & Econ Development Svcs FY26/27		501-503-88100	750.00
	25522	7/26 Lobbying & Econ Development Svcs FY26/27		501-508-88100	750.00
	25522	7/26 Lobbying & Econ Development Svcs FY26/27		502-510-88100	750.00
	25522	7/26 Lobbying & Econ Development Svcs FY26/27		503-520-88100	750.00
	25522	7/26 Lobbying & Econ Development Svcs FY26/27		503-521-88100	750.00

Payment Number	Payment Date / Payable Number	Vendor # / Description	Vendor Name	Account Number	Payment Amount / Item Amount
81916	7/9/2026	02185	UNWIRED BROADBAND		901.97
	INV02761774	7/26 PW WiFi Services		501-503-72030	251.99
	INV02761774	7/26 PW WiFi Services		501-508-72030	166.67
	INV02761774	7/26 PW WiFi Services		502-510-72030	166.66
	INV02761774	7/26 PW WiFi Services		503-520-72030	149.99
	INV02761774	7/26 PW WiFi Services		503-521-72030	166.66
81917	7/9/2026	1962	US BANK		5,032.50
	8232216	6/26 RDA 2000 TAB Admin Services		820-610-96500	5,032.50
81918	7/9/2026	1944 CC	US BANK CORPORATE PAYMENT CENTER		100.00
	USB-FIN-JUN2026	(4246-0446-6395-4901) C. Estrada Training		101-406-86010	20.00
	USB-FIN-JUN2026	(4246-0446-6395-4901) C. Estrada Training		501-406-86010	30.00
	USB-FIN-JUN2026	(4246-0446-6395-4901) C. Estrada Training		502-406-86010	25.00
	USB-FIN-JUN2026	(4246-0446-6395-4901) C. Estrada Training		503-406-86010	19.00
	USB-FIN-JUN2026	(4246-0446-6395-4901) C. Estrada Training		504-406-86010	1.00
	USB-FIN-JUN2026	(4246-0446-6395-4901) C. Estrada Training		820-610-86010	5.00
81919	7/9/2026	1996	WESTLANDS WATER DISTRICT		1,481.11
	1037887	7/26 2026 Benefit Assessement		501-503-88100	1,481.11
81920	7/9/2026	1009	ABBEY DOOR SERVICES		5,640.00
	INV15069	6/26 New Garage Door for Hangar Airport		101-435-84050	5,640.00
81921	7/9/2026	1005	A-C ELECTRIC COMPANY		679.00
	65686	6/26 PW Street Light Service Forest/Polk		101-440-84077	679.00
81922	7/9/2026	02475	ALBERTO RAMIREZ		2,700.00
	0016048	6/26 City HallJanitorial Services		101-432-84030	2,200.00
	0016048	6/26 Council Chamber Janitorial Services		101-432-84030	75.00
	0016048	6/26 PW Janitorial Services		501-508-84030	141.67
	0016048	6/26 PW Janitorial Services		502-510-84030	141.66
	0016048	6/26 PW Janitorial Services		503-521-84030	141.67
81923	7/9/2026	02388	AMAZON CAPITAL SERVICES., INC		526.72
	11N7-CTJJ-77GN	6/26 PD Jail Cultery		101-413-70380	22.53
	IIN7-CTJJ-JW14	6/26 FD Binders		101-416-70010	39.22
	IIN7-CTJJ-JW14	6/26 FD Station Supplies		101-416-70450	10.34
	IIN7-CTJJ-JW14	6/26 FD Station Supplies		101-416-70450	54.86
	IIN7-CTJJ-JW14	6/26 FD Station Supplies		101-416-70450	37.26
	IIN7-CTJJ-JW14	6/26 FD Station Supplies		101-416-70450	45.37
	IIN7-CTJJ-JW14	6/26 FD Station Supplies		101-416-70450	17.12
	IIN7-CTJJ-JW14	6/26 FD Key Fob Case		101-416-84060	21.78
	IIN7-CTJJ-JW14	6/26 FD Ambulance Chargers		117-416-84060	29.10
	IIN7-CTJJ-JW14	6/26 FD Ambulance Chargers		117-416-84060	21.77
	IIN7-CTJJ-JW14	6/26 FD Ambulance Chargers		117-416-84060	7.01
	IPD4-YPYN-Y474	5/26 FD Label Maker Tape		101-416-70010	15.13
	IPD4-YPYN-Y474	5/26 FD Office Supplies		101-416-70010	33.63
	IPD4-YPYN-Y474	5/26 FD White Out		101-416-70010	10.89
	IPD4-YPYN-Y474	5/26 FD PPE- Earplugs		101-416-70102	26.14
	IPD4-YPYN-Y474	5/26 FD Station Supplies		101-416-70450	10.34
	IPD4-YPYN-Y474	5/26 FD Station Supplies		101-416-70450	20.95
	IPD4-YPYN-Y474	5/26 FD EMS Tablet Cases		117-416-75000	103.28
81925	7/9/2026	02386	AMERICAN OFFICE SOLUTIONS, LLC		450.00
	27125	6/26 PD Tech Support FY25/26		101-413-88040	450.00
81926	7/9/2026	02340	ANTONIO BASULTO		106.99
	0016057	6/26 FD A. Basulto Ambulance Meal Reimbursement		117-416-75010	106.99
81927	7/9/2026	02132	BADGER METER, INC.		2,465.79
	80242180	6/26 PW Cellular Service for Meters		501-508-98054	2,465.79

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81928	7/9/2026	1112	BILLINGSLEY TIRE SERVICE		1,876.48
	CLG-313855	6/26 PW Chipper Tire Repair		101-440-84060	15.00
	CLG-313855	6/26 PW Chipper Tire Repair		107-422-84060	15.00
	CLG-314131	6/26 PW Tires on Skidster		501-508-84060	296.23
	CLG-314131	6/26 PW Tires on Skidster		502-510-84060	296.23
	CLG-314131	6/26 PW Tires on Skidster		503-521-84060	296.23
	CLG-314358	6/26 PW AC Repair #22		501-508-84060	78.78
	CLG-314358	6/26 PW AC Repair #22		502-510-84060	78.78
	CLG-314358	6/26 PW AC Repair #22		503-521-84060	78.78
	CLG-314562	6/26 PD A/C Repair FY25/26		101-413-84060	361.50
	CLG-314612	6/26 WP New Tires		501-503-84060	299.95
	CLG-314849	6/26 WP Repair Tire for Truck #60		501-503-84060	30.00
	CLG-315129	6/26 PW Rent A Trailer Tire Repair		501-508-84060	30.00
81929	7/9/2026	03165	BIZON GROUP INC		81.15
	INV-470368	6/26 PD Late Fees FY25/26		101-413-84060	81.15
81930	7/9/2026	03040	BLUETRITON BRANDS INC		345.90
	06F8730097787	6/26 UtilitiesWater Delivery		501-503-72010	56.28
	06F8730097787	6/26 PW Water Delivery		502-510-70440	65.67
	06F8730097787	6/26 PW Water Delivery		503-521-70440	65.67
	06F8730275832	6/26 City Hall Water Delivery		101-432-72010	158.28
81931	7/9/2026	02020	BOOT BARN		131.51
	INV00623830	6/26 PW Boots- J. Sandoval		107-422-62080	13.15
	INV00623830	6/26 PW Boots- J. Sandoval		501-508-62080	52.60
	INV00623830	6/26 PW Boots- J. Sandoval		502-510-62080	52.61
	INV00623830	6/26 PW Boots- J. Sandoval		503-521-62080	13.15
81932	7/9/2026	02504	BRIAN CORLEY		6,163.32
	26-062501	6/26 WP Repair Security Lighting		501-503-84030	6,163.32
81933	7/9/2026	02296	BSK ASSOCIATES		1,223.75
	AJ15818	6/26 PW Outside Lab Work		501-503-88081	320.00
	AJ15818	6/26 PW Outside Lab Work		503-520-88080	903.75
81934	7/9/2026	02783	CALIFORNIA COMMERCIAL POOLS, INC.		203,917.50
	5	6/26 Payment for Splash Pad Pmt#5		101-000-10003	-10,732.50
	5	6/26 Payment for Splash Pad Pmt#5		101-440-98981	214,650.00
81935	7/9/2026	02530	CALIFORNIA INTERGOVERNMENTAL RISK AUTHORITY (CIRA)		5,475.06
	2803	6/26 PD W/C Claims (3) SIR-CIRA		101-413-62070	3,437.62
	2803	6/26 PD (2)W/C Claims SIR-PARASAC		101-413-62070	795.50
	2803	6/26 FD W/C Claims SIR-PARASAC		101-416-62070	24.00
	2803	6/26 FD W/C Claims (2) SIR-CIRA		101-416-62070	689.24
	2803	6/26 PW (2) W/C Claims SIR-CIRA		107-422-62070	32.54
	2803	6/26 Utilites (1)W/C Claims SIR-CIRA		501-503-62070	142.32
	2803	6/26 PW (2) W/C Claims SIR-CIRA		501-508-62070	130.15
	2803	6/26 PW (2) W/C Claims SIR-CIRA		502-510-62070	130.15
	2803	6/26 Utilites (1)W/C Claims SIR-CIRA		503-520-62070	61.00
	2803	6/26 PW (2) W/C Claims SIR-CIRA		503-521-62070	32.54
81936	7/9/2026	02101	CALIFORNIA STATE UNIVERSITY, FRESNO FOUNDATION		24,482.95
	57763	6/26 PYAP BSCC Fresno State Foundation		106-413-88100	24,482.95
81937	7/9/2026	02594	CINTAS CORPORATION #3		2,074.26
	4272729453	6/26 BLDG Employee Uniforms/Sanitary Supplies/M		101-404-70100	13.50
	4272729453	6/26SC Employee Uniforms/Sanitary Supplies/Mats		101-431-70100	45.63
	4272729453	6/26 ADM Employee Uniforms/Sanitary Supplies/M		101-432-84030	64.17
	4272729453	6/26 MG Employee Uniforms/Sanitary Supplies/Mat		101-440-70100	85.67
	4272729453	6/26 GT Employee Uniforms/Sanitary Supplies/Mats		107-422-70100	100.67
	4272729453	6/26 WTP Employee Uniforms/Sanitary Supplies/Ma		501-503-70100	58.85

Payment Number	Payment Date / Payable Number	Vendor # / Description	Vendor Name	Account Number	Payment Amount / Item Amount
	4272729453	6/26 WD Employee Uniforms/Sanitary Supplies/Mat		501-508-70100	100.67
	4272729453	6/26 MR Employee Uniforms/Sanitary Supplies/Mat		501-508-70100	23.33
	4272729453	6/26 GE Employee Uniforms/Sanitary Supplies/Mats		502-510-70100	100.67
	4272729453	6/26 MR Employee Uniforms/Sanitary Supplies/Mat		502-510-70100	23.33
	4272729453	6/26 WWTP Employee Uniforms/Sanitary Supplies/		503-520-70100	13.66
	4272729453	6/26WWC Employee Uniforms/Sanitary Supplies/Ma		503-521-70100	100.67
	4273465668	6/26 BLDG Employee Uniforms/Sanitary Supplies/M		101-404-70100	13.50
	4273465668	6/26 SC Employee Uniforms/Sanitary Supplies/Mats		101-431-70100	45.63
	4273465668	6/26 ADM Employee Uniforms/Sanitary Supplies/M		101-432-84030	64.17
	4273465668	6/26 MG Employee Uniforms/Sanitary Supplies/Mat		101-440-70100	85.67
	4273465668	6/26 GT Employee Uniforms/Sanitary Supplies/Mats		107-422-70100	57.48
	4273465668	6/26 WTP Employee Uniforms/Sanitary Supplies/Ma		501-503-70100	58.86
	4273465668	6/26 MR Employee Uniforms/Sanitary Supplies/Mat		501-508-70100	23.33
	4273465668	6/26 WD Employee Uniforms/Sanitary Supplies/Mat		501-508-70100	57.48
	4273465668	6/26 MR Employee Uniforms/Sanitary Supplies/Mat		502-510-70100	23.33
	4273465668	6/26 GE Employee Uniforms/Sanitary Supplies/Mats		502-510-70100	57.48
	4273465668	6/26 WWTP Employee Uniforms/Sanitary Supplies/		503-520-70100	13.66
	4273465668	6/26 WWC Employee Uniforms/Sanitary Supplies/M		503-521-70100	57.48
	4274248498	6/26 BLDG Employee Uniforms/Sanitary Supplies/M		101-404-70100	13.50
	4274248498	6/26 SC Employee Uniforms/Sanitary Supplies/Mats		101-431-70100	45.60
	4274248498	6/26 ADM Employee Uniforms/Sanitary Supplies/M		101-432-84030	271.10
	4274248498	6/26 MG Employee Uniforms/Sanitary Supplies/Mat		101-440-70100	85.68
	4274248498	6/26 GT Employee Uniforms/Sanitary Supplies/Mats		107-422-70100	57.43
	4274248498	6/26 WTP Employee Uniforms/Sanitary Supplies/Ma		501-503-70100	58.81
	4274248498	6/26 MR Employee Uniforms/Sanitary Supplies/Mat		501-508-70100	23.31
	4274248498	6/26 WD Employee Uniforms/Sanitary Supplies/Mat		501-508-70100	57.43
	4274248498	6/26 GE Employee Uniforms/Sanitary Supplies/Mats		502-510-70100	57.43
	4274248498	6/26 MR Employee Uniforms/Sanitary Supplies/Mat		502-510-70100	23.31
	4274248498	6/26 WWTP Employee Uniforms/Sanitary Supplies/		503-520-70100	13.66
	4274248498	6/26 WWC Employee Uniforms/Sanitary Supplies/M		503-521-70100	57.43
	4274248498	6/26 SS Employee Uniforms/Sanitary Supplies/Mats		504-535-70100	20.68
81940	7/9/2026	02598	CINTAS CORPORATION NO. 2		245.23
	5342226101	6/26 PW First Aid Kit		101-413-88100	127.13
	5342226101	6/26 PW First Aid Kit		101-432-84030	50.42
	5342226101	6/26 PW First Aid Kit		503-521-70440	67.68
81941	7/9/2026	1224	COALINGA HARDWARE		1,311.25
	842282	6/26 WP AC Filter		503-520-70140	45.70
	842312	6/26 PW Concrete Sewer Repair		503-521-70130	23.57
	842449	6/26 FD Ambulance Ram Mounts		117-416-84060	30.70
	842469	6/26 WP Bug Fogger		503-520-70140	17.06
	842473	6/26 WWP Fly Paper		503-520-70140	49.71
	842495	6/26 PW Concrete for Sign Poles		107-422-70130	117.87
	842496	6/26 PW Street Sweeper Rear Door Repair		504-535-84060	71.36
	842498	6/26 Building Dept. Parts		101-404-70060	23.80
	842540	6/26 PW Batteries for Pressure Gauges		501-508-70140	34.15
	842555	6/26 PW Painting Railing Gazebo		101-440-84050	129.19
	842599	6/26 WP Small Tools/ Misc Supplies		501-503-70060	384.07
	842599	6/26 WP Small Tools/ Misc Supplies		503-520-70060	384.07
81942	7/9/2026	02787	DATA TICKET, INC.		591.05
	192331	6/26 Code Enforcement FY 25/26		101-413-88100	231.05
	194828	6/26 PD Animal Control FY 25/26		101-413-88100	97.00
	194838	6/26 PYAP PD Code Enforcement		101-413-88100	263.00
81943	7/9/2026	1288	DEPARTMENT OF JUSTICE		280.00
	055650	6/26 PD BAC FY25/26		101-413-88080	280.00

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81944	7/9/2026	1292	DEPARTMENT OF TRANSPORTATION		2,299.05
	SL260708	6/26 Signals & Lighting (Jan-Mar2026)		110-424-72021	2,299.05
81945	7/9/2026	02736	FIREWORKS & STAGE FX AMERICA, LLC		12,248.00
	23623	6/26 Fireworks Display Final 50%		101-401-92081	12,100.00
	23623	6/26 Permit Fee		101-401-92081	148.00
81946	7/9/2026	02533	FLIGHT LIGHT, INC.		4,731.90
	0106499-IN	6/26 Airport Windsocks		101-435-84030	447.26
	0107037-IN	6/26 AirportTaxiway Lights		101-435-98040	4,284.64
81947	7/9/2026	02379	GEOTAB USA, INC.		368.25
	IN498153	6/26 PW GPS Sweepers/ UTVS		101-440-88100	59.25
	IN498153	6/26 PW GPS Sweepers/ UTVS		504-535-88100	39.50
	IN498189	6/26 FD June GeoTab		101-416-84060	269.50
81948	7/9/2026	1439	GOVERNMENT STAFFING SERVICES, INC.		5,302.50
	130745	6/26 MuniTemps HR Generalist- Cynthia Gallow		101-408-60010	3,022.43
	130745	6/26 MuniTemps HR Generalist- Cynthia Gallow		107-422-60010	106.05
	130745	6/26 MuniTemps HR Generalist- Cynthia Gallow		117-416-60010	689.33
	130745	6/26 MuniTemps HR Generalist- Cynthia Gallow		501-406-60010	106.05
	130745	6/26 MuniTemps HR Generalist- Cynthia Gallow		501-503-60010	318.15
	130745	6/26 MuniTemps HR Generalist- Cynthia Gallow		501-508-60010	265.13
	130745	6/26 MuniTemps HR Generalist- Cynthia Gallow		502-406-60010	106.05
	130745	6/26 MuniTemps HR Generalist- Cynthia Gallow		502-510-60010	265.13
	130745	6/26 MuniTemps HR Generalist- Cynthia Gallow		503-406-60010	79.50
	130745	6/26 MuniTemps HR Generalist- Cynthia Gallow		503-520-60010	159.08
	130745	6/26 MuniTemps HR Generalist- Cynthia Gallow		503-521-60010	79.54
	130745	6/26 MuniTemps HR Generalist- Cynthia Gallow		504-535-60010	53.03
	130745	6/26 MuniTemps HR Generalist- Cynthia Gallow		820-610-60010	53.03
81949	7/9/2026	02955	HAILEY CROSSWY		143.75
	0016058	6/26 FD H. Crosswy Meal Reimbursement		117-416-75010	143.75
81950	7/9/2026	02603	HBC ENTERPRISES		146,532.80
	#1	6/26 Payment for Splash Pad (#1)		101-000-10003	-7,712.25
	#1	6/26 Payment for Splash Pad (#1)		101-440-98981	154,245.05
81951	7/9/2026	02765	HCI SYSTEMS, INC.		1,730.00
	I0165300	6/26 PYAP Annual Fire Sprinkler Inspection		101-432-84071	865.00
	I0165300-2	6/26 PD Annual Fire Sprinkler Inspection		101-413-84030	865.00
81952	7/9/2026	02997	HERMAN WEISSKER INC		2,649.82
	230239A	6/26 PW Gas Leak on Valve Repair Attempt		502-510-88100	2,649.82
81953	7/9/2026	1474	HOME DEPOT CREDIT SERVICES		1,504.93
	1025207	2/26 PW Lumber and Lattice Privacy Fencing		101-440-84050	332.31
	4022432	2/26 PW Bleach, Soap, & Trash Bags		101-440-84050	130.57
	4022432	2/26 PW Bleach, Soap, & Trash Bags		501-508-70140	30.84
	4022432	2/26 PW Bleach, Soap, & Trash Bags		502-510-70060	30.84
	4022432	2/26 PW Bleach, Soap, & Trash Bags		503-521-70140	30.84
	554155	6/26 PW Shovels		501-508-70060	250.69
	554155	6/26 PW Shovels		502-510-70060	250.68
	8902637	2/26 PW Polypropylene Sand		501-508-70130	149.39
	8902637	2/26 PW Polypropylene Sand		502-510-70130	149.39
	8902637	2/26 PW Polypropylene Sand		503-521-70130	149.38
81954	7/9/2026	02977	JOHNSON UNITED, INC.		32,102.21
	44569	6/26 FD Sign- Final Payment		101-416-98040	32,102.21
81955	7/9/2026	1553	KELLER FORD		5,465.17
	50278666	6/26 FD M251 Parts		117-416-84060	5,465.17

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81956	7/9/2026	1565	KRC SAFETY COMPANY, INC.		469.53
	74102	6/26 PW No Parking Signs/Paper No Parking Sign		107-422-70130	469.53
81957	7/9/2026	1593	LIFE ASSIST, INC.		1,810.29
	2151154	6/26 FD Medical Supplies		117-416-75000	1,352.59
	2151676	6/26 FD Medical Supplies		117-416-75000	457.70
81958	7/9/2026	02570	LINDE GAS & EQUIPMENT		1,227.27
	57061358	6/26 FD Oxygen		117-416-75000	627.26
	57648372	6/26 FD Oxygen		117-416-75000	600.01
81959	7/9/2026	1659	MOTOROLA SOLUTIONS, INC.		93.10
	8230562080	6/26 PD Radios		101-413-88040	93.10
81960	7/9/2026	1661	MOUNTAIN VALLEY PEST CONTROL, INC.		110.00
	116648	6/26 PW Pest Control Services		503-521-84030	35.00
	116649	6/26 WTP Pest Control Services		501-503-84030	45.00
	116650	6/26 WP Pest Control Services		503-520-84030	30.00
81961	7/9/2026	1692	O'REILLY AUTOMOTIVE, INC.		3,965.73
	4316-0165208	6/26 FD M253 Parts		117-416-84060	306.87
	4316-165165	6/26 FD P172 Oil/Filters		101-416-84060	189.50
	4316-165167	6/26 FD P172 Parts		101-416-84060	36.18
	4316-165189	6/26 FD P172 Parts		101-416-84060	60.50
	4316-165206	6/26 FD P172 Battery		101-416-84060	119.55
	4316-165472	6/26 FD M251 Parts		117-416-84060	109.19
	4316-166035	6/26 FD M255 Parts		117-416-84060	98.11
	4316-166037	6/26 FD M255 Parts		117-416-84060	103.90
	4316-166066	6/26 PW Pliers/ Clamp Set		101-431-70060	27.94
	4316-166087	6/26 PD Vehicle USB Cable FY25/26		101-413-84060	13.07
	4316-166115	6/26 FD P172 Parts/Repairs		101-416-84060	2,487.40
	4316-166328	6/26 WP New V-Belt		503-520-70140	21.28
	4316-166489	6/26 FD M251 Parts		117-416-84060	67.55
	4316-166497	6/26 FD M251 Parts		117-416-84060	25.70
	4316-166580	6/26 FD U171 Oil/Filters		101-416-84060	91.54
	4316-166583	6/26 FD M257 Oil/Filter		117-416-84060	125.93
	4316-166598	6/26 FD C170 Oil/ Filters		101-416-84060	55.39
	4316-166668	6/26 PW Antifreeze for #87 Sweeper		504-535-84060	26.13
81963	7/9/2026	03035	OVERLAND PACIFIC & CUTLER LLC		1,030.57
	230168601-15	6/26 CMAQ NW Multi-Use Trails Seg1,2,13,14 R.O.W.		305-422-98974	1,030.57
81964	7/9/2026	1721	PG&E		25.32
	0015937	6/26 PD Elm/Cambridge Plaza(2751740765-9) FY25/		101-413-72020	25.32
81965	7/9/2026	1721	PG&E		779.02
	0016062	5/29-6/26/26 PYAP FramePark 5120357172-7		101-440-72011	779.02
81966	7/9/2026	02664	PHILLIPS ELECTRIC, LLC		820.80
	INV0958	6/26 New Tv Outlet - Mai's Office		101-432-84030	820.80
81967	7/9/2026	02985	PRECISION CIVIL ENGINEERING		9,245.00
	34103	6/26 Outdoor Food Court		101-404-98025	6,800.00
	34117	6/26 Hwy 33 Jayne Ave Fairgrounds Fesibility Study		101-404-88100	2,445.00
81968	7/9/2026	02496	PRECISION EMPRISE, LLC		40,000.00
	56784	6/26 Sidewalk Repair		109-424-98987	40,000.00
81969	7/9/2026	02726	PRICE PAIGE & COMPANY, CERTIFIED PUBLIC ACCOUNTANTS, LLP		9,469.00
	39105	6/26 FY 25/26 Account Revamps		101-406-88030	5,053.40
	39105	6/26 FY 25/26 Account Revamps		101-406-88030	47.77
	39105	6/26 FY 25/26 Account Revamps		107-422-88030	14.05
	39105	6/26 FY 25/26 Account Revamps		501-406-88030	81.49

Payment Number	Payment Date / Payable Number	Vendor # / Description	Vendor Name	Account Number	Payment Amount / Item Amount
	39105	6/26 FY 25/26 Account Revamps		501-406-88030	1,837.60
	39105	6/26 FY 25/26 Account Revamps		502-406-88030	70.25
	39105	6/26 FY 25/26 Account Revamps		502-406-88030	918.80
	39105	6/26 FY 25/26 Account Revamps		503-406-88030	1,286.32
	39105	6/26 FY 25/26 Account Revamps		503-406-88030	53.39
	39105	6/26 FY 25/26 Account Revamps		504-406-88030	91.88
	39105	6/26 FY 25/26 Account Revamps		504-406-88030	2.81
	39105	6/26 FY 25/26 Account Revamps		820-610-88030	11.24
81970	7/9/2026	02318	QUADIENT FINANCE USA, INC.		1,300.00
	0016056	6/26 FIN Dept. Postage Purchased		501-406-70030	520.00
	0016056	6/26 FIN Dept. Postage Purchased		502-406-70030	455.00
	0016056	6/26 FIN Dept. Postage Purchased		503-406-70030	299.00
	0016056	6/26 FIN Dept. Postage Purchased		504-406-70030	26.00
81971	7/9/2026	1755	RAUL HERRERA		250.00
	COALFD-JUNE03-20	6/26 FD Polygraphs T. Perea		101-408-89050	150.00
	COALFD-JUNE03-20	6/26 FD Polygraphs T. Perea		117-416-89050	100.00
81972	7/9/2026	02695	ROSS RECREATION EQUIPMENT COMPANY, INC.		14,325.38
	I29971	6/26 Ramsey Park Table/ Receptacles		101-440-98981	14,325.38
81973	7/9/2026	1804	SAN LUIS & DELTA-MENDOTA WATER AUTHORITY		42,652.24
	0016050	6/26 PYAP June 2026 Adjustment		501-503-80010	-56,220.00
	0016050	6/26 PYAP June 2026 Adjustment		501-503-80010	98,872.24
81974	7/9/2026	1821	SELF HELP ENTERPRISES		3,909.11
	COL20PLHA 6/22/20	6/26 PLHA Grant Admin Cost May 2026		306-422-88106	3,909.11
81975	7/9/2026	1825	SHANNON JENSEN		91.64
	0016049	6/26 Election Training Mileage Reimbursement 50%		101-401-86010	45.82
	0016049	6/26 Election Training Mileage Reimbursement 50%		101-405-86010	45.82
81976	7/9/2026	03161	SKYWORX DRONE SHOWS, LLC		30,000.00
	1416	6/26 Drone Show 2026 4th of July Event Final 50%		101-401-92081	30,000.00
81977	7/9/2026	03038	SUPERIOR STORAGE TANKS & TRAILERS		55,665.35
	12690	6/26 4000-Gallon Double Wall Tank 50%		101-000-08900	55,665.35
81978	7/9/2026	02846	T-MOBILE USA INC		1,045.25
	0015936	559-307-0113 MDT		101-413-72030	31.50
	0015936	559-307-0116 MDT		101-413-72030	31.50
	0015936	559-307-0114 MDT		101-413-72030	31.50
	0015936	559-307-0115 MDT		101-413-72030	31.50
	0015936	559-974-4689 Dispatch Back up		101-413-72030	44.42
	0015936	559-307-0118 MDT		101-413-72030	31.50
	0015936	559-307-01119 MDT		101-413-72030	31.50
	0015936	559-690-4692 Young		101-413-72030	35.36
	0015936	559-341-7512 Arroyo- Phone		101-413-72030	40.21
	0015936	559-446-5369 Seese- Phone		101-413-72030	40.21
	0015936	559-307-0117 MDT		101-413-72030	31.50
	0015936	559-307-0112 MDT		101-413-72030	31.50
	0015936	559-307-0106 MDT		101-413-72030	31.50
	0015936	559-307-0108 MDT		101-413-72030	31.50
	0015936	559-307-0107 MDT		101-413-72030	31.50
	0015936	559-974-6734 Kaiser- Phone		101-413-72030	44.42
	0015936	559-307-0105 MDT		101-413-72030	31.50
	0015936	559-307-0104 MDT		101-413-72030	31.50
	0015936	559-307-0103 MDT		101-413-72030	31.50
	0015936	559-307-0102 MDT		101-413-72030	31.50
	0015936	559-307-0101 MDT		101-413-72030	31.50
	0015936	559-307-0100 MDT		101-413-72030	31.50

Payment Number	Payment Date / Payable Number	Vendor # / Description	Vendor Name	Account Number	Payment Amount / Item Amount
	0015936	559-307-0099 MDT		101-413-72030	31.50
	0015936	559-307-0098 MDT		101-413-72030	31.50
	0015936	559-307-0097 MDT		101-413-72030	31.50
	0015936	559-307-0096 MDT		101-413-72030	31.50
	0015936	559-307-0109 MDT		101-413-72030	31.50
	0015936	559-307-0095 MDT		101-413-72030	31.50
	0015936	559-446-5077 Sparks- Phone		101-413-72030	44.42
	0015936	559-978-7681 Diaz- Phone		101-413-72030	40.21
	0015936	559-307-0094 MDT		101-415-72030	31.50
81981	7/9/2026	02846	T-MOBILE USA INC		947.04
	0016059	764-0427 iPad E171		101-416-72030	21.84
	0016059	403-8253 iPAd		101-416-72030	21.84
	0016059	403-6978 iPad		101-416-72030	21.84
	0016059	764-0421 iPad BR371		101-416-72030	21.84
	0016059	403-5177 Mobile Internet Prevention Tablet		101-416-72030	21.84
	0016059	403-3702 Mobile Internet Fire Chief Tablet		101-416-72030	21.84
	0016059	403-3177 iPad		101-416-72030	21.84
	0016059	307-0079 Mobile Internet B171 iPad		101-416-72030	21.84
	0016059	307-0078 Mobile Internet C170iPad		101-416-72030	21.84
	0016059	307-0077 Mobile Internet E171/L171 Ipad		101-416-72030	21.84
	0016059	403-8302 iPad		101-416-72030	21.34
	0016059	931-3881 Device Mobile Internet		101-416-72030	10.50
	0016059	813-4654 Device Mobile Internet		101-416-72030	10.50
	0016059	813-1267 Device Mobile Internet		101-416-72030	10.50
	0016059	806-4759 Device Mobile Internet		101-416-72030	10.50
	0016059	764-1048 Device Mobile Internet		101-416-72030	10.50
	0016059	403-8397 iPad		101-416-72030	21.84
	0016059	764-0418 iPadB172		101-416-72030	21.84
	0016059	403-5487 iPad		101-416-72030	21.84
	0016059	307-0067 Mobile Internet M254		101-416-72030	33.50
	0016059	307-0069 Mobile Internet Engine 172		101-416-72030	33.50
	0016059	307-0068 Mobile Internet E171		101-416-72030	33.50
	0016059	601-9391 J. Milligan		101-416-72030	44.72
	0016059	307-0066 Mobile Internet M256		101-416-72030	33.50
	0016059	307-0065 Mobile Internet L171		101-416-72030	33.50
	0016059	307-0072 Mobile Internet Patrol 172		101-416-72030	33.50
	0016059	307-0060 Mobile Internet M253		101-416-72030	33.50
	0016059	929-2524 Life Pack Monitor		101-416-72030	21.84
	0016059	929-6850 Lifepack Monitor		101-416-72030	21.84
	0016059	929-2286 Lifepack Monitor		101-416-72030	21.84
	0016059	929-2285 Lifepack Monitor		101-416-72030	21.84
	0016059	764-0439 Lifepack Monitor		101-416-72030	21.84
	0016059	307-0057 Mobile Internet M251		101-416-72030	33.60
	0016059	307-0058 Mobile Internet M252		101-416-72030	33.60
	0016059	764-0429 iPad B173		101-416-72030	21.84
	0016059	307-0059 Mobile Internet M255		101-416-72030	33.60
	0016059	601-9359 K. Krider		101-416-72030	44.72
	0016059	307-0070 Mobile Internet Brush 371		101-416-72030	33.50
81984	7/9/2026	02846	T-MOBILE USA INC		414.45
	0016054	698-4142 SVC Center Pedro		101-431-72030	44.42
	0016054	381-1988 PW Meter Reader		501-406-72030	17.77
	0016054	341-4461 Public Works Director		501-503-72030	8.04
	0016054	341-4461 Public Works Director		501-508-72030	8.04
	0016054	383-4014 PW Standby		501-508-72030	15.10
	0016054	974-1257 PW Supervisor		501-508-72030	15.10
	0016054	307-0126 GIS Tablet		501-508-72030	7.42
	0016054	307-0127 PW UB Tablet 1		501-508-72030	7.42
	0016054	307-0129 PW UB Tablet 2		501-508-72030	7.42

Payment Number	Payment Date / Payable Number	Vendor # / Description	Vendor Name	Account Number	Payment Amount / Item Amount
	0016054	307-0130 PW UB Tablet 3		501-508-72030	7.42
	0016054	307-0131 PW UB Tablet 4		501-508-72030	7.42
	0016054	307-0132 PW UB Tablet 5		501-508-72030	7.42
	0016054	307-0128 PW UB Tablet 6		501-508-72030	7.42
	0016054	307-0133 PW UB Tablet 8		501-508-72030	7.42
	0016054	690-5459 PW Tablets		501-508-72030	7.42
	0016054	381-1988 PW Meter Reader		502-406-72030	15.55
	0016054	383-4014 PW Standby		502-510-72030	14.66
	0016054	974-1257 PW Supervisor		502-510-72030	14.66
	0016054	341-4461 Public Works Director		502-510-72030	8.04
	0016054	307-0126 GIS Tablet		502-510-72030	7.21
	0016054	307-0127 PW UB Tablet 1		502-510-72030	7.21
	0016054	307-0129 PW UB Tablet 2		502-510-72030	7.21
	0016054	307-0130 PW UB Tablet 3		502-510-72030	7.21
	0016054	307-0131 PW UB Tablet 4		502-510-72030	7.21
	0016054	307-0132 PW UB Tablet 5		502-510-72030	7.21
	0016054	307-0128 PW UB Tablet 6		502-510-72030	7.21
	0016054	690-5459 PW Tablets		502-510-72030	7.21
	0016054	307-0133 PW UB Tablet 8		502-510-72030	7.21
	0016054	381-1988 PW Meter Reader		503-406-72030	10.22
	0016054	341-4461 Public Works Director		503-520-72030	8.04
	0016054	307-0126 GIS Tablet		503-521-72030	7.21
	0016054	307-0128 PW UB Tablet 6		503-521-72030	7.21
	0016054	690-5459 PW Tablets		503-521-72030	7.21
	0016054	383-4014 PW Standby		503-521-72030	14.66
	0016054	307-0131 PW UB Tablet 4		503-521-72030	7.21
	0016054	974-1257 PW Supervisor		503-521-72030	14.66
	0016054	307-0130 PW UB Tablet 3		503-521-72030	7.21
	0016054	307-0127 PW UB Tablet 1		503-521-72030	7.21
	0016054	341-4461 Public Works Director		503-521-72030	8.05
	0016054	307-0133 PW UB Tablet 8		503-521-72030	7.21
	0016054	307-0129 PW UB Tablet 2		503-521-72030	7.21
	0016054	307-0132 PW UB Tablet 5		503-521-72030	7.21
	0016054	381-1988 PW Meter Reader		504-406-72030	0.88
81987	7/9/2026	02846	T-MOBILE USA INC		370.64
	0016060	307-0082 Council Member		101-401-72030	31.50
	0016060	307-0081 Council Member		101-401-72030	31.50
	0016060	307-0084 Council Member		101-401-72030	31.50
	0016060	307-0080 Council Member		101-401-72030	31.50
	0016060	307-0083 Council Member		101-401-72030	31.50
	0016060	630-2536 R. Smith		101-404-72030	44.42
	0016060	942-1649 Bldg Inspector iPad		101-404-72030	21.84
	0016060	796-2268 Y. Ibarra		101-405-72030	44.62
	0016060	246-6243 M. Garcia		101-405-72030	20.11
	0016060	885-2481 Code Enforcement		101-405-72030	21.84
	0016060	401-9377 Finanical Svcs Director		101-406-72030	6.03
	0016060	246-6243 M. Garcia		101-435-72030	20.11
	0016060	401-9377 Finanical Svcs Director		107-422-72030	2.01
	0016060	401-9377 Finanical Svcs Director		501-406-72030	12.06
	0016060	401-9377 Finanical Svcs Director		502-406-72030	10.05
	0016060	401-9377 Finanical Svcs Director		503-406-72030	7.64
	0016060	401-9377 Finanical Svcs Director		504-406-72030	0.40
	0016060	401-9377 Finanical Svcs Director		820-610-72030	2.01
81989	7/9/2026	02085	UNITED RENTALS		4,564.96
	260468096-003	6/26 PW Ditch Witch Rental		501-508-98472	4,564.96
81990	7/9/2026	1944 CC	US BANK CORPORATE PAYMENT CENTER		10,766.18
	USB-ADMIN-MAY20	(4246-0470-0160-5713) Paper Direct 50%		101-401-70010	85.74

Payment Number	Payment Date Payable Number	Vendor # Description	Vendor Name	Account Number	Payment Amount Item Amount
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Breakroom Supplie	101-401-70010	3.62
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Conference Video	101-401-84010	23.41
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Team Builing Paso Robles	101-401-86010	9.12
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-401-86010	214.54
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-401-86011	85.81
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-401-86011	85.81
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-401-86011	429.07
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-401-86012	85.81
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-401-86012	85.81
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-401-86013	429.07
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-401-86013	85.81
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-401-86013	85.81
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	League of CitiesRegistration	101-401-86013	675.00
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-401-86014	85.81
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-401-86014	429.07
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-401-86014	85.81
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-401-86015	429.07
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-401-86015	85.81
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-401-86015	85.81
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Breakroom Supplie	101-404-70010	3.62
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-404-86010	71.51
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	League of Cities Registration	101-404-86010	112.50
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Team Builing Paso Robles	101-404-86010	3.04
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Zoom Monthly Subscription	101-404-86030	15.99
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Adobe Acrobat Monthly	101-404-86030	2.59
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Adobe Acrobat Monthly	101-404-86030	2.99
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon Nest Thermostat	101-405-70010	282.25
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Staples- Desk Chair J Medin	101-405-70010	196.14
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Paper Direct 50%	101-405-70010	85.75
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Breakroom Supplie	101-405-70010	3.62
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-405-86010	214.55
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	League of CitiesRegistration	101-405-86010	675.00
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Salty Pickle Monthly Dept	101-405-86010	20.40
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-405-86010	429.08
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Team Builing Paso Robles	101-405-86010	18.23
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Team Builing Paso Robles	101-405-86010	9.12
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-405-86010	429.07
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	ChatGPT Monthly Subscripti	101-405-86030	20.00
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Breakroom Supplie	101-406-70010	3.62
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Salty Pickle Monthly Dept	101-406-86010	3.40
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-406-86010	71.51
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	US Drug Testing-J. Gastelum	101-406-89040	29.99
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Breakroom Supplie	101-408-70010	1.85
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Termination Pay Training	101-408-86010	193.80
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Salty Pickle Monthly Dept	101-413-86010	20.40
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-413-86010	429.07
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-413-86010	429.07
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Team Builing Paso Robles	101-416-86010	18.22
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Salty Pickle Monthly Dept	101-416-86010	20.41
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	101-416-86010	429.07
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Breakroom Supplie	101-432-84030	41.75
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Vaccum	101-432-84030	435.88
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Breakroom Supplie	107-422-70010	0.80
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Termination Pay Training	107-422-86010	6.80
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	107-422-86010	71.51
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Salty Pickle Monthly Dept	107-422-86010	3.40
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Survey Monkey Monthy	107-422-86030	99.00
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Survey Monkey Monthly	107-422-86030	99.00
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	US Drug Testing-J. Gastelum	107-422-89040	10.00

Payment Number	Payment Date Payable Number	Vendor # Description	Vendor Name	Account Number	Payment Amount Item Amount
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Breakroom Supplie	117-416-70010	0.43
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Termination Pay Training	117-416-86010	44.20
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	US Drug Testing-Z. Matthew	117-416-89040	199.90
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	US Drug Testing-G. Pirie	117-416-89040	199.90
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Gooseneck Microp	141-422-98985	666.96
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Gooseneck Microp	141-422-98985	-666.96
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Gooseneck Micrph	141-422-98985	205.37
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Breakroom Supplie	501-406-70010	0.14
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Termination Pay Training	501-406-86010	6.80
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	501-406-86010	71.51
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Salty Pickle Monthly Dept	501-406-86010	3.40
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	US Drug Testing-J. Gastelum	501-406-89040	59.97
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Breakroom Supplie	501-503-70010	0.95
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	League of Cities Registration	501-503-86010	112.50
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Termination Pay Training	501-503-86010	20.40
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Team Builing Paso Robles	501-503-86010	3.04
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	501-503-86010	71.51
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Adobe Acrobat Monthly	501-503-86030	2.60
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Adobe Acrobat Monthly	501-503-86030	3.00
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Breakroom Supplie	501-508-70010	0.97
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	League of Cities Registration	501-508-86010	112.50
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Termination Pay Training	501-508-86010	17.00
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	501-508-86010	71.51
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Team Builing Paso Robles	501-508-86010	3.04
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Adobe Acrobat Monthly	501-508-86030	2.60
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Adobe Acrobat Monthly	501-508-86030	3.00
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Breakroom Supplie	502-406-70010	0.14
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	502-406-86010	71.51
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Salty Pickle Monthly Dept	502-406-86010	3.40
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Termination Pay Training	502-406-86010	6.80
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	US Drug Testing-J. Gastelum	502-406-89040	49.98
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Breakroom Supplie	502-510-70010	0.97
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	League of Cities Registration	502-510-86010	112.50
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Team Builing Paso Robles	502-510-86010	3.04
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	502-510-86010	71.51
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Termination Pay Training	502-510-86010	17.00
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Adobe Acrobat Monthly	502-510-86030	2.60
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Adobe Acrobat Monthly	502-510-86030	3.00
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Breakroom Supplie	503-406-70010	0.05
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	503-406-86010	71.51
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Salty Pickle Monthly Dept	503-406-86010	3.40
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Termination Pay Training	503-406-86010	5.10
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	US Drug Testing-J. Gastelum	503-406-89040	37.98
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Breakroom Supplie	503-520-70010	0.83
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	League of Cities Registration	503-520-86010	112.50
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Termination Pay Training	503-520-86010	10.20
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Team Builing Paso Robles	503-520-86010	3.04
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	503-520-86010	71.51
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Breakroom Supplie	503-521-70010	0.04
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	503-521-86010	71.51
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	League of Cities Registration	503-521-86010	112.50
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Team Builing Paso Robles	503-521-86010	3.04
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Termination Pay Training	503-521-86010	5.10
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Adobe Acrobat Monthly	503-521-86030	2.60
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Adobe Acrobat Monthly	503-521-86030	3.00
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Amazon- Breakroom Supplie	504-406-70010	0.02
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	Salty Pickle Monthly Dept	504-406-86010	3.40
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	CASS Winery Final Payment	504-406-86010	71.51
	USB-ADMIN-MAY20	(4246-0470-0160-5713)	US Drug Testing-J. Gastelum	504-406-89040	2.00

Payment Number	Payment Date / Payable Number	Vendor # / Description	Vendor Name	Account Number	Payment Amount / Item Amount
	USB-ADMIN-MAY20	(4246-0470-0160-5713) Termination Pay Training		504-535-86010	3.40
	USB-ADMIN-MAY20	(4246-0470-0160-5713) Amazon- Breakroom Supplie		820-610-70010	0.04
	USB-ADMIN-MAY20	(4246-0470-0160-5713) Termination Pay Training		820-610-86010	3.40
	USB-ADMIN-MAY20	(4246-0470-0160-5713) US Drug Testing-J. Gastelum		820-610-89040	10.00
81999	7/9/2026	1944 CC	US BANK CORPORATE PAYMENT CENTER		120.00
	USB-FIN-JUN2026-2	(4246-0446-6395-4901) J. Gastelum CSMFO Member		101-406-86030	12.00
	USB-FIN-JUN2026-2	(4246-0446-6395-4901) C. Estrada CSMFO Members		101-406-86030	12.00
	USB-FIN-JUN2026-2	(4246-0446-6395-4901) C. Estrada CSMFO Members		501-406-86030	18.00
	USB-FIN-JUN2026-2	(4246-0446-6395-4901) J. Gastelum CSMFO Member		501-406-86030	18.00
	USB-FIN-JUN2026-2	(4246-0446-6395-4901) J. Gastelum CSMFO Member		502-406-86030	15.00
	USB-FIN-JUN2026-2	(4246-0446-6395-4901) C. Estrada CSMFO Members		502-406-86030	15.00
	USB-FIN-JUN2026-2	(4246-0446-6395-4901) J. Gastelum CSMFO Member		503-406-86030	11.40
	USB-FIN-JUN2026-2	(4246-0446-6395-4901) C. Estrada CSMFO Members		503-406-86030	11.40
	USB-FIN-JUN2026-2	(4246-0446-6395-4901) C. Estrada CSMFO Members		504-406-86030	0.60
	USB-FIN-JUN2026-2	(4246-0446-6395-4901) J. Gastelum CSMFO Member		504-406-86030	0.60
	USB-FIN-JUN2026-2	(4246-0446-6395-4901) J. Gastelum CSMFO Member		820-610-86030	3.00
	USB-FIN-JUN2026-2	(4246-0446-6395-4901) C. Estrada CSMFO Members		820-610-86030	3.00
82000	7/9/2026	1964	USABLUEBOOK		18,740.73
	INV00988632	6/26 WP Lab Supplies		501-503-70202	734.50
	INV01033355	6/26 New Hach DR300 Colorimeter		501-503-98040	3,322.35
	INV01033591	6/26 WP New CL17 Analyer		501-503-98040	14,683.88
82001	7/9/2026	03203	VICTOR BERNAL		499.00
	0016061	6/26 405 College Ave Refund		101-400-46070	499.00
82002	7/9/2026	1993	WEST HILLS OIL, INC.		41,063.99
	86364	6/26 FD Fuel Charges for June 2026		101-416-70160	17,390.24
	86365	6/26 Admin Fuel Charges June 2026		101-405-70160	51.82
	86366	6/26 PD Fuel for June 2026		101-413-70160	16,016.14
	86368	6/26 PW Fuel Charges for June 2026		501-503-70160	1,802.26
	86368	6/26 PW Fuel Charges for June 2026		503-520-70160	450.56
	86370	6/26 PW Fuel for June 2026		101-440-70160	756.45
	86370	6/26 PW Fuel for June 2026		501-508-70160	1,001.72
	86370	6/26 PW Fuel for June 2026		502-510-70160	1,001.71
	86370	6/26 PW Fuel for June 2026		503-521-70160	1,001.71
	86370	6/26 PW Fuel for June 2026		504-535-70160	1,279.05
	86371	6/26 PW Fuel for June 2026		101-431-70160	66.98
	86371	6/26 PW Fuel for June 2026		504-535-70160	245.35
82003	7/9/2026	02807	ZIONS BANCORP, NA		625.00
	14195	6/26 Quarterly Admin Fee (April 2026-June2026)		101-406-92090	625.00
82004	7/16/2026	03060	ALEXANDER MALKIEWICZ		36.87
	0016099	6/26 PYAP FD A. Malkiewicz Meal Reimbursement		117-416-75010	36.87
82005	7/16/2026	02388	AMAZON CAPITAL SERVICES., INC		874.57
	17KH-31KV-9CKQ	6/26 PYAP Finance Dept Office Supplies		101-406-70010	25.18
	17KH-31KV-9CKQ	6/26 PYAP Finance Dept Office Supplies		101-408-86010	20.16
	17KH-31KV-9CKQ	6/26 PYAP Finance Dept Office Supplies		107-422-86010	0.71
	17KH-31KV-9CKQ	6/26 PYAP Finance Dept Office Supplies		117-416-86010	4.60
	17KH-31KV-9CKQ	6/26 PYAP Finance Dept Office Supplies		501-406-70010	335.68
	17KH-31KV-9CKQ	6/26 PYAP Finance Dept Office Supplies		501-406-86010	0.71
	17KH-31KV-9CKQ	6/26 PYAP Finance Dept Office Supplies		501-503-86010	2.12
	17KH-31KV-9CKQ	6/26 PYAP Finance Dept Office Supplies		501-508-86010	1.77
	17KH-31KV-9CKQ	6/26 PYAP Finance Dept Office Supplies		502-406-70010	293.72
	17KH-31KV-9CKQ	6/26 PYAP Finance Dept Office Supplies		502-406-86010	0.71
	17KH-31KV-9CKQ	6/26 PYAP Finance Dept Office Supplies		502-510-86010	1.77
	17KH-31KV-9CKQ	6/26 PYAP Finance Dept Office Supplies		503-406-70010	167.84
	17KH-31KV-9CKQ	6/26 PYAP Finance Dept Office Supplies		503-406-86010	0.53
	17KH-31KV-9CKQ	6/26 PYAP Finance Dept Office Supplies		503-520-86010	1.06

Payment Number	Payment Date / Payable Number	Vendor # / Description	Vendor Name	Account Number	Payment Amount / Item Amount
	17KH-31KV-9CKQ	6/26 PYAP Finance Dept Office Supplies		503-521-86010	0.53
	17KH-31KV-9CKQ	6/26 PYAP Finance Dept Office Supplies		504-406-70010	16.78
	17KH-31KV-9CKQ	6/26 PYAP Finance Dept Office Supplies		504-535-86010	0.35
	17KH-31KV-9CKQ	6/26 PYAP Finance Dept Office Supplies		820-610-86010	0.35
82007	7/16/2026	02386	AMERICAN OFFICE SOLUTIONS, LLC		3,600.00
	26811	6/26 PYAP PW Computer Upgrades (One-Time Proje		501-508-98030	1,200.00
	26811	6/26 PYAP PW Computer Upgrades (One-Time Proje		502-510-98030	1,200.00
	26811	6/26 PYAP PW Computer Upgrades (One-Time Proje		503-521-98030	1,200.00
82008	7/16/2026	03040	BLUETRITON BRANDS INC		203.60
	06E8730097787	6/26 PYAP Utilities Water Delivery		501-503-72010	61.08
	06E8730097787	6/26 PYAP PW Water Delivery		502-510-70440	71.26
	06E8730097787	6/26 PYAP PW Water Delivery		503-521-70440	71.26
82009	7/16/2026	1142	CALIFORNIA BUSINESS MACHINES		571.68
	617796	6/26 Copier Maint. Agreement COUNCIL		101-401-84010	18.91
	617796	6/26 Copier Maint. Agreement BLDG		101-404-84010	0.79
	617796	6/26 Copier Maint. Agreement CD		101-404-84010	4.18
	617796	6/26 Copier Maint. Agreement CITY MGR		101-405-84010	32.00
	617796	6/26 Copier Maint. Agreement FINANCE		101-406-84010	6.78
	617796	6/26 Copier Maint. Agreement FINANCE		101-406-84010	0.09
	617796	6/26 Copier Maint. Agreement HR		101-408-84010	35.12
	617796	6/26 Copier Maint. Agreement PD		101-413-84010	85.82
	617796	6/26 Copier Maint. Agreement FD		101-416-84010	39.84
	617796	6/26 Copier Maint. Agreement HR		107-422-84010	1.38
	617796	6/26 Copier Maint. Agreement HR		117-416-84010	8.26
	617796	6/26 Copier Maint. Agreement FINANCE		501-406-84010	1.24
	617796	6/26 Copier Maint. Agreement HR		501-406-84010	2.75
	617796	6/26 Copier Maint. Agreement FINANCE		501-406-84010	90.37
	617796	6/26 Copier Maint. Agreement HR		501-503-84010	4.13
	617796	6/26 Copier Maint. Agreement WP		501-503-84010	4.72
	617796	6/26 Copier Maint. Agreement WP		501-503-84010	61.48
	617796	6/26 Copier Maint. Agreement HR		501-508-84010	4.82
	617796	6/26 Copier Maint. Agreement FINANCE		502-406-84010	79.07
	617796	6/26 Copier Maint. Agreement FINANCE		502-406-84010	1.08
	617796	6/26 Copier Maint. Agreement HR		502-406-84010	2.75
	617796	6/26Copier Maint. Agreement HR		502-510-84010	4.82
	617796	6/26 Copier Maint. Agreement FINANCE		503-406-84010	45.18
	617796	6/26 Copier Maint. Agreement HR		503-406-84010	1.03
	617796	6/26 Copier Maint. Agreement FINANCE		503-406-84010	0.62
	617796	6/26 Copier Maint. Agreement HR		503-520-84010	2.07
	617796	6/26 Copier Maint. Agreement WWP		503-520-84010	25.58
	617796	6/26 Copier Maint. Agreement WWP		503-520-84010	0.51
	617796	6/26 Copier Maint. Agreement HR		503-521-84010	0.69
	617796	6/26 Copier Maint. Agreement HR		504-406-84010	0.34
	617796	6/26 Copier Maint. Agreement FINANCE		504-406-84010	0.06
	617796	6/26 Copier Maint. Agreement FINANCE		504-406-84010	4.51
	617796	6/26 Copier Maint. Agreement HR		820-610-84010	0.69
82012	7/16/2026	1207	CITY OF COALINGA		21,489.50
	0016088	90-11379-001 Animal House Fresno- Clga Road		101-413-72010	62.30
	0016088	01-11035-004 270 S 6th St		101-415-72010	112.09
	0016088	70-08484-001 302 W Elm Firehouse		101-416-72010	987.27
	0016088	70-08558-001 160 W Elm Old City Hall		101-432-72010	20.86
	0016088	70-08563-002 155 W Durian Ave FIN/PD Bldg		101-432-72010	1,221.68
	0016088	70-08562-001 155 W Durian Ave Landscaping		101-432-72010	201.11
	0016088	70-08559-001 160 W Elm Annex		101-432-72010	65.23
	0016088	90-11991-001 Airport Median 1		101-435-72010	61.26
	0016088	90-11992-001 Airport Median 2		101-435-72010	48.87
	0016088	90-10883-001 27500 W Phelps Airport Access Road		101-435-72010	53.00

Payment Number	Payment Date / Payable Number	Vendor # / Description	Vendor Name	Account Number	Payment Amount / Item Amount
	0016088	90-11993-001	Airport Median 3	101-435-72010	75.71
	0016088	90-11994-001	Airport Median 4	101-435-72010	81.90
	0016088	90-10891-001	27500 W Phelps AP Spencer House	101-435-72010	97.74
	0016088	90-10892-002	Coalinga Airport Res	101-435-72010	68.38
	0016088	82-10406-001	E Polk/ Warthan Crk Lot	101-440-72011	74.27
	0016088	70-08545-001	6TH/Elm Parking	101-440-72011	75.01
	0016088	01-11879-001	Plaza Park	101-440-72011	61.61
	0016088	42-11981-001	W Gale & Hwy 198	101-440-72011	44.74
	0016088	51-04490-001	E Aport/Elm Lots	101-440-72011	34.19
	0016088	71-11970-001	Forest/Pacific St	101-440-72011	34.19
	0016088	84-11980-001	Jayne Ave Landscaping	101-440-72011	34.19
	0016088	44-11880-001	Centennial Park	101-440-72011	2,134.62
	0016088	45-11979-001	Centennial Park Lndscpg	101-440-72011	2,270.09
	0016088	84-12000-001	Sandalwood Park 3	101-440-72011	2,601.09
	0016088	71-08739-001	200 E Pacific	101-440-72011	3,334.86
	0016088	44-11849-002	3 El Rancho Median	101-440-72011	559.69
	0016088	88-11698-003	& Merced Chardonay	101-440-72011	270.00
	0016088	70-08679-001	Sunset/6th Vetera	101-440-72011	114.35
	0016088	44-11848-002	1 El Rancho Median	101-440-72011	532.17
	0016088	88-11696-003	& Lucille Bourdeaux	101-440-72011	136.64
	0016088	44-11805-002	2 El Rancho Median	101-440-72011	525.82
	0016088	51-04491-001	E Elm Trees	101-440-72011	103.80
	0016088	41-03130-001	Monterey/ Monroe	107-422-72011	540.64
	0016088	22-08436-001	Forest/First St Lot	107-422-72011	34.19
	0016088	45-04295-002	Phelps Ave/ La Cuesta	107-422-72011	737.82
	0016088	82-10397-001	1075 W Elm Pacific	107-422-72011	136.64
	0016088	84-10691-003	Juniper Jayne	107-422-72011	141.15
	0016088	44-04178-001	San Simeon/Posa Chanet	107-422-72011	140.87
	0016088	84-11908-001	Copper / Canyon Landscaping	107-422-72011	137.55
	0016088	70-11963-001	Cedar/Fifth Clock	107-422-72011	34.19
	0016088	70-11990-001	Elm/6th Landscaping 2	107-422-72011	34.19
	0016088	82-11910-001	Hwy 198 Lucille Landscaping	107-422-72011	34.19
	0016088	70-12025-000	7th St Irrigation	107-422-72011	34.19
	0016088	52-11633-001	Cherry Lane Median 3	107-422-72011	36.30
	0016088	52-12160-000	Cherry Lane Trail Landscape	107-422-72011	34.19
	0016088	41-03193-001	Princeton/Wash Lot	107-422-72011	38.41
	0016088	70-11988-001	Elm/6th Landscaping	107-422-72011	46.85
	0016088	84-10736-001	Sandalwood/ Longhallow	107-422-72011	49.25
	0016088	42-03438-001	Van Ness Ash Lot	107-422-72011	51.06
	0016088	42-03294-001	Sunset/Fifth Lot	107-422-72011	55.28
	0016088	22-08117-001	Hayes Lot	107-422-72011	84.81
	0016088	70-08463-001	290 W Elm Museum	107-422-72011	86.32
	0016088	84-10692-001	Juniper Ridge/Jayne	107-422-72011	38.70
	0016088	52-11634-001	Cherry Lane Median 4	107-422-72011	34.19
	0016088	62-08395-001	Forest/Second St	107-422-72011	34.19
	0016088	52-11631-001	Cherry Lane Median 1	107-422-72011	34.19
	0016088	52-06069-001	Van Ness / Second St Lot	107-422-72011	34.19
	0016088	51-12029-000	Acebedo Ln	107-422-72011	34.19
	0016088	84-10693-001	Juniper Ridge/ Jayne	107-422-72011	172.90
	0016088	51-12025-001	E Elm Van Ness Trees	107-422-72011	34.19
	0016088	51-04426-001	Baker-Rotary Lot	107-422-72011	34.19
	0016088	45-04297-002	Posa Chanet Blvd	107-422-72011	34.19
	0016088	22-11239-001	Creek Side Lot	107-422-72011	34.19
	0016088	01-11987-001	Elm/4th Landscaping 2	107-422-72011	34.19
	0016088	01-11986-001	Elm/4th Landscaping	107-422-72011	34.19
	0016088	52-11632-001	Cherry Ln Median 2	107-422-72011	34.19
	0016088	32-01424-001	Hillview/Monterey	107-422-72011	200.83
	0016088	01-00006-001	200 E Elm Trees Across Kmart	107-422-72011	34.19
	0016088	61-12160-000	Lynch Park Triangle	107-422-72011	110.13

Payment Number	Payment Date / Payable Number	Vendor # / Description	Vendor Name	Account Number	Payment Amount / Item Amount
	0016088	41-03184-001 W Joaquin/Wash Lot		107-422-72011	530.05
	0016088	82-11346-001 Waste Water Plant		503-520-72010	974.49
	0016088	82-10304-001 Service Yard		503-521-72010	312.55
	0016088	82-10306-001 Meter Shop		503-521-72010	118.56
82017	7/16/2026	1224	COALINGA HARDWARE		22.85
	842504	6/26 PYAP PW FlashlightMounting/PineMedianAdhe		107-422-84050	13.03
	842504	6/26 PYAP PW FlashlightMounting/PineMedianAdhe		501-508-84060	8.27
	842573	6/26 PD Secure Door for PD		101-413-70440	1.55
82018	7/16/2026	02853	DARREN BURKE		512.13
	TR-00024	6/26 PYAP D. Burke Travel Reimbursement		101-416-86010	287.57
	TR-00024	6/26 PYAP D. Burke Travel Reimbursement		101-416-86010	224.56
82019	7/16/2026	02354	DAVID WELLHOUSE & ASSOCIATES, INC.		2,000.00
	1956	6/26 PYAP State Mandated Cost FY 25/26		101-413-88100	2,000.00
82020	7/16/2026	1336	ENTENMANN-ROVIN COMPANY		298.96
	0208994	6/26 PYAP FD Trujillo/D. Rodriguez Badges		101-416-70102	298.96
82021	7/16/2026	1353	FAILSAFE TESTING		1,379.86
	14928	6/26 FD PYAP Apparatus Ladder Testing		101-416-75060	1,379.86
82022	7/16/2026	02192	GIMME LOVE ANIMAL SHELTER		13,022.00
	108	6/26 PD Annual Payment/ June Service		101-415-88100	13,022.00
82023	7/16/2026	02626	L.N. CURTIS & SONS		950.26
	INV1050598	6/26 FD PYAP PPE Wildland		101-416-70102	950.26
82024	7/16/2026	1647	MID VALLEY DISPOSAL, INC.		565.78
	3565093	6/26 PYAP Animal Shelter Rolloff-6th Street		101-415-98020	565.78
82025	7/16/2026	03105	OOSOSHARP, LLC		10,075.22
	53884	6/26 FD PYAP June Ambulance Billing		117-416-75040	10,075.22
82026	7/16/2026	03069	OPTIMIZED INVESTMENT PARTNERS LLC		2,520.53
	1732	6/26 PYAP Investment Advisory Services		101-406-88100	1,109.03
	1732	6/26 Investment Advisory Services		501-406-88100	680.54
	1732	6/26 Investment Advisory Services		502-406-88100	75.62
	1732	6/26 Investment Advisory Services		503-406-88100	655.34
82027	7/16/2026	1692	O'REILLY AUTOMOTIVE, INC.		369.13
	4316-164788	6/26 PYAP PW Oil Change #93		501-508-84060	28.41
	4316-164788	6/26 PYAP PW Oil Change #93		502-510-84060	28.41
	4316-164788	6/26 PYAP PW Oil Change #93		503-521-84060	28.40
	4316-165920	7/26 PD Oil/Filter C16		101-413-84060	59.12
	4316-165971	7/26 PD Sealed Beam		101-413-84060	104.01
	4316-166068	6/26 PYAP PW Air Compressor Repair		501-508-84060	13.07
	4316-166068	6/26 PYAP PW Air Compressor Repair		502-510-84060	13.07
	4316-166068	6/26 PYAP PW Air Compressor Repair		503-521-84060	13.06
	4316-166126	7/26 PD Oil/Filter C3		101-413-84060	81.58
82028	7/16/2026	1721	PG&E		29,651.47
	90624-063026	5/31-6/30 PYAP Gas Delivery SE 31 20 15 HWY		502-510-80020	29,651.47
82029	7/16/2026	1722	PG&E 1533-5		149,048.47
	0016101	7053841037 7th & Elm Firehouse Horn		101-416-72020	248.40
	0016101	7053841272 300 W Elm Fire Station Lights		101-416-72020	3,695.23
	0016101	7059439736 Retrofit Loan Program Charges		101-416-96057	629.64
	0016101	7052222061 270 S 6th St		101-432-72020	35.88
	0016101	795617993 240 N 6th St		101-432-72020	2,747.92
	0016101	7053841516 Police Station/Jail/ City Hall		101-432-72020	9,431.21
	0016101	7053662501 Retrofit Loan Program ChargesPDCityH		101-432-96057	1,188.23
	0016101	7053841771 27500 Phelps Ave Ste 1 Airport Hangers		101-435-72020	28.28

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	0016101	7053841899	27500 Phelps Ave Ste 19 Airport Hange	101-435-72020	98.40
	0016101	7053841565	NW Cor Phelps-Airport Lights	101-435-72020	2,824.42
	0016101	7053841050	5th & Cedar St Tower Clock	101-440-72011	58.18
	0016101	7054189141	Sunset & 5th Ave	101-440-72011	11.12
	0016101	7053841921	Sunset & Washington - Water Fountain	101-440-72011	23.82
	0016101	7053841936	408 S Fifth- Lynch Park	101-440-72011	10.58
	0016101	7058160009	N/S of Phelps Ave (W of Posa Chanet)	110-424-72021	148.33
	0016101	7055365996	Elm & Second	110-424-72021	138.01
	0016101	7054518044	Coolidge N Hachman	110-424-72021	10.14
	0016101	7053841439	Phelps & La Cuesta	110-424-72021	11.49
	0016101	3443128041	TR 5246 Phase 2 Stallion Spring Sac/For	110-424-72021	149.64
	0016101	7053841022	160 W Elm INTRNL ARPT 3144 Term Bld	110-424-72021	158.53
	0016101	3443128925	TR 5140 Sandalwood 3 CBB Const Jayne	110-424-72021	136.94
	0016101	7053841002	160 W Elm INTRNL ARPT 3144 TermBld	110-424-72021	1,116.20
	0016101	7053841016	160 W Elm INTRNL ARPT 3144 Term Bld	110-424-72021	948.31
	0016101	7053841555	TR 5451 Warthan Meadows	110-424-72021	878.86
	0016101	7053841157	240 W Elm Storage Building	110-424-72021	542.34
	0016101	7053841429	TRACT 5339 Dorothy Allen Estates	110-424-72021	401.51
	0016101	7053841026	160 W Elm INTRNL ARPT 3144 Term Bld	110-424-72021	303.37
	0016101	7053841206	Cor Psa Chnt and San Sm Lift Station	110-424-72021	9.53
	0016101	7053841536	160 W Elm Street Light Inventory Projec	110-424-72021	100.71
	0016101	7053841004	160 W Elm INTRNL ARPT 3144 TermBld	110-424-72021	167.77
	0016101	7053841619	Monterey & Tyler	110-424-72021	9.53
	0016101	7053841909	200 El Rancho Blvd Irrigation Controls	110-424-72021	9.53
	0016101	7053841379	Polk & Forest Ave	110-424-72021	79.43
	0016101	7053841535	160 W Elm Street Light Inventory Projec	110-424-72021	79.07
	0016101	3249826069	TR 4492 Fox Hallow II	110-424-72021	76.24
	0016101	7053841308	Van Ness & Elm	110-424-72021	64.62
	0016101	7055180510	Forest Ave Btwn 3rd St and 5th St	110-424-72021	56.93
	0016101	3443128372	TR5246 Ph1 Stallion Springs Sac& Fores	110-424-72021	55.76
	0016101	1638874976	25 1/2 W Polk	110-424-72021	58.96
	0016101	3443128611	TR 4492 Fox Hallow II Ph2 Forest/Cox	110-424-72021	50.83
	0016101	7053841913	N/S Valley St (Streetlights)	110-424-72021	50.73
	0016101	7053841538	160 W Elm Street Light Inventory Projec	110-424-72021	49.27
	0016101	9713313248	25 1/2 W Polk Traffic Control	110-424-72021	121.18
	0016101	3443128411	TR 5208 Spano Ent Posa Chanet Est3	110-424-72021	116.46
	0016101	3289090333	260 1/2 Cambridge Ave	110-424-72021	115.72
	0016101	7051816617	Jayne Ave Willow Springs	110-424-72021	108.68
	0016101	3443128591	City Sunset St Project Pm30257800	110-424-72021	103.75
	0016101	7053841534	160 W Elm Street Light Inventory Projec	110-424-72021	101.97
	0016101	7050256422	6th & Durian	110-424-72021	101.33
	0016101	7053841842	350 El Rancho Blvd	110-424-72021	9.53
	0016101	7053841979	City Yard	110-424-72021	288.09
	0016101	7053841791	745 W Forest Ave Landscape Pedestal	110-424-72021	9.53
	0016101	7053841485	Washington and Fresno	110-424-72021	9.57
	0016101	7050007234	Coolidge N Hachman	110-424-72021	10.14
	0016101	7053841204	SE Corner of First & Forest Landscaping	110-424-72021	9.53
	0016101	7053841397	Cambridge & Elm Hwy 198	110-424-72021	159.74
	0016101	7053841505	Cambridge & Elm Hwy 198	110-424-72021	284.76
	0016101	7053841881	140 E Durian Parking Lot Lights	110-424-72021	22.14
	0016101	7053841244	TR 5344 Promontory Point	110-424-72021	209.59
	0016101	7053841253	Cambridge & Joaquin	110-424-72021	216.02
	0016101	7053841365	Longhallow & Echo Canyon	110-424-72021	22.95
	0016101	7053841501	410 El Rancho Blvd	110-424-72021	22.64
	0016101	7053841990	160 W Elm	110-424-72021	22.17
	0016101	7053841014	160 W Elm INTRNL ARPT 3144 Term Bld	110-424-72021	22.17
	0016101	7053841177	300 Coalinga Plaza	110-424-72021	11.52
	0016101	7053841848	SE Juniper Ridge Sprinklers	110-424-72021	26.74
	0016101	7053841023	Monterey Tyler Clock	110-424-72021	11.87

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	0016101	7053841694 160 W Elm		110-424-72021	33.25
	0016101	70538903139 Tache Way & Warthan st		110-424-72021	18.98
	0016101	7053841661 Forest & Fifth		110-424-72021	13.33
	0016101	7053986207 Warthan Place 2		110-424-72021	12.90
	0016101	3443128775 TR 5208 Spano Ent Posa Chanet		110-424-72021	12.70
	0016101	7053841349 160 W Elm		110-424-72021	25.42
	0016101	7053841008 160 W Elm INTRNL ARPT 3144 Term Bld		110-424-72021	3,052.64
	0016101	7053841171 SW SW 7 20 15 Booster Station		501-503-72020	178.13
	0016101	7056027714 NE 11 20 15		501-503-72020	180.94
	0016101	7054838556 25034 Palmer Ave		501-503-72020	89,863.90
	0016101	7053841518 NW NW 31 20 16 Chlorine Booster		501-503-72020	21.87
	0016101	7053841036 NE SW 26 19 15 Booster Station		501-503-72020	3,161.24
	0016101	7053841684 NW NW 11 20 15 Wtr Dept		501-503-72020	45.43
	0016101	7053841615 SW SW SW 18 20 16 Resevoir		501-503-72020	28.09
	0016101	7053841131 SW Cor Gale & Derrick Water Mtr		501-503-72020	9.53
	0016101	7053841864 NW SW 31 20 15 Wtr Control Circuit		501-503-72020	34.37
	0016101	7054291414 RetroFit Loan 135 E Sacramento		501-508-72020	46.51
	0016101	7053841979 City Yard		501-508-72020	288.09
	0016101	7054291414 RetroFit Loan 135 E Sacramento		502-510-72020	45.14
	0016101	7053841066 NE Corner Harvard & College		502-510-72020	32.82
	0016101	7053841697 Baker Alley Btwn Buch/Linc		502-510-72020	11.95
	0016101	7053841466 Fres Aly Btwn Tyler/Polk		502-510-72020	9.53
	0016101	7053841979 City Yard		502-510-72020	288.09
	0016101	7053841123 Cherry Ln of Elm		502-510-72020	99.09
	0016101	7053841783 California Alley N of Harvard		502-510-72020	82.41
	0016101	7053841574 Coalinga Alley Btwn Mad/Mont		502-510-72020	64.65
	0016101	7053841361 Alley S Pleasant & E Warthan Alley Ligh		502-510-72020	67.98
	0016101	7053841102 N end Of Maple		502-510-72020	61.08
	0016101	7053841358 College Alley S Side- Cat Pro 611 Colle		502-510-72020	62.12
	0016101	7053841312 Thompson Btwn Valley/Polk		502-510-72020	53.77
	0016101	7053841243 Pine Alley Btwn Roosevelt AR		502-510-72020	89.84
	0016101	7053841657 Behind 595 Roosevelt Alley Light		502-510-72020	62.98
	0016101	7052100780 NE SE 33 20 15 WWP		503-520-72020	18,585.83
	0016101	7056603692 SE 33 20 15 Sewer Treatment Plant		503-520-72020	2,634.03
	0016101	7053841194 Sewer Lift Pump Echo		503-521-72020	23.82
	0016101	7054291414 Retrofit Loan 135 E Sacramento		503-521-72020	45.14
	0016101	7053841979 City Yard		503-521-72020	288.09
	0016101	7053841367 Sewer Lift Station Kim		503-521-72020	48.58
	0016101	7053841328 Sewer Lift Station P/L		503-521-72020	129.33
	0016101	7053841845 Sewer Lift Station Polk		503-521-72020	203.20
82037	7/16/2026	02664	PHILLIPS ELECTRIC, LLC		1,338.75
	INV0949	6/26 PYAP Council Chambers A/V Modernization		141-422-98985	1,338.75
82038	7/16/2026	02985	PRECISION CIVIL ENGINEERING		17,663.75
	34223	6/26 PYAP MasterPlan Dev -Rain LLC		101-404-86500	13,460.00
	34224	6/26 PYAP Professional Planning SVCS		101-404-86500	4,203.75
82039	7/16/2026	1745	QUAD KNOPF, INC.		170.30
	132705	6/26 PYAP GIS Support Svcs		501-508-88121	56.77
	132705	6/26 PYAP GIS Support Svcs		502-510-88121	56.77
	132705	6/26 PYAP GIS Support Svcs		503-521-88121	56.76
82040	7/16/2026	1755	RAUL HERRERA		500.00
	COALPD-JUNE19-20	6/26 PYAP Poly for PD J. Santos		101-408-89050	250.00
	COALPD-JUNE19-20	6/26 PYAP Poly for PD N. Moua		101-408-89050	250.00
82041	7/16/2026	1804	SAN LUIS & DELTA-MENDOTA WATER AUTHORITY		157,158.74
	WY23FA-06	6/26 PYAP WY 23 Final Accounting		501-503-80010	153,993.40
	WY23FA-43	6/26 PYAP WY23 Adjusted Final Accounting		501-503-80010	3,165.34

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82042	7/16/2026	1823	SEQUOIA EQUIPMENT COMPANY, INC.		3,546.72
	001-129755	6/26 PYAP Repairs on Backhoe		501-508-84060	1,237.61
	001-129755	6/26 PYAP Repairs on Backhoe		502-510-84060	1,237.61
	001-129755	6/26 PYAP Repairs on Backhoe		503-521-84060	1,237.61
	CM001-1154450	6/26 PYAP PW Box Scraper Cylinder (Credit)		501-508-84060	-55.37
	CM001-1154450	6/26 PYAP PW Box Scraper Cylinder (Credit)		502-510-84060	-55.37
	CM001-1154450	6/26 PYAP PW Box Scraper Cylinder (Credit)		503-521-84060	-55.37
82043	7/16/2026	02694	STERICYCLE, INC		123.77
	8014410563	6/26 PYAP Shred-it City Hall Svcs Admin		101-405-88100	41.26
	8014410563	6/26 PYAP Shred-it City Hall Svcs Finance		101-406-82040	41.25
	8014410563	6/26 PYAP Shred-it City Hall Svcs HR		101-408-88100	23.52
	8014410563	6/26 PYAP Shred-it City Hall Svcs HR		107-422-88100	0.83
	8014410563	6/26 PYAP Shred-it City Hall Svcs HR		117-416-88100	5.36
	8014410563	6/26 PYAP Shred-it City Hall Svcs HR		501-406-88100	0.83
	8014410563	6/26 PYAP Shred-it City Hall Svcs HR		501-503-88100	2.48
	8014410563	6/26 PYAP Shred-it City Hall Svcs HR		501-508-88100	2.06
	8014410563	6/26 PYAP Shred-it City Hall Svcs HR		502-406-88100	0.83
	8014410563	6/26 PYAP Shred-it City Hall Svcs HR		502-510-88100	2.06
	8014410563	6/26 PYAP Shred-it City Hall Svcs HR		503-406-88100	0.62
	8014410563	6/26 PYAP Shred-it City Hall Svcs HR		503-520-88100	1.24
	8014410563	6/26 PYAP Shred-it City Hall Svcs HR		503-521-88100	0.62
	8014410563	6/26 PYAP Shred-it City Hall Svcs HR		504-535-88100	0.41
	8014410563	6/26 PYAP Shred-it City Hall Svcs HR		820-610-88100	0.40
82044	7/16/2026	02351	TRACTOR SUPPLY COMPANY		189.28
	200121576	6/26 PYAP PW Propane for Patch Truck		107-422-70130	107.58
	200124678	6/26 PYAP PW Nozzle for Ditch Witch Rental		501-508-98472	54.47
	200125087	6/26 PYAP PW Steel Hoe		101-440-70060	27.23
82045	7/16/2026	1931	TRANS UNION, LLC		70.00
	06620125	6/26 PYAP PD Backgrounds		101-413-88100	70.00
82046	7/16/2026	1944 CC	US BANK CORPORATE PAYMENT CENTER		1,808.52
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		101-401-72030	117.43
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		101-404-72030	46.97
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		101-405-72030	117.44
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		101-406-72030	6.30
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		101-408-72030	23.96
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		101-413-72030	540.21
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		101-415-72030	46.97
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		101-416-72030	540.22
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		107-422-72030	0.94
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		107-422-72030	7.07
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		117-416-72030	5.64
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		501-406-72030	84.55
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		501-406-72030	1.88
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		501-503-72030	26.78
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		501-503-72030	2.82
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		501-508-72030	26.78
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		501-508-72030	3.29
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		502-406-72030	1.88
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		502-406-72030	73.98
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		502-510-72030	26.78
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		502-510-72030	3.29
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		503-406-72030	0.70
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		503-406-72030	42.27
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		503-520-72030	26.78
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		503-520-72030	1.41
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		503-521-72030	0.47
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		503-521-72030	26.78

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	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		504-406-72030	0.23
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		504-406-72030	4.23
	USB-PD-JUN2026	06/26 PD GoTo City Wide Phone Charges		820-610-72030	0.47
82048	7/16/2026	02864	VESTIS GROUP INC ARAMARK UNIFORM & APPAREL LLC		664.15
	2580720539	6/26 PD Jail Blankets FY25/26		101-413-70380	664.15
82049	7/16/2026	1993	WEST HILLS OIL, INC.		5,951.49
	86367	6/26 PYAP PW Fuel Charges for June 2026		101-404-70160	325.45
	86367	6/26 PYAP PW Fuel Charges for June 2026		101-440-70160	590.47
	86367	6/26 PYAP PW Fuel Charges for June 2026		501-508-70160	1,213.16
	86367	6/26 PYAP PW Fuel Charges for June 2026		501-508-98472	45.35
	86367	6/26 PYAP PW Fuel Charges for June 2026		502-510-70160	1,213.15
	86367	6/26 PYAP PW Fuel Charges for June 2026		503-521-70160	2,563.91
82050	7/16/2026	1997	WESTSIDE SUPPLY		569.86
	19482	6/26PYAP PW Irrigation Supplies/Water LeakSupplie		101-440-84050	295.39
	19482	6/26PYAP PW Irrigation Supplies/Water LeakSupplie		501-508-70140	110.89
	19554	6/26PYAP PW TouchReaderBatteries/WaterLeakSupp		501-508-70140	83.58
	P260630	6/26 PYAP PW Cylinder Rental		501-508-70140	50.00
	S260630	6/26 PYAP PW Cylinder Rental for Service Center		101-431-70150	30.00
82051	7/16/2026	1009	ABBEY DOOR SERVICES		1,980.00
	INV15071	7/26 FD Bay Door Repairs		101-416-84030	1,980.00
82052	7/16/2026	03060	ALEXANDER MALKIEWICZ		29.00
	0016100	7/26 FD A. Malkiewicz Meal-Ambulance Runs		117-416-75010	29.00
82053	7/16/2026	02386	AMERICAN OFFICE SOLUTIONS, LLC		1,781.25
	27232	7/26 PD Sirus Subscription		101-413-86030	1,781.25
82054	7/16/2026	02082	AUTOZONE, INC.		299.49
	05919686652	7/26 FD M251 Parts		117-416-84060	159.60
	05919686717	7/26 FD M251 Parts		117-416-84060	139.89
82055	7/16/2026	02020	BOOT BARN		165.61
	136676	7/26 PW Boots- R. Labrador		101-440-62080	165.61
82056	7/16/2026	02594	CINTAS CORPORATION #3		578.44
	4274964817	7/26 BLDG Employee Uniforms/Sanitary Supplies/M		101-404-70100	13.50
	4274964817	7/26 SC Employee Uniforms/Sanitary Supplies/Mats		101-431-70100	45.60
	4274964817	7/26 ADM Employee Uniforms/Sanitary Supplies/M		101-432-84030	64.17
	4274964817	7/26 MG Employee Uniforms/Sanitary Supplies/Mat		101-440-70100	85.68
	4274964817	7/26 GT Employee Uniforms/Sanitary Supplies/Mats		107-422-70100	57.43
	4274964817	7/26 WTP Employee Uniforms/Sanitary Supplies/Ma		501-503-70100	58.81
	4274964817	7/26 MR Employee Uniforms/Sanitary Supplies/Mat		501-508-70100	23.31
	4274964817	7/26 WD Employee Uniforms/Sanitary Supplies/Mat		501-508-70100	57.43
	4274964817	7/26 GE Employee Uniforms/Sanitary Supplies/Mats		502-510-70100	57.43
	4274964817	7/26 MR Employee Uniforms/Sanitary Supplies/Mat		502-510-70100	23.31
	4274964817	7/26 WWTP Employee Uniforms/Sanitary Supplies/		503-520-70100	13.66
	4274964817	7/26 WWC Employee Uniforms/Sanitary Supplies/M		503-521-70100	57.43
	4274964817	7/26 SS Employee Uniforms Sanitary Supplies		504-535-70100	20.68
82057	7/16/2026	02598	CINTAS CORPORATION NO. 2		665.68
	5345993005	7/26 PW First Aid Kit Refills		101-413-88100	509.71
	5345993005	7/26 PW First Aid Kit Refills		101-432-84030	60.13
	5345993005	7/26 PW First Aid Kit Refills		503-521-70440	95.84
82058	7/16/2026	02160	COALINGA RIFLE CLUB		1,500.00
	26-07	7/26 PD Riffle Club Dues		106-413-86010	1,500.00
82059	7/16/2026	02886	DOCUSIGN, INC.		2,604.00
	111100702201	7/26 FY 26-27 Docusign Services		101-401-88100	2,604.00

Payment Number	Payment Date / Payable Number	Vendor # / Description	Vendor Name	Account Number	Payment Amount / Item Amount
82060	7/16/2026	02667	ENTERPRISE FM TRUST		6,628.20
	633291-070326	7/26 PW Vehicle Leases July 2026		501-503-98040	1,324.74
	633291-070326	7/26 PW Vehicle Leases July 2026		501-508-98040	1,767.82
	633291-070326	7/26 PW Vehicle Leases July 2026		502-510-98040	1,767.82
	633291-070326	7/26 PW Vehicle Leases July 2026		503-521-98040	1,767.82
82061	7/16/2026	1338	EPPLER TOWING & TRANSPORT		2,340.00
	H26-67002	7/26 FD M253 Tow to EVG		117-416-84060	2,340.00
82062	7/16/2026	03205	ERIC SALDANA		200.00
	31337413	7/26 PW E. Saldana Boots Reimbursement		107-422-62080	20.00
	31337413	7/26 PW E. Saldana Boots Reimbursement		501-508-62080	80.00
	31337413	7/26 PW E. Saldana Boots Reimbursement		502-510-62080	80.00
	31337413	7/26 PW E. Saldana Boots Reimbursement		503-521-62080	20.00
82063	7/16/2026	03059	ERIC WILLIAM DRAKE TUCKER		3,000.00
	0016098	7/26 Wings Over The Westside Deposit		101-435-88220	3,000.00
82064	7/16/2026	1446	GRANITE CONSTRUCTION COMPANY		485.73
	3257003	7/26 PW Sand for Water Leak		501-508-70130	485.73
82065	7/16/2026	02508	HOWARD MAIN		12.00
	26-332	7/26 FD R. Banks BLS eCard		117-416-70050	12.00
82066	7/16/2026	1561	KINGS COUNTY GLASS		984.16
	I087007	7/26 FD M255 Windshield Repairs		117-416-84060	984.16
82067	7/16/2026	02626	L.N. CURTIS & SONS		35,291.98
	INV1082001	7/26 FD New Smeal Engine Repairs		101-416-98040	22,605.88
	INV1082741	7/26 FD New Smeal Engine Equipment		101-416-98040	12,686.10
82068	7/16/2026	1579	LAW & ASSOCIATES		800.00
	26-116	7/26 FD Backgrounds T. Perea		101-408-89080	480.00
	26-116	7/26 FD Backgrounds T. Perea		117-416-89070	320.00
82069	7/16/2026	1593	LIFE ASSIST, INC.		2,662.76
	2152828	7/26 FD Medical Supplies		117-416-75000	107.50
	2157150	7/26 FD Medical Supplies		117-416-75000	1,982.99
	2157581	7/26 FD Medical Supplies		117-416-75000	95.77
	2158390	7/26 FD Medical Supplies		117-416-75000	476.50
82070	7/16/2026	02244	MARTIN RAMIREZ		200.00
	0016069	7/26 PW M. Ramirez Boots Reimbursement		107-422-62080	20.00
	0016069	7/26 PW M. Ramirez Boots Reimbursement		501-508-62080	80.00
	0016069	7/26 PW M. Ramirez Boots Reimbursement		502-510-62080	80.00
	0016069	7/26 PW M. Ramirez Boots Reimbursement		503-521-62080	20.00
82071	7/16/2026	1661	MOUNTAIN VALLEY PEST CONTROL, INC.		103.00
	116760	7/26 City Hall Pest Control Services July 2026		101-432-84030	38.00
	116764	7/26 Airport Pest Control Services -July 2026		101-435-84030	65.00
82072	7/16/2026	1692	O'REILLY AUTOMOTIVE, INC.		348.28
	4316-167283	7/26 FD M251 Parts		117-416-84060	348.28
82073	7/16/2026	02317	QUADIENT, INC.		4,832.50
	18075065	7/26 Finance Dept. Folder Inserter		101-406-84010	289.95
	18075065	7/26 Finance Dept. Folder Inserter		501-406-84010	1,836.35
	18075065	7/26 Finance Dept. Folder Inserter		502-406-84010	1,546.40
	18075065	7/26 Finance Dept. Folder Inserter		503-406-84010	1,014.83
	18075065	7/26 Finance Dept. Folder Inserter		504-406-84010	144.97
82074	7/16/2026	02694	STERICYCLE, INC		123.17
	8014684937	7/26 Shred-it City Hall Svcs Admin		101-405-88100	41.06
	8014684937	7/26 Shred-it City Hall Svcs Finance		101-406-82040	41.06

Payment Number	Payment Date / Payable Number	Vendor # / Description	Vendor Name	Account Number	Payment Amount / Item Amount
	8014684937	7/26 Shred-it City Hall	HR	101-408-88100	23.40
	8014684937	7/26 Shred-it City Hall Svcs	HR	107-422-88100	0.82
	8014684937	7/26 Shred-it City Hall Svcs	HR	117-416-88100	5.34
	8014684937	7/26 Shred-it City Hall Svcs	HR	501-406-88100	0.82
	8014684937	7/26 Shred-it City Hall Svcs	HR	501-503-88100	2.46
	8014684937	7/26 Shred-it City Hall Svcs	HR	501-508-88100	2.05
	8014684937	7/26 Shred-it City Hall Svcs	HR	502-406-88100	0.82
	8014684937	7/26 Shred-it City Hall Svcs	HR	502-510-88100	2.05
	8014684937	7/26 Shred-it City Hall Svcs	HR	503-406-88100	0.62
	8014684937	7/26 Shred-it City Hall Svcs	HR	503-520-88100	1.23
	8014684937	7/26 Shred-it City Hall Svcs	HR	503-521-88100	0.62
	8014684937	7/26 Shred-it City Hall Svcs	HR	504-535-88100	0.41
	8014684937	7/26 Shred-it City Hall Svcs	HR	820-610-88100	0.41
82075	7/16/2026	1920	THOMSON REUTERS/BARCLAYS		847.95
	853802920	7/26 PD Clear Software Subscription		101-413-86030	847.95
82076	7/16/2026	1946	ULINE		211.42
	209825576	7/26 PD Gloves		101-413-70440	211.42
82077	7/16/2026	02864	VESTIS GROUP INC ARAMARK UNIFORM & APPAREL LLC		697.36
	25080725574	7/26 PD Jail Blankets		101-413-70380	697.36
82078	7/20/2026	1205	City Employee Contrib. Assoc.		150.00
	0015951	CECA Dues		950-000-33000	150.00
82079	7/20/2026	1223	Coalinga Firefighters		650.00
	0015958	Fire Union Dues		950-000-33300	600.00
	0015959	Fire Union Dues		950-000-33300	30.00
	0015963	Fire Union Dues		950-000-33300	20.00
82080	7/20/2026	1228	Coalinga Peace Officer's Association		1,012.32
	0015961	Mastagni Law Firm		950-000-33200	332.50
	0015964	CPOA Dues		950-000-33200	332.50
	0015965	PORAC Dues		950-000-33200	347.32
82081	7/20/2026	1384	Franchise Tax Board		325.00
	0016035	FTB Sacramento $$		950-000-34010	150.00
	0016036	FTB Sacramento $$		950-000-34010	100.00
	0016037	FTB Sacramento $$		950-000-34010	75.00
82082	7/20/2026	02709	International City Management Association Retirement Corporation		8,543.14
	0015986	457 ICMA EE$/ER%		950-000-32100	524.98
	0015987	457 ICMA EE$/ER%		950-000-32100	854.16
	0015988	457 ICMA $$ General		950-000-32100	75.46
	0015989	457 ICMA $$ General		950-000-32100	30.00
	0015990	457 ICMA $$ General		950-000-32100	30.00
	0015991	457 ICMA $$ General		950-000-32100	15.00
	0015992	457 ICMA $$ General		950-000-32100	15.00
	0015993	457 ICMA % General		950-000-32100	710.74
	0015994	457 ICMA % General		950-000-32100	1,016.74
	0015995	457 ICMA % General		950-000-32100	406.76
	0015996	457 ICMA % General		950-000-32100	433.40
	0015997	457 ICMA % General		950-000-32100	338.64
	0015998	457 ICMA % General		950-000-32100	895.39
	0015999	457 ICMA % General		950-000-32100	415.32
	0016000	457 ICMA % General		950-000-32100	263.76
	0016001	457 ICMA % General		950-000-32100	257.65
	0016002	457 ICMA % General		950-000-32100	1,170.00
	0016003	457 ICMA % General		950-000-32100	571.66
	0016004	457 ICMA % General		950-000-32100	305.08

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	0016005	457 ICMA % General		950-000-32100	213.40
82084	7/20/2026	1586	LEGAL SHIELD		152.81
	0015960	Pre-Paid Legal Shield		950-000-34060	152.81
82085	7/20/2026	1820	SEIU LOCAL 521 - DUES W/H		1,052.84
	0015966	SEIU COPE		950-000-33000	70.00
	0015967	SEIU Dues		950-000-33000	982.84
82086	7/27/2026	02551	ALBERT J. ORNELAS		26.86
	0016233	6/26 FD PYAP A. Ornelas Amb Run Meal Reimburse		117-416-75010	26.86
82087	7/27/2026	02386	AMERICAN OFFICE SOLUTIONS, LLC		3,600.00
	27008	6/26 PYAP Contract IT Allocation Admin		101-401-88040	55.77
	27008	6/26 PYAP Contract IT Allocation Building		101-404-88040	71.37
	27008	6/26 PYAP Contract IT Allocation Admin		101-405-88040	55.77
	27008	6/26 PYAP Contract IT Allocation Finance		101-406-88040	12.47
	27008	6/26 PYAP Contract IT Allocation HR		101-408-88040	36.39
	27008	6/26 PYAP Contract IT Allocation Police		101-413-88040	1,722.20
	27008	6/26 PYAP Contract IT Allocation Fire		101-416-88040	466.77
	27008	6/26 PYAP Contract IT Allocation Public Works		107-422-88040	74.12
	27008	6/26 PYAP Contract IT Allocation HR		107-422-88040	1.43
	27008	6/26 PYAP Contract IT Allocation HR		117-416-88040	8.56
	27008	6/26 PYAP Contract IT Allocation Finance		501-406-88040	166.24
	27008	6/26 PYAP Contract IT Allocation HR		501-406-88040	2.85
	27008	6/26 PYAP Contract IT Allocation HR		501-503-88040	4.28
	27008	6/26 PYAP Contract IT Allocation Public Works		501-503-88040	111.18
	27008	6/26 PYAP Contract IT Allocation Public Works		501-508-88040	74.12
	27008	6/26 PYAP Contract IT Allocation HR		501-508-88040	4.99
	27008	6/26 PYAP Contract IT Allocation Finance		502-406-88040	145.46
	27008	6/26 PYAP Contract IT Allocation HR		502-406-88040	2.85
	27008	6/26 PYAP Contract IT Allocation Public Works		502-510-88040	185.30
	27008	6/26 PYAP Contract IT Allocation HR		502-510-88040	4.99
	27008	6/26 PYAP Contract IT Allocation HR		503-406-88040	1.07
	27008	6/26 PYAP Contract IT Allocation Finance		503-406-88040	83.12
	27008	6/26 PYAP Contract IT Allocation HR		503-520-88040	2.14
	27008	6/26 PYAP Contract IT Allocation Public Works		503-520-88040	148.24
	27008	6/26 PYAP Contract IT Allocation Public Works		503-521-88040	148.24
	27008	6/26 PYAP Contract IT Allocation HR		503-521-88040	0.71
	27008	6/26 PYAP Contract IT Allocation Finance		504-406-88040	8.30
	27008	6/26 PYAP Contract IT Allocation HR		504-406-88040	0.36
	27008	6/26 PYAP Contract IT Allocation HR		820-610-88040	0.71
82089	7/27/2026	1081	AT&T		135.00
	5395367115	7/26 PD Telephone Charges (831-001-5012 753)		101-413-72030	135.00
82090	7/27/2026	1112	BILLINGSLEY TIRE SERVICE		3,084.71
	CLG-314481	6/26 FD PYAP M257 Repairs		117-416-84060	69.11
	CLG-314482	6/26 FD PYAP B173 Repairs		101-416-84060	1,522.10
	CLG-315465	6/26 PYAP PD Brake Sensors		101-413-84060	70.00
	CLG-315575	6/26 FD PYAP M255 Repairs		117-416-84060	1,423.50
82091	7/27/2026	1170	CARGILL INCORPORATED		5,902.49
	2912486088	6/26 WP Salt Hypo		501-503-70300	5,902.49
82092	7/27/2026	1189	CENTRAL VALLEY TOXICOLOGY, INC.		247.00
	346664	6/26 PYAP PD Drug Screen		101-413-88080	165.00
	347355	7/26 PD BAC Screening		101-413-88080	82.00
82093	7/27/2026	1192	CHEMTRADE CHEMICALS US, LLC		19,076.56
	90410798	6/26 WP Alum Chemical		501-503-70240	9,532.07
	90414141	6/26 WP Alum Chemical		501-503-70240	9,544.49

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82094	7/27/2026	1196	CHRISTOPHER MONTOYA		92.00
	TR-00037	6/26 PYAP PD C. Montoya Meal Reimbursement		101-413-86010	92.00
82095	7/27/2026	1224	COALINGA HARDWARE		66.19
	841834	6/26 PYAP Ducktape for Airport		101-435-84030	20.68
	842592	6/26 PYAP FD Apparatus		101-416-84060	45.51
82097	7/27/2026	02787	DATA TICKET, INC.		702.85
	193579	6/26 PYAP PD Code Enforcement		101-413-88100	280.00
	196310	7/26 PD Animal Control		101-413-88100	91.00
	196332	7/26 PD Code Enforcement		101-413-88100	331.85
82098	7/27/2026	1288	DEPARTMENT OF JUSTICE		167.00
	057886	6/26 PYAP HR Fingerprints J. Santos		101-408-89070	66.00
	057886	6/26 PYAP HR Fingerprints N. Moua		101-408-89070	66.00
	062932	7/26 PYAP PD BAC Screening		101-413-88080	35.00
82099	7/27/2026	02574	DOROTHY JUNE BAKER		460.28
	14396	6/26 PW Mower Parts		101-440-84075	254.60
	14444	6/26 PW Stringline Weedeaters		101-440-84050	102.84
	14444	6/26 PYAP PW Stringline Weedeaters		107-422-84050	102.84
82100	7/27/2026	02533	FLIGHT LIGHT, INC.		1,756.93
	0106528-IN	6/26 PYAP Airport Light Bulbs		101-435-98040	491.69
	0106793-IN	6/26 PYAP End Runway Light Airport		101-435-98040	1,265.24
82101	7/27/2026	1407	FRESNO COUNTY SHERIFF		499.84
	SO23712	7/26 PD RMS/JMS/CAD Contract		101-413-88100	352.16
	SO23747	6/26 PD Prisoner Processing		101-413-88100	147.68
82102	7/27/2026	02593	FRESNO OXYGEN & WELDING SUPPLY		673.06
	0063782493	6/26 PW Welding Supplies Truck #26		501-508-70060	469.29
	0063785822	6/26 PW Grinder Truck #26		501-508-70060	203.77
82103	7/27/2026	1411	FRESNO POLICE DEPARTMENT REGIONAL TRAINING CENTER		1,246.00
	20011245	6/26 PYAP PD D. Sauceda Perishable Skills Training		101-413-86010	623.00
	20011246	6/26 PYAP PD C. Montoya Perishable Skills Training		101-413-86010	623.00
82104	7/27/2026	1422	GCS ENVIRONMENTAL EQUIPMENT SERVICES		505.61
	32221	6/26 PYAP PW Sweeper Repairs		504-535-84060	505.61
82105	7/27/2026	02652	JEFFREY KELLEY		2,774.38
	6590	6/26 FD PYAP KISI Supplies		101-416-88040	2,774.38
82106	7/27/2026	02329	MICHAEL K. NUNLEY & ASSOCIATES, INC.		12,645.50
	3507	6/26 PYAP RRA & ERP Updates		501-503-88100	6,438.75
	3532	6/26 PYAP 2025 Consumer Confidence Report		501-503-88100	3,250.50
	3562	6/26 PYAP Filter Beds		501-503-98441	2,956.25
82107	7/27/2026	1659	MOTOROLA SOLUTIONS, INC.		243.61
	8282354295	6/26 PD Radios		101-413-88040	243.61
82108	7/27/2026	02664	PHILLIPS ELECTRIC, LLC		634.57
	INV0960	6/26 PYAP PW RFB Repair W. Polk		101-440-84077	634.57
82109	7/27/2026	1944 CC	US BANK CORPORATE PAYMENT CENTER		2,176.12
	USB-PW-JUN2026	(4246047000954450) Hose Clamp Kit for Shop		101-431-70150	31.07
	USB-PW-JUN2026	(4246047000954450)Amazon- Dog Trash Bags		101-440-84050	235.34
	USB-PW-JUN2026	(4246047000954450) Sprinkler Ware House Irriagtio		101-440-84050	1,583.90
	USB-PW-JUN2026	(4246047000954450) Exam Prep J. Sandoval		501-508-86010	179.99
	USB-PW-JUN2026	(4246047000954450) Supplyhouse- Gas Rectifer Fus		502-510-70140	90.86
	USB-PW-JUN2026	(4246047000954450) Chevron Ice for PW		502-510-70440	12.51
	USB-PW-JUN2026	(4246047000954450) Chevron Ice for PW		503-521-70440	12.50

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	USB-WP-JUN2026	(4246047000890126) SCADA Alarm		501-503-72030	29.95
82110	7/27/2026	1964	USABLUEBOOK		4,158.66
	INV01083183	6/26 WP Lab Supplies		501-503-70202	4,158.66
82111	7/27/2026	1992	WEST HILLS MEDICAL GROUP, INC.		840.00
	2026-195	6/26 PYAP HR Medical/Physicals K. Dahl		101-408-89040	140.00
	2026-195	6/26 PYAP HR Medical/Physicals J. Santos		101-408-89040	140.00
	2026-195	6/26 PYAP HR Medical/Physicals D. Garcia		101-408-89040	140.00
	2026-195	6/26 PYAP HR Medical/Physicals E. Deleon		101-440-60010	6.30
	2026-195	6/26 PYAP HR Medical/Physicals E. Deleon		107-422-60010	14.70
	2026-195	6/26 PYAP HR Medical/Physicals J. Moreno		107-422-88060	31.50
	2026-195	6/26 PYAP HR Medical/Physicals E. Deleon		501-508-60010	84.00
	2026-195	6/26 PYAP HR Medical/Physicals J. Moreno		501-508-88060	73.50
	2026-195	6/26 PYAP HR Medical/Physicals E. Deleon		502-510-60010	84.00
	2026-195	6/26 PYAP HR Medical/Physicals J. Moreno		502-510-88060	73.50
	2026-195	6/26 PYAP HR Medical/Physicals E. Deleon		503-521-60010	21.00
	2026-195	6/26 PYAP HR Medical/Physicals J. Moreno		503-521-88060	31.50
82112	7/27/2026	1993	WEST HILLS OIL, INC.		209.31
	86369	6/26 PYAP PW Fuel for June		501-406-70160	83.72
	86369	6/26 PYAP PW Fuel for June		502-406-70160	73.26
	86369	6/26 PYAP PW Fuel for June		503-406-70160	48.14
	86369	6/26 PYAP PW Fuel for June		504-406-70160	4.19
82113	7/27/2026	02386	AMERICAN OFFICE SOLUTIONS, LLC		8,002.02
	27205	7/26 PD Set Up for D. Garcia		101-413-88040	162.58
	27295	7/26 PD Microsoft Subscription		101-413-86030	91.90
	27300	7/26 Contract IT Allocation Admin		101-401-88040	55.77
	27300	7/26 Contract IT Allocation Building		101-404-88040	71.37
	27300	7/26 Contract IT Allocation Admin		101-405-88040	55.77
	27300	7/26 Contract IT Allocation Finance		101-406-88040	12.47
	27300	7/26 Contract IT Allocation HR		101-408-88040	36.39
	27300	7/26 Contract IT Allocation Police		101-413-88040	1,722.20
	27300	7/26 Contract IT Allocation Fire		101-416-88040	466.77
	27300	7/26 Contract IT Allocation HR		107-422-88040	1.43
	27300	7/26 Contract IT Allocation Public Works		107-422-88040	74.12
	27300	7/26 Contract IT Allocation HR		117-416-88040	8.56
	27300	7/26 Contract IT Allocation Finance		501-406-88040	166.24
	27300	7/26 Contract IT Allocation HR		501-406-88040	2.85
	27300	7/26 Contract IT Allocation HR		501-503-88040	4.28
	27300	7/26 Contract IT Allocation Public Works		501-503-88040	111.18
	27300	7/26 Contract IT Allocation HR		501-508-88040	4.99
	27300	7/26 Contract IT Allocation Public Works		501-508-88040	74.12
	27300	7/26 Contract IT Allocation Finance		502-406-88040	145.46
	27300	7/26 Contract IT Allocation HR		502-406-88040	2.85
	27300	7/26 Contract IT Allocation Public Works		502-510-88040	185.30
	27300	7/26 Contract IT Allocation HR		502-510-88040	4.99
	27300	7/26 Contract IT Allocation Finance		503-406-88040	83.12
	27300	7/26 Contract IT Allocation HR		503-406-88040	1.07
	27300	7/26 Contract IT Allocation HR		503-520-88040	2.14
	27300	7/26 Contract IT Allocation Public Works		503-520-88040	148.24
	27300	7/26 Contract IT Allocation HR		503-521-88040	0.71
	27300	7/26 Contract IT Allocation Public Works		503-521-88040	148.24
	27300	7/26 Contract IT Allocation HR		504-406-88040	0.36
	27300	7/26 Contract IT Allocation Finance		504-406-88040	8.30
	27300	7/26 Contract IT Allocation HR		820-610-88040	0.71
	27305	7/26 FD D, Zaragoza Outlook Afterhours		101-416-88040	400.00
	27305-2	7/26 PD Tech Support		101-413-88040	1,800.00
	27332	7/26 FD Soto Laptop		101-416-84010	1,547.54

Payment Number	Payment Date / Payable Number	Vendor # / Description	Vendor Name	Account Number	Payment Amount / Item Amount
	27333	7/26 FD Soto Laptop		101-416-84010	400.00
82116	7/27/2026	02080	AT&T 4050		1,103.50
	000025543554	7/26 PD Telephones (9391064050) 6/13-7/12/2026		101-413-72030	1,103.50
82117	7/27/2026	02056	AT&T 4711		287.87
	000025543692	7/26 PD Telephones (9391064711) 6/13-7/12/2026		101-413-72030	287.87
82118	7/27/2026	02082	AUTOZONE, INC.		96.35
	05919683362	7/26 PD Oil/Filter		101-413-84060	96.35
82119	7/27/2026	1112	BILLINGSLEY TIRE SERVICE		261.69
	CLG-31562	7/26 PD A/C Service		101-413-84060	261.69
82120	7/27/2026	03052	CALIFORNIA PPE RECON INC		2,615.50
	3628	7/26 FD Turnout Cleaning/Inspection		101-416-70102	2,615.50
82121	7/27/2026	1224	COALINGA HARDWARE		190.13
	842907	7/26 PD Strip Furring		101-415-70060	79.42
	842913	7/26 PD Saw Blade		101-415-70060	40.76
	842968	7/26 FD M251 Inverter		117-416-84060	33.12
	843028	7/26 PD Surge Protect		101-413-70060	33.12
	843059	7/26 FD Soto Office		101-416-84030	3.71
82122	7/27/2026	03202	ESTEBAN DENIZ		1,454.00
	0016242	7/26 Turf Replacement Program Reimbursement		501-503-98471	1,454.00
82123	7/27/2026	02192	GIMME LOVE ANIMAL SHELTER		450.00
	0016227	7/26 Councilman Schindler Donation		101-415-88100	450.00
82124	7/27/2026	02765	HCI SYSTEMS, INC.		939.00
	I0166527	7/26 Fire Alarm Service Call Troubleshoot		101-432-84030	939.00
82125	7/27/2026	03207	ISAIAH WEBB		1,500.00
	0016237	7/26 Youth in Government Scholarship FY26/27		101-401-88221	1,500.00
82126	7/27/2026	03199	KARINA BONILLA		2,000.00
	0016243	7/26 Turf Replacement Program Reimbursement		501-503-98471	2,000.00
82127	7/27/2026	1553	KELLER FORD		915.17
	50279636	7/26 PD Vehicle Repair		101-413-84060	915.17
82128	7/27/2026	02230	MAS MODERN MARKETING, INC.		750.00
	MMI169466	7/26 PD Just Say No Lolipops		101-413-70440	750.00
82129	7/27/2026	03200	MAVILE HERNANDEZ		2,000.00
	0016240	7/26 Turf Replacement Program Reimbursement		501-503-98471	2,000.00
82130	7/27/2026	03201	MONICA CORTES		2,000.00
	0016239	7/26 Turf Replacement Reimbursement 734PetiteSir		501-503-98471	2,000.00
82131	7/27/2026	1655	MORENO'S PLUMBING		271.05
	000062	7/26 Toilet Repair-Airport Modular Home		101-435-84030	271.05
82132	7/27/2026	1661	MOUNTAIN VALLEY PEST CONTROL, INC.		103.00
	116761	7/26 PD Pest Control Services		101-413-88100	65.00
	116766	7/26 FD Pest Control Services July 2026		101-416-84050	38.00
82133	7/27/2026	1692	O'REILLY AUTOMOTIVE, INC.		1,280.42
	4316-167502	7/26 PD QK Start Assm C27		101-413-84060	724.60
	4316-167505	7/26 PD OE Spct Shk C27		101-413-84060	69.44
	4316-167544	7/26 PD Filter/Oil/ Wiper Blade C27		101-413-84060	133.66
	4316-167598	7/26 PD Control Arm C27		101-413-84060	121.19
	4316-167625	7/26 PD Filter/Oil		101-413-84060	65.39
	4316-168307	7/26 PD Brakes C4		101-413-84060	241.48

Payment Number	Payment Date Payable Number	Vendor # Description	Vendor Name	Account Number	Payment Amount Item Amount
	4316-168697	7/26 FD M255 Parts		117-416-84060	63.54
	CM4316-167600	7/26 PD Vehicle Repair C27		101-413-84060	-138.88
82134	7/27/2026	02694	STERICYCLE, INC		211.56
	8014676954	6/26 FD PYAP Hazardeous Waste		117-416-75000	211.56
82135	7/27/2026	1878	STRYKER SALES CORPORATION		19,465.20
	9212803553	7/26 FD Pro Care Contract		101-416-75060	19,465.20
82136	7/27/2026	03218	VICTOR KHALIL		2,175.00
	0016241	7/26 Turf Replacement Reimbursement368Longhall		501-503-98471	2,175.00
82137	7/27/2026	1975	VINCENT COMMUNICATIONS		62.72
	92359	7/26 FD B171 Fuse Panel		101-416-84060	62.72
DFT0011094	7/2/2026	1025	AFLAC Group Insurance		469.09
	0015938	AFLAC After Tax		950-000-34600	469.09
DFT0011095	7/2/2026	1025	AFLAC Group Insurance		1,531.70
	0015939	AFLAC Pre Tax		950-000-34600	1,531.70
DFT0011113	7/2/2026	02043	New York Life Insurance		667.88
	0015962	New York Life Insurance		950-000-32400	667.88
DFT0011131	7/2/2026	1207	CITY OF COALINGA		657.94
	0015985	Unreimbursed Medical		950-000-34500	657.94
DFT0011132	7/2/2026	1677	Newport Trust Company		90.00
	0016006	457 Newport $$ General		950-000-32100	90.00
DFT0011133	7/2/2026	1677	Newport Trust Company		302.17
	0016007	457 Newport $$ General		950-000-32100	302.17
DFT0011134	7/2/2026	1677	Newport Trust Company		112.50
	0016008	457 Newport $$ General		950-000-32100	112.50
DFT0011135	7/2/2026	1677	Newport Trust Company		942.00
	0016009	457 Newport $$ General		950-000-32100	942.00
DFT0011136	7/2/2026	1677	Newport Trust Company		37.50
	0016010	457 Newport $$ General		950-000-32100	37.50
DFT0011137	7/2/2026	1677	Newport Trust Company		75.00
	0016011	457 Newport $$ General		950-000-32100	75.00
DFT0011138	7/2/2026	1677	Newport Trust Company		114.43
	0016012	457 Newport $$ General		950-000-32100	114.43
DFT0011139	7/2/2026	1677	Newport Trust Company		13,462.65
	0016013	457 Newport $$ General		950-000-32100	13,462.65
DFT0011140	7/2/2026	1677	Newport Trust Company		468.35
	0016014	457 Newport $$ General		950-000-32100	468.35
DFT0011141	7/2/2026	1677	Newport Trust Company		75.00
	0016015	457 Newport $$ General		950-000-32100	75.00
DFT0011142	7/2/2026	1677	Newport Trust Company		75.00
	0016016	457 Newport $$ General		950-000-32100	75.00
DFT0011143	7/2/2026	1677	Newport Trust Company		521.80
	0016017	457 Newport % General		950-000-32100	521.80
DFT0011144	7/2/2026	1677	Newport Trust Company		588.68
	0016018	457 Newport % General		950-000-32100	588.68

Payment Number	Payment Date Payable Number	Vendor # Description	Vendor Name	Account Number	Payment Amount Item Amount
DFT0011145	7/2/2026	1677	Newport Trust Company		192.70
	0016019	457 Newport % General		950-000-32100	192.70
DFT0011146	7/2/2026	1677	Newport Trust Company		486.75
	0016020	457 Newport % General		950-000-32100	486.75
DFT0011147	7/2/2026	1677	Newport Trust Company		513.82
	0016021	457 Newport % General		950-000-32100	513.82
DFT0011148	7/2/2026	1677	Newport Trust Company		157.30
	0016022	457 Newport % General		950-000-32100	157.30
DFT0011149	7/2/2026	1677	Newport Trust Company		449.74
	0016023	457 Newport % General		950-000-32100	449.74
DFT0011150	7/2/2026	1677	Newport Trust Company		249.09
	0016024	457 Newport % General		950-000-32100	249.09
DFT0011151	7/2/2026	1677	Newport Trust Company		512.30
	0016025	457 Newport % General		950-000-32100	512.30
DFT0011152	7/2/2026	1677	Newport Trust Company		400.87
	0016026	457 Newport % General		950-000-32100	400.87
DFT0011153	7/2/2026	1677	Newport Trust Company		708.32
	0016027	457 Newport % General		950-000-32100	708.32
DFT0011154	7/2/2026	1677	Newport Trust Company		159.78
	0016028	457 Newport % General		950-000-32100	159.78
DFT0011155	7/2/2026	1677	Newport Trust Company		556.77
	0016029	457 Newport % General		950-000-32100	556.77
DFT0011156	7/2/2026	1677	Newport Trust Company		323.43
	0016030	457 Newport % General		950-000-32100	323.43
DFT0011157	7/2/2026	1677	Newport Trust Company		158.64
	0016031	457 Newport % General		950-000-32100	158.64
DFT0011158	7/2/2026	1677	Newport Trust Company		333.43
	0016032	457 Newport % General		950-000-32100	333.43
DFT0011159	7/2/2026	1677	Newport Trust Company		638.56
	0016033	457 Newport EE$/ER%		950-000-32100	638.56
DFT0011160	7/2/2026	1677	Newport Trust Company		2,215.11
	0016034	457 Newport EE$/ER%		950-000-32100	2,215.11
DFT0011161	7/2/2026	1869	California State Disbursement Unit		315.69
	0016038	SDU Fresno County DCSS		950-000-34010	315.69
DFT0011162	7/2/2026	1869	California State Disbursement Unit		109.61
	0016039	SDU Fresno County DCSS		950-000-34010	109.61
DFT0011163	7/2/2026	1869	California State Disbursement Unit		173.07
	0016040	SDU Fresno County DCSS		950-000-34010	173.07
DFT0011164	7/2/2026	1869	California State Disbursement Unit		562.61
	0016041	SDU Merced County DCSS		950-000-34010	562.61
DFT0011165	7/2/2026	02078	SDI		4,727.38
	0016042	SDI		950-000-31500	4,727.38
DFT0011166	7/2/2026	02077	SDI (Mgr)		354.54
	0016043	SDI Mgr		950-000-31500	354.54

Payment Number	Payment Date Payable Number	Vendor # Description	Vendor Name	Account Number	Payment Amount Item Amount
DFT0011167	7/2/2026	1331	Employment Development Dept. (EDD)		13,383.37
	0016044	State W/H		950-000-31200	13,383.37
DFT0011168	7/2/2026	1956	IRS/United States Treasury		91,222.32
	0016045	Fed W/H		950-000-31100	32,237.68
	0016045	Social Security		950-000-31300	47,804.58
	0016045	Medicare		950-000-31400	11,180.06
DFT0011227	7/17/2026	1025	AFLAC Group Insurance		698.06
	0016115	AFLAC After Tax		950-000-34600	698.06
DFT0011228	7/17/2026	1025	AFLAC Group Insurance		2,176.83
	0016116	AFLAC Pre Tax		950-000-34600	2,176.83
DFT0011229	7/17/2026	02211	Blue Shield of California		7,918.06
	0016117	Blue Shield HMO- Gen/Non-Rep		950-000-32200	7,918.06
DFT0011230	7/17/2026	02211	Blue Shield of California		4,524.59
	0016118	Blue Shield HMO - Fire		950-000-32200	4,524.59
DFT0011231	7/17/2026	02211	Blue Shield of California		452.46
	0016119	Blue Shield HMO - Non-Safety FD		950-000-32200	452.46
DFT0011232	7/17/2026	02211	Blue Shield of California		3,121.97
	0016120	Blue Shield HMO - Police Non- Sworn		950-000-32200	3,121.97
DFT0011233	7/17/2026	02211	Blue Shield of California		5,384.28
	0016121	Blue Shield HMO - Police Sworn		950-000-32200	5,384.28
DFT0011234	7/17/2026	02211	Blue Shield of California		26,847.36
	0016122	Blue Shield PPO - Gen/Non-Rep		950-000-32200	26,847.36
DFT0011235	7/17/2026	02211	Blue Shield of California		1,624.75
	0016123	Blue Shield PPO - City Manager		950-000-32200	1,624.75
DFT0011236	7/17/2026	02211	Blue Shield of California		13,151.93
	0016124	Blue Shield PPO - Fire		950-000-32200	13,151.93
DFT0011237	7/17/2026	02211	Blue Shield of California		1,630.41
	0016125	Blue Shield PPO - Non-Safety - FD		950-000-32200	1,630.41
DFT0011238	7/17/2026	02211	Blue Shield of California		1,521.71
	0016126	Blue Shield PPO- Police Non- Sworn		950-000-32200	1,521.71
DFT0011239	7/17/2026	02211	Blue Shield of California		4,836.87
	0016127	Blue Shield PPO - Police Sworn		950-000-32200	4,836.87
DFT0011240	7/17/2026	03127	DELTA DENTAL OF CALIFORNIA		58.97
	0016129	Delta Dental- City Manager		950-000-32200	58.97
DFT0011241	7/17/2026	03127	DELTA DENTAL OF CALIFORNIA		547.30
	0016130	Delta Dental FIRE		950-000-32200	547.30
DFT0011242	7/17/2026	03127	DELTA DENTAL OF CALIFORNIA		993.31
	0016131	Delta Dental General/Non-Rep		950-000-32200	993.31
DFT0011243	7/17/2026	03127	DELTA DENTAL OF CALIFORNIA		165.49
	0016132	Delta Dental Non-Safety POLICE		950-000-32200	165.49
DFT0011245	7/17/2026	03127	DELTA DENTAL OF CALIFORNIA		53.08
	0016134	Delta Dental Non-Safety FIRE		950-000-32200	53.08
DFT0011246	7/17/2026	02043	New York Life Insurance		596.13
	0016139	New York Life Insurance		950-000-32400	596.13

Payment Number	Payment Date Payable Number	Vendor # Description	Vendor Name	Account Number	Payment Amount Item Amount
DFT0011247	7/17/2026	1865	Standard Insurance Company		3.85
	0016145	Standard Basic Dependent Life Ins		950-000-32400	3.85
DFT0011248	7/17/2026	1865	Standard Insurance Company		0.68
	0016146	Standard Basic Dependent Life Ins - NS PD		950-000-32400	0.68
DFT0011249	7/17/2026	1865	Standard Insurance Company		2.52
	0016147	Standard Basic Dependent Life Ins - FD		950-000-32400	2.52
DFT0011250	7/17/2026	1865	Standard Insurance Company		0.18
	0016148	Standard Basic Dependent Life Ins - NS FD		950-000-32400	0.18
DFT0011251	7/17/2026	1865	Standard Insurance Company		1.70
	0016149	Standard Basic Dependent Life Ins - PD		950-000-32400	1.70
DFT0011252	7/17/2026	1865	Standard Insurance Company		269.06
	0016150	Standard Life AD&D Employer Portion		950-000-32400	269.06
DFT0011253	7/17/2026	1865	Standard Insurance Company		14.59
	0016151	Standard Dental - Police		950-000-32200	14.59
DFT0011254	7/17/2026	1865	Standard Insurance Company		274.44
	0016152	Standard Vision		950-000-32200	274.44
DFT0011255	7/17/2026	1865	Standard Insurance Company		10.68
	0016153	Standard Vision - City Manager		950-000-32200	10.68
DFT0011256	7/17/2026	1865	Standard Insurance Company		136.52
	0016154	Standard Vision - Fire		950-000-32200	136.52
DFT0011257	7/17/2026	1865	Standard Insurance Company		17.28
	0016155	Standard Vision - Non-Safety Fire EMS		950-000-32200	17.28
DFT0011258	7/17/2026	1865	Standard Insurance Company		39.64
	0016156	Standard Vision - Police		950-000-32200	39.64
DFT0011259	7/17/2026	1865	Standard Insurance Company		78.32
	0016157	Standard Vision - Police Sworn		950-000-32200	78.32
DFT0011260	7/17/2026	1865	Standard Insurance Company		653.61
	0016158	Standard LTD		950-000-32300	653.61
DFT0011261	7/17/2026	1865	Standard Insurance Company		618.18
	0016159	Standar Voluntary Life Insurance EE		950-000-32400	618.18
DFT0011262	7/17/2026	1865	Standard Insurance Company		50.20
	0016160	Standard Voluntary Life Insurance - Spouse		950-000-32400	50.20
DFT0011263	7/17/2026	1865	Standard Insurance Company		52.52
	0016161	Standard Voluntary Life Insurance - Child		950-000-32400	52.52
DFT0011264	7/17/2026	1207	CITY OF COALINGA		872.65
	0016162	Unreimbursed Medical		950-000-34500	872.65
DFT0011265	7/17/2026	1677	Newport Trust Company		90.00
	0016182	457 Newport $$ General		950-000-32100	90.00
DFT0011266	7/17/2026	1677	Newport Trust Company		302.17
	0016183	457 Newport $$ General		950-000-32100	302.17
DFT0011267	7/17/2026	1677	Newport Trust Company		112.50
	0016184	457 Newport $$ General		950-000-32100	112.50
DFT0011268	7/17/2026	1677	Newport Trust Company		942.00
	0016185	457 Newport $$ General		950-000-32100	942.00

Payment Number	Payment Date Payable Number	Vendor # Description	Vendor Name	Account Number	Payment Amount Item Amount
DFT0011269	7/17/2026	1677	Newport Trust Company		37.50
	0016186	457 Newport $$ General		950-000-32100	37.50
DFT0011270	7/17/2026	1677	Newport Trust Company		75.00
	0016187	457 Newport $$ General		950-000-32100	75.00
DFT0011271	7/17/2026	1677	Newport Trust Company		114.43
	0016188	457 Newport $$ General		950-000-32100	114.43
DFT0011272	7/17/2026	1677	Newport Trust Company		468.35
	0016189	457 Newport $$ General		950-000-32100	468.35
DFT0011273	7/17/2026	1677	Newport Trust Company		75.00
	0016190	457 Newport $$ General		950-000-32100	75.00
DFT0011274	7/17/2026	1677	Newport Trust Company		75.00
	0016191	457 Newport $$ General		950-000-32100	75.00
DFT0011275	7/17/2026	1677	Newport Trust Company		433.01
	0016192	457 Newport % General		950-000-32100	433.01
DFT0011276	7/17/2026	1677	Newport Trust Company		588.68
	0016193	457 Newport % General		950-000-32100	588.68
DFT0011277	7/17/2026	1677	Newport Trust Company		173.59
	0016194	457 Newport % General		950-000-32100	173.59
DFT0011278	7/17/2026	1677	Newport Trust Company		411.71
	0016195	457 Newport % General		950-000-32100	411.71
DFT0011279	7/17/2026	1677	Newport Trust Company		540.16
	0016196	457 Newport % General		950-000-32100	540.16
DFT0011280	7/17/2026	1677	Newport Trust Company		172.83
	0016197	457 Newport % General		950-000-32100	172.83
DFT0011281	7/17/2026	1677	Newport Trust Company		441.81
	0016198	457 Newport % General		950-000-32100	441.81
DFT0011282	7/17/2026	1677	Newport Trust Company		310.40
	0016199	457 Newport % General		950-000-32100	310.40
DFT0011283	7/17/2026	1677	Newport Trust Company		621.77
	0016200	457 Newport % General		950-000-32100	621.77
DFT0011284	7/17/2026	1677	Newport Trust Company		400.87
	0016201	457 Newport % General		950-000-32100	400.87
DFT0011285	7/17/2026	1677	Newport Trust Company		708.32
	0016202	457 Newport % General		950-000-32100	708.32
DFT0011286	7/17/2026	1677	Newport Trust Company		159.78
	0016203	457 Newport % General		950-000-32100	159.78
DFT0011287	7/17/2026	1677	Newport Trust Company		510.79
	0016204	457 Newport % General		950-000-32100	510.79
DFT0011288	7/17/2026	1677	Newport Trust Company		388.95
	0016205	457 Newport % General		950-000-32100	388.95
DFT0011289	7/17/2026	1677	Newport Trust Company		261.60
	0016206	457 Newport % General		950-000-32100	261.60
DFT0011290	7/17/2026	1677	Newport Trust Company		319.53
	0016207	457 Newport % General		950-000-32100	319.53

Payment Number	Payment Date / Payable Number	Vendor # / Description	Vendor Name	Account Number	Payment Amount / Item Amount
DFT0011291	7/17/2026	1677	Newport Trust Company		638.56
	0016208	457 Newport EE$/ER%		950-000-32100	638.56
DFT0011292	7/17/2026	1677	Newport Trust Company		2,215.11
	0016209	457 Newport EE$/ER%		950-000-32100	2,215.11
DFT0011293	7/17/2026	1869	California State Disbursement Unit		315.69
	0016213	SDU Fresno County DCSS		950-000-34010	315.69
DFT0011294	7/17/2026	1869	California State Disbursement Unit		109.61
	0016214	SDU Fresno County DCSS		950-000-34010	109.61
DFT0011295	7/17/2026	1869	California State Disbursement Unit		173.07
	0016215	SDU Fresno County DCSS		950-000-34010	173.07
DFT0011296	7/17/2026	1869	California State Disbursement Unit		562.61
	0016216	SDU Merced County DCSS		950-000-34010	562.61
DFT0011297	7/17/2026	02078	SDI		4,659.85
	0016217	SDI		950-000-31500	4,659.85
DFT0011298	7/17/2026	02077	SDI (Mgr)		354.54
	0016218	SDI Mgr		950-000-31500	354.54
DFT0011299	7/17/2026	1331	Employment Development Dept. (EDD)		11,571.37
	0016219	State W/H		950-000-31200	11,571.37
DFT0011300	7/17/2026	1956	IRS/United States Treasury		86,678.45
	0016220	Fed W/H		950-000-31100	28,635.35
	0016220	Social Security		950-000-31300	47,041.46
	0016220	Medicare		950-000-31400	11,001.64
DFT0011312	7/23/2026	1865	Standard Insurance Company		-4.32
	CM0001038	Standard Vision - Fire		950-000-32200	-4.32
DFT0011329	7/31/2026	1025	AFLAC Group Insurance		628.44
	0016248	AFLAC After Tax		950-000-34600	628.44
DFT0011330	7/31/2026	1025	AFLAC Group Insurance		2,088.80
	0016249	AFLAC Pre Tax		950-000-34600	2,088.80
DFT0011331	7/31/2026	02211	Blue Shield of California		9,320.69
	0016250	Blue Shield HMO- Gen/Non-Rep		950-000-32200	9,320.69
DFT0011332	7/31/2026	02211	Blue Shield of California		4,524.59
	0016251	Blue Shield HMO - Fire		950-000-32200	4,524.59
DFT0011333	7/31/2026	02211	Blue Shield of California		452.46
	0016252	Blue Shield HMO - Non-Safety FD		950-000-32200	452.46
DFT0011334	7/31/2026	02211	Blue Shield of California		3,121.97
	0016253	Blue Shield HMO - Police Non- Sworn		950-000-32200	3,121.97
DFT0011335	7/31/2026	02211	Blue Shield of California		5,384.28
	0016254	Blue Shield HMO - Police Sworn		950-000-32200	5,384.28
DFT0011336	7/31/2026	02211	Blue Shield of California		26,847.36
	0016255	Blue Shield PPO - Gen/Non-Rep		950-000-32200	26,847.36
DFT0011337	7/31/2026	02211	Blue Shield of California		1,624.75
	0016256	Blue Shield PPO - City Manager		950-000-32200	1,624.75
DFT0011338	7/31/2026	02211	Blue Shield of California		12,608.46
	0016257	Blue Shield PPO - Fire		950-000-32200	12,608.46

Payment Number	Payment Date Payable Number	Vendor # Description	Vendor Name	Account Number	Payment Amount Item Amount
DFT0011340	7/31/2026	02211	Blue Shield of California		1,521.71
	0016259	Blue Shield PPO- Police Non- Sworn		950-000-32200	1,521.71
DFT0011341	7/31/2026	02211	Blue Shield of California		4,836.87
	0016260	Blue Shield PPO - Police Sworn		950-000-32200	4,836.87
DFT0011342	7/31/2026	03127	DELTA DENTAL OF CALIFORNIA		58.97
	0016262	Delta Dental- City Manager		950-000-32200	58.97
DFT0011343	7/31/2026	03127	DELTA DENTAL OF CALIFORNIA		534.03
	0016263	Delta Dental FIRE		950-000-32200	534.03
DFT0011344	7/31/2026	03127	DELTA DENTAL OF CALIFORNIA		1,040.12
	0016264	Delta Dental General/Non-Rep		950-000-32200	1,040.12
DFT0011345	7/31/2026	03127	DELTA DENTAL OF CALIFORNIA		165.49
	0016265	Delta Dental Non-Safety POLICE		950-000-32200	165.49
DFT0011346	7/31/2026	03127	DELTA DENTAL OF CALIFORNIA		302.54
	0016266	Delta Dental Non-Safety FIRE		950-000-32200	302.54
DFT0011347	7/31/2026	03127	DELTA DENTAL OF CALIFORNIA		53.08
	0016267	Delta Dental Non-Safety FIRE		950-000-32200	53.08
DFT0011348	7/31/2026	02043	New York Life Insurance		621.73
	0016272	New York Life Insurance		950-000-32400	621.73
DFT0011349	7/31/2026	1865	Standard Insurance Company		3.85
	0016278	Standard Basic Dependent Life Ins		950-000-32400	3.85
DFT0011350	7/31/2026	1865	Standard Insurance Company		0.68
	0016279	Standard Basic Dependent Life Ins - NS PD		950-000-32400	0.68
DFT0011351	7/31/2026	1865	Standard Insurance Company		2.52
	0016280	Standard Basic Dependent Life Ins - FD		950-000-32400	2.52
DFT0011352	7/31/2026	1865	Standard Insurance Company		0.18
	0016281	Standard Basic Dependent Life Ins - NS FD		950-000-32400	0.18
DFT0011353	7/31/2026	1865	Standard Insurance Company		1.70
	0016282	Standard Basic Dependent Life Ins - PD		950-000-32400	1.70
DFT0011354	7/31/2026	1865	Standard Insurance Company		269.06
	0016283	Standard Life AD&D Employer Portion		950-000-32400	269.06
DFT0011355	7/31/2026	1865	Standard Insurance Company		14.59
	0016284	Standard Dental - Police		950-000-32200	14.59
DFT0011356	7/31/2026	1865	Standard Insurance Company		285.12
	0016285	Standard Vision		950-000-32200	285.12
DFT0011357	7/31/2026	1865	Standard Insurance Company		10.68
	0016286	Standard Vision - City Manager		950-000-32200	10.68
DFT0011358	7/31/2026	1865	Standard Insurance Company		132.20
	0016287	Standard Vision - Fire		950-000-32200	132.20
DFT0011359	7/31/2026	1865	Standard Insurance Company		17.28
	0016288	Standard Vision - Non-Safety Fire EMS		950-000-32200	17.28
DFT0011360	7/31/2026	1865	Standard Insurance Company		39.64
	0016289	Standard Vision - Police		950-000-32200	39.64
DFT0011361	7/31/2026	1865	Standard Insurance Company		78.32
	0016290	Standard Vision - Police Sworn		950-000-32200	78.32

Payment Number	Payment Date Payable Number	Vendor # Description	Vendor Name	Account Number	Payment Amount Item Amount
DFT0011362	7/31/2026	1865	Standard Insurance Company		644.10
	0016291	Standard LTD		950-000-32300	644.10
DFT0011363	7/31/2026	1865	Standard Insurance Company		581.36
	0016292	Standar Voluntary Life Insurance EE		950-000-32400	581.36
DFT0011364	7/31/2026	1865	Standard Insurance Company		50.20
	0016293	Standard Voluntary Life Insurance - Spouse		950-000-32400	50.20
DFT0011365	7/31/2026	1865	Standard Insurance Company		50.61
	0016294	Standard Voluntary Life Insurance - Child		950-000-32400	50.61
DFT0011366	7/31/2026	1207	CITY OF COALINGA		872.65
	0016295	Unreimbursed Medical		950-000-34500	872.65
DFT0011367	7/31/2026	1677	Newport Trust Company		90.00
	0016316	457 Newport $$ General		950-000-32100	90.00
DFT0011368	7/31/2026	1677	Newport Trust Company		302.17
	0016317	457 Newport $$ General		950-000-32100	302.17
DFT0011369	7/31/2026	1677	Newport Trust Company		112.50
	0016318	457 Newport $$ General		950-000-32100	112.50
DFT0011370	7/31/2026	1677	Newport Trust Company		942.00
	0016319	457 Newport $$ General		950-000-32100	942.00
DFT0011371	7/31/2026	1677	Newport Trust Company		37.50
	0016320	457 Newport $$ General		950-000-32100	37.50
DFT0011372	7/31/2026	1677	Newport Trust Company		75.00
	0016321	457 Newport $$ General		950-000-32100	75.00
DFT0011373	7/31/2026	1677	Newport Trust Company		114.43
	0016322	457 Newport $$ General		950-000-32100	114.43
DFT0011374	7/31/2026	1677	Newport Trust Company		468.35
	0016323	457 Newport $$ General		950-000-32100	468.35
DFT0011375	7/31/2026	1677	Newport Trust Company		75.00
	0016324	457 Newport $$ General		950-000-32100	75.00
DFT0011376	7/31/2026	1677	Newport Trust Company		75.00
	0016325	457 Newport $$ General		950-000-32100	75.00
DFT0011377	7/31/2026	1677	Newport Trust Company		610.59
	0016326	457 Newport % General		950-000-32100	610.59
DFT0011378	7/31/2026	1677	Newport Trust Company		608.42
	0016327	457 Newport % General		950-000-32100	608.42
DFT0011379	7/31/2026	1677	Newport Trust Company		153.86
	0016328	457 Newport % General		950-000-32100	153.86
DFT0011380	7/31/2026	1677	Newport Trust Company		425.72
	0016329	457 Newport % General		950-000-32100	425.72
DFT0011381	7/31/2026	1677	Newport Trust Company		513.82
	0016330	457 Newport % General		950-000-32100	513.82
DFT0011382	7/31/2026	1677	Newport Trust Company		162.65
	0016331	457 Newport % General		950-000-32100	162.65
DFT0011383	7/31/2026	1677	Newport Trust Company		474.26
	0016332	457 Newport % General		950-000-32100	474.26

Payment Number	Payment Date Payable Number	Vendor # Description	Vendor Name	Account Number	Payment Amount Item Amount
DFT0011384	7/31/2026	1677	Newport Trust Company		233.58
	0016333	457 Newport % General		950-000-32100	233.58
DFT0011385	7/31/2026	1677	Newport Trust Company		530.10
	0016334	457 Newport % General		950-000-32100	530.10
DFT0011386	7/31/2026	1677	Newport Trust Company		400.87
	0016335	457 Newport % General		950-000-32100	400.87
DFT0011387	7/31/2026	1677	Newport Trust Company		744.20
	0016336	457 Newport % General		950-000-32100	744.20
DFT0011388	7/31/2026	1677	Newport Trust Company		159.78
	0016337	457 Newport % General		950-000-32100	159.78
DFT0011389	7/31/2026	1677	Newport Trust Company		372.13
	0016338	457 Newport % General		950-000-32100	372.13
DFT0011390	7/31/2026	1677	Newport Trust Company		391.57
	0016339	457 Newport % General		950-000-32100	391.57
DFT0011391	7/31/2026	1677	Newport Trust Company		179.17
	0016340	457 Newport % General		950-000-32100	179.17
DFT0011392	7/31/2026	1677	Newport Trust Company		456.50
	0016341	457 Newport % General		950-000-32100	456.50
DFT0011393	7/31/2026	1677	Newport Trust Company		638.56
	0016342	457 Newport EE$/ER%		950-000-32100	638.56
DFT0011394	7/31/2026	1677	Newport Trust Company		2,227.51
	0016343	457 Newport EE$/ER%		950-000-32100	2,227.51
DFT0011395	7/31/2026	1869	California State Disbursement Unit		315.69
	0016347	SDU Fresno County DCSS		950-000-34010	315.69
DFT0011396	7/31/2026	1869	California State Disbursement Unit		109.61
	0016348	SDU Fresno County DCSS		950-000-34010	109.61
DFT0011397	7/31/2026	1869	California State Disbursement Unit		173.07
	0016349	SDU Fresno County DCSS		950-000-34010	173.07
DFT0011398	7/31/2026	1869	California State Disbursement Unit		562.61
	0016350	SDU Merced County DCSS		950-000-34010	562.61
DFT0011399	7/31/2026	02078	SDI		4,759.16
	0016351	SDI		950-000-31500	4,759.16
DFT0011400	7/31/2026	02077	SDI (Mgr)		371.51
	0016352	SDI Mgr		950-000-31500	371.51
DFT0011401	7/31/2026	1331	Employment Development Dept. (EDD)		12,324.35
	0016353	State W/H		950-000-31200	12,324.35
DFT0011402	7/31/2026	1956	IRS/United States Treasury		87,165.55
	0016354	Fed W/H		950-000-31100	27,753.71
	0016354	Social Security		950-000-31300	48,150.76
	0016354	Medicare		950-000-31400	11,261.08
DFT0011410	7/31/2026	02078	SDI		6.26
	0016356	SDI		950-000-31500	6.26
DFT0011411	7/31/2026	1331	Employment Development Dept. (EDD)		15.01
	0016357	State W/H		950-000-31200	15.01

Payment Number	Payment Date Payable Number	Vendor # Description	Vendor Name	Account Number	Payment Amount Item Amount
DFT0011412	7/31/2026	1956	IRS/United States Treasury		123.95
	0016358	Fed W/H		950-000-31100	50.25
	0016358	Social Security		950-000-31300	59.74
	0016358	Medicare		950-000-31400	13.96
DFT0011518	7/23/2026	02971	DIRECT ENERGY MARKETING, INC.		10,621.17
	0016531	PYAP 06/26 June Gas Purchase		502-510-80030	10,621.17
				Grand Total:	**2,195,774.58**

Report Summary

Fund Summary

Fund	Payment Amount
101 - GENERAL FUND	955,681.23
106 - POLICE DEPT GRANTS	25,982.95
107 - GAS TAX FUND	7,615.06
109 - TDA - ARTICLE 3 FUND	40,000.00
110 - LTF - ARTICLE 8 FUND	13,468.64
117 - IGT-INTERGOVERNMENTAL TRANSFER	29,998.13
141 - PUBLIC BUILDING/FACILITIES IMPACT FEES	1,544.12
305 - CALTRANS GRANTS FUND	1,030.57
306 - SPECIAL REVENUE GRANTS FUND	3,909.11
501 - WATER ENTERPRISE FUND	464,223.92
502 - GAS ENTERPRISE FUND	59,296.44
503 - SEWER ENTEPRISE FUND	42,426.38
504 - SANITATION ENTERPRISE FUND	2,784.51
820 - RORF-REDEV OBLIG RETIREMENT FUND (RDA)	5,126.96
950 - PAYROLL TRUST & AGENCY FUND	542,686.56
Grand Total:	**2,195,774.58**

Account Summary

Account Number	Account Name	Payment Amount
101-000-08900	Prepaid Expense	55,665.35
101-000-10003	Retention Payable	-18,444.75
101-400-46070	Code Enforcement Citati	499.00
101-401-70010	Office Supplies	89.36
101-401-72030	Telephone	274.93
101-401-84010	Office Equip. Repairs &	42.32
101-401-86010	Training, Travel, & Confe	269.48
101-401-86011	Training, Travel, & Confe	600.69
101-401-86012	Training, Travel, & Confe	171.62
101-401-86013	Training, Travel, & Confe	1,275.69
101-401-86014	Training, Travel, & Confe	600.69
101-401-86015	Training, Travel, & Confe	600.69
101-401-88040	Computer Programming	111.54
101-401-88100	Professional Services	3,104.00
101-401-88221	Youth in Government Pr	1,500.00
101-401-92081	Fireworks Display	61,598.19
101-404-70010	Office Supplies	3.62
101-404-70060	Small Tools & Equipment	23.80
101-404-70100	Uniforms	54.00
101-404-70160	Gasoline & Diesel	325.45
101-404-72030	Telephone	113.23
101-404-84010	Office Equip. Repairs &	4.97
101-404-86010	Training, Travel, & Confe	187.05
101-404-86030	Subs., Dues, & Publicatio	6,820.57
101-404-86500	Planning-Reimbursable F	17,663.75
101-404-88040	Computer Programming	142.74
101-404-88100	Professional Services	2,445.00
101-404-98025	Outdoor Food Court	6,800.00
101-405-70010	Office Supplies	567.76
101-405-70160	Gasoline & Diesel	51.82
101-405-72030	Telephone	204.01
101-405-84010	Office Equip. Repairs &	32.00
101-405-86010	Training, Travel, & Confe	1,841.27
101-405-86030	Subs., Dues, & Publicatio	2,019.00
101-405-88040	Computer Programming	111.54
101-405-88100	Professional Services	82.32
101-406-70010	Office Supplies	28.80
101-406-72030	Telephone	12.33

Account Summary

Account Number	Account Name	Payment Amount
101-406-82040	Office Equipment Rental	82.31
101-406-84010	Office Equip. Repairs &	296.82
101-406-86010	Training, Travel, & Confe	94.91
101-406-86030	Subs., Dues, & Publicatio	24.00
101-406-88030	Accounting/Auditing	5,101.17
101-406-88040	Computer Programming	24.94
101-406-88100	Professional Services	1,109.03
101-406-89040	Physical w/Drug & Alcoh	29.99
101-406-92090	Taxes, Licenses, & Fees	625.00
101-408-60010	Salaries Regular	3,022.43
101-408-70010	Office Supplies	1.85
101-408-72030	Telephone	23.96
101-408-84010	Office Equip. Repairs &	35.12
101-408-86010	Training, Travel, & Confe	213.96
101-408-88040	Computer Programming	72.78
101-408-88100	Professional Services	46.92
101-408-89040	Physical w/Drug & Alcoh	420.00
101-408-89050	Polygraphs	650.00
101-408-89070	Fingerprinting	132.00
101-408-89080	Background Investigatio	480.00
101-413-62070	Workers' Comp. Insuran	4,233.12
101-413-70060	Small Tools & Equipment	33.12
101-413-70160	Gasoline & Diesel	16,016.14
101-413-70380	Inmate Food/Jail Supplie	1,384.04
101-413-70440	Miscellaneous Supplies	991.89
101-413-72010	Water, Gas, Sanitation &	62.30
101-413-72020	Electric	25.32
101-413-72030	Telephone	3,180.33
101-413-84010	Office Equip. Repairs &	85.82
101-413-84030	Buildings Repairs & Mai	865.00
101-413-84060	Vehicle Parts, Repairs &	3,260.52
101-413-86010	Training, Travel, & Confe	2,216.54
101-413-86030	Subs., Dues, & Publicatio	2,721.10
101-413-88040	Computer Programming	6,193.69
101-413-88080	Laboratory	562.00
101-413-88100	Professional Services	4,565.58
101-413-98040	Major Machinery & Equi	1,312.18
101-415-70060	Small Tools & Equipment	120.18
101-415-72010	Water, Gas, Sanitation &	112.09
101-415-72030	Telephone	78.47
101-415-88100	Professional Services	13,472.00
101-415-98020	Buildings & Bldg. Improv	565.78
101-416-62070	Workers' Comp. Insuran	713.24
101-416-70010	Office Supplies	98.87
101-416-70102	Uniforms	3,890.86
101-416-70160	Gasoline & Diesel	17,390.24
101-416-70450	Station Supplies	196.24
101-416-72010	Water, Gas, Sanitation &	987.27
101-416-72020	Electric	3,943.63
101-416-72030	Telephone	1,487.26
101-416-75060	Mandated Annual Servic	20,845.06
101-416-84010	Office Equip. Repairs &	1,987.38
101-416-84030	Buildings Repairs & Mai	1,983.71
101-416-84050	Grounds Repairs & Main	38.00
101-416-84060	Vehicle Parts, Repairs &	4,961.67
101-416-86010	Training, Travel, & Confe	979.83
101-416-88040	Computer Programming	4,107.92
101-416-96057	CALPOP ENERGY EFF.LO	629.64

Account Summary

Account Number	Account Name	Payment Amount
101-416-97061	Fire Equipment Lease Pri	153,000.00
101-416-97062	Fire Equipment Lease Int	780.30
101-416-98040	Major Machinery & Equi	67,394.19
101-431-70060	Small Tools & Equipment	27.94
101-431-70100	Uniforms	182.46
101-431-70150	Vehicle Parts & Supplies	61.07
101-431-70160	Gasoline & Diesel	66.98
101-431-72030	Telephone	44.42
101-432-72010	Water, Gas, Sanitation &	1,667.16
101-432-72020	Electric	12,215.01
101-432-72030	Telephone	240.00
101-432-84030	Buildings Repairs & Mai	5,124.59
101-432-84071	Inspections	865.00
101-432-96057	CALPOP ENERGY EFF.LO	1,188.23
101-435-72010	Water, Gas, Sanitation &	486.86
101-435-72020	Electric	2,951.10
101-435-72030	Telephone	50.11
101-435-84030	Buildings Repairs & Mai	803.99
101-435-84050	Grounds Repairs & Main	5,640.00
101-435-88220	SPECIAL EVENTS EXPENS	3,000.00
101-435-90010	Liability & Property Insur	4,186.00
101-435-98040	MAJOR MACHINERY & E	6,041.57
101-440-60010	Salaries Regular	6.30
101-440-62080	Uniform Allowance	165.61
101-440-70060	Small Tools & Equipment	27.23
101-440-70100	Uniforms	342.70
101-440-70160	Gasoline & Diesel	1,346.92
101-440-72011	Water/Electric - City Plot	13,824.05
101-440-84050	Grounds Repairs & Main	2,809.54
101-440-84060	Vehicle Parts, Repairs &	15.00
101-440-84075	Equipment Parts, Repair	254.60
101-440-84077	Landscaping & Lighting	1,313.57
101-440-88100	Professional Services	59.25
101-440-98981	Splash Pad Project	383,220.43
106-413-86010	Training, Travel, & Confe	1,500.00
106-413-88100	Professional Services	24,482.95
107-422-60010	Salaries Regular	120.75
107-422-62070	Workers' Comp. Insuran	32.54
107-422-62080	Uniform Allowance	53.15
107-422-70010	Office Supplies	0.80
107-422-70100	Uniforms	273.01
107-422-70130	Street Materials	1,768.65
107-422-72011	Water/Electric - City Plot	3,985.17
107-422-72030	Telephone	10.02
107-422-84010	Office Equip. Repairs &	1.38
107-422-84050	Grounds Repairs & Main	115.87
107-422-84060	Vehicle Parts, Repairs &	15.00
107-422-86010	Training, Travel, & Confe	82.42
107-422-86030	Subs., Dues, & Publicatio	198.00
107-422-88030	Accounting/Auditing	14.05
107-422-88040	Computer Programming	151.10
107-422-88060	Medical - General	31.50
107-422-88100	Professional Services	751.65
107-422-89040	Physical w/Drug & Alcoh	10.00
109-424-98987	Sidewalk Improvements	40,000.00
110-424-72021	Street Light Electricity	13,468.64
117-416-60010	Salaries Regular	689.33
117-416-70010	Office Supplies	0.43

Account Summary

Account Number	Account Name	Payment Amount
117-416-70050	Education Materials & S	12.00
117-416-72030	Telephone	5.64
117-416-75000	Medical Equipment & Su	6,015.16
117-416-75010	Meals-Ambulance Runs	343.47
117-416-75040	Ambulance Billing Contr	10,075.22
117-416-84010	Office Equip. Repairs &	8.26
117-416-84060	Vehicle Parts, Repairs &	11,952.20
117-416-86010	Training, Travel, & Confe	48.80
117-416-88040	Computer Programming	17.12
117-416-88100	Professional Services	10.70
117-416-89040	Physical w/Drug & Alcoh	399.80
117-416-89050	POLYGRAPHS	100.00
117-416-89070	Fingerprinting	320.00
141-422-98985	Council Chambers Mode	1,544.12
305-422-98974	CMAQ-NW Trail Seg 1/2/	1,030.57
306-422-88106	Permanent Local Housin	3,909.11
501-406-60010	Salaries Regular	106.05
501-406-70010	Office Supplies	335.82
501-406-70030	Postage & Freight Out	520.00
501-406-70160	Gasoline & Diesel	83.72
501-406-72030	Telephone	116.26
501-406-84010	Office Equip. Repairs &	1,930.71
501-406-86010	Training, Travel, & Confe	112.42
501-406-86030	Subs., Dues, & Publicatio	835.60
501-406-88030	Accounting/Auditing	1,919.09
501-406-88040	Computer Programming	338.18
501-406-88100	Professional Services	682.19
501-406-89040	Physical w/Drug & Alcoh	59.97
501-503-60010	Salaries Regular	318.15
501-503-62070	Workers' Comp. Insuran	142.32
501-503-70010	Office Supplies	0.95
501-503-70060	Small Tools & Equipment	384.07
501-503-70100	Uniforms	235.33
501-503-70160	Gasoline & Diesel	1,802.26
501-503-70202	Lab Supplies	4,893.16
501-503-70240	Chemicals Aluminate Sul	19,076.56
501-503-70300	Chemicals Hypochlorite	5,902.49
501-503-72010	Water, Gas, Sanitation &	117.36
501-503-72020	Electric	93,523.50
501-503-72030	Telephone	319.58
501-503-80010	Water Purchases	259,778.98
501-503-84010	Office Equip. Repairs &	70.33
501-503-84030	Buildings Repairs & Mai	6,208.32
501-503-84060	Vehicle Parts, Repairs &	329.95
501-503-86010	Training, Travel, & Confe	209.57
501-503-86030	Subs., Dues, & Publicatio	5.60
501-503-88040	Computer Programming	230.92
501-503-88081	Outside Laboratory	320.00
501-503-88100	Professional Services	11,925.30
501-503-98040	Major Machinery & Equi	19,330.97
501-503-98441	Water Revenue Bond Pr	2,956.25
501-503-98471	CDWR Turf Replacement	9,629.00
501-508-60010	Salaries Regular	349.13
501-508-62070	Workers' Comp. Insuran	130.15
501-508-62080	Uniform Allowance	212.60
501-508-70010	Office Supplies	0.97
501-508-70060	Small Tools & Equipment	923.75
501-508-70100	Uniforms	366.29

Account Summary

Account Number	Account Name	Payment Amount
501-508-70130	Street Materials	635.12
501-508-70140	Utility Parts & Supplies	687.85
501-508-70160	Gasoline & Diesel	2,214.88
501-508-72020	Electric	334.60
501-508-72030	Telephone	301.76
501-508-84010	Office Equip. Repairs &	4.82
501-508-84030	Buildings Repairs & Mai	141.67
501-508-84060	Vehicle Parts, Repairs &	1,637.00
501-508-86010	Training, Travel, & Confe	385.81
501-508-86030	Subs., Dues, & Publicatio	5.60
501-508-88040	Computer Programming	158.22
501-508-88060	Medical - General	73.50
501-508-88100	Professional Services	754.11
501-508-88121	Geographic Information	56.77
501-508-98030	Office Furniture & Equip	1,200.00
501-508-98040	Major Machinery & Equi	1,767.82
501-508-98054	Water Meters	2,465.79
501-508-98472	CDWR Advanced Meteri	4,664.78
502-406-60010	Salaries Regular	106.05
502-406-70010	Office Supplies	293.86
502-406-70030	Postage & Freight Out	455.00
502-406-70160	Gasoline & Diesel	73.26
502-406-72030	Telephone	101.46
502-406-84010	Office Equip. Repairs &	1,629.30
502-406-86010	Training, Travel, & Confe	107.42
502-406-86030	Subs., Dues, & Publicatio	729.65
502-406-88030	Accounting/Auditing	989.05
502-406-88040	Computer Programming	296.62
502-406-88100	Professional Services	77.27
502-406-89040	Physical w/Drug & Alcoh	49.98
502-510-60010	Salaries Regular	349.13
502-510-62070	Workers' Comp. Insuran	130.15
502-510-62080	Uniform Allowance	212.61
502-510-70010	Office Supplies	0.97
502-510-70060	Small Tools & Equipment	281.52
502-510-70100	Uniforms	366.29
502-510-70130	Street Materials	149.39
502-510-70140	Utility Parts & Supplies	90.86
502-510-70160	Gasoline & Diesel	2,214.86
502-510-70440	Miscellaneous Supplies	149.44
502-510-72020	Electric	1,031.45
502-510-72030	Telephone	298.98
502-510-80020	PG&E Wholesale Transp	29,651.47
502-510-80030	Gas Purchases for Resale	10,621.17
502-510-84010	Office Equip. Repairs &	4.82
502-510-84030	Buildings Repairs & Mai	141.66
502-510-84060	Vehicle Parts, Repairs &	1,598.73
502-510-86010	Training, Travel, & Confe	205.82
502-510-86030	Subs., Dues, & Publicatio	5.60
502-510-88040	Computer Programming	380.58
502-510-88060	Medical - General	73.50
502-510-88100	Professional Services	3,403.93
502-510-88121	Geographic Information	56.77
502-510-98030	Office Furniture & Equip	1,200.00
502-510-98040	Major Machinery & Equi	1,767.82
503-406-60010	Salaries Regular	79.50
503-406-70010	Office Supplies	167.89
503-406-70030	Postage & Freight Out	299.00

Account Summary

Account Number	Account Name	Payment Amount
503-406-70160	Gasoline & Diesel	48.14
503-406-72030	Telephone	60.83
503-406-84010	Office Equip. Repairs &	1,061.66
503-406-86010	Training, Travel, & Confe	99.54
503-406-86030	Subs., Dues, & Publicatio	482.57
503-406-88030	Accounting/Auditing	1,339.71
503-406-88040	Computer Programming	168.38
503-406-88100	Professional Services	656.58
503-406-89040	Physical w/Drug & Alcoh	37.98
503-520-60010	Salaries Regular	159.08
503-520-62070	Workers' Comp. Insuran	61.00
503-520-70010	Office Supplies	0.83
503-520-70060	Small Tools & Equipment	384.07
503-520-70100	Uniforms	54.64
503-520-70140	Utility Parts & Supplies	133.75
503-520-70160	Gasoline & Diesel	450.56
503-520-72010	Water, Gas, Sanitation &	974.49
503-520-72020	Electric	21,219.86
503-520-72030	Telephone	186.22
503-520-84010	Office Equip. Repairs &	28.16
503-520-84030	Buildings Repairs & Mai	30.00
503-520-86010	Training, Travel, & Confe	198.31
503-520-88040	Computer Programming	300.76
503-520-88080	Laboratory	903.75
503-520-88100	Professional Services	752.47
503-521-60010	Salaries Regular	100.54
503-521-62070	Workers' Comp. Insuran	32.54
503-521-62080	Uniform Allowance	53.15
503-521-70010	Office Supplies	0.04
503-521-70100	Uniforms	273.01
503-521-70130	Street Materials	172.95
503-521-70140	Utility Parts & Supplies	30.84
503-521-70160	Gasoline & Diesel	3,565.62
503-521-70440	Miscellaneous Supplies	312.95
503-521-72010	Water, Gas, Sanitation &	431.11
503-521-72020	Electric	738.16
503-521-72030	Telephone	296.17
503-521-84010	Office Equip. Repairs &	0.69
503-521-84030	Buildings Repairs & Mai	176.67
503-521-84060	Vehicle Parts, Repairs &	1,598.71
503-521-86010	Training, Travel, & Confe	192.68
503-521-86030	Subs., Dues, & Publicatio	5.60
503-521-88040	Computer Programming	297.90
503-521-88060	Medical - General	31.50
503-521-88100	Professional Services	751.24
503-521-88121	Geographic Information	56.76
503-521-98030	Office Furniture & Equip	1,200.00
503-521-98040	Major Machinery & Equi	1,767.82
504-406-70010	Office Supplies	16.80
504-406-70030	Postage & Freight Out	26.00
504-406-70160	Gasoline & Diesel	4.19
504-406-72030	Telephone	5.74
504-406-84010	Office Equip. Repairs &	149.88
504-406-86010	Training, Travel, & Confe	75.91
504-406-86030	Subs., Dues, & Publicatio	41.18
504-406-88030	Accounting/Auditing	94.69
504-406-88040	Computer Programming	17.32
504-406-89040	Physical w/Drug & Alcoh	2.00

Account Summary

Account Number	Account Name	Payment Amount
504-535-60010	Salaries Regular	53.03
504-535-70100	Uniforms	41.36
504-535-70160	Gasoline & Diesel	1,524.40
504-535-84060	Vehicle Parts, Repairs &	687.94
504-535-86010	Training, Travel, & Confe	3.75
504-535-88100	Professional Services	40.32
820-610-60010	Salaries Regular	53.03
820-610-70010	Office Supplies	0.04
820-610-72030	Telephone	2.48
820-610-84010	Office Equip. Repairs &	0.69
820-610-86010	Training, Travel, & Confe	8.75
820-610-86030	Subs., Dues, & Publicatio	6.00
820-610-88030	Accounting/Auditing	11.24
820-610-88040	Computer Programming	1.42
820-610-88100	Professional Services	0.81
820-610-89040	Physical w/Drug & Alcoh	10.00
820-610-96500	Fiscal Agent Fees	5,032.50
950-000-31100	Federal Withholding	88,676.99
950-000-31200	State Income Tax Withh	37,294.10
950-000-31300	FICA Withheld	143,056.54
950-000-31400	Medicare Insurance Wit	33,456.74
950-000-31500	State Disability Insuranc	15,233.24
950-000-32100	Employee Deferred Com	56,629.49
950-000-32200	Employee Medical Insur	146,374.89
950-000-32300	Employee Long Term Dis	1,297.71
950-000-32400	Life Insurance	3,844.79
950-000-33000	CLOCEA Dues Withheld	1,202.84
950-000-33200	CPOA Dues Withheld	1,012.32
950-000-33300	Fire Assoc. Dues Withhel	650.00
950-000-34010	Other Withholdings Gar	3,807.94
950-000-34060	Prepaid Legal Services	152.81
950-000-34500	Unreimbursed Med/Dep	2,403.24
950-000-34600	AFLAC Insurance Withhe	7,592.92
	Grand Total:	**2,195,774.58**

Project Account Summary

Project Account Key		Payment Amount
None		2,171,291.63
ORT5		24,482.95
	Grand Total:	**2,195,774.58**

STAFF REPORT - CITY COUNCIL/SUCCESSOR AGENCY/PUBLIC FINANCE AUTHORITY

Subject:	City Hiring and Recruitment Process – Informational Report
Meeting Date:	Thursday, September 17, 2026
From:	Sean Brewer, City Manager
Prepared by:	Human Resources Department

I. RECOMMENDATION:

Receive and file an informational report regarding the City of Coalinga's current recruitment, selection, and hiring process.

II. BACKGROUND:

At the request of Mayor Nathan Vosburg as a future agenda item, staff was directed to provide the City Council with an overview of the City's current process for recruiting and hiring employees. The purpose of this report is to provide the Council and public with a better understanding of the steps involved in filling a vacant City position, the respective responsibilities of Human Resources and the hiring department, and the administrative requirements that must be completed before a new employee begins work.

Human Resources reviewed the City's current practices and prepared a detailed recruitment process outlining the steps from the identification of a vacancy through recruitment, candidate selection, appointment, and new-hire processing.

III. DISCUSSION:

The City's recruitment process is designed to provide a consistent, competitive, and defensible method for filling vacant positions while ensuring compliance with applicable City policies, personnel rules, labor agreements, and employment laws.
Although the amount of time necessary to complete a recruitment varies depending upon the position, applicant pool, testing requirements, background process, and department needs, the overall process generally includes the following phases:

1. Vacancy Identification and Authorization

The process begins when a department identifies a vacant or anticipated vacant position. Staff confirms that the position is authorized within the City's approved staffing structure and budget and reviews the applicable job classification, salary range, minimum qualifications, and recruitment needs.

When appropriate, Human Resources and the department also evaluate whether the existing classification remains consistent with the operational needs of the department before beginning recruitment.

2. Recruitment Preparation and Job Posting

Human Resources coordinates preparation of the recruitment, including review of the job description and minimum qualifications, preparation of the job announcement, establishment of application deadlines and development of the recruitment schedule.

The position is then advertised through the appropriate recruitment channels in an effort to generate a qualified applicant pool. Recruitment methods may vary depending upon the position and the difficulty associated with attracting qualified candidates.

3. Application Review and Candidate Screening
Following the application period, Human Resources reviews applications for completeness and minimum qualifications. Depending upon the classification, additional screening methods may be used to identify the candidates who most closely meet the requirements of the position.

This process is intended to ensure candidates are evaluated consistently against the established qualifications for the classification.

4. Examination and Interview Process
Qualified candidates may participate in one or more selection activities depending upon the position. These may include written examinations, practical or performance examinations, oral interview panels, departmental interviews, or other job-related assessments.

Human Resources coordinates the recruitment and selection process with the hiring department to help ensure that candidates are evaluated consistently and that the selection process is appropriately documented.

5. Candidate Selection and Conditional Offer
Following completion of the selection process, the hiring department identifies its preferred candidate in coordination with Human Resources. Before a candidate may begin employment, Human Resources confirms the appropriate classification, compensation, and applicable employment conditions.

A conditional offer may then be issued subject to completion of any required pre-employment requirements.

6. Pre-Employment Requirements
Depending upon the position, the selected candidate may be required to complete various pre-employment requirements. These can include reference checks, background investigations, Department of Justice/FBI fingerprinting, medical or physical examinations, drug testing, driving record verification, verification of licenses or certifications, or other requirements applicable to the position.

Public safety positions generally require a substantially more extensive background and pre-employment process due to statutory and operational requirements.

7. Final Appointment and New-Hire Processing
Once all applicable requirements have been successfully completed, Human Resources coordinates the employee's start date and completes the necessary new-hire documentation and personnel processing.

This includes required employment forms, payroll and benefit enrollment information, personnel records, policy acknowledgments, and other onboarding requirements. The employee is then transitioned to the hiring department for departmental orientation and training.

ADMINISTRATIVE WORKLOAD

While applicants and hiring departments generally experience the recruitment as a series of major milestones, each recruitment requires numerous administrative actions behind the scenes.

Human Resources has identified approximately **38 individual administrative steps** associated with processing a typical recruitment from the initial vacancy through the employee's first day of work and

completion of new-hire processing. These steps include recruitment preparation, applicant communication, screening, scheduling, documentation, selection processing, pre-employment coordination, and onboarding. Not every recruitment is identical, and certain positions, particularly sworn public safety, specialized, management, or difficult-to-fill classifications, may require additional steps and significantly more time.

RECRUITMENT TIMELINES

There is no single timeline applicable to every City recruitment. The length of the process can be affected by several factors, including the length of the application period, number and qualifications of applicants, testing requirements, availability of interview panel members, candidate availability, background investigations, medical examinations, notice periods with existing employers, and whether a recruitment must be extended or reopened due to an insufficient applicant pool.

Staff recognizes the importance of filling vacancies as efficiently as possible, particularly when vacancies affect service delivery or place additional workload on existing employees. At the same time, the City must balance the need for timely hiring with the responsibility to conduct a fair and thorough selection process and ensure that candidates satisfy the qualifications and requirements of their positions.
Human Resources and City departments will continue to evaluate opportunities to streamline recruitment timelines and administrative processes where doing so does not compromise the quality, consistency, or legal defensibility of the hiring process.

CONCLUSION

The City's hiring process involves coordination between Human Resources, the hiring department, candidates, and, depending upon the position, outside agencies or service providers. Human Resources serves as the central administrative coordinator for the process and is responsible for ensuring that required recruitment, selection, pre-employment, and onboarding procedures are completed.

This report is presented in response to Mayor Vosburg's future agenda item request and is intended to provide the City Council and public with greater transparency regarding the steps necessary to recruit and hire City employees.

IV. ALTERNATIVES:

None.

V. FISCAL IMPACT:

There is no direct fiscal impact associated with receiving this informational report. Costs associated with individual recruitments are included within the applicable departmental and Human Resources operating budgets.

ATTACHMENTS:

File Name	Description
Recruitment_Process_Diagram_and_Narrative.pdf	Recruitment-Hiring Process Diagram and Narrative

Recruitment process to hire for a vacant position: From Vacancy, Selection, First Day of Work and HR Processing A New Hire

1. Job vacant due to resignation, retirement, growth

2. Dept Mgr contacts HR about job specifics. HR locates job description, sends to mgr for review.

3. HR creates requisition, sends to City Mgr for approval.

4. HR creates/updates job posting, posted 2-4 wks.

5. Job posting closes, HR screens applicants, then sends to hiring manager.

6. Manager provides HR interview dates, panel participants., etc. If there is an exam, that will be scheduled prior to interviews.

7. Qualified applicants, are invited for a panel interview, normally 1 week later.

8. After panel interviews HR scores and ranks all applicants on a 100% scale. For Fire , Finance nad Utilities, see NOTE 1 below.

9. Applicants who score 70% + are deemed 'pass'. The information is sent to the hiring manager for review.

10. For Fire and PD there is a 2nd interview, with the Department Chief. Interviews are scheduled for applicants who score 70% +. Normally 1-3 applicants.

11. Hiring manager or Chief chooses top applicant, then notifies HR. Other passing applicants are placed on eligibility list, otherwise, not selected and notified.

12. HR creates a conditional job offer for City Mgr to approve in NEOGOV.

13. Upon CM aproval, HR selects conditional job offer template in NEOGOV., finalizes job offer and SENDS to applicant. HR emails applicant of job offer sent.

14. Email notification sent to HR when Applicant Acepts or Declines job offer in NEOGOV. HR notifies manager of acceptance or decline of offer.

15. If offer is DECLINED, then HR selects the first applicant on the Eligibility list, and extends a conditional job offer again.

16. After conditional job offer is accepted, HR contacts applicant to discuss the required live scan, physical, etc., based upon the job.
For Fire or PD Sworn, see NOTE 2 below.

17. HR provides the applicant docs for Live Scan, schedules with PD. HR waits for Live Scan results (1-2 dys)

18. HR schedules pre-employment physical (and drug screen, if needed), based upon the position. Sends docs to applicant for appointments.

19. HR waits for results from pre-employment physical (drug screen) 2-3 days.

20. For General and Basic positions: communicate with hiring mgr and applicant to schedule first day of work.

21. HR does Pre-Hire and Onboarding in NEOGOV, activates account for new hire.

22. HR communicates with hiring mgr to confirm start date, AOS requirements, equipment, dress code, etc.

23. HR emails new hire about required documents for first day of hire, uniform, etc.

24. HR communicates with mgr to give new hire 45 minutes on first day to complete NEOGOV online docs.

25. HR moves applicant to HIRE in NEOGOV. Then AUTHORIZES new hire in NEOGOV to process the checklist for new hire. Creates employee #.

26. HR preps new hire packet, hardcopies of dos, Pers Policies, MOU, CalPERS, benefits, etc.

27. First day of Work/NEO - HR spends 30-40 minutes with new hire reviewing required docs, benefits, etc. Collecting I-9 docs and signed documents.

28. HR scans all documents collected to create electronic employee record, place on network in HR/Employee file.

29. HR enters new hire information into Tyler Tech for payroll, timesheet, CalPERS reporting.

30. HR organizes the completed recruitment folder, then files it away in the HR cabinet.

31. HR enters new hire into ESS for timesheet set-up, access, etc.

32. HR emails new hire of ESS link, user id and temp pw.

33. HR completes I-9 and other reqired docs in NEOGOV after new hire has completed.

34. HR prints out documents from NEOGOV and creates employee file (hardcopy) and separate folders for employee, creates labels. 6 diff folders.

35. HR processes the DE-34 online to report new hire to EDD.

36. HR processes the new hire to DMV portal.

37. HR prints out all the completed NEOGOV documents to file them into employee's folders.

38. HR downloads all completed NEOGOV docs to save electronically on the network in employee's file folder.

NOTE 1 BELOW

NOTE 2 BELOW

Continues from diagram above

Definitions:
NEOGOV – The recruitment web-based tool that Human Resources uses to post, screen, schedule, select and hire an applicant.
Government Jobs – The web-based tool (portal) that applicants use to apply for vacant positions with municipalities, academic and Public Sector type agencies.

NOTE 1: Fire, Finance and Utilities positions require testing (a written, physical agility test and CPR competency skills testing) either prior to or immediately following the panel interviews. The scores from those exams are combined with the panel interview to determine a pass or fail result. The passing score is 70% or higher, a failing score is 69% or below.

NOTE 2: Background processes for the following positions:

Background and pre-employment requirements for Fire and PD (Sworn) positions require the following: Collecting documents from applicant (up to 10 days), completed Personal History Statement, Live Scan @ PD, Notary @ City Hall, background check (internal = 2 weeks, external = 4 weeks), polygraph (1 week), psychological eval (1 week). Total process time can be up to 3-4 months. HR coordinates and schedules all appointments with vendor and applicant.

PD (Non-sworn and confidential) positions such as Public Safety Dispatcher require: Collecting documents from applicant (up to 10 days), completed Personal History Statement, Live Scan @ PD, Notary @ City Hall, background check (internal = 2 weeks, external = 4 weeks), polygraph (1 week). Total process time can be up to 3 months. HR coordinates and schedules all appointments with vendor and applicant.

PD (Non-sworn) Public Safety Animal Control Officer require: Collecting documents from applicant (up to 10 days), completed Personal History Statement, Live Scan @ PD, Notary @ City Hall and pre-employment physical. Total process time can be up 3 - 4 weeks. HR coordinates and schedules all appointments with vendor and applicant.

Fire and PD (Non-sworn) positions such as EMS or Paramedic require: Live Scan @ PD and pre-employment physical and drug screen. Total process time can be up to 3 weeks; HR coordinates and schedules all appointments with vendor and applicant.

Department Head/Director and Confidential positions require: Collecting documents from applicant (up to 1 week), completed Personal History Statement, Live Scan @ PD, Notary @ City Hall, and pre-employment physical. Total process time can be 1-3 weeks, HR coordinates and schedules all appointments with vendor and applicant.

Administrative, Non-Sworn and Non-Confidential roles such as Administrative Secretary, Groundskeeper or Wastewater Apprentice require: Live Scan and pre-employment physical. This may take 1-2 weeks based upon applicant and vendor scheduling. HR coordinates and schedules all appointments with vendor and applicant.

Below are the action items for a typical recruitment process:

Overview of Recruitment from Job vacancy, Selection, Onboarding and Processing A New Hire – Diagram available to view the steps

Vacancy and job posting: Steps 1 – 5

Screening and Interviewing: Steps 6 – 11

Selection and Extending a Conditional Job Offer: Steps 12 – 15

Selected candidate completes the requirements (Live Scan and pre-employment physical): Steps 16 - 19

Onboarding A. – First day of work*: Steps 20 – 27*

Onboarding B. - HR - Processing new hire for payroll, time sheet, CalPERS, etc.*: Steps 28 – 38*

Recruitment: From Vacancy to Onboarding A New Hire

Definitions:
NEOGOV – The recruitment web-based tool that Human Resources uses to post, screen, schedule, select and hire an applicant.
Government Jobs – The web-based tool (portal) that applicants use to apply for vacant positions with municipalities, academic and Public Sector type agencies.

How are vacancies identified and authorized to be filled? Job (position) vacancies are identified when an employee vacates a position (resignation, termination, retirement), or the department decides to fill or add FT, PT or Temp positions, due to operations need.

What does the recruitment preparation and job posting include? When a job becomes vacant, a summary of steps are below (1-3):

1. A job requisition needs to be created or updated in NOEOG (requires approval);
2. The job classification in NEOGOV needs to be reviewed, and
3. The job posting needs to be created or updated in NEOGOV.

<u>The following detailed steps must happen in NEOGOV, represented in steps 1 – 3 above</u>:

1. The hiring manager notifies HR about a vacant position that needs to be filled in their department. The recruiter obtains the job specifics from the hiring manager. The details include job title, job classification, job type (FT, PT, Per Diem, Reserve, Temp), number of vacancies, discussing any job-related testing/exam scheduling and panel interview scheduling.
    a. **Note**: Fire, Finance and Utilities positions require testing (a written, physical agility test and CPR competency skills testing) either prior to or immediately following the panel interviews. The scores from those exams are combined with the panel interview to determine a pass or fail result. The passing score is 70% or higher, a failing score is 69% or below.
    b. After the recruiter locates the current or previous job description, he/she emails the document to the hiring manager for review and possible updates or changes.
2. After the job description content is confirmed, the recruiter uses NEOGOV to begin the process to post the position. In NEOGOV, the recruiter creates a requisition or may reactivate an existing requisition, then the requisition is emailed for review and approval. The City Manager, Sean Brewer is the 'approver' in this process.
3. Upon receiving the approval to fill the vacancy, the recruiter will create or update the Job Posting in NEOGOV. Job details (a list of job duties), qualifications, minimum qualifications, required education and or experience, physical and psychological requirements are copied from the job description. The job posting is normally 2-4 weeks. Recently, the recruiter has been posting the positions on Indeed.com for additional applicants. If applicants apply, then a message is sent from Indeed referring applicant(s) to the Government Jobs website, to complete an online application in the portal. Placing the position on Indeed is at no cost and we have seen an increase in applications received in the NEOGOV portal, referred from Indeed.

4. At the end of 2 or 4 weeks and the job posting is closed:
    a. If a sufficient number of applicants has not been received, then we will extend the posting, or set the posting on a continuous mode with no end date.
    b. If a sufficient number of qualified applicants has been received, HR screens the completed applications, resumes, certificates and licenses, as needed. We have received anywhere from 4 to 100+ applications over a 2 week period, for some positions. FIRE and EMS are high volume recruitments over a short period.
    c. Applicants may be graded pass or fail, meeting requirements, in order to find eligible applicants to invite for a panel interview. An applicant list or copies of their completed applications and resumes are then sent to the hiring manager for review.

Below are the action items for a typical recruitment process:

Overview of Recruitment from Job Vacancy, Selection, Onboarding and Processing A New Hire
Diagram available to view the 38 steps in detail is attached. HR is involved in each of the 38 steps; the Hiring manager is involved in the steps requiring approval of the posting (#2), screening the applicants (#5), the interview panel participants and interview questions (#6 and 9), and final applicant selection and extending a conditional job offer (#12, 14 – 16 and 19).

Vacancy and job posting: Steps 1 – 5 includes HR; Hiring Manager involved in steps 2 and 5;

Screening and Interviewing: Steps 6 – 11 includes HR, Hiring Manager involved in steps 6 and 9; for Fire and PD, the Chiefs are involved in steps 10 and 11 regarding background process. During this process negative information received from any of the completed (action items) Live Scan, background check, polygraph, psychological evaluation, pre-employment physical and/or drug screen can prompt the Fire or PD Chief to rescind the conditional offer letter immediately. If the offer is rescinded by the Fire or PD Chief, then HR sends a notification to the applicant their offer has been rescinded, this is completed in NEOGOV.

Selection and Extending a Conditional Job Offer: Steps 12 – 15 includes HR, the Hiring Manager involved in steps 12, 14, 15, 16 and 19. Most of these are notifications to the manager.

Assisting the selected candidate in completing the requirements: Steps 16-19 includes HR

Onboarding A. – First day of work: Steps 20 – 27 includes HR, the Hiring Manager involved in steps 20, 22 and 27.

Onboarding B. - HR - Processing new hire for payroll, time sheet, CalPERS, etc.: Steps 28 – 38 include HR, the Hiring Manager is involved in step 32.

What is the application period and screening process? The application period (job posting) in Government Jobs is normally 2 to 4 weeks, depending upon the position and recruitment timeline. Sometimes 4 weeks is required to obtain a sufficient number of applicants for hard to fill positions. The screening process includes reviewing applicants completed applications, resumes, educational transcripts and certificates or licenses. Based upon the minimum qualifications, knowledge, skills and abilities (KSAs), the supplemental questions, completed application, resume and required certifications and education, the applicant may or may not qualify for an initial panel interview. Often the resume does

not match the application, including the supplemental questions, so the recruiter must sometimes piece information together.

Minimum qualifications review – Based upon the position requirements, applicants must have education, related work experience (paid or unpaid, internship, externship, volunteer) to be eligible for an interview. Many of the Fire, Police, EMS and Technical positions (Wastewater, Water and Heavy Equipment Operators) require related certifications and/or professional licenses and training (academy).

What is included in the Interview and selection process – All positions require 1panel interview; however, Fire, PD and Department Head positions require 2 interviews (the Chief's interview follows the panel interview). Applicants who are not selected for a panel interview are notified via email (through NEOGOV) that they were selected to move ahead in the process. Panel interviews are scored, a 3-person panel will interview each applicant and score the individual based upon their answers to 10 questions. The recruiter scores the applicants based upon the total of 3 panelists scores. Applicants who score a 70% or higher are eligible for a second interview, and applicants scoring less than 70% are notified they are disqualified based upon their interview score.

Final offer and onboarding: HR creates a job offer in NEOGOV by sending the offer for approval to City Manager. After the CM approves the conditional offer, HR selects the offer template according to the position being offered (Police, Fire, Public Works, Utilities, Finance, etc.). Each classification has different pre-employment requirements to be completed.

What are the roles of HR, the hiring department, and the City Manager throughout the process: After the hiring manager notifies Human Resources about a job vacancy, HR will initiate and carry out recruitment steps to post, select, on-board and process new hires for the company or agency. HR is involved in the job posting, applicant screening, interview scheduling, panel interviews, selection, job offer, coordinate pre-employment requirements, on-board the new hire (new hire orientation), process the new hire documentation (reporting to the EDD, DMV, DOJ), enter the new hire information into the HRIS system for tracking and payroll (Tyler Tech for time sheet purposes), closing out the recruitment, tracking employee completion of on-line required documents in NEOGOV, compliance and worker compensation (on the job injuries), recordkeeping, creating personnel folders (electronic and hard copy) of employee completed records (W-4, I-9, Personnel Polices signed and acknowledged, Personnel Action Forms, job descriptions, required federal and state documents, etc., set up evaluation documents for the employe and benefits administration (setting up enrollment and payroll deductions). If the employee is in a represented group (union), HR will notify the union of a new hire so they can recruit new members.

In this process the City Manager will:

a. Review and approve the job requisition so the position can be posted in NEOGOV (HR/Agency) or Governments Jobs (applicant).
b. In absence of an HR Director, the City Manager may review and provide direction to HR regarding anomalies and recruiting events, which may not fall within the norm.
c. May request an interview with the applicant, similar to Chief's interview (one on one), after the initial panel interview.

d. Has the ability to partner with the Department Head to change a recruitment process, as long as it is within equal opportunity (federal and state) guidelines and is justifiable.
e. Review and approve the applicant selection based upon completed panel interviews and scoring.
f. Review and approve any salary increases at a Step B or higher (new hires automatically start at Step A of the associated Pay Scale, steps are A through E with a 5% difference. New hires who have directly related experience and other qualifications may be eligible to be hired at a Step B or greater. This applies to many Fire and Police applicants with 2 or more years' experience.

Are there any differences in the process for Police, Fire, or other positions with additional testing/background requirements? Yes, there are differences in Fire vs Police testing, both require the completion of Fire or Police academy, and Fire positions require a physical agility test, if the applicant has a CPAT card, this shows the applicant has passed a physical agility test. EMS (non-sworn) positions require CPR skills testing, the skills testing completed either prior to or after the panel interview.

Fire and Police (Sworn positions) require applicants to complete the following: Completed Personal History Statement (29 pages of personal history and references), Live Scan background (with the DOJ), a polygraph, extensive background check process (by an investigator or COC police department), psychological testing, pre-employment physical and drug screen.

Timeline from initial posting to job offer: The timeline from initial posting to extending a conditional job offer is based upon several factors in the screening, interviewing and selection process. A general timeline could be 3 – 7 weeks, an average of 5 weeks, based upon the requirements of the position (for a non-sworn and non-confidential position). In some positions such as Fire, the COC may receive a high volume of applicants over a 2-week period. High volume defined is over 50 applications received in a 2-week period. We have previously received 100 online applications over 2 weeks for a Sworn Firefighter/EMT posting last month. The timeline is detailed below.

- HR posting the position in NEOGOV: For 2 – 4 week period;
- Posting closes, HR screens applicants for eligibility for panel interview: 1-3 days;
- Exam and/or panel interview scheduling with the hiring department: 1-2 weeks;
- Post interview scoring: HR reviews and scores the panel interviews based upon the scoring sheets, calculates applicant scores and ranks the applicants based upon a 100% scale. The results are sent to the hiring manager, those applicants who scored a minimum of 70% are forwarded the results to the hiring manager for review and selection. 3-5 days.
    - Chief's interview scheduling (one-on-one) (for Fire, PD and department head positions): 1-2 weeks;
- The hiring department notifies HR about the candidate who they have selected: 2-5 days post interviews;
- HR initiates a job offer in NEOGOV, sends to City Manager for review and approval to extend a conditional job offer (1-2 days);

- HR chooses the conditional job offer template, updates as necessary, and extends the job offer to the applicant: 2-5 days (we give the candidate 3 days to review and approve or deny the offer.
    - If offer is not accepted, due to salary negotiations, HR will speak with the Department Head and hiring manager, then communicate with the selected applicant. (1-3 days);
    - After offer is accepted, then HR contacts the candidate to discuss completing the requirements for the 'conditional job offer': Live Scan, background check, Polygraph, Psychological evaluation, pre-employment physical and drug test. The background check, polygraph, psych eval, and drug tests are for Sworn PD and Fire employees. See the timeline below for job classifications.
    - If offer is not accepted by the applicant, then HR will extend the offer to the candidate on the eligibility list ranked #2.
- Using NEOGOV, HR notifies the applicants who were not selected and/or failed the interview (below 70%); applicants who passed the interview with a minimum score of 70%, however not selected and placed on an eligibility list for up to six months (from the date of the interview).

What are the typical timelines for each stage and the overall hiring process?

Vacancy and job posting: Steps 1 – 5 (up to 5 days)

Screening and Interviewing: Steps 6 – 11 (up to 3 weeks, applicants are given 1 week notice for interviews).

Selection and Extending a Conditional Job Offer: Steps 12 – 15 (up to 1 week)

Selected candidate completes the requirements (Live Scan and pre-employment physical): Steps 16 – 19 (up to 2 weeks) Based upon the candidate's availability to complete the requirements. HR schedules each of the requirements for candidate. The Hiring Manager is not included in this process, unless negative information has surfaced from the Live Scan or physical.

Onboarding A. – First day of work: Steps 20 – 27 (up to 2 days)

Onboarding B. - HR - Processing new hire for payroll, time sheet, CalPERS, etc.: Steps 28 – 38 (up to 1 week)

Provide details about the pre-employment requirements, references and background checks, as applicable: Reference and background checks are completed according to the position requirements, see below:

Background and pre-employment requirements for Fire and PD (Sworn) positions require the following: Collecting documents from applicant (up to 10 days), completed Personal History Statement, Live Scan @ PD, Notary @ City Hall, background check (internal = 2 weeks, external = 4 weeks), polygraph (1 week), psychological eval (1 week). Total process time can be up to 3-4 months. HR coordinates and schedules all appointments with vendor and applicant.

PD (Non-sworn and confidential) positions such as Public Safety Dispatcher require: Collecting documents from applicant (up to 10 days), completed Personal History Statement, Live Scan @ PD, Notary @ City Hall, background check (internal = 2 weeks, external = 4 weeks), polygraph (1 week). Total process time can be up to 3 months. HR coordinates and schedules all appointments with vendor and applicant.

PD (Non-sworn) Public Safety Animal Control Officer require: Collecting documents from applicant (up to 10 days), completed Personal History Statement, Live Scan @ PD, Notary @ City Hall and pre-employment physical. Total process time can be up 3 - 4 weeks. HR coordinates and schedules all appointments with vendor and applicant.

Fire and PD (Non-sworn) positions such as EMS or Paramedic require: Live Scan @ PD and pre-employment physical and drug screen. Total process time can be up to 3 weeks; HR coordinates and schedules all appointments with vendor and applicant.

Department Head/Director and Confidential positions require: Collecting documents from applicant (up to 1 week), completed Personal History Statement, Live Scan @ PD, Notary @ City Hall, and pre-employment physical. Total process time can be 1-3 weeks, HR coordinates and schedules all appointments with vendor and applicant.

Administrative, Non-Sworn and Non-Confidential roles such as Administrative Secretary, Groundskeeper or Wastewater Apprentice require: Live Scan and pre-employment physical. This may take 1-2 weeks based upon applicant and vendor scheduling. HR coordinates and schedules all appointments with vendor and applicant.

Are there any areas where delays commonly occur or where the process could potentially be streamlined? NEOGOV does offer quite a few options in the recruitment process from initiating a job requisition, posting the position through extending an offer, however:

- It would be efficient if some of our processes were electronic within NEOGOV, rather than sending an email using Outlook or using tracking systems outside of NEOGOV. For example: I use an Excel spreadsheet to track a Fireman/Paramedic or Police Officer progression through the completion of each requirement, so that I can follow up with the applicant, give status updates to the hiring managers, etc.
- I use Excel to create a schedule for panel interviews, the one in NEOGOV is limited.
- We use Outlook to email the hiring manager and applicant regarding status updates, questions, etc., whereas it would be efficient to send notifications through NEOGOV.
- A scheduling tool within NEOGOV would be useful for action items in the background process (Live Scan, Notary, meeting the applicant, scheduling polygraph, psych eval, physical and drug screens).
- Pulling documents from NEOGOV to schedule polygraph, psych eval, physical and drug screen (authorization for treatment, completed Personal History Statement, etc.), these are emailed to the vendors for services.

STAFF REPORT - CITY COUNCIL/SUCCESSOR AGENCY/PUBLIC FINANCE AUTHORITY

Subject:	Authorization for the City Manager to Execute an Agreement with the California Department of Water Resources for the Construction, Operation, and Maintenance of a GPS Monitoring Station for Land Subsidence Monitoring
Meeting Date:	Thursday, September 3, 2026
From:	Sean Brewer, City Manager
Prepared by:	Jesse Barron, Assistant City Manager

I. RECOMMENDATION:

Authorize the City Manager to execute an agreement with the California Department of Water Resources, a department within the California Natural Resources Agency, for the construction, operation, and maintenance of a GPS monitoring station for the purpose of tracking land subsidence.

II. BACKGROUND:

The City owns approximately 460 acres located at the corner of Jayne Avenue and South Alpine Avenue near the directional turn for California State Route 33. The property was originally acquired for potential use as a future wastewater treatment plant site. That use is no longer being actively considered.

The Department of Water Resources has approached the City with a proposal to install a subsidence monitoring station at the site. Future improvements may also include monitoring wells intended to measure groundwater depth and groundwater quality.

At present, the parcel is largely undeveloped. The City continues to evaluate long-term opportunities to place the property into its highest and best use for the benefit of the residents of Coalinga.

III. DISCUSSION:

Under the proposed arrangement, the monitoring facilities would be located along the western or southern boundary of the property, with adequate setbacks from the property line to preserve access and maintain flexibility for any future City development of the remaining parcel.

The agreement would require DWR to operate and maintain the equipment at its expense. If the facilities are no longer needed, DWR would be responsible for removal or abandonment in accordance with all applicable permitting and regulatory requirements.

IV. ALTERNATIVES:

- Approve (recommended)
- Do not approve (not recommended)

V. FISCAL IMPACT:

Minimal to none. Installation, operation, and maintenance costs would be borne by DWR.

ATTACHMENTS:

File Name	Description
Draft_cGPS_Station_License_Agreement_City_of_Coalinga_20260428.pdf	Subsidence Monitoring Agreement

LICENSE AGREEMENT FOR
GLOBAL POSITIONING SYSTEM MONITORING STATION

This License Agreement for Global Positioning System (this "Agreement") is made and entered into as of _____ (the "Effective Date"), by and between the City of Coalinga ("Licensor") and the Department of Water Resources, a Department of the State of California's Natural Resources Agency ("Licensee"). Licensor and Licensee are hereinafter at times collectively referred to as the "Parties" and individually as a "Party."

RECITALS

A. Licensor is the owner of certain real property located in the County of Fresno, State of California, as more particularly depicted in Exhibit A, attached hereto and incorporated herein by reference (the "Property"). The Property overlays a portion of the Pleasant Valley Subbasin of the San Joaquin Valley Groundwater Basin.

B. Pursuant to this Agreement, Licensor is granting Licensee a license (the "GPS License") for purposes of installing, operating, maintaining, and administering the Global Positioning System ("GPS") monitoring station. The portion of the Property the GPS monitoring station is located on is called the "Site". The location and boundaries of the Site are shown on Exhibit A, attached hereto and incorporated herein by this reference. The GPS monitoring station will enable Licensee to collect real-time positioning information for the area.

Now, therefore, in consideration of the foregoing premises and for other good and valuable consideration, the receipt and adequacy of which the Parties mutually acknowledge, the Parties agree as follows:

AGREEMENT

1. Grant of License.

Licensor hereby grants to Licensee the GPS License, to enter upon and use a portion of the Property as set forth in Section 2 of this Agreement, on the terms and conditions set forth in this Agreement.

2. Use of Property.

Pursuant to this Agreement, Licensee is granted the GPS License to perform the GPS Work (defined below) on the Site and to enter, exit, and travel across the Property for purposes of accessing the Site and performing the GPS Work. Licensee may enter, exit, and travel across the Property for such purposes in whatever manner and by whatever means or course of travel it determines in its reasonable discretion is necessary, convenient, or desirable. As used herein, the "GPS Work" consists of (1) the construction and installation of a GPS monitoring station at a location on the Site to be determined by Licensee in its sole and absolute discretion; (2) construction and installation of necessary, convenient, or desirable appurtenances within the Site for such GPS monitoring station, including but not limited to, concrete pads and structural components, grading and paving, roads or pathways, and fencing or other security measures; (3) operating, maintaining, and/or repairing the improvements set forth in items (1) and (2), including, but not limited to, repairing and replacing all necessary material, equipment, and/or supplies; and (4) obtaining data from the GPS monitoring station, including real-time positioning information for the specific area. Work items (1) and (2) are collectively at times referred to herein as the "GPS Project." The GPS Work shall be performed in any location within the Site as Licensee deems

necessary, convenient, or desirable. Further, Licensor shall refrain from any use of the Property that is inconsistent with or would unreasonably interfere in any way with the GPS License granted herein.

Subject to the foregoing, and for avoidance of doubt, Licensor may use the Property in any way that does not unreasonably interfere with Licensee's use of the Property and the Site as provided for in this Agreement.

3. Character of License

The License granted hereunder shall be irrevocable for the term provided for in Section 5, below. Further, this Agreement shall remain in full force and effect in the event Licensor transfersthe Property, or any part thereof, whether voluntarily or involuntarily, and shall be binding on Licensor's successor and assigns. Licensor agrees to inform any successor or assign of the existence and content of this Agreement prior to any transfer of the Property. Further, Licensee may convey the License and their rights and obligations under this Agreement, either jointly or severally, to any third party only upon the written approval of Licensor (or Licensor's successors and assigns, as applicable). Licensor's approval shall not be unreasonably withheld, and in any event, Licensor shall grant or deny any such Licensee request within 60 calendar days and Licensor's failure to do so shall be deemed a grant of any such request.

4. Term

The GPS License granted hereunder will be for a term commencing on the Effective Date and, except as expressly provided herein to the contrary, will terminate on the datethat is 180 calendar days after Licensor provides written notice of termination to Licensee as provided for in Section 10 hereof, (the "GPS License Termination Date"). However, Licensor mayprovide such written notice of termination only on or after June 1, 2046. Notwithstanding the preceding sentence, Licensee may in its sole and absolute discretion at any time cause the earlier termination of the GPS License by selecting a date before June 1, 2046 as the GPS License Termination Date and providing at least 30 calendar days advance notice of such new GPS License Termination Date to Licensor.

5. Consideration

In consideration of the GPS License, and the terms and provisions of this Agreement relating thereto, Licensee shall install and maintain a GPS monitoring station on the Property, as set forth herein, and shall provide by any reasonable means the data generated therefrom directly to Licensor. Licensor shall receive the benefit of being provided data directly concerning the Property.

***6.* Reserved**

7. Repair

Licensee shall within a reasonable amount of time following the discovery thereof repair any damage to the Property to the extent caused directly bysuch Licensee's use of the Site or Property, including any necessary repair to roads or paths used by such Licensee. The repairs required hereunder shall return the Property and the Site, asapplicable, to the condition it was in immediately preceding the occurrence of any such damage, normal wear and tear excepted.

8. Project Removal

Within 180 calendar days after the GPS License Termination Date Licensee shall remove the

entirety of the GPS Project from the Site. Following Licensee's removal of the GPS Project, Licensee shall proceed with reasonable diligence to return the portion of the Site upon which the GPS Project was located to the condition it was in immediately prior to the Effective Date, normal wear and tear excepted. On and after the GPS License Termination Date, Licensor hereby grants to Licensee a temporary license to travel by vehicle or foot over, under, within, and through the Property for purposes of satisfying Licensee's obligations set forth in this Section. Such temporary license shall survive termination of the GPS License or this Agreement and shall be for a term equal to the amount of time necessary, desirable, or convenient for Licensee to perform its obligations under this Section.

9. Indemnification

The Parties, each on their own respective behalf, agree to indemnify and hold harmless each other Party and its employees, contractors, agents, representatives, transferees, successors, assigns, or invitees, from and against any and all liabilities, claims, actions, or demands, costs or expenses, including reasonable attorney's fees (collectively, a "Loss"), arising out of or in any way connected to each of their and their respective, contractors', representatives', heirs', successors', assigns', or invitees' use of the Site and Property, and in any case, such indemnity being to the extent of Loss caused by their or their contractors', representatives', heirs', successors', assigns', or invitees' willful misconduct or active negligence.

10. Notices

All notices given pursuant to this Agreement must be in writing and by electronic mail delivered to the addresses set forth below, promptly followed by personal delivery, U.S. Mail or established express delivery service, such as Federal Express, with postage or delivery charge prepaid, return receipt requested, and addressed to the person and address designated below or such other person and address of which a Party has provided by written notice to the other Parties. All noticesshall be effective upon receipt.

If to Licensor:	City of Coalinga Attn: City Manager 155 West Durian Coalinga, CA 93210 (559) 935-1533
If to Licensee:	California Department of Water Resources, Sustainable Groundwater Management Office, Technical Assistance Section Attn: Tad Bedegrew, Sr. Engineering Geologist P.O. Box 942836 Sacramento, CA 94236 Tad.Bedegrew@water.ca.gov

11. Third Party Beneficiaries

The License granted hereunder shall inure to the benefit of the Licensee for whom they were granted and their respective employees, officers, agents, contractors, successors, and assigns. Subject to the foregoing, this Agreement shall not confer any rights or remedies on any person or entity that is not a Party hereto.

12. Governing Law

This Agreement shall be governed by, interpreted under and construed and enforced in accordance with, the laws of the State of California, without giving effect to its conflicts of laws principles.

13. Severability

If any provision of this Agreement shall be invalid or unenforceable, the remainder of this Agreement shall not be affected thereby and shall remain in full force and effect, and each provision of this Agreement shall be valid and enforced to the full extent permitted by law, provided the material provisions of this Agreement can be determined and effectuated.

14. Incorporation of Recitals and Exhibits

The recitals to this Agreement, and all exhibits referred to in this Agreement are incorporated herein by such reference and made a part of this Agreement as though set forth in full herein.

15. Entire Agreement

This Agreement sets forth the entire understanding and agreement of the Parties and shall supersede any other agreements and understandings (written or oral) between the Parties on or prior to the date of this Agreement with respect to the subject matter of this Agreement.

16. Amendment, Modification, and Waiver

No amendment or modification to any term or provision of this Agreement or waiver of any covenant, obligation, breach or default under this Agreement shall be valid unless in writing and executed and delivered by each of the Parties. No waiver of any provision of this Agreement by a Party shall be construed as a waiver of any subsequent breach or failure of the same term or condition, or as a waiver of any other provision of this Agreement.

17. Execution in Counterparts

This Agreement may be executed in any number of counterparts, each of which shall be deemed an original and all of which counterparts together shall constitute one agreement with the same effect as if the Parties had signed the same signature page. The Parties agree to the use of electronic signatures, such as digital signatures that meet the requirements of the California Uniform Electronic Transactions Act ((CUETA) Cal. Civ. Code §§ 1633.1 to 1633.17), for executing this Agreement. The Parties further agree that the electronic signatures of the Parties included in this Agreement are intended to authenticate this writing and to have the same force and effect as manual signatures.

Signatures Appear on the following Page

Licensor's Name, Address, and Phone, e-mail:

Sean Brewer – City of Coalinga, City Manager

155 West Durian

Coalinga, CA 93210

Phone No. (559) 935-1533 x143

E-mail: sbrewer@coalinga.com

► _____

Signature

Date: _____

ACCEPTANCE RECOMMENDED:

_____

Cody Meyer, Right of Way Agent Date

_____

Jesus Cedeño, Senior Right of Way Agent Date

ACCEPTED:
State of California Department of WaterResources

_____

Linus A. Paulus, Manager
Acquisition and Appraisal Section

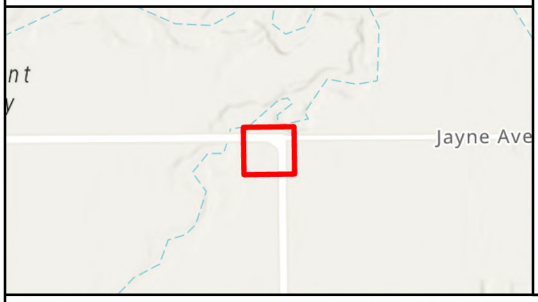
Date:

I hereby certify that all conditions for exemption have been complied with and this document is exempt from Department of General Services approval.

_____

Linus A. Paulus, Manager Date
Acquisition and Appraisal Section

VICINITY MAP



LEGEND

- LICENSE AREA
- FRESNO COUNTY ASSESSOR LINES
- CGPS STATION

N
NO SCALE

Note: DWR makes no claims, representations, or warranties (express or implied) concerning the positional accuracy of the polygon data contained herein. Each user is responsible for determining its suitability for his or her intended use or purpose. Ownership information was provided by the County Assessor's Office and may not be complete or accurate.

This exhibit does not represent a survey and is for informational purposes only.

EXHIBIT A

LICENSE: LIC-2026040303

TO: CALIFORNIA DEPARTMENT OF WATER RESOURCES

STATE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
DIVISION OF ENGINEERING - GEOMATICS BRANCH

4/3/2026

SHEET 1 OF 1

STAFF REPORT - CITY COUNCIL/SUCCESSOR AGENCY/PUBLIC FINANCE AUTHORITY

Subject:	Adopt Resolution Nos. 4349, 4350, 4351, 4352, 4353, 4354, 4355, and 4363 Amending Employee Pay Scales to Reflect Previously Approved Compensation Adjustments for SEIU-Represented Employees, Police Department Non-Safety Employees, Emergency Medical Services Non-Safety Employees, Basic Non-Represented Employees, Department Heads, Assistant City Manager, AFL-CIO Local 2305 Firefighter/Paramedic Employees, and Fire Mid-Management Employees
Meeting Date:	Thursday, September 3, 2026
From:	Sean Brewer, City Manager
Prepared by:	Mai Vang, Financial Services Director

I. RECOMMENDATION:

Staff recommend that the City Council adopts the following Resolutions:

1. Resolution No. 4349 Amend the Pay Scales for Services Employees International Union (SEIU)
2. Resolution No. 4350 Amend the Pay Scales for Non-Safety employees within the Police Department
3. Resolution No. 4351 Amend the Pay Scales for Non-safety employees within the Emergency Medical Services (EMS) Department
4. Resolution No. 4352 Amend the Pay Scales for Basic Non-Represented Employees
5. Resolution No. 4353 Amend the Pay Scales for Department Head
6. Resolution No. 4354 Amend the Pay Scales for Assistant City Manager
7. Resolution No. 4355 Amend the Pay Scales for AFL-CIO Local 2305 Firefighter/Paramedic Employees
8. Resolution No. 4363 Amend the Pay Scales for Fire Mid-Management

II. BACKGROUND:

Over the past months, the City of Coalinga has had meet-and-confer discussions with multiple bargaining units which resulted in a mutually agreed wage increase for eligible represented employees. MOU's with these bargaining units have already been approved by the City Council.

The City had also agreed to increase wages for eligible non-represented employees such as Non-Safety employees from the Police and Fire Departments, as well as Basic Non-Represented, Department Head, Assistant City Manager, and Fire Mid-Management.

III. DISCUSSION:

As part of ongoing housekeeping efforts to promote consistency, transparency, and standardization in the City’s compensation practices, the proposed resolutions will amend the applicable pay scales to reflect previously approved salary adjustments and classification changes.

Meet-and-confer discussions related to Resolution No. 4349, providing a 3.5% salary increase, and Resolution No. 4355, providing a 4.0% salary increase, concluded with agreement on July 16, 2026. In addition, the City Council approved a 3.5% salary increase for eligible employees covered under Resolution Nos. 4350 through 4354 and 4363. Under Resolution No. 4350, the pay grade for the Police Technician was reassigned to 26A, which was shared with the Police Dispatcher Trainee. The Police Dispatch Trainee is not an eligible unit for the salary increase. There were no other changes to the Police Technician job description except for the pay grade.

The proposed resolutions will formally update the applicable pay scales to incorporate these previously approved changes. For consistency and administrative purposes, the updated pay scales will also include employee groups that were not included in the recently approved salary increases. The inclusion of these groups does not represent an additional salary adjustment but is intended to maintain complete, current, and standardized pay scale documentation.

Approval of the proposed resolutions will ensure that the City's adopted pay scales accurately reflect the authorized salary adjustments and classification changes while providing consistent and transparent compensation documentation.

1. Resolution No. 4349 Amend the Pay Scales for Services Employees International Union (SEIU)
2. Resolution No. 4350 Amend the Pay Scales for Non-Safety employees and within the Police Department
3. Resolution No. 4351 Amend the Pay Scales for Non-safety employees within the Emergency Medical Services (EMS) Department
4. Resolution No. 4352 Amend the Pay Scales for Basic Non-Represented Employees
5. Resolution No. 4353 Amend the Pay Scales for Department Head
6. Resolution No. 4354 Amend the Pay Scales for Assistant City Manager
7. Resolution No. 4355 Amend the Pay Scales for AFL-CIO Local 2305 Firefighter/Paramedic Employees
8. Resolution No. 4363 Amend the Pay Scales for Fire Mid-Management

IV. ALTERNATIVES:

None

V. FISCAL IMPACT:

The Salary increases for all groups have already been approved and were considered and incorporated in the adopted FY26/27 Personnel Budget.

ATTACHMENTS:

File Name	Description
20260903_-_Resolution_No._4349_SEIU_Unit.pdf	Resolution No. 4349
20260903_-_Resolution_No._4350_Non-Safety_in_PD.pdf	Resolution No. 4350
20260903_-_Resolution_No._4351_Non-Safety_in_FD.pdf	Resolution No. 4351
20260903_-_Resolution_No._4352_Basic_Non-Rep_Group.pdf	Resolution No. 4352
20260903_-_Resolution_No._4353_Department_Head.pdf	Resolution No. 4353
20260903_-_Resolution_No._4354_Assistant_City_Manager.pdf	Resolution No. 4354
20260903_-_Resolution_No._4355_Firefigher-Paramedics.pdf	Resolution No. 4355
20260903_-_Resolution_No._4363_Fire_Mid-Management.pdf	Resolution No. 4363

20260903_-_City_of_Coalinga_Pay_Scale_2026.pdf 2026 Pay Scales

RESOLUTION NO. 4349

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF COALINGA AMENDING THE PAY SCALES FOR EMPLOYEES REPRESENTED BY THE SERVICE EMPLOYEES INTERNATIONAL UNION (SEIU)

WHEREAS, the governing body of the City of Coalinga is authorized to prepare, install, revise and maintain a position classification and compensation plan covering all positions in the competitive service;

WHEREAS, City staff recommends amending the salary schedule to provide a three and one-half percent (3.5%) salary increase for the employees represented by the Service Employees International Union (SEIU); and

WHEREAS, the revised salary schedule is attached hereto as Exhibit "A" and incorporated herein by this reference; and

NOW, THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL OF THE CITY OF COALINGA:

1. The City Council hereby approves a three and one-half percent (3.5%) salary increase for employees represented by the Service Employees International Union (SEIU), as reflected in the revised salary schedule attached as Exhibit "A."

2. The revised salary schedule shall become effective on April 1, 2026.

3. This Resolution shall take effect immediately upon its adoption.

The foregoing Resolution was adopted at a Regular Meeting of the City Council of the City of Coalinga on **September 3rd, 2026**, by the following roll call vote.

AYES:

NOES:

ABSENT:

ABSTAIN:

APPROVED

_____
Nathan Vosburg, Mayor

ATTEST

_____
Shannon Jensen, City Clerk

EXHIBIT A

CITY OF COALINGA

General Pay Scale

Effective: 4/1/2026
Approved: 7/16/2026
Revised: 7/16/2026

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
19	**Custodian** **Groundskeeper** **Meter Reader**						
	Annually	$ 38,693.82	$ 40,628.52	$ 42,659.94	$ 44,792.94	$ 47,032.58	$ 49,384.21
	Monthly	$ 3,224.49	$ 3,385.71	$ 3,555.00	$ 3,732.74	$ 3,919.38	$ 4,115.35
	Bi-Weekly	$ 1,488.22	$ 1,562.64	$ 1,640.77	$ 1,722.81	$ 1,808.95	$ 1,899.39
	Hourly	$18.6028	$ 19.5329	$ 20.5096	$ 21.5351	$ 22.6118	$ 23.7424
20	**Wastewater Operator Apprentice**						
	Annually	$ 40,628.70	$ 42,660.07	$ 44,793.01	$ 47,032.67	$ 49,384.23	$ 51,853.57
	Monthly	$ 3,385.72	$ 3,555.01	$ 3,732.75	$ 3,919.39	$ 4,115.35	$ 4,321.13
	Bi-Weekly	$ 1,562.64	$ 1,640.77	$ 1,722.81	$ 1,808.95	$ 1,899.39	$ 1,994.37
	Hourly	$ 19.5330	$ 20.5097	$ 21.5351	$ 22.6119	$ 23.7424	$ 24.9296
21	**Account Clerk I** **Maintenance Worker I** **Maintenance Worker I (Street Sweeper)**						
	Annually	$ 42,660.07	$ 44,793.01	$ 47,032.67	$ 49,384.23	$ 51,853.57	$ 54,446.10
	Monthly	$ 3,555.01	$ 3,732.75	$ 3,919.39	$ 4,115.35	$ 4,321.13	$ 4,537.17
	Bi-Weekly	$ 1,640.77	$ 1,722.81	$ 1,808.95	$ 1,899.39	$ 1,994.37	$ 2,094.08
	Hourly	$ 20.5097	$ 21.5351	$ 22.6119	$ 23.7424	$ 24.9296	$ 26.1760
22	**Water Operator Apprentice**						
	Annually	$ 44,793.01	$ 47,032.67	$ 49,384.23	$ 51,853.57	$ 54,446.10	$ 57,168.63
	Monthly	$ 3,732.75	$ 3,919.39	$ 4,115.35	$ 4,321.13	$ 4,537.17	$ 4,764.05
	Bi-Weekly	$ 1,722.81	$ 1,808.95	$ 1,899.39	$ 1,994.37	$ 2,094.08	$ 2,198.79
	Hourly	$ 21.5351	$ 22.6119	$ 23.7424	$ 24.9296	$ 26.1760	$ 27.4849
23	**Account Clerk II** **Maintenance Worker II** **Code Enforcement Officer** **Wastewater Operator I** **Lube Technician**						
	Annually	$ 47,032.67	$ 49,384.23	$ 51,853.57	$ 54,446.10	$ 57,168.63	$ 60,027.03
	Monthly	$ 3,919.39	$ 4,115.35	$ 4,321.13	$ 4,537.17	$ 4,764.05	$ 5,002.25
	Bi-Weekly	$ 1,808.95	$ 1,899.39	$ 1,994.37	$ 2,094.08	$ 2,198.79	$ 2,308.73
	Hourly	$ 22.6119	$ 23.7424	$ 24.9296	$ 26.1760	$ 27.4849	$ 28.8592
24	**Water Operator I**						
	Annually	$ 49,384.23	$ 51,853.57	$ 54,446.10	$ 57,168.63	$ 60,027.03	$ 63,028.37
	Monthly	$ 4,115.35	$ 4,321.13	$ 4,537.17	$ 4,764.05	$ 5,002.25	$ 5,252.36
	Bi-Weekly	$ 1,899.39	$ 1,994.37	$ 2,094.08	$ 2,198.79	$ 2,308.73	$ 2,424.17
	Hourly	$ 23.7424	$ 24.9296	$ 26.1760	$ 27.4849	$ 28.8592	$ 30.3021

CITY OF COALINGA

General Pay Scale

Effective: 4/1/2026
Approved: 7/16/2026
Revised: 7/16/2026

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
25	**Equipment Mechanic** **Account Clerk III** **Wastewater Operator II** **Building Inspector Trainee**						
	Annually	$ 51,853.57	$ 54,446.10	$ 57,168.63	$ 60,027.03	$ 63,028.37	$ 66,179.70
	Monthly	$ 4,321.13	$ 4,537.17	$ 4,764.05	$ 5,002.25	$ 5,252.36	$ 5,514.97
	Bi-Weekly	$ 1,994.37	$ 2,094.08	$ 2,198.79	$ 2,308.73	$ 2,424.17	$ 2,545.37
	Hourly	$ 24.9296	$ 26.1760	$ 27.4849	$ 28.8592	$ 30.3021	$ 31.8172
26	**Maintenance Worker III**						
	Annually	$ 54,446.10	$ 57,168.63	$ 60,027.03	$ 63,028.37	$ 66,179.70	$ 69,488.76
	Monthly	$ 4,537.17	$ 4,764.05	$ 5,002.25	$ 5,252.36	$ 5,514.97	$ 5,790.73
	Bi-Weekly	$ 2,094.08	$ 2,198.79	$ 2,308.73	$ 2,424.17	$ 2,545.37	$ 2,672.64
	Hourly	$ 26.1760	$ 27.4849	$ 28.8592	$ 30.3021	$ 31.8172	$ 33.4081
27	**Building Inspector I** **Senior Account Clerk**						
	Annually	$ 57,168.63	$ 60,027.03	$ 63,028.37	$ 66,179.70	$ 69,488.76	$ 72,963.10
	Monthly	$ 4,764.05	$ 5,002.25	$ 5,252.36	$ 5,514.97	$ 5,790.73	$ 6,080.26
	Bi-Weekly	$ 2,198.79	$ 2,308.73	$ 2,424.17	$ 2,545.37	$ 2,672.64	$ 2,806.27
	Hourly	$ 27.4849	$ 28.8592	$ 30.3021	$ 31.8172	$ 33.4081	$ 35.0784
28	**Water Operator II**						
	Annually	$ 60,027.03	$ 63,028.37	$ 66,179.70	$ 69,488.76	$ 72,963.10	$ 76,611.39
	Monthly	$ 5,002.25	$ 5,252.36	$ 5,514.97	$ 5,790.73	$ 6,080.26	$ 6,384.28
	Bi-Weekly	$ 2,308.73	$ 2,424.17	$ 2,545.37	$ 2,672.64	$ 2,806.27	$ 2,946.59
	Hourly	$ 28.8592	$ 30.3021	$ 31.8172	$ 33.4081	$ 35.0784	$ 36.8324
29	**Assistant Engineer** **Building Inspector II**						
	Annually	$ 63,028.37	$ 66,179.70	$ 69,488.76	$ 72,963.10	$ 76,611.39	$ 80,441.88
	Monthly	$ 5,252.36	$ 5,514.97	$ 5,790.73	$ 6,080.26	$ 6,384.28	$ 6,703.49
	Bi-Weekly	$ 2,424.17	$ 2,545.37	$ 2,672.64	$ 2,806.27	$ 2,946.59	$ 3,093.92
	Hourly	$ 30.3021	$ 31.8172	$ 33.4081	$ 35.0784	$ 36.8324	$ 38.6740
30	**Water Operator III** **Public Utilities Coordinator**						
	Annually	$ 66,179.70	$ 69,488.76	$ 72,963.10	$ 76,611.39	$ 80,441.88	$ 84,463.96
	Monthly	$ 5,514.97	$ 5,790.73	$ 6,080.26	$ 6,384.28	$ 6,703.49	$ 7,038.66
	Bi-Weekly	$ 2,545.37	$ 2,672.64	$ 2,806.27	$ 2,946.59	$ 3,093.92	$ 3,248.61
	Hourly	$ 31.8172	$ 33.4081	$ 35.0784	$ 36.8324	$ 38.6740	$ 40.6077
31	**Building Inspector III**						
	Annually	$ 69,488.64	$ 72,962.93	$ 76,611.06	$ 80,441.60	$ 84,463.83	$ 88,687.01
	Monthly	$ 5,790.72	$ 6,080.24	$ 6,384.25	$ 6,703.47	$ 7,038.65	$ 7,390.58
	Bi-Weekly	$ 2,672.64	$ 2,806.27	$ 2,946.58	$ 3,093.91	$ 3,248.61	$ 3,411.04
	Hourly	$ 33.4080	$ 35.0783	$ 36.8322	$ 38.6738	$ 40.6076	$ 42.6380

CITY OF COALINGA

General Pay Scale

Effective: 4/1/2026
Approved: 7/16/2026
Revised: 7/16/2026

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
32	**Water Operator IV**						
	Annually	$ 72,963.10	$ 76,611.39	$ 80,441.88	$ 84,463.96	$ 88,687.04	$ 93,121.46
	Monthly	$ 6,080.26	$ 6,384.28	$ 6,703.49	$ 7,038.66	$ 7,390.59	$ 7,760.12
	Bi-Weekly	$ 2,806.27	$ 2,946.59	$ 3,093.92	$ 3,248.61	$ 3,411.04	$ 3,581.59
	Hourly	$ 35.0784	$ 36.8324	$ 38.6740	$ 40.6077	$ 42.6380	$ 44.7699

RESOLUTION NO. 4350

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF COALINGA APPROVING A 3.5% SALARY INCREASE FOR ELIGIBLE POLICE DEPARTMENT NON-SWORN EMPLOYEES AND UPDATING THE POLICE TECHNICIAN CLASSIFICATION TO GRADE 26A

WHEREAS, the governing body of the City of Coalinga is authorized to prepare, install, revise and maintain a position classification and compensation plan covering all positions in the competitive service;

WHEREAS, City staff recommends amending the salary schedule to provide a three and one-half percent (3.5%) salary increase for eligible non-sworn employees within the Police Department; and

WHEREAS, the proposed salary adjustment does not apply to Police Dispatcher classifications or employees serving in Police Dispatcher positions; and

WHEREAS, the revised salary schedule is attached hereto as Exhibit "A" and incorporated herein by this reference; and

WHEREAS, the salary schedule for the Police Technician classification has been updated to Grade 26A to distinguish it from the Dispatch Trainee classification, as reflected in Exhibit "B," attached hereto and incorporated herein by reference; and

NOW, THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL OF THE CITY OF COALINGA:

1. The City Council hereby approves a three and one-half percent (3.5%) salary increase for eligible non-sworn employees within the Police Department, as reflected in the revised salary schedule attached as Exhibit "A."

2. Police Dispatcher classifications and employees serving in Police Dispatcher and Dispatcher Trainee positions are expressly excluded from the salary increase authorized by this Resolution.

3. The City Council hereby approves the update of the Police Technician classification to Grade 26A, as reflected in Exhibit "B."

4. The revised salary schedule shall become effective on April 1, 2026.

5. This Resolution shall take effect immediately upon its adoption.

The foregoing Resolution was adopted at a Regular Meeting of the City Council of the City of Coalinga on **September 3, 2026**, by the following roll call vote.

AYES:

NOES:

ABSENT:

ABSTAIN:

APPROVED

_____
Nathan Vosburg, Mayor

ATTEST

_____
Shannon Jensen, City Clerk

EXHIBIT A

CITY OF COALINGA

Police Non-Sworn Pay Scale

Effective: 4/1/2026
Approved:
Revised:

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
22	Animal Control I						
	Annually	$ 37,092.85	$ 38,947.49	$ 40,894.86	$ 42,939.61	$ 45,086.59	$ 47,340.92
	Monthly	$ 3,091.07	$ 3,245.62	$ 3,407.91	$ 3,578.30	$ 3,757.22	$ 3,945.08
	Bi-Weekly	$ 1,426.65	$ 1,497.98	$ 1,572.88	$ 1,651.52	$ 1,734.10	$ 1,820.80
	Hourly	$ 17.8331	$ 18.7248	$ 19.6610	$ 20.6440	$ 21.6762	$ 22.7601
23	Animal Control II						
	Annually	$ 38,947.49	$ 40,894.86	$ 42,939.61	$ 45,086.59	$ 47,340.92	$ 49,707.96
	Monthly	$ 3,245.62	$ 3,407.91	$ 3,578.30	$ 3,757.22	$ 3,945.08	$ 4,142.33
	Bi-Weekly	$ 1,497.98	$ 1,572.88	$ 1,651.52	$ 1,734.10	$ 1,820.80	$ 1,911.84
	Hourly	$ 18.7248	$ 19.6610	$ 20.6440	$ 21.6762	$ 22.7601	$ 23.8981
24							
	Annually	$ 40,894.86	$ 42,939.61	$ 45,086.59	$ 47,340.92	$ 49,707.96	$ 52,193.36
	Monthly	$ 3,407.91	$ 3,578.30	$ 3,757.22	$ 3,945.08	$ 4,142.33	$ 4,349.45
	Bi-Weekly	$ 1,572.88	$ 1,651.52	$ 1,734.10	$ 1,820.80	$ 1,911.84	$ 2,007.44
	Hourly	$ 19.6610	$ 20.6440	$ 21.6762	$ 22.7601	$ 23.8981	$ 25.0930
25	Animal Control III						
	Annually	$ 42,939.61	$ 45,086.59	$ 47,340.92	$ 49,707.96	$ 52,193.36	$ 54,803.03
	Monthly	$ 3,578.30	$ 3,757.22	$ 3,945.08	$ 4,142.33	$ 4,349.45	$ 4,566.92
	Bi-Weekly	$ 1,651.52	$ 1,734.10	$ 1,820.80	$ 1,911.84	$ 2,007.44	$ 2,107.81
	Hourly	$ 20.6440	$ 21.6762	$ 22.7601	$ 23.8981	$ 25.0930	$ 26.3476
26A	Police Technician						
	Annually	$ 45,086.59	$ 47,340.92	$ 49,707.96	$ 52,193.36	$ 54,803.03	$ 57,543.18
	Monthly	$ 3,757.22	$ 3,945.08	$ 4,142.33	$ 4,349.45	$ 4,566.92	$ 4,795.27
	Bi-Weekly	$ 1,734.10	$ 1,820.80	$ 1,911.84	$ 2,007.44	$ 2,107.81	$ 2,213.20
	Hourly	$ 21.6762	$ 22.7601	$ 23.8981	$ 25.0930	$ 26.3476	$ 27.6650

EXHIBIT B

CITY OF COALINGA

Police Non-Sworn Pay Scale

Effective: 8/7/2025
Approved: 8/7/2025
Revised: 8/7/2025

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
26	Dispatcher Trainee						
	Annually	$ 43,683.74	$ 45,868.99	$ 48,160.32	$ 50,557.73	$ 53,082.43	$ 55,755.65
	Monthly	$ 3,640.31	$ 3,822.42	$ 4,013.36	$ 4,213.14	$ 4,423.54	$ 4,646.30
	Bi-Weekly	$ 1,680.14	$ 1,764.19	$ 1,852.32	$ 1,944.53	$ 2,041.63	$ 2,144.45
	Hourly	$ 21.0018	$ 22.0524	$ 23.1540	$ 24.3066	$ 25.5204	$ 26.8056
27	Public Safety Dispatcher/Clerk						
	Annually	$ 45,868.99	$ 48,160.32	$ 50,557.73	$ 53,082.43	$ 55,755.65	$ 58,534.94
	Monthly	$ 3,822.42	$ 4,013.36	$ 4,213.14	$ 4,423.54	$ 4,646.30	$ 4,877.91
	Bi-Weekly	$ 1,764.19	$ 1,852.32	$ 1,944.53	$ 2,041.63	$ 2,144.45	$ 2,251.34
	Hourly	$ 22.0524	$ 23.1540	$ 24.3066	$ 25.5204	$ 26.8056	$ 28.1418
28	Senior Dispatcher						
	Annually	$ 48,152.00	$ 50,564.80	$ 53,081.60	$ 55,744.00	$ 58,531.20	$ 61,464.00
	Monthly	$ 4,012.67	$ 4,213.73	$ 4,423.47	$ 4,645.33	$ 4,877.60	$ 5,122.00
	Bi-Weekly	$ 1,852.00	$ 1,944.80	$ 2,041.60	$ 2,144.00	$ 2,251.20	$ 2,364.00
	Hourly	$ 23.1500	$ 24.3100	$ 25.5200	$ 26.8000	$ 28.1400	$ 29.5500
29	Dispatcher Supervisor						
	Annually	$ 50,564.80	$ 53,081.60	$ 55,744.00	$ 58,531.20	$ 61,464.00	$ 64,542.40
	Monthly	$ 4,213.73	$ 4,423.47	$ 4,645.33	$ 4,877.60	$ 5,122.00	$ 5,378.53
	Bi-Weekly	$ 1,944.80	$ 2,041.60	$ 2,144.00	$ 2,251.20	$ 2,364.00	$ 2,482.40
	Hourly	$ 24.3100	$ 25.5200	$ 26.8000	$ 28.1400	$ 29.5500	$ 31.0300

RESOLUTION NO. 4351

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF COALINGA REVISING THE CITY OF COALINGA FIRE/EMERGENCY MEDICAL SERVICES NON-SWORN PAY SCALE

WHEREAS, the governing body of the City of Coalinga is authorized to prepare, install, revise and maintain a position classification and compensation plan covering all positions in the competitive service;

WHEREAS, City staff recommends amending the salary schedule to provide a three and one-half percent (3.5%) salary increase for eligible non-sworn employees within the Fire/Emergency Medical Services Department; and

WHEREAS, the revised salary schedule is attached hereto as Exhibit "A" and incorporated herein by this reference; and

NOW, THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL OF THE CITY OF COALINGA:

1. The City Council hereby approves a three and one-half percent (3.5%) salary increase for eligible non-sworn employees within the Fire/Emergency Medical Services Department, as reflected in the revised salary schedule attached as Exhibit "A."

2. The revised salary schedule shall become effective on April 1, 2026.

3. This Resolution shall take effect immediately upon its adoption.

The foregoing Resolution was adopted at a Regular Meeting of the City Council of the City of Coalinga on **September 3rd, 2026**, by the following roll call vote.

AYES:

NOES:

ABSENT:

ABSTAIN:

APPROVED

_____
Nathan Vosburg, Mayor

ATTEST

_____
Shannon Jensen, City Clerk

EXHIBIT A

CITY OF COALINGA

Fire Non-Safety EMS Pay Scale

Effective: 4/1/2026
Approved: 7/16/2026
Revised:

Grade	Position	Step A	Step B	Step C	Step D	Step E
1	**Emergency Medical Technician (EMT)**					
	Annually**	$ 38,076.14	$ 39,986.54	$ 41,962.81	$ 44,070.83	$ 46,266.69
	Monthly**	$ 3,173.01	$ 3,332.21	$ 3,496.90	$ 3,672.57	$ 3,855.56
	Bi-Weekly**	$ 1,464.47	$ 1,537.94	$ 1,613.95	$ 1,695.03	$ 1,779.49
	Hourly*	$ 18.3058	$ 19.2243	$ 20.1744	$ 21.1879	$ 22.2436
2	**Paramedic**					
	Annually**	$ 41,962.81	$ 44,070.83	$ 46,266.69	$ 48,572.33	$ 51,009.73
	Monthly**	$ 3,496.90	$ 3,672.57	$ 3,855.56	$ 4,047.69	$ 4,250.81
	Bi-Weekly**	$ 1,613.95	$ 1,695.03	$ 1,779.49	$ 1,868.17	$ 1,961.91
	Hourly*	$ 20.1744	$ 21.1879	$ 22.2436	$ 23.3521	$ 24.5239

*Emergency Medical Technicians and Paramedics are paid an hourly rate.

** Non-Safety EMS may be scheduled up to 2,080 hours annually. Actual hours and pay may vary depending on work schedule.

Note: Emergency Medical Technicians and Paramedics may work up to 832 hours of OT annually.

RESOLUTION NO. 4352

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF COALINGA AMENDING THE PAY SCALES FOR THE NON-REPRESENT EMPLOYEES

WHEREAS, the governing body of the City of Coalinga is authorized to prepare, install, revise and maintain a position classification and compensation plan covering all positions in the competitive service;

WHEREAS, City staff recommends amending the salary schedule to provide a three and one-half percent (3.5%) salary increase for the non-represented employees; and

WHEREAS, the revised salary schedule is attached hereto as Exhibit "A" and incorporated herein by this reference; and

NOW, THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL OF THE CITY OF COALINGA:

1. The City Council hereby approves a three and one-half percent (3.5%) salary increase for the non-represented employees, as reflected in the revised salary schedule attached as Exhibit "A."

2. The revised salary schedule shall become effective on July 1, 2026.

3. This Resolution shall take effect immediately upon its adoption.

The foregoing Resolution was adopted at a Regular Meeting of the City Council of the City of Coalinga on **September 3rd, 2026**, by the following roll call vote.

AYES:

NOES:

ABSENT:

ABSTAIN:

APPROVED

_____
Nathan Vosburg, Mayor

ATTEST

_____
Shannon Jensen, City Clerk

EXHIBIT A

CITY OF COALINGA

Basic Pay Scale

Effective: 7/1/2026
Approved: 7/16/2026
Revised: 7/16/2026

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
18	**Office Assistant** **Human Resources Assistant**						
	Annually	$ 35,434.01	$ 37,205.77	$ 39,066.00	$ 41,019.23	$ 43,070.21	$ 45,223.66
	Monthly	$ 2,952.83	$ 3,100.48	$ 3,255.50	$ 3,418.27	$ 3,589.18	$ 3,768.64
	Bi-Weekly	$ 1,362.85	$ 1,430.99	$ 1,502.54	$ 1,577.66	$ 1,656.55	$ 1,739.37
	Hourly	$ 17.0356	$ 17.8874	$ 18.7817	$ 19.7208	$ 20.7068	$ 21.7421
22	**Water Conservation Analyst**						
	Annually	$ 43,070.21	$ 45,223.66	$ 47,484.96	$ 49,859.06	$ 52,352.22	$ 54,969.81
	Monthly	$ 3,589.18	$ 3,768.64	$ 3,957.08	$ 4,154.92	$ 4,362.69	$ 4,580.82
	Bi-Weekly	$ 1,656.55	$ 1,739.37	$ 1,826.34	$ 1,917.66	$ 2,013.55	$ 2,114.22
	Hourly	$ 20.7068	$ 21.7421	$ 22.8293	$ 23.9707	$ 25.1693	$ 26.4278
25	**Secretary**						
	Annually	$ 49,859.06	$ 52,352.22	$ 54,969.81	$ 57,718.29	$ 60,604.12	$ 63,634.40
	Monthly	$ 4,154.92	$ 4,362.69	$ 4,580.82	$ 4,809.86	$ 5,050.34	$ 5,302.87
	Bi-Weekly	$ 1,917.66	$ 2,013.55	$ 2,114.22	$ 2,219.93	$ 2,330.93	$ 2,447.48
	Hourly	$ 23.9707	$ 25.1693	$ 26.4278	$ 27.7492	$ 29.1366	$ 30.5935
27	**Accounting Technician** **Human Resources Generalist** **Administrative Secretary**						
	Annually	$ 54,969.81	$ 57,718.29	$ 60,604.12	$ 63,634.40	$ 66,816.02	$ 70,156.95
	Monthly	$ 4,580.82	$ 4,809.86	$ 5,050.34	$ 5,302.87	$ 5,568.00	$ 5,846.41
	Bi-Weekly	$ 2,114.22	$ 2,219.93	$ 2,330.93	$ 2,447.48	$ 2,569.85	$ 2,698.34
	Hourly	$ 26.4278	$ 27.7492	$ 29.1366	$ 30.5935	$ 32.1231	$ 33.7293
29	**Senior Administrative Analyst** **Economic Development Coordinator** **Junior Accountant** **Finanical Services Analyst**						
	Annually	$ 60,604.12	$ 63,634.40	$ 66,816.02	$ 70,156.95	$ 73,664.73	$ 77,347.95
	Monthly	$ 5,050.34	$ 5,302.87	$ 5,568.00	$ 5,846.41	$ 6,138.73	$ 6,445.66
	Bi-Weekly	$ 2,330.93	$ 2,447.48	$ 2,569.85	$ 2,698.34	$ 2,833.26	$ 2,974.92
	Hourly	$ 29.1366	$ 30.5935	$ 32.1231	$ 33.7293	$ 35.4157	$ 37.1865
31	**Human Resources Analyst** **Financial Services Supervisor**						
	Annually	$ 66,816.02	$ 70,156.95	$ 73,664.73	$ 77,347.95	$ 81,215.24	$ 85,276.07
	Monthly	$ 5,568.00	$ 5,846.41	$ 6,138.73	$ 6,445.66	$ 6,767.94	$ 7,106.34
	Bi-Weekly	$ 2,569.85	$ 2,698.34	$ 2,833.26	$ 2,974.92	$ 3,123.66	$ 3,279.85
	Hourly	$ 32.1231	$ 33.7293	$ 35.4157	$ 37.1865	$ 39.0458	$ 40.9981

EXHIBIT A

CITY OF COALINGA

Basic Pay Scale

Effective: 7/1/2026
Approved: 7/16/2026
Revised: 7/16/2026

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
34	**Operations Superintendent** **Assistant to the City Manager/City Clerk** **Utilities Supervisor** **Public Works Supervisor** **Accountant**						
	Annually	$ 77,347.95	$ 81,215.24	$ 85,276.07	$ 89,539.90	$ 94,016.87	$ 98,717.72
	Monthly	$ 6,445.66	$ 6,767.94	$ 7,106.34	$ 7,461.66	$ 7,834.74	$ 8,226.48
	Bi-Weekly	$ 2,974.92	$ 3,123.66	$ 3,279.85	$ 3,443.84	$ 3,616.03	$ 3,796.84
	Hourly	$ 37.1865	$ 39.0458	$ 40.9981	$ 43.0480	$ 45.2004	$ 47.4604
35	**Police Lieutenant** **Senior Accountant**						
	Annually	$ 81,215.24	$ 85,276.07	$ 89,539.90	$ 94,016.87	$ 98,717.72	$ 103,653.66
	Monthly	$ 6,767.94	$ 7,106.34	$ 7,461.66	$ 7,834.74	$ 8,226.48	$ 8,637.80
	Bi-Weekly	$ 3,123.66	$ 3,279.85	$ 3,443.84	$ 3,616.03	$ 3,796.84	$ 3,986.68
	Hourly	$ 39.0458	$ 40.9981	$ 43.0480	$ 45.2004	$ 47.4604	$ 49.8335
37	**Deputy Financial Services Manager**						
	Annually	$ 89,539.90	$ 94,016.87	$ 98,717.72	$ 103,653.66	$ 108,836.31	$ 114,278.16
	Monthly	$ 7,461.66	$ 7,834.74	$ 8,226.48	$ 8,637.80	$ 9,069.69	$ 9,523.18
	Bi-Weekly	$ 3,443.84	$ 3,616.03	$ 3,796.84	$ 3,986.68	$ 4,186.01	$ 4,395.31
	Hourly	$ 43.0480	$ 45.2004	$ 47.4604	$ 49.8335	$ 52.3252	$ 54.9414
41	**Police Commander** **Fire Division Chief**						
	Annually	$ 99,666.67	$ 104,650.01	$ 109,882.51	$ 115,376.63	$ 121,145.46	$ 127,202.74
	Monthly	$ 8,305.56	$ 8,720.83	$ 9,156.88	$ 9,614.72	$ 10,095.46	$ 10,600.23
	Bi-Weekly	$ 3,833.33	$ 4,025.00	$ 4,226.25	$ 4,437.56	$ 4,659.44	$ 4,892.41
	Hourly	$ 47.9167	$ 50.3125	$ 52.8281	$ 55.4695	$ 58.2430	$ 61.1552

RESOLUTION NO. 4353

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF COALINGA AMENDING THE PAY SCALES FOR THE DEPARTMENT HEAD

WHEREAS, the governing body of the City of Coalinga is authorized to prepare, install, revise and maintain a position classification and compensation plan covering all positions in the competitive service;

WHEREAS, City staff recommends amending the salary schedule to provide a three and one-half percent (3.5%) salary increase for the Department Head group; and

WHEREAS, the revised salary schedule is attached hereto as Exhibit "A" and incorporated herein by this reference; and

NOW, THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL OF THE CITY OF COALINGA:

1. The City Council hereby approves a three and one-half percent (3.5%) salary increase for the Department Head, as reflected in the revised salary schedule attached as Exhibit "A."

2. The revised salary schedule shall become effective on July 1, 2026.

3. This Resolution shall take effect immediately upon its adoption.

The foregoing Resolution was adopted at a Regular Meeting of the City Council of the City of Coalinga on **September 3rd, 2026**, by the following roll call vote.

AYES:

NOES:

ABSENT:

ABSTAIN:

APPROVED

_____
Nathan Vosburg, Mayor

ATTEST

_____
Shannon Jensen, City Clerk

EXHIBIT A

CITY OF COALINGA

Department Head Pay Scale

Effective: 7/1/2026
Approved: 7/16/2026
Revised: 7/16/2026

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
	Fire Chief **Police Chief** **Financial Services Director** **Human Resources Director** **Community Development Director** **Public Works & Utilities Director**						
	Annually	$ 114,547.80	$ 120,275.07	$ 126,288.97	$ 132,603.29	$ 139,233.61	$ 146,195.31
	Monthly	$ 9,545.65	$ 10,022.92	$ 10,524.08	$ 11,050.27	$ 11,602.80	$ 12,182.94
	Bi-Weekly	$ 4,405.68	$ 4,625.96	$ 4,857.27	$ 5,100.13	$ 5,355.14	$ 5,622.90
	Hourly	$ 55.0711	$ 57.8246	$ 60.7159	$ 63.7516	$ 66.9392	$ 70.2862

RESOLUTION NO. 4354

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF COALINGA AMENDING THE PAY SCALES FOR THE ASSISTANT CITY MANAGER

WHEREAS, the governing body of the City of Coalinga is authorized to prepare, install, revise and maintain a position classification and compensation plan covering all positions in the competitive service;

WHEREAS, City staff recommends amending the salary schedule to provide a three and one-half percent (3.5%) salary increase for the Assistant City Manager; and

WHEREAS, the revised salary schedule is attached hereto as Exhibit "A" and incorporated herein by this reference; and

NOW, THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL OF THE CITY OF COALINGA:

1. The City Council hereby approves a three and one-half percent (3.5%) salary increase for the Assistant City Manager, as reflected in the revised salary schedule attached as Exhibit "A."

2. The revised salary schedule shall become effective on July 1, 2026.

3. This Resolution shall take effect immediately upon its adoption.

The foregoing Resolution was adopted at a Regular Meeting of the City Council of the City of Coalinga on **September 3rd, 2026**, by the following roll call vote.

AYES:

NOES:

ABSENT:

ABSTAIN:

APPROVED

_____
Nathan Vosburg, Mayor

ATTEST

_____
Shannon Jensen, City Clerk

EXHIBIT A

CITY OF COALINGA

Assistant City Manager Pay Scale

Effective: 7/1/2026
Approved: 7/16/2026
Revised: 7/16/2026

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
	Assistant City Manager						
	Annually	$ 127,893.21	$ 134,287.77	$ 141,002.18	$ 148,052.26	$ 155,454.75	$ 163,227.50
	Monthly	$ 10,657.77	$ 11,190.65	$ 11,750.18	$ 12,337.69	$ 12,954.56	$ 13,602.29
	Bi-Weekly	$ 4,918.97	$ 5,164.91	$ 5,423.16	$ 5,694.32	$ 5,979.03	$ 6,277.98
	Hourly	$ 61.4871	$ 64.5614	$ 67.7895	$ 71.1790	$ 74.7379	$ 78.4748

RESOLUTION NO. 4355

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF COALINGA AMENDING THE PAY SCALES FOR THE FIREFIGHTER/PARAMEDIC

WHEREAS, the governing body of the City of Coalinga is authorized to prepare, install, revise and maintain a position classification and compensation plan covering all positions in the competitive service;

WHEREAS, City staff recommends amending the salary schedule to provide a four percent (4.0%) salary increase for the Firefighter/Paramedic; and

WHEREAS, the revised salary schedule is attached hereto as Exhibit "A" and incorporated herein by this reference; and

NOW, THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL OF THE CITY OF COALINGA:

1. The City Council hereby approves a four percent (4.0%) salary increase for the Firefighter/Paramedic, as reflected in the revised salary schedule attached as Exhibit "A."

2. The revised salary schedule shall become effective on July 1, 2026.

3. This Resolution shall take effect immediately upon its adoption.

The foregoing Resolution was adopted at a Regular Meeting of the City Council of the City of Coalinga on **September 3rd, 2026**, by the following roll call vote.

AYES:

NOES:

ABSENT:

ABSTAIN:

APPROVED

_____
Nathan Vosburg, Mayor

ATTEST

_____
Shannon Jensen, City Clerk

EXHIBIT A

CITY OF COALINGA

Fire Pay Scale (Sworn)

Effective: 7/1/2026

Approved: 7/16/2026

Revised: 7/16/2026

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
17	**Firefighter/EMT**						
	Annually	$ 63,615.58	$ 66,796.35	$ 70,135.91	$ 73,642.79	$ 77,324.85	$ 81,191.23
	Monthly	$ 5,301.30	$ 5,566.36	$ 5,844.66	$ 6,136.90	$ 6,443.74	$ 6,765.94
	Bi-Weekly	$ 2,446.75	$ 2,569.09	$ 2,697.54	$ 2,832.41	$ 2,974.03	$ 3,122.74
	Hourly	$ 21.8460	$ 22.9383	$ 24.0851	$ 25.2894	$ 26.5539	$ 27.8816
19	**Firefighter/Paramedic**						
	Annually	$ 70,135.91	$ 73,642.79	$ 77,324.85	$ 81,191.23	$ 85,250.76	$ 89,513.21
	Monthly	$ 5,844.66	$ 6,136.90	$ 6,443.74	$ 6,765.94	$ 7,104.23	$ 7,459.43
	Bi-Weekly	$ 2,697.54	$ 2,832.41	$ 2,974.03	$ 3,122.74	$ 3,278.88	$ 3,442.82
	Hourly	$ 24.0851	$ 25.2894	$ 26.5539	$ 27.8816	$ 29.2757	$ 30.7394
22	**Fire Engineer**						
	Annually	$ 81,191.23	$ 85,250.76	$ 89,513.21	$ 93,988.96	$ 98,688.43	$ 103,622.94
	Monthly	$ 6,765.94	$ 7,104.23	$ 7,459.43	$ 7,832.41	$ 8,224.04	$ 8,635.25
	Bi-Weekly	$ 3,122.74	$ 3,278.88	$ 3,442.82	$ 3,614.96	$ 3,795.71	$ 3,985.50
	Hourly	$ 27.8816	$ 29.2757	$ 30.7394	$ 32.2764	$ 33.8903	$ 35.5848
24	**Fire Captain**						
	Annually	$ 89,513.21	$ 93,988.96	$ 98,688.43	$ 103,622.94	$ 108,804.17	$ 114,244.39
	Monthly	$ 7,459.43	$ 7,832.41	$ 8,224.04	$ 8,635.25	$ 9,067.01	$ 9,520.37
	Bi-Weekly	$ 3,442.82	$ 3,614.96	$ 3,795.71	$ 3,985.50	$ 4,184.78	$ 4,394.02
	Hourly	$ 30.7394	$ 32.2764	$ 33.8903	$ 35.5848	$ 37.3641	$ 39.2323

RESOLUTION NO. 4363

RESOLUTION OF THE CITY COUNCIL OF THE CITY OF COALINGA AMENDING THE PAY SCALES FOR THE FIRE MID-MANAGEMENT

WHEREAS, the governing body of the City of Coalinga is authorized to prepare, install, revise and maintain a position classification and compensation plan covering all positions in the competitive service;

WHEREAS, City staff recommends amending the salary schedule to provide a three and a half percent (3.5%) salary increase for the Fire Mid-management group; and

WHEREAS, the revised salary schedule is attached hereto as Exhibit "A" and incorporated herein by this reference; and

NOW, THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL OF THE CITY OF COALINGA:

1. The City Council hereby approves a three and a half percent (3.5%) salary increase for the Fire Mid-management group, as reflected in the revised salary schedule attached as Exhibit "A."

2. The revised salary schedule shall become effective on July 1, 2026.

3. This Resolution shall take effect immediately upon its adoption.

The foregoing Resolution was adopted at a Regular Meeting of the City Council of the City of Coalinga on **September 3rd, 2026**, by the following roll call vote.

AYES:

NOES:

ABSENT:

ABSTAIN:

APPROVED

_____
Nathan Vosburg, Mayor

ATTEST

_____
Shannon Jensen, City Clerk

EXHIBIT A

CITY OF COALINGA

Fire Mid-Management

Effective: 7/1/2026
Approved: 7/16/2026
Revised: 7/16/2026

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
24	Battalion Chief						
	Annually	$ 94,395.97	$ 99,127.83	$ 104,070.66	$ 109,284.74	$ 114,739.93	$ 120,285.55
	Monthly	$ 7,866.33	$ 8,260.65	$ 8,672.55	$ 9,107.06	$ 9,561.66	$ 10,023.80
	Bi-Weekly	$ 3,630.61	$ 3,812.61	$ 4,002.72	$ 4,203.26	$ 4,413.07	$ 4,626.37
	Hourly	$ 32.4162	$ 34.0412	$ 35.7386	$ 37.5291	$ 39.4025	$ 41.3069

FLSA Exempt

City of Coalinga
Pay Scales

September 3, 2026

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CITY OF COALINGA

General Pay Scale

Effective: 4/1/2026
Approved: 7/16/2026
Revised: 7/16/2026

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
19	**Custodian** **Groundskeeper** **Meter Reader**						
	Annually	$ 38,693.82	$ 40,628.52	$ 42,659.94	$ 44,792.94	$ 47,032.58	$ 49,384.21
	Monthly	$ 3,224.49	$ 3,385.71	$ 3,555.00	$ 3,732.74	$ 3,919.38	$ 4,115.35
	Bi-Weekly	$ 1,488.22	$ 1,562.64	$ 1,640.77	$ 1,722.81	$ 1,808.95	$ 1,899.39
	Hourly	$18.6028	$ 19.5329	$ 20.5096	$ 21.5351	$ 22.6118	$ 23.7424
20	**Wastewater Operator Apprentice**						
	Annually	$ 40,628.70	$ 42,660.07	$ 44,793.01	$ 47,032.67	$ 49,384.23	$ 51,853.57
	Monthly	$ 3,385.72	$ 3,555.01	$ 3,732.75	$ 3,919.39	$ 4,115.35	$ 4,321.13
	Bi-Weekly	$ 1,562.64	$ 1,640.77	$ 1,722.81	$ 1,808.95	$ 1,899.39	$ 1,994.37
	Hourly	$ 19.5330	$ 20.5097	$ 21.5351	$ 22.6119	$ 23.7424	$ 24.9296
21	**Account Clerk I** **Maintenance Worker I** **Maintenance Worker I (Street Sweeper)**						
	Annually	$ 42,660.07	$ 44,793.01	$ 47,032.67	$ 49,384.23	$ 51,853.57	$ 54,446.10
	Monthly	$ 3,555.01	$ 3,732.75	$ 3,919.39	$ 4,115.35	$ 4,321.13	$ 4,537.17
	Bi-Weekly	$ 1,640.77	$ 1,722.81	$ 1,808.95	$ 1,899.39	$ 1,994.37	$ 2,094.08
	Hourly	$ 20.5097	$ 21.5351	$ 22.6119	$ 23.7424	$ 24.9296	$ 26.1760
22	**Water Operator Apprentice**						
	Annually	$ 44,793.01	$ 47,032.67	$ 49,384.23	$ 51,853.57	$ 54,446.10	$ 57,168.63
	Monthly	$ 3,732.75	$ 3,919.39	$ 4,115.35	$ 4,321.13	$ 4,537.17	$ 4,764.05
	Bi-Weekly	$ 1,722.81	$ 1,808.95	$ 1,899.39	$ 1,994.37	$ 2,094.08	$ 2,198.79
	Hourly	$ 21.5351	$ 22.6119	$ 23.7424	$ 24.9296	$ 26.1760	$ 27.4849
23	**Account Clerk II** **Maintenance Worker II** **Code Enforcement Officer** **Wastewater Operator I** **Lube Technician**						
	Annually	$ 47,032.67	$ 49,384.23	$ 51,853.57	$ 54,446.10	$ 57,168.63	$ 60,027.03
	Monthly	$ 3,919.39	$ 4,115.35	$ 4,321.13	$ 4,537.17	$ 4,764.05	$ 5,002.25
	Bi-Weekly	$ 1,808.95	$ 1,899.39	$ 1,994.37	$ 2,094.08	$ 2,198.79	$ 2,308.73
	Hourly	$ 22.6119	$ 23.7424	$ 24.9296	$ 26.1760	$ 27.4849	$ 28.8592
24	**Water Operator I**						
	Annually	$ 49,384.23	$ 51,853.57	$ 54,446.10	$ 57,168.63	$ 60,027.03	$ 63,028.37
	Monthly	$ 4,115.35	$ 4,321.13	$ 4,537.17	$ 4,764.05	$ 5,002.25	$ 5,252.36
	Bi-Weekly	$ 1,899.39	$ 1,994.37	$ 2,094.08	$ 2,198.79	$ 2,308.73	$ 2,424.17
	Hourly	$ 23.7424	$ 24.9296	$ 26.1760	$ 27.4849	$ 28.8592	$ 30.3021

CITY OF COALINGA

General Pay Scale

Effective: 4/1/2026
Approved: 7/16/2026
Revised: 7/16/2026

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
25	**Equipment Mechanic** **Account Clerk III** **Wastewater Operator II** **Building Inspector Trainee**						
	Annually	$ 51,853.57	$ 54,446.10	$ 57,168.63	$ 60,027.03	$ 63,028.37	$ 66,179.70
	Monthly	$ 4,321.13	$ 4,537.17	$ 4,764.05	$ 5,002.25	$ 5,252.36	$ 5,514.97
	Bi-Weekly	$ 1,994.37	$ 2,094.08	$ 2,198.79	$ 2,308.73	$ 2,424.17	$ 2,545.37
	Hourly	$ 24.9296	$ 26.1760	$ 27.4849	$ 28.8592	$ 30.3021	$ 31.8172
26	**Maintenance Worker III**						
	Annually	$ 54,446.10	$ 57,168.63	$ 60,027.03	$ 63,028.37	$ 66,179.70	$ 69,488.76
	Monthly	$ 4,537.17	$ 4,764.05	$ 5,002.25	$ 5,252.36	$ 5,514.97	$ 5,790.73
	Bi-Weekly	$ 2,094.08	$ 2,198.79	$ 2,308.73	$ 2,424.17	$ 2,545.37	$ 2,672.64
	Hourly	$ 26.1760	$ 27.4849	$ 28.8592	$ 30.3021	$ 31.8172	$ 33.4081
27	**Building Inspector I** **Senior Account Clerk**						
	Annually	$ 57,168.63	$ 60,027.03	$ 63,028.37	$ 66,179.70	$ 69,488.76	$ 72,963.10
	Monthly	$ 4,764.05	$ 5,002.25	$ 5,252.36	$ 5,514.97	$ 5,790.73	$ 6,080.26
	Bi-Weekly	$ 2,198.79	$ 2,308.73	$ 2,424.17	$ 2,545.37	$ 2,672.64	$ 2,806.27
	Hourly	$ 27.4849	$ 28.8592	$ 30.3021	$ 31.8172	$ 33.4081	$ 35.0784
28	**Water Operator II**						
	Annually	$ 60,027.03	$ 63,028.37	$ 66,179.70	$ 69,488.76	$ 72,963.10	$ 76,611.39
	Monthly	$ 5,002.25	$ 5,252.36	$ 5,514.97	$ 5,790.73	$ 6,080.26	$ 6,384.28
	Bi-Weekly	$ 2,308.73	$ 2,424.17	$ 2,545.37	$ 2,672.64	$ 2,806.27	$ 2,946.59
	Hourly	$ 28.8592	$ 30.3021	$ 31.8172	$ 33.4081	$ 35.0784	$ 36.8324
29	**Assistant Engineer** **Building Inspector II**						
	Annually	$ 63,028.37	$ 66,179.70	$ 69,488.76	$ 72,963.10	$ 76,611.39	$ 80,441.88
	Monthly	$ 5,252.36	$ 5,514.97	$ 5,790.73	$ 6,080.26	$ 6,384.28	$ 6,703.49
	Bi-Weekly	$ 2,424.17	$ 2,545.37	$ 2,672.64	$ 2,806.27	$ 2,946.59	$ 3,093.92
	Hourly	$ 30.3021	$ 31.8172	$ 33.4081	$ 35.0784	$ 36.8324	$ 38.6740
30	**Water Operator III** **Public Utilities Coordinator**						
	Annually	$ 66,179.70	$ 69,488.76	$ 72,963.10	$ 76,611.39	$ 80,441.88	$ 84,463.96
	Monthly	$ 5,514.97	$ 5,790.73	$ 6,080.26	$ 6,384.28	$ 6,703.49	$ 7,038.66
	Bi-Weekly	$ 2,545.37	$ 2,672.64	$ 2,806.27	$ 2,946.59	$ 3,093.92	$ 3,248.61
	Hourly	$ 31.8172	$ 33.4081	$ 35.0784	$ 36.8324	$ 38.6740	$ 40.6077
31	**Building Inspector III**						
	Annually	$ 69,488.64	$ 72,962.93	$ 76,611.06	$ 80,441.60	$ 84,463.83	$ 88,687.01
	Monthly	$ 5,790.72	$ 6,080.24	$ 6,384.25	$ 6,703.47	$ 7,038.65	$ 7,390.58
	Bi-Weekly	$ 2,672.64	$ 2,806.27	$ 2,946.58	$ 3,093.91	$ 3,248.61	$ 3,411.04
	Hourly	$ 33.4080	$ 35.0783	$ 36.8322	$ 38.6738	$ 40.6076	$ 42.6380

CITY OF COALINGA

General Pay Scale

Effective: 4/1/2026
Approved: 7/16/2026
Revised: 7/16/2026

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
32	**Water Operator IV**						
	Annually	$ 72,963.10	$ 76,611.39	$ 80,441.88	$ 84,463.96	$ 88,687.04	$ 93,121.46
	Monthly	$ 6,080.26	$ 6,384.28	$ 6,703.49	$ 7,038.66	$ 7,390.59	$ 7,760.12
	Bi-Weekly	$ 2,806.27	$ 2,946.59	$ 3,093.92	$ 3,248.61	$ 3,411.04	$ 3,581.59
	Hourly	$ 35.0784	$ 36.8324	$ 38.6740	$ 40.6077	$ 42.6380	$ 44.7699

CITY OF COALINGA

Basic Pay Scale

Effective: 7/1/2026
Approved: 7/16/2026
Revised: 7/16/2026

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
18	**Office Assistant** **Human Resources Assistant**						
	Annually	$ 35,434.01	$ 37,205.77	$ 39,066.00	$ 41,019.23	$ 43,070.21	$ 45,223.66
	Monthly	$ 2,952.83	$ 3,100.48	$ 3,255.50	$ 3,418.27	$ 3,589.18	$ 3,768.64
	Bi-Weekly	$ 1,362.85	$ 1,430.99	$ 1,502.54	$ 1,577.66	$ 1,656.55	$ 1,739.37
	Hourly	$ 17.0356	$ 17.8874	$ 18.7817	$ 19.7208	$ 20.7068	$ 21.7421
22	**Water Conservation Analyst**						
	Annually	$ 43,070.21	$ 45,223.66	$ 47,484.96	$ 49,859.06	$ 52,352.22	$ 54,969.81
	Monthly	$ 3,589.18	$ 3,768.64	$ 3,957.08	$ 4,154.92	$ 4,362.69	$ 4,580.82
	Bi-Weekly	$ 1,656.55	$ 1,739.37	$ 1,826.34	$ 1,917.66	$ 2,013.55	$ 2,114.22
	Hourly	$ 20.7068	$ 21.7421	$ 22.8293	$ 23.9707	$ 25.1693	$ 26.4278
25	**Secretary**						
	Annually	$ 49,859.06	$ 52,352.22	$ 54,969.81	$ 57,718.29	$ 60,604.12	$ 63,634.40
	Monthly	$ 4,154.92	$ 4,362.69	$ 4,580.82	$ 4,809.86	$ 5,050.34	$ 5,302.87
	Bi-Weekly	$ 1,917.66	$ 2,013.55	$ 2,114.22	$ 2,219.93	$ 2,330.93	$ 2,447.48
	Hourly	$ 23.9707	$ 25.1693	$ 26.4278	$ 27.7492	$ 29.1366	$ 30.5935
27	**Accounting Technician** **Human Resources Generalist** **Administrative Secretary**						
	Annually	$ 54,969.81	$ 57,718.29	$ 60,604.12	$ 63,634.40	$ 66,816.02	$ 70,156.95
	Monthly	$ 4,580.82	$ 4,809.86	$ 5,050.34	$ 5,302.87	$ 5,568.00	$ 5,846.41
	Bi-Weekly	$ 2,114.22	$ 2,219.93	$ 2,330.93	$ 2,447.48	$ 2,569.85	$ 2,698.34
	Hourly	$ 26.4278	$ 27.7492	$ 29.1366	$ 30.5935	$ 32.1231	$ 33.7293
29	**Senior Administrative Analyst** **Economic Development Coordinator** **Junior Accountant** **Finanical Services Analyst**						
	Annually	$ 60,604.12	$ 63,634.40	$ 66,816.02	$ 70,156.95	$ 73,664.73	$ 77,347.95
	Monthly	$ 5,050.34	$ 5,302.87	$ 5,568.00	$ 5,846.41	$ 6,138.73	$ 6,445.66
	Bi-Weekly	$ 2,330.93	$ 2,447.48	$ 2,569.85	$ 2,698.34	$ 2,833.26	$ 2,974.92
	Hourly	$ 29.1366	$ 30.5935	$ 32.1231	$ 33.7293	$ 35.4157	$ 37.1865
31	**Human Resources Analyst** **Financial Services Supervisor**						
	Annually	$ 66,816.02	$ 70,156.95	$ 73,664.73	$ 77,347.95	$ 81,215.24	$ 85,276.07
	Monthly	$ 5,568.00	$ 5,846.41	$ 6,138.73	$ 6,445.66	$ 6,767.94	$ 7,106.34
	Bi-Weekly	$ 2,569.85	$ 2,698.34	$ 2,833.26	$ 2,974.92	$ 3,123.66	$ 3,279.85
	Hourly	$ 32.1231	$ 33.7293	$ 35.4157	$ 37.1865	$ 39.0458	$ 40.9981

CITY OF COALINGA

Basic Pay Scale

Effective: 7/1/2026
Approved: 7/16/2026
Revised: 7/16/2026

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
34	**Operations Superintendent** **Assistant to the City Manager/City Clerk** **Utilities Supervisor** **Public Works Supervisor** **Accountant**						
	Annually	$ 77,347.95	$ 81,215.24	$ 85,276.07	$ 89,539.90	$ 94,016.87	$ 98,717.72
	Monthly	$ 6,445.66	$ 6,767.94	$ 7,106.34	$ 7,461.66	$ 7,834.74	$ 8,226.48
	Bi-Weekly	$ 2,974.92	$ 3,123.66	$ 3,279.85	$ 3,443.84	$ 3,616.03	$ 3,796.84
	Hourly	$ 37.1865	$ 39.0458	$ 40.9981	$ 43.0480	$ 45.2004	$ 47.4604
35	**Police Lieutenant** **Senior Accountant**						
	Annually	$ 81,215.24	$ 85,276.07	$ 89,539.90	$ 94,016.87	$ 98,717.72	$ 103,653.66
	Monthly	$ 6,767.94	$ 7,106.34	$ 7,461.66	$ 7,834.74	$ 8,226.48	$ 8,637.80
	Bi-Weekly	$ 3,123.66	$ 3,279.85	$ 3,443.84	$ 3,616.03	$ 3,796.84	$ 3,986.68
	Hourly	$ 39.0458	$ 40.9981	$ 43.0480	$ 45.2004	$ 47.4604	$ 49.8335
37	**Deputy Financial Services Manager**						
	Annually	$ 89,539.90	$ 94,016.87	$ 98,717.72	$ 103,653.66	$ 108,836.31	$ 114,278.16
	Monthly	$ 7,461.66	$ 7,834.74	$ 8,226.48	$ 8,637.80	$ 9,069.69	$ 9,523.18
	Bi-Weekly	$ 3,443.84	$ 3,616.03	$ 3,796.84	$ 3,986.68	$ 4,186.01	$ 4,395.31
	Hourly	$ 43.0480	$ 45.2004	$ 47.4604	$ 49.8335	$ 52.3252	$ 54.9414
41	**Police Commander** **Fire Division Chief**						
	Annually	$ 99,666.67	$ 104,650.01	$ 109,882.51	$ 115,376.63	$ 121,145.46	$ 127,202.74
	Monthly	$ 8,305.56	$ 8,720.83	$ 9,156.88	$ 9,614.72	$ 10,095.46	$ 10,600.23
	Bi-Weekly	$ 3,833.33	$ 4,025.00	$ 4,226.25	$ 4,437.56	$ 4,659.44	$ 4,892.41
	Hourly	$ 47.9167	$ 50.3125	$ 52.8281	$ 55.4695	$ 58.2430	$ 61.1552

CITY OF COALINGA

Assistant City Manager Pay Scale

Effective: 7/1/2026
Approved: 7/16/2026
Revised: 7/16/2026

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
	Assistant City Manager						
	Annually	$ 127,893.21	$ 134,287.77	$ 141,002.18	$ 148,052.26	$ 155,454.75	$ 163,227.50
	Monthly	$ 10,657.77	$ 11,190.65	$ 11,750.18	$ 12,337.69	$ 12,954.56	$ 13,602.29
	Bi-Weekly	$ 4,918.97	$ 5,164.91	$ 5,423.16	$ 5,694.32	$ 5,979.03	$ 6,277.98
	Hourly	$ 61.4871	$ 64.5614	$ 67.7895	$ 71.1790	$ 74.7379	$ 78.4748

CITY OF COALINGA

Department Head Pay Scale

Effective: 7/1/2026
Approved: 7/16/2026
Revised: 7/16/2026

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
	Fire Chief **Police Chief** **Financial Services Director** **Human Resources Director** **Community Development Director** **Public Works & Utilities Director**						
	Annually	$ 114,547.80	$ 120,275.07	$ 126,288.97	$ 132,603.29	$ 139,233.61	$ 146,195.31
	Monthly	$ 9,545.65	$ 10,022.92	$ 10,524.08	$ 11,050.27	$ 11,602.80	$ 12,182.94
	Bi-Weekly	$ 4,405.68	$ 4,625.96	$ 4,857.27	$ 5,100.13	$ 5,355.14	$ 5,622.90
	Hourly	$ 55.0711	$ 57.8246	$ 60.7159	$ 63.7516	$ 66.9392	$ 70.2862

CITY OF COALINGA

Fire Mid-Management

Effective: 7/1/2026
Approved: 7/16/2026
Revised: 7/16/2026

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
24	Battalion Chief						
	Annually	$ 94,395.97	$ 99,127.83	$ 104,070.66	$ 109,284.74	$ 114,739.93	$ 120,285.55
	Monthly	$ 7,866.33	$ 8,260.65	$ 8,672.55	$ 9,107.06	$ 9,561.66	$ 10,023.80
	Bi-Weekly	$ 3,630.61	$ 3,812.61	$ 4,002.72	$ 4,203.26	$ 4,413.07	$ 4,626.37
	Hourly	$ 32.4162	$ 34.0412	$ 35.7386	$ 37.5291	$ 39.4025	$ 41.3069

FLSA Exempt

CITY OF COALINGA

Fire Pay Scale (Sworn)

Effective: 7/1/2026
Approved: 7/16/2026
Revised: 7/16/2026

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
17	**Firefighter/EMT**						
	Annually	$ 63,615.58	$ 66,796.35	$ 70,135.91	$ 73,642.79	$ 77,324.85	$ 81,191.23
	Monthly	$ 5,301.30	$ 5,566.36	$ 5,844.66	$ 6,136.90	$ 6,443.74	$ 6,765.94
	Bi-Weekly	$ 2,446.75	$ 2,569.09	$ 2,697.54	$ 2,832.41	$ 2,974.03	$ 3,122.74
	Hourly	$ 21.8460	$ 22.9383	$ 24.0851	$ 25.2894	$ 26.5539	$ 27.8816
19	**Firefighter/Paramedic**						
	Annually	$ 70,135.91	$ 73,642.79	$ 77,324.85	$ 81,191.23	$ 85,250.76	$ 89,513.21
	Monthly	$ 5,844.66	$ 6,136.90	$ 6,443.74	$ 6,765.94	$ 7,104.23	$ 7,459.43
	Bi-Weekly	$ 2,697.54	$ 2,832.41	$ 2,974.03	$ 3,122.74	$ 3,278.88	$ 3,442.82
	Hourly	$ 24.0851	$ 25.2894	$ 26.5539	$ 27.8816	$ 29.2757	$ 30.7394
22	**Fire Engineer**						
	Annually	$ 81,191.23	$ 85,250.76	$ 89,513.21	$ 93,988.96	$ 98,688.43	$ 103,622.94
	Monthly	$ 6,765.94	$ 7,104.23	$ 7,459.43	$ 7,832.41	$ 8,224.04	$ 8,635.25
	Bi-Weekly	$ 3,122.74	$ 3,278.88	$ 3,442.82	$ 3,614.96	$ 3,795.71	$ 3,985.50
	Hourly	$ 27.8816	$ 29.2757	$ 30.7394	$ 32.2764	$ 33.8903	$ 35.5848
24	**Fire Captain**						
	Annually	$ 89,513.21	$ 93,988.96	$ 98,688.43	$ 103,622.94	$ 108,804.17	$ 114,244.39
	Monthly	$ 7,459.43	$ 7,832.41	$ 8,224.04	$ 8,635.25	$ 9,067.01	$ 9,520.37
	Bi-Weekly	$ 3,442.82	$ 3,614.96	$ 3,795.71	$ 3,985.50	$ 4,184.78	$ 4,394.02
	Hourly	$ 30.7394	$ 32.2764	$ 33.8903	$ 35.5848	$ 37.3641	$ 39.2323

CITY OF COALINGA

Fire Reserve Pay Scale

Effective: 2/20/2025
Approved: 2/20/2025
Revised: 2/20/2025

Grade	Position	Step A
1	**Firefighter (Paid Call)**	
	Hourly	$ 16.50 *
2	**Firefighter/EMT (Reserve)**	
	Hourly	$ 18.00 *
3	**Firefither/Paramedic (Reserve)**	
	Hourly	$ 19.50 *
4	**Non-Safety Emergency Medical Technician (Per Diem)**	
	Hourly	$ 25.00 *
5	**Non-Safety Paramedic (Per Diem)**	
	Hourly	$ 40.00 *

* Note eligible for any benefits other than those required by law.

EXHIBIT A

CITY OF COALINGA

Fire Non-Safety EMS Pay Scale

Effective: 4/1/2026
Approved: 7/16/2026
Revised:

Grade	Position	Step A	Step B	Step C	Step D	Step E
1	**Emergency Medical Technician (EMT)**					
	Annually**	$ 38,076.14	$ 39,986.54	$ 41,962.81	$ 44,070.83	$ 46,266.69
	Monthly**	$ 3,173.01	$ 3,332.21	$ 3,496.90	$ 3,672.57	$ 3,855.56
	Bi-Weekly**	$ 1,464.47	$ 1,537.94	$ 1,613.95	$ 1,695.03	$ 1,779.49
	Hourly*	$ 18.3058	$ 19.2243	$ 20.1744	$ 21.1879	$ 22.2436
2	**Paramedic**					
	Annually**	$ 41,962.81	$ 44,070.83	$ 46,266.69	$ 48,572.33	$ 51,009.73
	Monthly**	$ 3,496.90	$ 3,672.57	$ 3,855.56	$ 4,047.69	$ 4,250.81
	Bi-Weekly**	$ 1,613.95	$ 1,695.03	$ 1,779.49	$ 1,868.17	$ 1,961.91
	Hourly*	$ 20.1744	$ 21.1879	$ 22.2436	$ 23.3521	$ 24.5239

*Emergency Medical Technicians and Paramedics are paid an hourly rate.

** Non-Safety EMS may be scheduled up to 2,080 hours annually. Actual hours and pay may vary depending on work schedule.

Note: Emergency Medical Technicians and Paramedics may work up to 832 hours of OT annually.

CITY OF COALINGA

Police Reserve Pay Scale

Effective: 2/17/2025
Approved: 2/17/2025
Revised: 2/17/2025

Grade	Position	Step A
1	**Reserve Police Officer**	
	Hourly	$ 26.77

CITY OF COALINGA

Police Pay Scale (CPOA Sworn)

Effective: 4/1/2026
Approved: 4/16/2026
Revised: 4/16/2026

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
18	**Police Officer**						
	Annually	$ 69,384.21	$ 72,854.05	$ 76,496.79	$ 80,321.39	$ 84,337.93	$ 88,353.56
	Monthly	$ 5,782.02	$ 6,071.17	$ 6,374.73	$ 6,693.45	$ 7,028.16	$ 7,362.80
	Bi-Weekly	$ 2,668.62	$ 2,802.08	$ 2,942.18	$ 3,089.28	$ 3,243.77	$ 3,398.21
	Hourly	$ 31.7693	$ 33.3581	$ 35.0260	$ 36.7772	$ 38.6163	$ 40.4549
20	**Police Corporal**						
	Annually	$ 76,496.79	$ 80,321.39	$ 84,337.93	$ 88,353.56	$ 92,771.64	$ 97,409.86
	Monthly	$ 6,374.73	$ 6,693.45	$ 7,028.16	$ 7,362.80	$ 7,730.97	$ 8,117.49
	Bi-Weekly	$ 2,942.18	$ 3,089.28	$ 3,243.77	$ 3,398.21	$ 3,568.14	$ 3,746.53
	Hourly	$ 35.0260	$ 36.7772	$ 38.6163	$ 40.4549	$ 42.4779	$ 44.6016
22	**Police Sergeant**						
	Annually	$ 84,337.93	$ 88,353.56	$ 92,771.64	$ 97,409.86	$ 107,149.31	$ 112,506.91
	Monthly	$ 7,028.16	$ 7,362.80	$ 7,730.97	$ 8,117.49	$ 8,929.11	$ 9,375.58
	Bi-Weekly	$ 3,243.77	$ 3,398.21	$ 3,568.14	$ 3,746.53	$ 4,121.13	$ 4,327.19
	Hourly	$ 38.6163	$ 40.4549	$ 42.4779	$ 44.6016	$ 49.0610	$ 51.5142

CITY OF COALINGA

Police Non-Sworn Pay Scale

Effective: 4/1/2026
Approved:
Revised:

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
22	Animal Control I						
	Annually	$ 37,092.85	$ 38,947.49	$ 40,894.86	$ 42,939.61	$ 45,086.59	$ 47,340.92
	Monthly	$ 3,091.07	$ 3,245.62	$ 3,407.91	$ 3,578.30	$ 3,757.22	$ 3,945.08
	Bi-Weekly	$ 1,426.65	$ 1,497.98	$ 1,572.88	$ 1,651.52	$ 1,734.10	$ 1,820.80
	Hourly	$ 17.8331	$ 18.7248	$ 19.6610	$ 20.6440	$ 21.6762	$ 22.7601
23	Animal Control II						
	Annually	$ 38,947.49	$ 40,894.86	$ 42,939.61	$ 45,086.59	$ 47,340.92	$ 49,707.96
	Monthly	$ 3,245.62	$ 3,407.91	$ 3,578.30	$ 3,757.22	$ 3,945.08	$ 4,142.33
	Bi-Weekly	$ 1,497.98	$ 1,572.88	$ 1,651.52	$ 1,734.10	$ 1,820.80	$ 1,911.84
	Hourly	$ 18.7248	$ 19.6610	$ 20.6440	$ 21.6762	$ 22.7601	$ 23.8981
24							
	Annually	$ 40,894.86	$ 42,939.61	$ 45,086.59	$ 47,340.92	$ 49,707.96	$ 52,193.36
	Monthly	$ 3,407.91	$ 3,578.30	$ 3,757.22	$ 3,945.08	$ 4,142.33	$ 4,349.45
	Bi-Weekly	$ 1,572.88	$ 1,651.52	$ 1,734.10	$ 1,820.80	$ 1,911.84	$ 2,007.44
	Hourly	$ 19.6610	$ 20.6440	$ 21.6762	$ 22.7601	$ 23.8981	$ 25.0930
25	Animal Control III						
	Annually	$ 42,939.61	$ 45,086.59	$ 47,340.92	$ 49,707.96	$ 52,193.36	$ 54,803.03
	Monthly	$ 3,578.30	$ 3,757.22	$ 3,945.08	$ 4,142.33	$ 4,349.45	$ 4,566.92
	Bi-Weekly	$ 1,651.52	$ 1,734.10	$ 1,820.80	$ 1,911.84	$ 2,007.44	$ 2,107.81
	Hourly	$ 20.6440	$ 21.6762	$ 22.7601	$ 23.8981	$ 25.0930	$ 26.3476
26A	Police Technician						
	Annually	$ 45,086.59	$ 47,340.92	$ 49,707.96	$ 52,193.36	$ 54,803.03	$ 57,543.18
	Monthly	$ 3,757.22	$ 3,945.08	$ 4,142.33	$ 4,349.45	$ 4,566.92	$ 4,795.27
	Bi-Weekly	$ 1,734.10	$ 1,820.80	$ 1,911.84	$ 2,007.44	$ 2,107.81	$ 2,213.20
	Hourly	$ 21.6762	$ 22.7601	$ 23.8981	$ 25.0930	$ 26.3476	$ 27.6650

CITY OF COALINGA

Police Non-Sworn (Dispatcher) Pay Scale

Effective: 8/7/2025
Approved: 8/7/2025
Revised: 8/7/2025

Grade	Position	Step A	Step B	Step C	Step D	Step E	Step F
26	**Dispatcher Trainee**						
	Annually	$ 43,683.74	$ 45,868.99	$ 48,160.32	$ 50,557.73	$ 53,082.43	$ 55,755.65
	Monthly	$ 3,640.31	$ 3,822.42	$ 4,013.36	$ 4,213.14	$ 4,423.54	$ 4,646.30
	Bi-Weekly	$ 1,680.14	$ 1,764.19	$ 1,852.32	$ 1,944.53	$ 2,041.63	$ 2,144.45
	Hourly	$ 21.0018	$ 22.0524	$ 23.1540	$ 24.3066	$ 25.5204	$ 26.8056
27	**Public Safety Dispatcher/Clerk**						
	Annually	$ 45,868.99	$ 48,160.32	$ 50,557.73	$ 53,082.43	$ 55,755.65	$ 58,534.94
	Monthly	$ 3,822.42	$ 4,013.36	$ 4,213.14	$ 4,423.54	$ 4,646.30	$ 4,877.91
	Bi-Weekly	$ 1,764.19	$ 1,852.32	$ 1,944.53	$ 2,041.63	$ 2,144.45	$ 2,251.34
	Hourly	$ 22.0524	$ 23.1540	$ 24.3066	$ 25.5204	$ 26.8056	$ 28.1418
28	**Senior Dispatcher**						
	Annually	$ 48,152.00	$ 50,564.80	$ 53,081.60	$ 55,744.00	$ 58,531.20	$ 61,464.00
	Monthly	$ 4,012.67	$ 4,213.73	$ 4,423.47	$ 4,645.33	$ 4,877.60	$ 5,122.00
	Bi-Weekly	$ 1,852.00	$ 1,944.80	$ 2,041.60	$ 2,144.00	$ 2,251.20	$ 2,364.00
	Hourly	$ 23.1500	$ 24.3100	$ 25.5200	$ 26.8000	$ 28.1400	$ 29.5500
29	**Dispatcher Supervisor**						
	Annually	$ 50,564.80	$ 53,081.60	$ 55,744.00	$ 58,531.20	$ 61,464.00	$ 64,542.40
	Monthly	$ 4,213.73	$ 4,423.47	$ 4,645.33	$ 4,877.60	$ 5,122.00	$ 5,378.53
	Bi-Weekly	$ 1,944.80	$ 2,041.60	$ 2,144.00	$ 2,251.20	$ 2,364.00	$ 2,482.40
	Hourly	$ 24.3100	$ 25.5200	$ 26.8000	$ 28.1400	$ 29.5500	$ 31.0300

STAFF REPORT - CITY COUNCIL/SUCCESSOR AGENCY/PUBLIC FINANCE AUTHORITY

Subject:	Adopt Resolution No. 4358 Authorizing Investment of Monies in the Local Agency Investment Fund
Meeting Date:	Thursday, September 3, 2026
From:	Sean Brewer, City Manager
Prepared by:	Mai Vang, Financial Services Director

I. RECOMMENDATION:

City Manager and Financial Services Director recommend Council adopt Resolution No. 4358 authorizing investment of monies in the Local Agency Investment Fund (LAIF).

II. BACKGROUND:

Under Resolution No. 4336, the City in accordance with the Investment Policy shall invest public funds in such a manner as to comply with state and local laws; ensure prudent money management; provide for daily cash flow requirements; and meet the objectives of the Policy, in priority order of Safety, Liquidity and Return on investment.

As of July 31, 2026, the City's Local Agency Investment Fund ending balance is $10,432,704.

Pursuant to LAIF Statues Section 16429.1, personnel with such authority are granted authorization by the governing body of the agency to order the deposit or withdrawal of monies in Local Agency Investment Fund.

In the event of such changes to the designated and authorized personnel, it is necessary to make such changes to the resolution authorized signatures currently on file with the Local Agency Investment Fund.

III. DISCUSSION:

Due to recent changes, it is necessary to update the authorized designees currently on file with the Local Agency Investment Fund. In addition to the Resolution, the 'Authorization for Transfer of Funds' form will require wet signatures from the City Manager and Mayor. Due to cybersecurity purposes, the form will be circulated separately and not attached to the staff report. The form will reflect the changes as noted below:

New Additions:
Mayor Pro Tempore as Roger Schindler
Business Systems Analyst as Christina Estrada

Removals:
None

Remaining:
Mayor as Nathan Vosburg
Financial Services Director as Mai Vang

City Manager as Sean Brewer

IV. ALTERNATIVES:

none

V. FISCAL IMPACT:

none

ATTACHMENTS:

File Name	Description
20260903_-_Resolution_No._4358_Authorizing_Investment_in_LAIF.pdf	Resolution No. 4358

RESOLUTION NO. 4358
RESOLUTION OF THE CITY COUNCIL OF THE CITY OF COALINGA AUTHORIZING INVESTMENT OF MONIES IN THE LOCAL AGENCY INVESTMENT FUND
(SUPERSEDING RESOLUTION NO. 4249)

BE IT HEREBY RESOLVED BY THE CITY COUNCIL OF THE CITY OF COALINGA.

WHEREAS, pursuant to Chapter 730 of statutes of 1976, Section 16429.1 was added to the California Government Code to create a Local Agency Investment Fund in the State Treasury for the deposit of money of a local agency for purposes of investment by the State Treasurer; and

WHEREAS, the City Council does hereby find that the deposit and withdrawal of money in the Local Agency Investment Fund in accordance with the provisions of Section 16429.1 of the Government Code for the purpose of investment as stated therein are in the best interest of the City of Coalinga; and

WHEREAS, the City Council has adopted an Investment Policy, most recently approved by the City Council on August 6, 2026, which delegates responsibility for investing unexpended cash to the City Manager, with daily management responsibility of the investment program delegable to the Financial Services Director or Senior Accountant; and

WHEREAS, the City Council desires that the persons authorized to order the deposit or withdrawal of monies in the Local Agency Investment Fund be identified by City position, consistent with the delegation of authority set forth in the City's Investment Policy; and

WHEREAS, the City Council additionally desires that the Mayor and Mayor Pro Tempore continue to serve as authorized signatories for deposit and withdrawal transactions in the Local Agency Investment Fund as a matter of banking continuity and internal control, separate and apart from, and in addition to, the investment decision-making authority delegated under Section 5 of the City's Investment Policy; and

WHEREAS, Resolution No. 4249 shall be superseded accordingly.

NOW, THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL OF THE CITY OF COALINGA:

That the City Council of the City of Coalinga does hereby authorize the deposit and withdrawal of City of Coalinga monies in the Local Agency Investment Fund in the State Treasury in accordance with the provisions of Section 16429.1 of the Government Code for the purpose of investment as stated therein, and verification by the State Treasurer's Office of all banking information provided in that regard.

BE IT FURTHER RESOLVED, that the following City of Coalinga positions, or their respective successors in office, shall be authorized to order the deposit or withdrawal of monies in the Local Agency Investment Fund:

City Manager	Financial Services Director	Mayor
_____	_____	_____
Mayor Pro Tempore	[Senior Accountant / Designee — vacant]	
_____	_____	

The authorization set forth in this Section is limited to directing the deposit and withdrawal of monies in the Local Agency Investment Fund and does not confer investment decision-making authority, which remains governed exclusively by Section 5 of the City's Investment Policy.

BE IT FURTHER RESOLVED, that this Resolution supersedes and replaces Resolution No. 4249 in its entirety, and that Resolution No. 4249 is hereby rescinded.

The foregoing Resolution was adopted at a regular meeting of the City Council of the City of Coalinga on September 3, 2026, by the following roll call vote.

AYES:

NOES:

ABSENT:

ABSTAIN:

APPROVED

_____

Nathan Vosburg, Mayor

ATTEST

_____

Shannon Jensen, City Clerk

California State Treasurer's Office
Local Agency Investment Fund (LAIF)

Authorization for Transfer of Funds

Effective Date	Agency Name	LAIF Account #
September 3, 2026	City of Coalinga	XXXX174

Agency's LAIF Resolution # 4358 or Resolution Date September 3, 2026

ONLY the following individuals whose names appear in the table below are hereby authorized to order the deposit or withdrawal of funds in LAIF. ***This authorization REPLACES AND SUPERSEDES all prior authorizations on file with LAIF for the transfer of funds.***

Name	Title
Sean Brewer	City Manager
Nathan Vosburg	Mayor
Roger Schindler	Mayor Pro Tempore
Mai Vang	Financial Services Director
Christina Estrada	Business Systems Analyst

Two authorized signatures required. Each of the undersigned certifies that he/she is authorized to execute this form under the agency's resolution, and that the information contained herein is true and correct.

Signature	Signature
Sean Brewer	Nathan Vosburg
Print Name	Print Name
City Manager	Mayor
Title	Title
559-935-1533	559-935-1533
Telephone	Telephone

Please provide email address to receive LAIF notifications.

Name	Email
Mai Vang	mvang@coalinga.com
Christina Estrada	cestrada@coalinga.com

Please email the completed form for review to laif@treasurer.ca.gov and allow 2 days for the review. **DO NOT** mail the original form until you receive a response from LAIF that the form is acceptable.

Mail the approved form to: CA State Treasurer's Office
Local Agency Investment Fund
P.O. Box 942809
Sacramento, CA 94209-0001

STAFF REPORT - CITY COUNCIL/SUCCESSOR AGENCY/PUBLIC FINANCE AUTHORITY

Subject:	Adopt Resolution No. 4357 Authorizing the City Manager to Sign the Updated Bank form to the City's bank accounts with US Bank
Meeting Date:	Thursday, September 3, 2026
From:	Sean Brewer, City Manager
Prepared by:	Mai Vang, Financial Services Director

I. RECOMMENDATION:

Financial Services Director recommends City Council to Adopt Resolution No. 4357, authorizing the City Manager to sign the City's bank accounts with US Bank.

II. BACKGROUND:

Under Section 3-3.101 of the Municipal Code, it states that checks issued by the City shall bear the signatures of two (2) of the following: The Mayor, Mayor Pro Tempore, City Treasurer, City Manager, Finance Director, and/or other City Staff member(s) as designated by the Finance Director and approved by the City Manager.

Personnel with such authority is granted authorization to sign warrants and payroll checks which will be drawn from City's bank accounts.

In the event of such changes to the designated and authorized personnel, it is necessary to make such changes to the resolution authorized signatures currently on file with US Bank.

III. DISCUSSION:

In addition to the Resolution, the bank form will require wet signatures from the City Manager. Due to cybersecurity purposes, the form will be circulated separately and not attached to the staff report. The form will reflect the changes as noted below:

New Additions:
Mayor Pro Tempore as Roger Schindler
Treasurer as Dawn Kahikina

Removals:
None

Remaining Signers:
Financial Services Director as Mai Vang
Financial Services Supervisor as Yasmin Gonzalez
City Manager as Sean Brewer

IV. ALTERNATIVES:

None

V. FISCAL IMPACT:

None

ATTACHMENTS:

File Name	Description
20260903_-_Resolution_No._4357_Authorizing_Designated_Signatures_for_City_Bank_Accounts_with_US_Bank.pdf	Resolution No. 4357

RESOLUTION NO. 4357

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF COALINGA AUTHORIZING DESIGNATED SIGNATURES FOR CITY BANK ACCOUNTS WITH US BANK

BE IT RESOLVED by the City Council of the City of Coalinga, a municipal corporation, duly organized and existing under and by virtue of the laws of the State of California:

That this organization established in its name one or more accounts with the Coalinga Branch of US Bank upon such terms and conditions as may be agreed upon with said Bank and that the Financial Services Director of this organization be and is hereby authorized to establish such accounts; and

That either:

1. Mayor, Nathan Vosburg
2. Mayor Pro-Tempore, Roger Schindler
3. City Treasurer, Dawn Kahikina
4. City Manager, Sean Brewer
5. Financial Services Director, Mai Vang
6. Financial Services Supervisor, Yasmin Gonzalez

of this organization be, and they are hereby authorized to draw checks on said accounts of this organization, signed as provided herein with signatures duly certified to said Bank by the City Clerk of the City of Coalinga and said Bank is hereby authorized to honor and pay any and all checks so signed, including those drawn to the individual order of any officer or person authorized to sign the same; and

That all checks require two (2) signatures by Numbers 1, 2, 3, 4, 5, 6 as set forth above.

The foregoing Resolution was adopted at a regular meeting of the City Council of the City of Coalinga on the **3rd day of September 2026**, by the following vote:

AYES:

NOES:

ABSTAIN:

ABSENT:

APPROVED:

_____

Nathan Vosburg, Mayor

ATTEST:

_____

Shannon Jensen, City Clerk

STAFF REPORT - CITY COUNCIL/SUCCESSOR AGENCY/PUBLIC FINANCE AUTHORITY

Subject:	Adopt Resolution No. 4359 Authorizing Investment of Monies in the City's Managed Investments Portfolio and Establishing Custodial and Signatory Authority
Meeting Date:	Thursday, September 3, 2026
From:	Sean Brewer, City Manager
Prepared by:	Mai Vang, Financial Services Director

I. RECOMMENDATION:

Staff recommends that the City Council adopt Resolution No. 4359 authorizing the investment of City monies in the City's Managed Investments Portfolio, designating U.S. Bank National Association as the City's third-party custodian, establishing authorized positions with authority to direct investment-related transactions, and granting the Financial Services Director authority to execute and submit required custodial account authorization and signature forms on behalf of the City.

II. BACKGROUND:

California Government Code Section 53600 et seq. authorizes local agencies to invest surplus funds that are not required for immediate operational needs, subject to applicable law and the City's adopted Investment Policy. Resolution No. 4359 provides for the investment of City monies in the City's Managed Investments Portfolio in accordance with these requirements.

The City has established a custodial account with U.S. Bank National Association for the safekeeping of securities held within the Managed Investments Portfolio. This custodial relationship supersedes the City's previous custodial arrangement with Zions Bancorporation, N.A.

Under the proposed resolution, securities authorized by the California Government Code and the City's Investment Policy will be held in safekeeping by U.S. Bank as the City's designated third-party custodian.

III. DISCUSSION:

Resolution No. 4359 will formally establish U.S. Bank National Association as the third-party custodian for the City's Managed Investments Portfolio and identify the City positions authorized to conduct investment-related transactions.

The resolution authorizes the City Manager, Financial Services Director, and Senior Accountant/Designee to direct the purchase, sale, and transfer of securities and the deposit or withdrawal of funds associated with the portfolio.

Limiting this authority to designated positions provides clear accountability and supports appropriate internal controls and segregation of duties. Other Finance Department staff may assist with the administration, accounting, monitoring, and reconciliation of investment activity without having direct authority to transfer investment funds.

Adoption of the resolution will formalize the City's custodial arrangement with U.S. Bank and establish clear authorization for the management and transfer of funds within the City's Managed Investments Portfolio.

In addition to the Resolution, the 'Authorized Signer List' form will require wet signatures from the City Manager, Financial Services Director and Business Systems Analyst as the Designee. Due to cybersecurity purposes, the form will be circulated separately and not attached to the staff report. The form will reflect the changes as noted below:

Add:
Business Systems Analyst as Christina Estrada

Remove:
None

Remaining:
City Manager as Sean Brewer
Financial Services Director as Mai Vang

IV. ALTERNATIVES:

None

V. FISCAL IMPACT:

None

ATTACHMENTS:

File Name	Description
20260903_-_Resolution_No._4359_Managed_Investments_Portfolio_Custodial_Authority.pdf	Resolution No. 4359

RESOLUTION NO. 4359
RESOLUTION OF THE CITY COUNCIL OF THE CITY OF COALINGA AUTHORIZING INVESTMENT OF MONIES IN THE CITY'S MANAGED INVESTMENTS PORTFOLIO AND ESTABLISHING CUSTODIAL AND SIGNATORY AUTHORITY

BE IT HEREBY RESOLVED BY THE CITY COUNCIL OF THE CITY OF COALINGA.

WHEREAS, California Government Code Section 53600 et seq. authorizes the City to invest surplus funds not required for immediate necessities in accordance with the City's Investment Policy; and

WHEREAS, the City has established a custodial account with U.S. Bank National Association ("US Bank") for the safekeeping of securities held in the City's Managed Investments Portfolio, superseding the City's prior custodial relationship with Zions Bancorporation, N.A.; and

WHEREAS, the City Council does hereby find that the investment of City monies in the Managed Investments Portfolio, held in safekeeping and custody by US Bank in accordance with the City's Investment Policy and Government Code Section 53600 et seq., is in the best interest of the City of Coalinga.

NOW, THEREFORE, BE IT HEREBY RESOLVED BY THE CITY COUNCIL OF THE CITY OF COALINGA:

That the City Council of the City of Coalinga does hereby authorize the investment of City of Coalinga monies in the Managed Investments Portfolio, consisting of securities authorized under Government Code Section 53600 et seq. and the City's Investment Policy, to be held in safekeeping and custody by US Bank, as the City's designated third-party custodian, and verification by US Bank of all custodial and account information provided in that regard.

BE IT FURTHER RESOLVED, that the following City of Coalinga positions, or their respective successors in office, shall be authorized to direct the purchase, sale, and transfer of securities, and to order the deposit or withdrawal of monies, in connection with the Managed Investments Portfolio held in custody at US Bank:

City Manager	Financial Services Director	[Senior Accountant / Designee — vacant]
_____	_____	_____

The foregoing Resolution was adopted at a regular meeting of the City Council of the City of Coalinga on September 3, 2026, by the following roll call vote.

AYES:

NOES:

ABSENT:

ABSTAIN:

APPROVED

_____
Nathan Vosburg, Mayor

ATTEST

_____
Shannon Jensen, City Clerk

STAFF REPORT - CITY COUNCIL/SUCCESSOR AGENCY/PUBLIC FINANCE AUTHORITY

Subject:	Authorize Police Recruit Sponsorship Program for Up to Two (2) Local Candidates and Approve the Use of Training Reimbursement Agreements
Meeting Date:	Thursday, September 3, 2026
From:	Sean Brewer, City Manager
Prepared by:	Sean Young, Police Commander

I. RECOMMENDATION:

It is the recommendation of the Chief of Police that Council authorize sponsorship for up to two (2) City of Coalinga residents for the Police Recruit Sponsorship Program subject to each Recruit executing a City Attorney-approved Training Reimbursement Agreement (TRA). Recruits would only be filled within existing budgeted vacant positions.

II. BACKGROUND:

The Council previously approved a Police Recruit Program as follows:

Basic Program Overview:

1. Open only to City of Coalinga residents age 21 or older;
2. Priority given to honorably discharged military veterans';
3. Preference given to residents' bilingual in English and Spanish;
4. Recruits will be considered part-time, temporary employees while in the police academy;
5. Recruits hourly rate will be $20;
6. Recruit may be permitted to use a city vehicle to commute to and from academy if one is available (travel time is unpaid);
7. Interested residents must apply and successfully complete an oral board interview, chief's interview, polygraph, background check, psych evaluation and drug screen in order to be selected;
8. Recruit would be responsible for the purchase of their academy uniforms, to include uniform pants and shirts, physical training uniforms and boots.

This program has been successful in the past, sponsoring City employees through the academy, who are now full-time Police Officers.

III. DISCUSSION:

The City currently has three (3) Police Officer vacancies. Due to the difficulty and challenges the Police Department has had with recruitment, staff is seeking the opportunity to sponsor up to two (2) Police Recruits from within the community to help develop qualified local residents into Police Officers while protecting the City's investment at the same time.

This program has not only been an incentive, but also an investment to help local candidates become police

officers. The incentive for the qualified community member is the city not only paying them while they attend the academy but also covering the cost of the training and equipment, potentially providing transportation, and creating a pathway to a full-time Police Officer position. The investment of the city is that it gets a local community member who is familiar with not only the members of the community, but also the culture of Coalinga.

This Police Recruit Program would have the same guidelines as before (listed above). This program has been successful in the past, sponsoring residents of the city through the academy, who are now full-time Police Officers.

Staff understand concerns about what happens if the Police Recruit fails or quits the academy, or if they seek employment with a different agency right out of the academy. The city can have the Police Recruit sign a reimbursement agreement stating that if they fail or quit the academy, the Police Recruit will be responsible for reimbursing the city for a portion of the cost. Those costs can include any verifiable eligible training costs, including academy tuition, equipment, background fees, and other qualifying costs, but not wages. Wages, benefits, and other compensations paid for hours worked are statutorily protected and not reimbursable.

The city can also have the Recruit sign a City Attorney-approved Training Reimbursement Agreement (TRA). This would not be an employment contract, but rather an agreement stating if the Recruit left within three years of full-time employment as a Police Officer, they would be responsible for reimbursing the city a portion of the cost of their training. This agreement would be based off a sliding scale, meaning if the Police Recruit left prior to one year, then 100% reimbursement would be required, between one and two years, 66%, between two and three years, 33%, and no reimbursement after the third year. This agreement is intended to protect the City's investment if the Recruit voluntarily leaves prior to the agreed-upon service period. This does not guarantee employment or otherwise alter the at-will employment relationship.

Staff is requesting to keep this position available for future opportunities to sponsor local candidates given any prior Police Recruits have completed their Field Training Program.

IV. ALTERNATIVES:

Do not approve (not recommended)

V. FISCAL IMPACT:

The Police Recruit hourly rate would be set at $20 and, after successful completion of the police academy and upon a full-time Police Officer vacancy, the police recruit would be promoted to a full-time police officer and moved to the entry officer pay scale. Based off prior Police Recruit positions, the average number of hours would be around 960, with another 450 hours of overtime. Based off $20 per hour, with full-time benefits, the salary would cost about $43,704.

The Police Department would supply all required equipment needed to attend the police academy, i.e. duty belt and accessories, academic materials, firearm, ammunition, and the academic fees would be supplied by the police department. Much of the equipment is already owned by the Police Department so equipment costs would be minimal, roughly $1,500 per Police Recruit. The Police Recruit would be responsible for the cost of the uniforms and footwear. Academic fees (academy tuition) will cost between $2,000 and $2,500 depending on which academy, Fresno or Hanford.

Depending on which academy, Fresno or Hanford, the cost of fuel can vary from between $3,800 and $5,500 depending on the mileage to the academy. This is based off a vehicle getting on average, 25mpg with gas rates at $7 per gallon.

This total cost will be covered within the savings of the vacant position until the Police Recruit graduates from the academy and becomes a full-time Police Officer where they would fill that vacant position permanently.

ATTACHMENTS:

File Name	Description
No Attachments Available	

STAFF REPORT - CITY COUNCIL/SUCCESSOR AGENCY/PUBLIC FINANCE AUTHORITY

Subject:	Council Authorizing the City Manager to Execute a Six-Month Extension of a Professional Services Agreement with Blais & Associates for Grant Consulting Services and Authorization to Issue a Request for Proposals for Said Services.
Meeting Date:	Thursday, September 3, 2026
From:	Sean Brewer, City Manager
Prepared by:	Sean Brewer, City Manager

I. RECOMMENDATION:

Staff recommends that the City Council authorize the City Manager to execute a six (6) month extension of the City's existing Professional Services Agreement with Blais & Associates (B&A) for grant research, consulting, and related services.

During the six-month extension period, staff will prepare and issue a Request for Proposals (RFP) for grant consulting services to evaluate available firms, service levels, qualifications, and costs prior to recommending a longer-term agreement.

II. BACKGROUND:

The City has contracted with Blais & Associates since 2019 for grant research and consulting support services. The original agreement provided for a three-year term and included grant research and consulting services, with grant writing services authorized separately on a task-order basis.

In 2019, the City conducted a competitive solicitation and received seven Statements of Qualifications from firms in California and Colorado. B&A was ultimately selected based on qualifications, municipal experience, personnel, completeness of its proposal, and cost. In 2022, the City Council approved an additional three-year extension after determining that B&A continued to provide valuable services to the City.

B&A has been a valuable partner to the City and has assisted with identifying grant opportunities, preparing grant applications, monitoring funding programs, and supporting City departments with grant-related needs. The City has historically held monthly grant coordination calls with B&A to review upcoming opportunities, existing grants, and future funding needs across Public Works, Administration, Police, Fire, and other departments.

III. DISCUSSION:

Staff recommends extending the current agreement for six months to ensure there is no lapse in grant consulting services while the City conducts a competitive procurement process.

During this extension, staff intends to issue an RFP for grant consulting and related services. The purpose of the RFP is to conduct appropriate due diligence and periodically evaluate the marketplace to ensure the City continues to receive competitive pricing, high-quality service, and the level of expertise necessary to support

the City's grant funding objectives.

The issuance of an RFP should **not** be viewed as a reflection of dissatisfaction with Blais & Associates. B&A has been an excellent partner to the City for many years, has developed a strong understanding of the City's operations and needs, and has contributed to the City's success in pursuing outside funding opportunities. Rather, staff believes it is responsible procurement practice to periodically evaluate professional service contracts and determine whether other qualified firms may have an interest in serving the City.

B&A will be encouraged to participate in the RFP process. Following evaluation of the proposals received, staff will return to the City Council with a recommendation for a longer-term agreement.

The proposed six-month extension will provide sufficient time to complete this process while maintaining continuity in the City's ongoing grant research, development, and consulting efforts.

IV. ALTERNATIVES:

The City Council may:

1. Approve the six-month extension and authorize the City Manager to execute the necessary agreement;
2. Direct staff to negotiate different terms or a different extension period; or
3. Decline to extend the agreement and provide alternative direction regarding grant consulting services.

V. FISCAL IMPACT:

Blais & Associates has proposed a monthly fixed fee of **$2,200** for grant research, consultation, monitoring, fact sheets, grant activity reporting, coordination calls, and related services. The total cost for the proposed six-month extension is therefore **$13,200**.

Grant development services are not included in the monthly fixed fee and will continue to be quoted separately on a project-by-project basis. Grant development services are proposed at a blended rate of **$160 per hour**, subject to an agreed-upon not-to-exceed amount prior to beginning work. Grant management services will also continue to be quoted separately based on the applicable grant agreement.

Sufficient funding is available within the adopted FY 2026-27 budget to cover the six-month extension.

ATTACHMENTS:

File Name	Description
COC_3-Year_Agreement_for_Grant_Writing_Services-Executed-Initialed_(Original).pdf	Original Contract 2019
Coalinga_-_Extension_8.2026.pdf	6 Month Extension

Initial: City MT Provider

AGREEMENT FOR PROFESSIONAL SERVICES FOR GRANT RESEARCH AND CONSULTING SUPPORT SERVICES

This Agreement for Professional Services ("Agreement") is made and entered into this 12th day of November 2019, by and between the City of Coalinga, a Municipal Corporation ("City"), and Blais and Associates ("Provider").

RECITALS

A. Provider represents to City that they are specially trained, experienced, licensed and competent to perform the services which will be required by this Agreement; and

B. Provider represents to City that they possess the skill, experience, ability, background, certification and knowledge to provide the services described in this Agreement on the terms and conditions described herein.

C. City desires to retain Provider to render the services as set forth in this Agreement, as Exhibit 1.

NOW THEREFORE, in consideration of the mutual covenants set forth herein for such other good and valuable consideration, the receipt and adequacy of which is hereby acknowledged, the parties hereto agree as follows:

1. **Retention of Provider**. Subject to the terms and conditions set forth herein, City retains Provider to perform the services identified in this Agreement, as an independent contractor and Provider hereby accepts this independent contractor appointment.

2. **Scope of Services**. The Provider shall perform professional services, in accordance with all the provisions of this Agreement. The Scope of Work is attached hereto as Exhibit 1. Provider shall correct any and all errors and/or omissions, which arise out of Provider's negligence or intentional misconduct, in the performance of the Services and any documents resulting therefrom even though City has accepted said Services or documents. Provider shall make such corrections upon City's request and at no cost or expense to City.

3. **Time of Performance**. This agreement shall remain in effect for three (3) years from the date of the execution of this agreement. Contract time of completion for individual projects will be agreed upon before assignment of each project to Provider.

4. **Compensation**. Compensation for grant research and consulting services shall not twenty thousand dollars ($20,000) per year. Grant writing services shall be on a separate task order basis and estimates provided to the Assistant City Manager for review and approval. Grant writing is separate from this agreement and costs are not included within the total amount allowed under this agreement. Payment by City under this Agreement shall not be deemed a waiver of defects, even if such defects were known to the City at the time of payment.

5. **Method of Payment**. Provider shall submit monthly billings to City describing the work performed during the preceding month. Provider's bills shall include a brief description of the

Services performed and the date the Services were performed the number of hours spent and by whom, and a description of any reimbursable expenditures. City shall pay Provider no later than 30 days after the date of submittal of a complete invoice for completed tasks and approval of the invoice by City staff.

6. **Extra Work.** At any time during the term of this Agreement, City may request that Provider perform Extra Work. As used herein, "Extra Work" means any work which is determined by City to be necessary for the proper completion of the Services, but which the parties did not include in the Scope of Work. Extra work will be performed on an hourly basis under the Provider's most current hourly fee schedule. Provider shall not perform, nor be compensated for Extra Work without written authorization from City.

7. **Termination**. This Agreement may be terminated by the City immediately and without notice for cause or by City without cause upon ten (10) days' written notice of termination to Provider. Upon termination, Provider shall be entitled to compensation for Services performed up to the effective date of termination, unless this Agreement is terminated for cause, in which case, City may withhold compensation due Provider in order to reimburse City for any losses, damages or expenses caused by Provider's default under this Agreement.

8. **Equal Opportunity Employment**. Provider represents that it is an equal opportunity employer and it shall not discriminate against any sub provider, employee or applicant for employment because of race, religion, color, national origin, handicap, ancestry, sex or age. Such non-discrimination shall include, but not be limited to, all activities related to initial employment, upgrading, demotion, transfer, recruitment or recruitment advertising, layoff or termination. Provider shall also comply with all relevant provisions of City's programs or guidelines currently in effect as identified and provided to Provider by City.

9. **Insurance Requirements**.

a. Provider, at Provider's own cost and expense, shall procure and maintain, for the duration of this Agreement, the following insurance policies.

i. Workers Compensation Coverage. As required by the State of California, with Statutory Limits, and Employer's Liability Insurance with a limit of no less than ONE MILLION AND NO/100 DOLLARS ($1,000,000) per accident for bodily injury or disease.

ii. General Liability Coverage. Insurance Services Office (ISO) Form CG 0001, including products and completed operations, with limits of no less than ONE MILLION AND NO/100 DOLLARS ($1,000,000) per occurrence for bodily injury, personal injury, and property damage. If a general aggregate limit applies, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be TWO MILLION AND NO/100 DOLLARS ($2,000,000), twice the required occurrence limit.

iii. Automobile Liability Coverage. ISO Form Number CA 0001 covering any auto (Code 1), with a limit no less than ONE MILLION AND NO/100 DOLLARS ($1,000,000) per accident for bodily injury and property damage.

iv. Professional Liability Coverage. Contractor will maintain Professional Liability coverage with limits no less than ONE MILLION AND NO/100 DOLLARS ($1,000,000) per occurrence or claim, and TWO MILLION AND NO/100 DOLLARS ($2,000,000) policy aggregate.

If Provider maintains higher limits than the minimums shown above, the City requires and shall be entitled to coverage for the higher limits maintained by Provider.

Provider's insurance policies shall be "occurrence" policies and not "claims-made" coverage except for Professional Liability Coverage.

Provider may maintain an Umbrella policy in conjunction with the insurance policies referenced above. In such case, Provider shall be deemed to have satisfied the insurance requirements of this contract as long as: (i) the coverage limits of the Umbrella policy and of the underlying liability policy(ies), when combined, satisfy each of the per occurrence and aggregate requirements identified in this subsection a.; and (ii) coverage under the Umbrella policy is as broad as and includes all incidents and events covered by the underlying insurance that it supplements.

Any deductibles or self-insured retentions must be declared to and approved by the City. The City may require Provider to purchase coverage with a lower deductible or retention or provide proof of ability to pay losses and related investigations, claim administration, and defense expenses within the retention. Alternatively, the City may require Provider to provide a financial guarantee satisfactory to the City guaranteeing payment of losses and related investigations, claim administration, and defense expenses within the retention.

The policies are to contain, or be endorsed to contain, the following provisions:

i. The City and its officers, officials, employees, and volunteers are to be covered as additional insureds on the CGL and automobile liability policies with respect to liability arising out of work or operations performed by or on behalf of Provider including materials, parts, or equipment furnished in connection with such work or operations; products used by Provider; or automobiles owned, leased, hired or borrowed by Provider. General liability coverage can be provided in the form of an endorsement to Provider's insurance at least as broad as ISO Form CG 20 10 11 85 or if not available, through the addition of both CG 20 10 and CG 20 37 if a later edition is used. The coverage shall contain no special limitations on the scope of protection afforded to the City, its officers, officials, employees or volunteers.

ii. For any claims related to this contract, Provider's insurance coverage shall be primary insurance as respects the City and its officers, officials, employees, and volunteers. Any insurance or self-insurance maintained by the City and/or its officers, officials, employees, or volunteers shall be in excess of Provider's insurance and shall be non-contributory.

iii. Each insurance policy required above shall provide that coverage shall not be canceled, except with notice to the City.

Insurance is to be placed with insurers with a current A.M. Best's rating of no less than A:VII.

Provider shall furnish the City with original certificates and amendatory endorsements or copies of the applicable policy language effecting coverage required by this clause. All certificates and endorsements are to be received and approved by the City before work commences. However, failure to obtain the required documents prior to the work beginning shall not waive the Provider's obligation to provide them. The City reserves the right to require complete, certified copies of all required insurance policies, including endorsements required by these specifications, at any time.

Provider hereby grants to City and its officers, officials, employees, and volunteers a waiver of any right to subrogation which any insurer of Provider may acquire against the City and/or its officers, officials, employees, and volunteers by virtue of the payment of any loss under such insurance. Provider agrees to obtain endorsements necessary to effect this waiver of subrogation, but this provision applies regardless of whether or not the City has received a waiver of subrogation endorsement from the insurer.

The City reserves the right to modify the insurance requirements contained in this contract, including, without limitation, coverage limits, based on the nature of the risk, prior experience, insurer, coverage, or other special circumstances.

10. **Indemnification**. To the fullest extent allowable by law, Provider agrees to indemnify, defend and hold harmless the City and its officials, officers, employees, agents and volunteers from and against all claims, demands, actions, injuries, liabilities, losses, costs or damages, direct or indirect, and any and all attorneys' fees and other expenses which City or its officials, officers, employees, agents or volunteers may sustain or incur as a consequence of or are in any way related to Provider's or its owners, directors, officers, managers, employees, agents and subcontractor's willful or negligent acts or omissions in the performance of the services and Providers responsibilities and obligations to be performed under this agreement or its failure to perform or comply with any of its obligations or responsibilities contained in this agreement; excluding, however, such liability, claims, losses, damages or expenses arising from City's sole or active negligence or willful acts. This duty to indemnify, defend, and hold harmless shall survive the termination of this agreement. If Provider maintains additional coverage or higher limits than those required herein, then City shall be entitled to additional coverage or higher limits maintained by Provider.

11. **Independent Contractor Status**. It is understood and agreed that Provider, in the performance of the Services to be performed pursuant to this Agreement, shall act as and be an independent contractor and shall not act as an agent or employee of City. Provider shall obtain no retirement benefits or other benefits which accrue to City's employees and Provider hereby expressly waives any claim it may have to any such rights. Nothing in this Agreement shall create or be construed as creating a partnership, joint venture or any other relationship between City and Provider.

12. **Provider's Books and Records**.

a. Provider shall maintain any and all ledgers, books of account, invoices, vouchers, canceled checks, and other records or documents evidencing or relating to charges for services, or expenditures and disbursements charged to City for a minimum period of three (3) years, or for any longer period required by law, from the date of final payment to Provider under this Agreement.

b. Provider shall maintain all documents and records that demonstrate performance under this Agreement for a minimum period of three (3) years, or for any longer period required by law, from the date of termination or completion of this Agreement.

c. Any records or documents required to be maintained pursuant to this Agreement shall be made available for inspection or audit, at any time during regular business hours, upon written request by the City. Copies of such documents shall be provided to the City for inspection at the City offices.

d. Where City has reason to believe that such records or documents may be lost or discarded due to dissolution, disbandment or termination of Provider's business, City may, by written request, require that custody of the records be given to the City and that the records and documents be maintained in the City offices. Access to such records and documents shall be granted to any party authorized by Provider, Provider's representatives, or Provider's successor-in-interest.

13. **Professional Ability of Provider**. City has relied upon Provider's representations regarding its training and professional ability to perform the Services hereunder as a material inducement to enter into this Agreement. Provider shall therefore provide properly skilled personnel to perform all Services under this Agreement. The primary provider of the Services called for by this Agreement shall be Jill Mohler who shall not be replaced without the written consent of the City. All work performed by Provider under this Agreement shall be in accordance with the applicable professional standard of care and shall meet the local professional standard of quality ordinarily to be expected of competent persons in Provider's field of expertise working in Fresno County.

14. **Compliance with Laws**. Provider shall use the proper standard of care in performing the Services and shall comply with all applicable federal, state and local laws, codes, ordinances and regulations in effect at the time the Agreement is executed. In addition, if the request for proposal to provide professional services which are the subject of this Agreement cited any federal or state financial assistance involved in the project for which the Services are provided, the Provider shall perform all services in accordance with all applicable federal and state laws, rates and regulations in effect at the time the agreement is executed.

15. **Licenses**. Provider represents and warrants to City that it has all licenses, permits, qualifications, and insurance which are legally required of Provider to lawfully and competently perform the Services. Provider represents and warrants to City that Provider shall, at its sole cost and expense, keep in effect or obtain at all times during the term of this Agreement, any licenses, permits, and insurance which are legally required of Provider to lawfully and competently perform the Services. Provider shall maintain a City of Coalinga business license.

16. **Assignment and Subcontracting**. The parties recognize that a substantial inducement to City for entering into this Agreement is the reputation, experience and competence of Provider. Assignments of any or all rights, duties or obligations of the Provider under this Agreement will be permitted only with the express written consent of the City, which will not be unreasonably withheld. Provider shall not subcontract any portion of the Services to be performed under this Agreement without the express written consent of the City, which will not be unreasonably withheld. If City consents to such subcontract, Provider shall be fully responsible to City for all acts or omissions of the subcontractor. Nothing in this Agreement shall: (1) create any contractual relationship between

City and sub Provider; (ii) create any obligation on the part of the City to pay or to see to the payment of any monies due to any such subcontractor; (iii) or relieve Provider of any of its obligations and responsibilities under this Agreement.

17. **Attorneys' Fees**. If an action at law or in equity is necessary to enforce or interpret the terms of this Agreement, the prevailing party shall be entitled to reasonable attorneys' fees, costs and necessary disbursements in addition to any other reasonable relief to which he may be entitled. With respect to any suit, action or proceeding arising out of or related to this Agreement, or the documentation related hereto, the parties hereby submit to the jurisdiction and venue of the Superior Court for the County of Fresno, State of California for any proceeding arising hereunder.

18. **Sole and Only Agreement**. This Agreement supersedes any and all other agreements, either oral or in writing, between the parties hereto with respect to the matters set forth herein and contains all of the covenants and agreements between the parties regarding said matters. Each party to this Agreement acknowledges that no representations, inducements, promises or agreements, orally or in writing, have been made by any party or anyone acting on behalf of any party which are not embodied in this Agreement and no other agreement, statement or promise shall be valid or binding.

19. **Invalidity**. If any provision of this Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions shall nevertheless continue in full force and effect without being impaired or invalidated in any way.

20. **Amendment**. No change, amendment or modification of this Agreement shall be valid unless the same be in writing and signed by the parties hereto.

21. **Governing Law**. This Agreement shall be construed and governed pursuant to the laws of the State of California. Any action to enforce this Agreement is to be brought in Fresno County, California.

22. **Waiver**. Waiver of a breach or default under this Agreement shall not constitute a continuing waiver of a subsequent breach of the same or any other provision under this Agreement.

23. **Mediation**. The parties agree to make a good faith attempt to resolve any disputes arising out of this Agreement through mediation prior to commencing litigation. The parties shall mutually agree upon the mediator and shall divide the costs of mediation equally. If the parties are unable to agree upon a mediator, the dispute shall be submitted to JAMS/ENDISPUTE ("JAMS") or its successor in interest. JAMS shall provide the parties with the names of five qualified mediators. Each party shall have the option to strike two of the five mediators selected by JAMS and thereafter the mediator remaining shall hear the dispute. If the dispute remains unresolved after mediation, either party may commence litigation.

24. **Authority to Enter Agreement**. Provider has all requisite power and authority to conduct its business and to execute, deliver and perform the Agreement. Each party warrants that the individuals who have signed this Agreement have the legal power, right, and authority to make this Agreement and to bind each respective party.

25. **Notice**. Except as otherwise expressly provided herein, any notice, consent, authorization or other communication to be given hereunder shall be in writing and shall be deemed duly given and received when delivered personally, when transmitted by facsimile or e-mail if receipt is acknowledged by the addressee, one business day after being deposited for next-day delivery with a nationally recognized overnight delivery service, or three business days after being mailed by first class mail, charges and postage prepaid, property addressed to the party to receive such notice at the last address furnished for such purpose by the party to whom notice is directed and addressed as follows:

CITY:

City of Coalinga
155 West Durian
Coalinga, California 93210

PROVIDER:

Blais & Associates
7545 Irvine Center Drive, Suite 200
Irvine, CA 92618

IN WITNESS WHEREOF, the parties have executed this Agreement effective on the day and in the year first set forth above.

CITY OF COALINGA, a Municipal Corporation

By: _____
Marissa Trejo, City Manager

PROVIDER

By: _____
Neil Blais, President & CEO

APPROVED AS TO CONTENT:

_____
Sean Brewer
Assistant City Manager

ATTEST:

_____
City Clerk

Exhibit 1
Scope of Work

B&A Professional Grant Consulting

7545 Irvine Center Drive
Suite 200
Irvine
California, 92618
P (949) 589-6338
www.blaisassoc.com

September 3, 2019

City of Coalinga, Planning Department
Sean Brewer, Community Services Director
155 W. Durian
Coalinga, CA 93210

Subject: Quote for Grant Research and Consulting Support

Dear Mr. Brewer:

Blais & Associates, Inc. (B&A) is pleased to provide the City of Coalinga with the following letter proposal for the enhancement of the grant research and consulting support services for the fiscal year as proposed in our Statement of Qualifications submitted on August 15.

Grant Monitoring/Fact Sheet Distribution/Monthly Grant Call. B&A will provide monitoring services for all applicable federal, state, regional, and non-profit (project specific) grant funding opportunities and we will alert staff when an announcement is released. Effort includes notification of open grant solicitations utilizing Fact Sheets, coordination and consultation with City staff discussing the "go" or "no-go" determinations, and responding to general grant and project questions from staff. B&A will maintain a Grant Activity Report (GAR) and will provide monthly grant coordination conference calls. The GAR will allow you to keep the City Manager and City Council appraised of grant activities and ensures that everyone is aware of the cost and benefit of the program. Typically, the monthly pro-rated research effort is approximately 6-9 hours per month ($630-$945) (as part of the research pool). Additionally, grant consulting, coordination, and staff support may run an additional 5-7 hours per month ($525-$735). **Monthly research and consulting support may run approximately $1,677 or a total of approximately $20,000 annually.**

The quote is valid for 60 days to allow for the approval process. If you need additional information please do not hesitate to call me at (949) 589-6338, or via e-mail at nblais@blaisassoc.com. Thank you for the opportunity to serve the City of Coalinga.

Sincerely,

President & CEO

NB/db

COVER LETTER

August 19, 2026

Mr. Sean Brewer
City Manager
City of Coalinga
155 West Durian Avenue
Coalinga, CA 93210

Subject: B&A Grant Services to the City of Coalinga

Dear Mr. Brewer:

Thank you for the opportunity to continue our partnership. Enclosed is our proposal to extend our current agreement for an additional six-month term. The extension is offered at the same pricing and under the same terms and conditions as the current agreement, with no changes.

We value our relationship with the City of Coalinga and look forward to continuing to support your team.

Please let us know if you have any questions or require additional information.

Respectfully yours,

Natale Lessey
Chief Executive Officer

Task	Description	Frequency	Monthly Cost	Annual Cost
MONTHLY COSTS				
Grant Research & Consultation, Monitoring, and Fact Sheets	Monitor/send targeted grant opportunities, summaries, and fact sheets; Develop Monthly Grant Activity Reports (GARs); Scheduled calls to review opportunities and grants in-progress; Go/no-go consultation; Coordination calls; Grant Management assistance; Develop Year-End Grant Roll-Up Reports.	Monthly Fixed Fee	$2,200	$26,400
		Monthly/Annual Budget for Research	$2,200	$26,400
GRANT DEVELOPMENT – Quoted Upon Request				
Grant Proposal Development & Submittal*	Full scope collaborative grant writing development to include submission (cost will vary by application complexity and client involvement).	Quoted as Time & Materials at a blended rate of $160/hour.	TBD	TBD
GRANT MANAGEMENT – Quoted Upon with Grant Agreement				
Grant Management Services*	Pre- and post-award grant management services.	Quoted as Fixed-Fee based on the grant agreement	TBD	TBD

**Grant development & Grant Management fees dependent upon usage*

B&A will provide Grant Development services under a Time and Materials structure based on the estimated level of effort required to complete the requested scope of work. Services will be billed at a blended hourly rate that reflects the collective expertise of our team and allows B&A to assign staff at the most appropriate experience level to efficiently deliver high-quality results.

Under this structure, the City will only be billed for actual time expended up to the agreed-upon not-to-exceed amount associated with the quoted level of effort. This approach provides flexibility while ensuring full transparency in service delivery and pricing. Detailed invoices will be provided that clearly outline time spent, tasks performed, and progress toward completion of the scope.

Since full grant management services typically extend two to three years, B&A will continue to quote grant management services as a not-to-exceed fixed-fee. This pricing model represents the most cost-effective option based on our analysis of the City's historical data for grant management services.

B&A HOURLY BILLING RATES

Personnel	Hourly Rate
Associate Grant Staff	$150
Senior Associate Grant Staff	$180
Technical Director	$230
Grant Research & Writing (Blended Rate)	$160

STANDARD FEE SCHEDULE

Description	Fee
Professional Services	Time & materials basis (see table above)
External Consultants (e.g., BCA analysis)	Cost – no markup
Mileage	Prevailing standard IRS rate
Travel (tolls, taxi, airfare, hotel)	Cost – no markup
Printing, Copying, Binding, etc.	Cost – no markup
Shipping, Express Mail, or Courier	Cost – no markup

Each project is independently analyzed to determine the projected scope of work. B&A provides a quote for the City to review and provide approval prior to beginning work. All external consultant fees and direct out-of-pocket expenses are billed at cost (without markup).

Our proposed rates remain valid for a period of 180 calendar days from the date of submission of this fee schedule. Invoices are provided monthly and are payable within 30 days of receipt.

COST-EFFICIENCY AND BEST PRACTICES

B&A actively integrates the following "cost saving" practices into its operational procedures:

- All out-of-pocket expenses are billed at cost, with no markup to our clients.
- B&A utilizes company discounted commercially available printing services (e.g., Staples), as needed, for bulk printing, copying, and binding support, to minimize direct costs.
- B&A utilizes company discounted commercially available shipping and delivery services (e.g., FedEx, UPS, or USPS), as needed, for delivery of hard copy materials, significantly reducing expenses.
- Receipts for direct expenses can be provided upon request.

STAFF REPORT - CITY COUNCIL/SUCCESSOR AGENCY/PUBLIC FINANCE AUTHORITY

Subject:	Approval of Updated Fire Station Lease with the Fresno County Fire Protection District
Meeting Date:	Thursday, September 3, 2026
From:	Sean Brewer, City Manager
Prepared by:	Greg DuPuis, Fire Chief

I. RECOMMENDATION:

Staff recommends that the City Council approve the updated Fire Station Lease between the City of Coalinga and the Fresno County Fire Protection District and authorize the City Manager to execute the agreement.

II. BACKGROUND:

In 2021, the City of Coalinga and the Fresno County Fire Protection District entered into a Fire Station Lease that authorized the City to use a portion of Station 93 in Huron to house an advanced life support ambulance and up to two City personnel. The lease provided one apparatus stall and shared use of living and office facilities, allowing the City to provide direct, responsive ambulance service in Huron and adjacent jurisdictional areas.

The parties have maintained this arrangement. The proposed lease continues the same basic partnership and adds Station 94, the Harris Ranch Fire Station, as an authorized location. Although the document is presented as a consolidated replacement lease, the action is primarily an administrative renewal and cleanup of the existing arrangement, not the creation of a new service program.

III. DISCUSSION:

The updated lease is effective September 1, 2026, for a three-year term ending August 31, 2029. Exhibit A lists both Station 93 in Huron and Station 94 at Harris Ranch. The principal operational change is the addition of Harris Ranch, which gives the City administrative and deployment flexibility to locate an ambulance at either approved District facility based on service needs.

Station 93 - Huron Fire Station, 36421 S. Lassen Avenue, Huron.

Station 94 - Harris Ranch Fire Station, 24125 West Dorris Avenue, Coalinga.

This gives CFD the contractual ability to house its ambulance unit and crew at either Station 93 or Station 94, and to relocate between the two, without requiring a new lease if operational needs change. The Lease does not require, and CFD does not currently intend, to occupy both stations simultaneously.

Staff has reviewed the proposed lease against the prior agreement and confirms that, apart from the addition of the Station 94 facility, the updated term dates, the substantive terms and conditions of the lease are unchanged. Its entire-agreement clause supersedes the prior lease, providing one current document that covers

both locations.

IV. ALTERNATIVES:

1. Do not approve the updated lease, which would prevent Harris Ranch from being added under the proposed consolidated agreement. (Not Recommended)

V. FISCAL IMPACT:

There is no change to the existing lease rate. The lease rate is $1,185.80 per month, or $14,229.60 annually, per fire station facility. This is the same per-facility rate stated in the 2021 agreement. Approval of the updated lease does not by itself require the City to occupy both stations simultaneously.

ATTACHMENTS:

File Name	Description
Coalinga_Stations_93_and_94_Signed_Agreement.pdf	Station Lease Agreement with Fresno County Fire

FIRE STATION LEASE
Fresno County Fire Protection District / City of Coalinga

The Fresno County Fire Protection District ("District") enters into this Fire Station Lease ("Lease") wherein District will lease to City of Coalinga, a subdivision of California government ("Lessee"), the property described below ("Leased Premises") upon the following terms and conditions:

1. **Intent of Parties.** District owns fire stations with land and improvements and is desirous of leasing a portion of these facilities listed in Exhibit "A" to Lessee in order that it may provide direct responsive ambulance services. Lessee has an interest, desire and willingness to provide such services.

2. **Description.** The Leased Premises consist of land and buildings thereon described in Exhibit "A".

3. **Use.**

   (a) The Leased Premises are leased to Lessee for the purpose of providing facilities to accommodate an advanced life support ambulance and a maximum of (2) paramedic personnel employed by Lessee at any given time and office therewith.

   (b) Lessee shall have the right to use the Leased Premises jointly with the District Fire Department.

4. **Term.**

   (a) The term of this Lease shall be for a period of three (3) years commencing on September 1, 2026 subject to the provisions contained in Paragraphs 16, 17, and 18(e)(3). Any holding over by Lessee, after the expiration of this Lease, shall be on a day-to-day basis strictly and continuing tenancy rights shall not accrue to Lessee.

   (b) Lessee shall have the right of first refusal as to the renewal of this Lease at the expiration of said term on whatever terms and conditions District may then offer, provided that Lessee is not otherwise in default under the Lease and has a valid permit to operate an ambulance service in the District.

   (c) Terms of Lease payments to be made under this Lease are set forth in Exhibit "A". Exhibit "A" may be amended by agreement of both parties to update Lease amounts or facilities occupied.

5. **Consideration.** Lessee shall provide services in the areas of District as described in Exhibit "A".

6. **Utilities.** District shall provide for utilities including gas, water, electricity, and rubbish collection services; not including medical waste. In consideration for such services provided by District, Lessee shall pay to District that amount shown on Exhibit A per month in advance.

7. **Repairs.** Lessee, at its expense, shall be responsible for the repair or replacement of the exterior and/or interior of the buildings, related equipment, and property due to damage caused by acts or omissions of Lessee's personnel. All repair or replacement shall be completed in a manner acceptable to District. In the event Lessee fails, or refuses to perform such repairs, or any portion thereof, District reserve the right to perform same and Lessee shall pay District for any costs incurred in connection therewith upon an accounting and billing therefore. If Lessee uses commercial vendors to perform the repairs and maintenance work required in this Lease, vendors shall maintain and provide proof of coverage for the insurance requirements (workers 'compensation, commercial general liability, vehicle liability, etc.) in Article 18 except for Professional Liability. In lieu of Article 18(d), vendors shall maintain Equipment Floater coverage (Property Physical Damage) for the full replacement value of any and all equipment brought on the Leased Premises.

8. **Security of Leased Premises**. Lessee shall be jointly responsible for the security and safekeeping of the Leased Premises and all equipment, supplies and other personal property situated therein on a 24-hour basis, except at such times that Lessee is responding to an emergency.

9. **Improvements by Lessee.**

   (a) Any alterations, improvements, or installation of fixtures to be undertaken by Lessee, shall require the prior written consent of the District after Lessee has submitted proposed plans for such alterations, improvements, or fixtures to District.

   (b) All alterations, improvements and fixtures installed by Lessee, or caused to be made or installed by Lessee, shall become the property of District, with the exception of trade fixtures as such term is used in Section 1019 of the Civil Code. At, or prior to, the expiration of this lease, Lessee may remove such trade fixtures; provided, however, that such removal does not cause injury or damage to the Leased Premises, or in the event it does, Lessee shall restore the Leased Premises to their original shape and condition as nearly as practicable. In the event, such trade fixtures are not removed, District may, at its election, either (1) remove and store such fixtures and restore the Leased Premises for the account of Lessee, and in such event, Lessee shall, within thirty (30) days after billing and accounting, therefore reimburse District for the costs so incurred, or (2) take and hold such fixtures as its sole property.

10. District's Reserved Rights.

(a) Lessee has inspected the Leased Premises and such Leased Premises are accepted by Lessee in their present condition. Lessee also takes the Leased Premises subject to any and all existing easements or other encumbrances, and District shall have the right to enter upon the Leased Premises and to install, lay, construct, maintain, repair and operate such sanitary sewers, drains, storm water sewers, pipelines, manholes, connections, water, oil and gas pipelines, and telephone, telegraph and computer service lines and such other appliances and appurtenances necessary or convenient to use in connection therewith, over, in, upon, through, across and along the Leased Premises or any part thereof. District also reserve the right to grant franchises, easements, rights of way and permits in, over, and upon, along or across any, and all portions of said Leased Premises as District may elect to do; provided, however, that no right of the District provided for in this Paragraph shall be so executed as to interfere unreasonably with Lessee's use of the Leased Premises. Any right, as set forth, in this Paragraph shall not be exercised unless a prior written notice of thirty (30) days is given to Lessee; provided, however, in the event such right must be exercised, by reason of emergency, then District shall give such notice in writing as soon as is reasonable under the circumstances.

(b) District, through its duly authorized agent, shall have the full and unrestricted right to enter the Leased Premises for the purpose of inspection or maintenance, and for the purpose of doing any and all things which it is obligated and has a right to do under this Lease.

11. Additional Obligations/Rights of Lessee.

(a) Lessee shall not display, brandish, or discharge any firearms within or upon the Leased Premises.

(b) Lessee shall not cut any trees within or upon the Leased Premises or remove any trees there from unless approval is first obtained in writing from the District's Fire Chief.

(c) Except as may be required in the performance of its maintenance obligations as provided in Paragraph 7 herein, Lessee shall not cut or otherwise remove any brush or vegetation from or within the Leased Premises unless approval is first obtained in writing from District's Fire Chief.

(d) Lessee shall not interfere in any manner whatsoever with District's Fire Department's operation or the District's fire station personnel, relative to its activities within the Leased Premises.

(e) Lessee's employees shall adhere to all District policies and procedures relating to the day to day operation of the fire station as set forth in Exhibit "B", attached herein.

(f) Battalion Chiefs may have local rules and regulations affecting station routines.

(g) Visitors will be allowed only in common area of the fire station and shall not interfere with daily business.

(h) Lessee's employees will wear the Lessee's work uniform during normal business hours and will be properly attired when interacting with the general public at the fire station.

(i) Lessee will ensure their employees are familiar with the District's Conduct and Behavior policy and will adhere to the policy while on fire station property.

(j) Conflict resolution will start with the local, on-duty Battalion Chief and Lessee's Supervisor.

12. **Signs.** Lessee shall not erect, maintain, or display any signs or other forms of advertising upon the Leased Premises without first obtaining the written approval of District which will not be unreasonably withheld.

13. **Compliance with Law.** Lessee, at its sole cost and expense, shall comply with the requirements of all local, state, and federal statutes, regulations, rules, ordinances and orders now in force or which may be hereafter in force, pertaining to the Leased Premises. The judgment, decree, or order of any court of competent jurisdiction, or the admission of Lessee in any action or proceeding against Lessee, whether Lessee be a party thereto or not, that Lessee has violated any such statutes, regulations, rules, ordinances, or orders, in the use of the Leased Premises, shall be conclusive of that fact as between District and Lessee.

14. **Discrimination or Segregation.**

(a) Lessee shall not discriminate in its recruitment, hiring, promotion, motion or termination practices on the basis of race, religious creed, color, national origin, ancestry, sex, age, physical handicap, medical condition or marital status with respect to the use of the Leased Premises hereunder, and Lessee shall comply with the provisions of the California Fair Employment Practice Act (commencing with Section 1410 of the Labor Code), the Federal Civil Rights Act of 1964 (P.L. 88-352), and all amendments thereto, Executive Order No. 12266 (30 Federal Register 12319), as amended, and all Administrative Rules and Regulations issued pursuant to said Acts and Orders with respect to its use of the Leased Premises.

(b) Lessee shall not discriminate against or cause the segregation of any

person or group of persons on account of race, religious creed, color, national origin, ancestry, sex, gender, age, physical handicap, medical condition, or marital status, in the occupancy, use tenure or enjoyment of the Leased Premises nor shall Lessee, or any person claiming under or through it, establish or permit any such practice or practices of discrimination or segregation with reference to the selection, location, number, use or occupancy of any persons within the Leased Premises.

(c) Lessee assures that it will undertake an affirmative action program as required by 49 CFR, Part 21, to ensure that no person shall on the grounds of race, creed, color, national origin, or sex be excluded from participating in any employment activities covered in 49 CFR, Part 21, with respect to its use of the Leased Premises. Lessee further assures that no person shall be excluded on these grounds from participating in or receiving services or benefits of any program or activity covered herein with respect to its use of the Leased Premises. Lessee further assures that it will require that its subcontractors and independent contractors provide assurance to Lessee that they similarly will undertake affirmative action programs and that they will require assurances from subcontractors and independent contractors, as required by 49CFR, Part 21, to the same effect with respect to its use of the Leased Premises.

15. Free from Liens. Lessee shall pay, when due, all sums of money that may become due for any labor, services, material supplies, or equipment, alleged to have been furnished or to be furnished to Lessee, in, upon, or about the Leased Premises, and which may be secured by a mechanic's, material men's or other lien against the Leased Premises or District's interest therein, and will cause each such lien to be fully discharged and released at the time the performance of any obligation secured by such lien matures or becomes due; provided, however, that if Lessee desires to contest any such lien, it may do so, but notwithstanding any such contest, if such lien shall be reduced to final judgment, and such judgment or such process as may be issued for the enforcement thereof is not promptly stayed, or if so stayed, and said stay thereafter expires, then and in such event, Lessee shall forthwith pay and discharge said judgment forthwith.

16. Termination by District. District shall have the right to terminate this Lease:

(a) In the event a petition is filed for voluntary or involuntary bankruptcy, for the adjudication of Lessee as a debtor and is not dismissed within thirty (30) days.

(b) In the event that Lessee makes a general assignment, or Lessee's interest hereunder is assigned involuntarily or by operation of law, for the benefit of creditors.

(c) In the event of the abandonment of, or the discontinuance of the use of the Leased Premises by Lessee.

(d) In the event Lessee fails to perform, keep or observe any of its duties or obligations hereunder provided, however, that Lessee shall have fifteen (15) days in which to correct its breach or default after written notice thereof has been served on it by District.

(e) In the event Lessee's permit to operate an ambulance service as required under County Ordinance is not renewed, or is suspended, revoked, or otherwise terminated.

(f) Without cause by giving sixty (60) days written notice to Lessee by the District.

17. Termination by Lessee. Lessee shall have the right to terminate this Lease:

(a) In the event District fails to perform, keep or observe any of its duties or obligations hereunder; provided, however, that District shall have fifteen (15) days in which to correct its breach or default after written notice thereof has been served on it by Lessee; provided, further, however, that in the event such breach or default is not corrected, Lessee may elect to terminate this Lease in its entirety or as to any portion of the property affected thereby, and such election shall be given by an additional fifteen (15) days written notice to District.

(b) If more than sixty percent (60%) of the improvements are damaged or destroyed to the extent that the Leased Premises cannot be reasonably repaired within sixty (60) days.

(c) By giving sixty (60) days written notice thereof to District.

18. Insurance. Without limiting or diminishing the Lessee's obligation to indemnify or hold the District harmless, Lessee shall procure and maintain or cause to be maintained, at its sole cost and expense, the following insurance coverage's during the term of this Lease.

(a) Workers' Compensation: Lessee shall maintain statutory Workers' Compensation Insurance (Coverage A) as prescribed by the laws of the State of California. Policy shall include Employers' Liability (Coverage B) including Occupational Disease with limits not less than $1,000,000 per person per accident. The policy shall be endorsed to waive subrogation in favor of the District, and, if applicable, to provide a Borrowed Servant/Alternate Employer Endorsement.

(b) Commercial General Liability: Commercial General Liability insurance coverage, including but not limited to, premises liability, contractual liability, products and completed operations liability, personal and advertising injury, cross liability coverage and employment practices liability, covering claims which may arise from or out of Lessee's performance of its obligations hereunder. Policy shall name the District, its Agencies, Districts, Special

Districts, and Departments, their respective directors, officers, Board of Director's, employees, elected or appointed officials, agents, or representatives as additional Insured's. Policy's limit of liability shall not be less than $1,000,000 per occurrence combined single limit. If such insurance contains a general aggregate limit, it shall apply separately to this Lease or be no less than two (2) times the occurrence limit.

(c) Vehicle Liability: Lessee shall maintain liability insurance for all owned, non-owned or hired vehicles so used in an amount not less than $1,000,000 per occurrence combined single limit. If such insurance contains a general aggregate limit, it shall apply separately to this Lease or be no less than two (2) times the occurrence limit. Policy shall name the District, its Agencies, Districts, Special Districts, and Departments, their respective directors, officers, Board of Directors, employees, elected the District, its Agencies, Districts, Special Districts, and Departments, their respective directors, officers, Board of Directors, employees, elected or appointed officials, agents or representatives as Additional Insured's.

(d) Property (Physical Damage): All-Risk real and personal property insurance coverage, including earthquake and flood if applicable, for the full replacement cost value of all alterations, improvements, trade fixtures, furniture and equipment, systems and other Lessee property as it may appear on the Leased Premises. Policy shall name the District as Loss Payee and provide a Waiver of Subrogation in favor of the District.

(e) General Insurance Provisions - AH lines.

(1) Any insurance carrier providing insurance coverage hereunder shall be admitted to the State of California and have an A M BEST rating of not less than A: VIII (A:8) unless such requirements are waived, in writing, by the District Risk Manager. If the District's Risk Manager waives a requirement for a particular insurer such waiver is only valid for that specific insurer and only for one policy term.

(2) The Lessee's insurance carrier(s) must declare its insurance deductibles or self-insured retentions. If such deductibles or self-insured retentions exceed $500,000 per occurrence such deductibles and/or retentions shall have the prior written consent of the District Risk Manager before the commencement of operations under this Lease. Upon notification of deductibles or self-insured retention's unacceptable to the District, and at the election of the Country's Risk Manager, Lessee's carriers shall either; 1) reduce or eliminate such deductibles or self-insured retention's as respects this Lease with the District, or 2) procure a bond which guarantees payment of losses and related investigations, claims administration, and defense costs

and expenses.

(3) Lessee shall cause Lessee's insurance carrier(s) to furnish the District with either 1) a properly executed original Certificate(s) of Insurance and certified original copies of Endorsements effecting coverage as required herein, and 2) if requested to do so orally or in writing by the District Risk Manager, provide original Certified copies of policies including all Endorsements and all attachments thereto, showing such insurance is in full force and effect. Further, said Certificate(s) shall contain the covenant of the insurance carrier(s) that thirty (30) days written notice shall be given to the District prior to any material modification, cancellation, expiration or reduction in coverage of such insurance. In the event of a material modification, cancellation, expiration, or reduction in coverage, this Lease shall terminate, unless the District receive, prior to such effective date, another properly executed original Certificate of Insurance and original copies of endorsements, including all endorsements and attachments thereto evidencing coverage's set forth herein and the insurance required herein is in full force and effect. Lessee shall not commence operations until the District has been furnished original Certificate(s) of Insurance and certified original copies of endorsements and if requested, certified original policies of insurance including all endorsements and any and all other attachments as required in this Section. An individual authorized by the insurance carrier to do so on its behalf shall sign the original endorsements for each policy and the Certificate of Insurance.

(4) It is understood and agreed to by the parties hereto and the insurance company(s), that the Certificate(s) of Insurance and policies shall so covenant and shall be construed as primary insurance, and the District's insurance and/or deductibles and/or self-insured retention's or self-insured programs shall not be construed as contributory.

(5) The District's Reserved Rights-Insurance. If, during the term of this Lease or any extension thereof, there is a material change in the scope of services; or, there is a material change in the equipment to be used in the performance of the scope of work which will add to additional exposures (such as the use of aircraft, watercraft, cranes, etc.); or, the term of this Agreement including any extensions thereof exceeds five (5) years the District reserve the right to adjust the types of insurance required under this Lease and the monetary limits of liability for the insurance coverages currently required herein, if; in the District Risk Manager's reasonable judgment, the amount or

type of insurance carried by the Lessee has become inadequate.

(6) Lessee shall pass down the insurance obligations contained herein to all tiers of subcontractors working under this Lease.

(7) The insurance requirements contained in this Lease may be met with a program(s) of self-insurance acceptable to the District.

(8) Lessee agrees to notify District of any claim by a third party or any incident or event that may give rise to a claim arising from the performance of this Lease.

19. Hold Harmless.

(a) Lessee represents that it has inspected the Leased Premises and that it accepts the condition thereof and that it fully assumes any and all risks incidental to the use thereof. District shall not be liable to Lessee, its elected or appointed officers, agents, employees, subcontractors or independent contractors, for any personal injury or property damage suffered by them or any third party which may result from hidden, latent or other dangerous conditions within the Leased Premises; provided, however, that such dangerous conditions are not caused solely by the negligence of the District, its elected or appointed officers, agents or employees.

(b) Lessee shall indemnify and hold harmless the District, its agencies, districts, special districts and departments, their respective directors, elected and appointed officers, Board of Directors, elected and appointed officials, employees, agents, attorneys and representatives from any and all liability whatsoever, including but not limited to those based or asserted upon any services of Lessee, its officers, employees, subcontractors, agents or representatives and those arising out of or in any way relating to this Lease, including but not limited to property damage, bodily injury, or death or any other element of any kind arising from the performance of Lessee, its officers, agents, employees, subcontractors, agents or representatives from this Lease. Lessee shall defend any claim or action based upon alleged acts or omissions, at its sole expense, and shall pay all costs and fees including, but not limited to, attorney fees, cost of investigation, defense and settlements or awards, the District, its Agencies, Districts, Special Districts and Departments, their respective directors, officers, Board of Director's, elected and appointed officials, employees, agents and representatives. With respect to any action or claim subject to indemnification herein by Lessee, Lessee shall, at its sole cost, have the right to use counsel of its own choice and shall have the right to adjust, settle, or compromise any such action or claim without the prior consent of District; provided, however, that any such adjustment, settlement or compromise in no manner

whatsoever limits or circumscribes Lessee's indemnification to District as set forth herein. Lessee's obligation hereunder shall be satisfied when Lessee has provided to District the appropriate form of dismissal relieving District from any liability for the action or claim involved. The specified insurance limits required in this Agreement shall in no way limit or circumscribe Lessee's obligations to indemnify and hold harmless the District herein from third party claims. In the event, there is conflict between this clause and California Civil Code Section 2782, this clause shall be interpreted to comply with Civil Code 2782. Such interpretation shall not relieve the Lessee from indemnifying the District to the fullest extent allowed by law.

(c) District shall indemnify and hold harmless the Lessee, its agencies, districts, special districts and departments, their respective directors, elected and appointed officers, elected and appointed officials, employees, agents, attorneys and representatives from any and all liability whatsoever, including but not limited to those based or asserted upon any services of District, its officers, employees, subcontractors, agents or representatives and those arising out of or in any way relating to this District, including but not limited to property damage, bodily injury, or death or any other element of any kind arising from the performance of District, its officers, agents, employees, subcontractors, agents or representatives from this District. With respect to any action or claim subject to indemnification herein by District, District shall, at its sole cost, have the right to use counsel of its own choice and shall have the right to adjust, settle, or compromise any such action or claim without the prior consent of Lessee; provided, however, that any such adjustment, settlement or compromise in no manner whatsoever limits or circumscribes District 's indemnification to Lessee as set forth herein. District's obligation hereunder shall be satisfied when Lessee has provided to District the appropriate form of dismissal relieving Lessee from any liability for the action or claim involved. The specified insurance limits required in this Agreement shall in no way limit or circumscribe District 's obligations to indemnify and hold harmless the Lessee herein from third party claims. In the event, there is conflict between this clause and California Civil Code Section 2782, this clause shall be interpreted to comply with Civil Code 2782. Such interpretation shall not relieve the District from indemnifying the Lessee to the fullest extent allowed by law.

20. <u>Permits, Licenses and Taxes.</u> Lessee shall secure, at its own expense, all necessary permits and licenses as it may be required to obtain, and Lessee shall pay for fees and taxes levied or required by any authorized public entity. Lessee recognizes and understands that this Lease may create a possessory interest subject to property taxation and that Lessee shall be subject to the payment of property taxes levied on such interest.

21. <u>Toxic Materials.</u> During the term of this Lease, and any extensions thereof, Lessee shall not violate any federal, state, or local law, or ordinance or regulations,

relating to industrial hygiene or to the environmental condition on, under, or about the Leased Premises including, but not limited to, soil and groundwater conditions. Further, Lessee, its successors, assigns and sub lessees, shall not use, generate, manufacture, produce, store or dispose of, on, under, or about the Leased Premises, or transport to or from the Leased Premises, any flammable explosives, asbestos, radioactive materials, hazardous materials, hazardous wastes, toxic substances or related injurious materials, by themselves or in combination with, other materials (collectively, "hazardous materials"). For the purpose of this Lease, hazardous materials shall include, but not be limited to, substances defined as "hazardous substances," "hazardous materials", or "toxic substances" in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 42 U.S.C. Section 9601, et seq.; the Hazardous Materials Transportation Act, 49 U.S.C. Section 1801, et seq.; The Resource Conservation and Recovery Act, 42 U.S.C. Section 6901, et seq.; and those substances defined as "hazardous wastes" in Section 25117 of the California Health and Safety Code or as "hazardous substances" in Section 25316 of the California Health and Safety Code; and in the regulations promulgated pursuant to said laws.

22. **Assignment.** Lessee shall not assign, sublet, mortgage, hypothecate or otherwise transfer any of its rights, duties or obligations hereunder to any person or entity without the prior written consent of District being first obtained.

23. **Binding on Successors.** Lessee, its heirs, assigns and successors in interest shall be bound by all the terms and conditions contained in this Lease, and Lessee and all of its successors and assigns thereto shall be jointly and severally liable hereunder.

24. **Employees and Agents of Lessee.** It is understood that all persons hired or engaged by Lessee shall be considered to be employees or agents of Lessee and not of District.

25. **Surrender in Good Condition.** Lessee shall not permit waste or damage to the Leased Premises, and upon the expiration, or earlier termination, of this Lease, Lessee shall return the Leased Premises to District in as good a shape and condition as they now are, reasonable wear and tear and damage by the elements accepted.

26. **Waiver of Performance.** No waiver by District at any time of any of the terms and conditions of this Lease shall be deemed or construed as a waiver at any time thereafter of the same or of any other terms or conditions contained herein or of the strict and timely performance of such terms and conditions.

27. **Severability.** The invalidity of any provision in this Lease as determined by a court of competent jurisdiction shall in no way affect the validity of any other provision herein.

28. **Venue.** Any action at law or in equity brought by either of the parties hereto, for

the purpose of enforcing a right or rights provided for by this lease, shall be tried in the Superior Court for the County of Fresno, State of California, and the parties hereby waive all provisions of law providing for a change of venue in such proceedings to any other County. This Lease shall be subject to California law.

29. **Attorneys' Fees.** In the event of any litigation, or arbitration, between Lessee and District to enforce any of the provisions of this Lease, or any right of either party hereto, the unsuccessful party to such litigation or arbitration, agrees to pay to the successful party, all costs and expenses, including reasonable attorney's fees incurred therein, by the successful party, all of which shall be included in, and as a part of, the judgment or award rendered in such litigation or arbitration.

30. **Notices.** Any notices required or desired to be served by either party upon the other shall be addressed to the respective parties as set forth below or to such other addresses as from time to time shall be designated by the respective parties:

DISTRICT	LESSEE
Fresno County Fire Protection District Fire Chief 210 N. Academy Ave Sanger, California 93657	City of Coalinga Fire Chief 155 W. Durian Street Coalinga, California 93210

31. **No Third-Party Rights.** This Lease does not create any rights in any party not a signatory to this lease.

32. **District's Representative.** District hereby appoints the Director of the Department of Facilities Management as its authorized representative to administer this Lease.

33. **Reorganization.** The obligations and benefits of the parties under this Lease shall not be affected by any reorganization of the Lessee.

34. **Entire Lease; Incorporation of Exhibits.** This Lease is intended by the parties hereto as a final expression of their understanding with respect to the subject matter hereof and as a complete and exclusive statement of the terms and conditions thereof and supersedes any and all prior and contemporaneous leases, agreement and understandings, oral or written, in connection therewith. This Lease may be changed or modified only upon the written consent of the parties hereto. All exhibits referenced in this Lease are incorporated as if fully set forth herein.

35. **Authority to Execute; Mutually Drafted.** Each person executing this Lease on behalf of a party warrants and represents that he or she has the full right, power, legal capacity and authority to execute this Lease on behalf of such party and has the authority to bind such party to the performance of its obligations under this Lease. Each party participated jointly in the drafting of this Lease and has chosen the language to express their mutual intent. No presumption or burden of proof favoring or disfavoring any party to this Lease shall apply in the event of an ambiguity in the text or question of intent.

Fresno County Fire Protection District

By: _____ Dated: 8-19-26
Dustin Hail, Chief

District Legal Counsel, Law Offices of William D. Ross

By: _____ Dated: 8-19-26
William D. Ross

City of Coalinga

By: _____ Dated: _____
Sean Brewer, City Manager

City of Coalinga – Legal Counsel

By: _____ Dated: _____
Mario U. Zamora

EXHIBIT "A"
FIRE STATION FACILITIES LEASE

Facilities:

Station 93, Huron Fire Station
36421 S. Lassen Ave, Huron CA 93234

- Use of One (1) Apparatus Stall
- Use of Living Facilities and Office for up to (2) personnel employed by Lessee

Station 94, Harris Ranch Fire Station
24125 West Dorris Avenue, Coalinga, California, 93210

- Use of One (1) Apparatus Stall
- Use of Living Facilities and Office for up to (2) personnel employed by Lessee

Lease Amount Monthly Per Fire Station Facility

Monthly Payment in Advance per fire station facility	$1,185.80
Or Annual Payment in Advance per fire station facility	$14,229.60

All Payments Made Payable to: Fresno County Fire Protection District

The monthly Lease payment is due on the 1st of the month and shall be considered late by the 5th of the month. Late payments are subject to a late fee of ten percent (10%) interest of the total amount due. Unpaid monthly payments are considered a default of this Lease under Lease Paragraph 16.

Service Area

Lessee shall provide direct responsive advanced life support ambulance services within the District areas in and adjacent to the fire station that lessee is occupying at the time.

EXHIBIT "B"

Conduct and Behavior

1018.1 PURPOSE AND SCOPE

The purpose of this policy is to provide guidelines to prevent activities or behaviors that may lead to disciplinary actions or dismissal.

1018.2 POLICY

It is the policy of this District that its members strive to attain the highest professional standard of conduct and discharge their duties in a courteous and professional manner.

1018.3 PROFESSIONAL CONDUCT

All members should be governed by the ordinary and reasonable rules of behavior observed by law-abiding and self-respecting citizens, and should conduct themselves at all times in such manner as to reflect favorably on the District. Conduct unbecoming a member includes, but not limited to, conduct discrediting the District or the person as a member of the District or which impairs the operation or efficiency of the District or its members.

All members should conduct themselves in a manner that will not impair the good order and discipline of the District. Members should not, while on-duty, indulge in offensive, obscene or uncivil language, verbal or physical altercations or threats thereof or conduct which might cause injury to another person.

All District members are expected to behave consistent with this policy while on and off-duty.

1018.4 INTERACTION WITH THE PUBLIC

In the performance of their duties, members should be courteous to the public and tactful. They should control their tempers, exercise reasonable patience and discretion, and should not engage in any argumentative discussions even when provoked.

In the performance of their duties, members should not use coarse, violent, profane, or insolent language or gestures, and should not express prejudice or discrimination (Government Code § 12940 et seq.).

1018.5 COURTESY TO MEMBERS

Members shall be courteous and respectful in their relations with all members of the District. Members shall not use coarse, violent, profane, or insolent language or gestures, and shall not express prejudice or discrimination (Government Code § 12940 et seq.).

1018.6 CONFORMANCE TO LAWS

Members shall obey all laws of the United States and of any state and local jurisdiction in which the member is present.

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1018.7 DEROGATORY OR MALICIOUS STATEMENTS
Members shall not be a party to any malicious gossip, report or activity which would tend to disrupt District morale or bring discredit to the District or any member thereof. Member questions concerning District policy, activities, officers and/or safety issues shall be submitted by official written communication to the member's immediate supervisor.

1018.8 POLITICAL ACTIVITY
Members shall not engage in political activities of any kind while on-duty. Members are also prohibited from engaging in any political activity off-duty while wearing any uniform items or equipment that could identify them as members of the District.

1018.9 SEXUAL ACTIVITY
Members shall not engage in any sexual activity while on-duty. This includes but is not limited to, use of any electronic device to communicate, receive or send messages or photos, or any other content of sexual or provocative nature.

1018.10 ILLEGAL GAMBLING
Members shall not engage or participate in any form of illegal gambling at any time while on-duty. This includes accessing gaming websites from computers or any electronic device, whether District-issued or owned by the member.

1018.11 GIFTS AND GRATUITIES
Members shall not solicit or accept any gift, including money, tangible or intangible personal property, or any service, gratuity, favor, entertainment, hospitality, loan, promise, or any other thing of value from any person, business or organization that is doing business with, or seeking to do business with, the District.

If it may reasonably be inferred that the person, business or organization seeks to influence the actions of an official or seeks to affect the performance of an official while on-duty, the incident should be immediately reported to the next level supervisor. This rule does not take the place of any relevant requirements applicable to individuals under Government Code § 1090 et seq. or the State Political Reform Act, Government Code § 87100 et seq.

1018.12 OFFERS OF DONATIONS AND GIFTS OF THE HEART
Members who are approached with monetary donations following major disasters shall direct the person or entity to the Administration Division for instruction on proper ways to donate.

At no time should a member accept any monetary donation from the public. If a citizen offers a gift of a non-monetary nature, such as food or product, the gift shall be placed in an area of the station or office to be shared by all members.

At no time shall a member consider a gift of the heart as a personal present.

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1018.13 ABUSE OF POSITION

Members shall not use their official positions, official identification cards, or badges to avoid the consequences of illegal acts or for other non-work related personal gain. Members shall not lend to another person their identification cards or badges or permit their identification cards or badges to be photographed or reproduced without the approval of the Fire Chief.

Members shall not authorize the use of their name, photograph, or official title that identifies them as District members (e.g., in connection with testimonials or advertisements of any commodity or commercial enterprise) without the approval of the Fire Chief.

1018.14 PUBLIC STATEMENTS AND APPEARANCES

Unless otherwise permitted by law, Members shall not reveal their District employment or in any way identify themselves as representing the District while addressing public gatherings, appearing on radio or television programs, preparing any articles for publication, acting as correspondents to a newspaper or periodical, releasing or divulging investigative information or any other information relating to the District, without receiving prior approval from the Fire Chief.

1018.15 DISCRIMINATION, OPPRESSION, OR FAVORITISM

Unless required by law or policy, discriminating against, oppressing, or providing favoritism to any person because of actual or perceived characteristics such as race, ethnicity, national origin, religion, sex, sexual orientation, gender identity or expression, age, disability, economic status, cultural group, veteran status, marital status, and any other classification or status protected by law, or intentionally denying or impeding another in the exercise or enjoyment of any right, privilege, power, or immunity, knowing the conduct is unlawful, is prohibited.

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STAFF REPORT - CITY COUNCIL/SUCCESSOR AGENCY/PUBLIC FINANCE AUTHORITY

Subject:	Authorize the City Manager to Execute a Long-Term Land Lease Agreement with Momentum Tactical, LLC for the Development and Use of Property at the New Coalinga Municipal Airport
Meeting Date:	Thursday, September 3, 2026
From:	Sean Brewer, City Manager
Prepared by:	Sean Brewer, City Manager

I. RECOMMENDATION:

Staff recommends that the City Council authorize the City Manager to execute a long-term land lease agreement with Momentum Tactical, LLC for the development and use of designated property at the New Coalinga Municipal Airport, substantially in the form presented, subject to final review and approval as to form by the City Attorney, and authorize the City Manager to execute any ancillary documents and make non-substantive modifications necessary to implement the agreement.

II. BACKGROUND:

Momentum Tactical, LLC is a Department of Defense-focused training company specializing in tactical canopy flight instruction and military freefall courses. Over the past several months, City staff and representatives of Momentum Tactical have been discussing the potential establishment of a long-term operating presence at the New Coalinga Municipal Airport.

The proposed partnership provides an opportunity to increase utilization of airport property, establish a new aviation-related business at the airport, encourage private investment in airport facilities, and support additional aviation activity in Coalinga.

Following negotiations between the parties, a proposed long-term land lease agreement has been developed identifying the property to be leased, permitted uses, development responsibilities, rental terms, maintenance obligations, insurance requirements, regulatory compliance, and other provisions governing Momentum Tactical's operations at the airport.

III. DISCUSSION:

The proposed agreement would lease designated areas of the New Coalinga Municipal Airport to Momentum Tactical for its training operations and the development of supporting facilities. The leased areas would accommodate operational facilities, a future hangar, parachute landing activities, powered paraglider training, classrooms, office space, and other improvements associated with Momentum Tactical's operations.

The agreement provides for an initial 30**-year lease term with three additional 10-year renewal terms**, potentially extending the relationship to 40 years. Initial rent is **$12,000 annually ($1,000 per month)** and increases by 2% annually. At the beginning of each subsequent 10-year renewal term, rent would be adjusted based upon then-current market rates.

Momentum Tactical would generally be responsible for constructing, operating, maintaining, and repairing its improvements and for complying with applicable City, FAA, Department of Defense, and other regulatory requirements. The City would retain responsibility for maintaining core airport infrastructure and providing or facilitating certain access, fencing, and utility connections as outlined in the agreement.

The long-term nature of the agreement is intended to provide Momentum Tactical with sufficient certainty to invest in permanent facilities at the airport while providing the City with a long-term aviation-related tenant. Staff anticipates the operation will increase utilization of the airport and may generate additional economic benefits through increased aircraft operations, fuel sales, visitors, training activities, and related expenditures within the community.

The complete terms and conditions of the proposed lease are included in the agreement attached to this staff report.

IV. ALTERNATIVES:

- Do not authorize the City Manager to execute the proposed lease agreement.

V. FISCAL IMPACT:

The agreement will initially generate **$12,000 annually in lease revenue**, increasing by 2% annually during the initial term. Rental rates will be reset based upon then-current market rates at the beginning of subsequent renewal terms.

The City may also realize additional airport revenues associated with increased aviation activity and fuel sales. The City will have certain infrastructure, utility, access, fencing, maintenance, and fueling responsibilities as provided in the attached agreement.

ATTACHMENTS:

File Name	Description
Momentum_-_COC_Lease_Agreement_9032026_Rev4_Complete.pdf	Momentum - COC Lease Agreement 9032026

NEW COALINGA MUNICIPAL AIRPORT
MOMENTUM TACTICAL, LLC LEASE AGREEMENT

This NEW COALINGA MUNICIPAL AIRPORT MOMENTUM TACTICAL, LLC LEASE AGREEMENT ("Agreement") is effective as of___the day of_____, 2025 ("Effective Date"), by and between ***City of Coalinga,*** a Municipal Corporation, with its principal place of business in Coalinga, California ("Owner") and Momentum Tactical, LLC, a Utah limited liability company ("Lessee"). Owner and Lessee are sometimes referred to individually as a "Party" and collectively as the "Parties."

Recitals

A. Owner owns the Coalinga Municipal Airport and the real property on which it is located.

B. Lessee is a Department of Defense-focused training company that specializes in tactical canopy flight instruction and military freefall courses.

C. Owner desires to lease to Lessee, and Lessee desires to lease from Owner, the below-identified property pursuant to the terms and conditions of this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

1. Lease.

1.1 Property. Owner is the fee simple owner of certain real property located at 27500 Phelp Ave, Coalinga, CA 93210, identified by Assessor Parcel Number: [APN]. Owner hereby leases to Lessee, and Lessee hereby agrees to rent, the following areas of the New Coalinga Municipal Airport, described herein and depicted on Exhibit 1 (the "Property" or the "Premises").

Site A. – Permanent Facility

Owner shall lease to Lessee approximately thirteen thousand (13,000) square feet for Lessee's permanent facility, including a hangar and a one hundred foot by one hundred foot (100' × 100') concrete pad of approximately ten thousand (10,000) square feet, as depicted on Exhibit 1.

Overnight stays are permitted for up to fourteen (14) days within any one-month period. The City requires formal notification whenever this provision is utilized. Notifications must include the specific reason why the accommodations are necessary in lieu of using local hotels. The stays referenced are strictly in connection with Lessee's operations and do not establish tenancy or residency.

Site B. – Parachute Landing Area

Owner will lease to Lessee approximately 800,000 to 900,000 square feet of cleared land for parachute landings and powered paraglider training. Relocation or early termination regarding Site B is strictly governed by Section 11 of this Agreement.

Site C. – Temporary Modular Facility

Owner shall lease to Lessee approximately fourteen thousand (14,000) square feet for Lessee's temporary modular facility, as depicted on Exhibit 1, consisting of the following improvements:

- Modular Classroom Building: 2,500 sq. ft.
- Office / Lounge: 1,200 sq. ft.
- ADA-Compliant Restroom: 400 sq. ft.
- Covered Parachute Packing Area: 800 sq. ft.
- Outdoor Shade / Staging Structure: 800 sq. ft.

Modular buildings are permitted as temporary structures during construction of the permanent facility on Site A. The City will issue permits for modular buildings for an initial three (3)-year term upon application, with one (1)-year extensions available thereafter, not to exceed five (5) years total occupancy. Upon completion of the permanent structures on Site A, Lessee shall remove all modular buildings at Lessee's sole cost and expense within thirty (30) days.

1.2 Rights and Easements. Owner hereby grants to Lessee, and the Leasehold Estate shall include the following rights and easements: [ALL EASEMENTS, Utility Line Easement, Signage Easement, Access Easement]. Upon Lessee's request, Owner shall execute and deliver to Lessee documents and instruments, satisfactory in form and substance to Owner and Lessee, evidencing the rights and easements granted pursuant to this Agreement, and Lessee may record such documents and instruments in the official records of the county where the Property is located.

2. Term.

2.1 Term. The term of this Agreement shall consist of an initial term of thirty (30) years commencing on the Rent Commencement Date (defined below) (the "Initial Term"), followed by two (2) automatic renewal terms of ten (10) years each (each, a "Renewal Term"), for a total term of fifty (50) years. The Initial Term and both Renewal Terms are collectively the "Term."

2.2 Automatic Renewal. Each Renewal Term shall commence automatically upon expiration of the then-current term, on all the same terms and conditions of this Agreement, without notice, election, or further action by either Party, provided that Lessee is not then in uncured material default. Owner shall have no right to decline, condition, delay, or renegotiate any Renewal Term. Lessee may decline a Renewal Term by delivering written notice to Owner not less than twelve (12) months before expiration of the then-current term. Neither Party shall have any right to renegotiate Base Rent or any other term of this Agreement in connection with any Renewal Term.

3. Rent.

3.1 Initial Rent Payment. In consideration of the rights granted to Lessee under this Agreement, Lessee shall make an initial rent payment Owner, without deduction or offset except as otherwise expressly provided herein, in the amount of Twelve Thousand Dollars ($12,000.00) per year ("Base Rent"), which shall be paid in rental payments of $1,000.00 per month, during the initial term of this Lease. Base Rent shall be payable in advance on the first day of each calendar month beginning on the Rent Commencement Date as defined in Section 3.2 below.

3.2 Rent Commencement Date shall mean the date that is the later of (i) one hundred twenty (120) days after the Effective Date of this Lease, or (ii) the date upon which Owner has completed delivery of utilities, perimeter fencing, and vehicular access to Sites A, B and C as described in Exhibit 1. Rent shall be abated on a day-for-day basis for any period of delay in such deliverables.

3.3 Rent Escalation: Base Rent shall accrue an increase of two percent (2%) per year, compounding, but shall be adjusted and become payable only at the commencement of each ten (10)-year period of the Term, and shall remain fixed for the full ten (10) years of each such period. Accordingly, Base Rent shall be:

- **Years 1 – 10:** $12,000.00 per year ($1,000.00 per month)
- **Years 11 – 20:** $14,627.93 per year ($1,218.99 per month)
- **Years 21 – 30:** $17,831.37 per year ($1,485.95 per month)
- **Years 31 – 40:** $21,736.34 per year ($1,811.36 per month)
- **Years 41 – 50:** $26,496.48 per year ($2,208.04 per month)

Each amount equals Twelve Thousand Dollars ($12,000.00) multiplied by 1.02 raised to the power of the number of full Lease Years elapsed before the commencement of that period. There shall be no market-rate reset, reappraisal, renegotiation, or other adjustment of Base Rent at the commencement of any Renewal Term or at any other time during the Term.

3.4 Rent Abatement for City Delay. If, as of the Effective Date, Owner has not completed delivery of all required utilities and vehicular access to Sites A,B and C, the Rent Commencement Date shall automatically be extended on a day-for-day basis until such deliverables are fully operational. In addition, if any such deliverables become non-functional or unavailable after commencement of this Lease for a period exceeding seven (7) consecutive days, Lessee's Base Rent shall be abated pro rata for the duration of the outage.

i. Jet-A Fuel Availability: Owner shall use reasonable efforts to make Jet-A fuel available for sale to Lessee within six (6) months after the Effective Date. If Jet-A fuel is not available by that deadline due to Owner's failure to use reasonable efforts or due to reasons within Owner's control, Lessee shall receive a fifty percent (50%) rent credit beginning on the first day following such deadline and continuing until Jet-A fuel service is fully operational. No rent credit shall apply

if the unavailability of Jet-A fuel is due to reasons outside Owner's control despite Owner's reasonable efforts. During any period when Jet-A fuel is unavailable, Lessee may self-source fueling services consistent with Airport safety and environmental standards, and Owner shall waive any flowage, franchise, or exclusivity fees until its fueling system becomes operational.

ii. Verification and Adjustment: Any rent credit or abatement under this Section shall be reflected in the next monthly rental statement or, if Rent has already been paid, shall be applied as a credit toward the following month's payment. No abatement or credit shall be construed as a waiver of Lessee's right to enforce performance of Owner's obligations.

3.5 Method of Payment. All Rent and other sums payable by Lessee under this Lease shall be paid in lawful money of the United States, by check or electronic transfer payable to City of Coalinga, and delivered to the address designated by Owner in writing, or such other place as Owner may from time to time designate. Any payment made after the due date shall accrue interest at a rate not to exceed five percent (5%) per annum, but no late fee or interest shall apply during any period in which Rent is abated or credited under this Lease.

3.6 Taxes and Assessments. Lessee shall pay all personal property taxes and assessments levied upon its equipment, vehicles, aircraft, or business operations on the Premises. Owner shall pay all real property taxes and assessments relating to the underlying Airport property. If any possessory interest tax or similar charge is assessed on Lessee's leasehold interest, Base Rent shall be reduced dollar-for-dollar by the amount of such tax.

3.7 Late Payment and Grace Period. Rent shall be considered delinquent if not received within ten (10) days after the due date. Owner shall provide written notice of any delinquency, and Lessee shall have an additional ten (10) days after such notice to cure before any default may be declared. No late fee or penalty shall apply if Rent is withheld or reduced pursuant to an authorized abatement or credit under this Lease.

3.8 Holding Over. If Lessee remains in possession of the Premises after the expiration or earlier termination of this Agreement without the express written consent of Owner, such occupancy shall be deemed a tenancy at sufferance only, subject to all terms and conditions of this Agreement except as to the length of the term and the amount of rent. In such event, Lessee shall pay holdover rent at a rate equal to one hundred fifty percent (150%) of the monthly rent in effect immediately prior to such expiration or termination, prorated on a daily basis. Acceptance of any such rent by Owner shall not be deemed or construed as consent to continued occupancy.

4. Security Deposit. Concurrently with Lessee's execution of this Lease, Lessee shall deposit with Owner the sum of one thousand dollars ($1,000) as a security deposit (the "Security

Deposit") for the faithful performance by Lessee of all terms, covenants, and conditions of this Agreement during the Term. If Lessee defaults with respect to any provision of this Agreement, Owner may use, apply, or retain all or any portion of the Security Deposit to pay rent or any other monetary obligation in default, to cover any sum Owner may expend or become obligated to expend by reason of Lessee's default, or to compensate Owner for any loss or damage arising from such default. If any portion of the Security Deposit is so applied, Lessee shall, within ten (10) days after written demand therefor, deposit additional funds with Owner sufficient to restore the Security Deposit to its original amount; failure to do so shall constitute a material breach of this Lease. Provided Lessee fully and faithfully performs all provisions of this Lease, the Security Deposit, or any remaining balance, shall be returned to Lessee within 30 days after the expiration or earlier termination of the Term and Lessee's surrender of possession of the Premises.

5. Development, Operation, and Use of Premise.

5.1 Lessee Responsibility. For the duration of the Agreement, the Lessee has the following responsibilities:

i. Pay all utilities and rent as provided under this Agreement.

ii. Purchase their fuel directly from the City whenever it is available on-site.

iii. At its sole expense, construct, operate, maintain, and repair all improvements on the Premises. All improvements, alterations, or construction shall be subject to Owner's prior written approval, including review of plans, specifications, materials, and contractors. Such approval shall not be unreasonably withheld but may be conditioned to ensure compliance with applicable airport design standards, FAA requirements, municipal codes, and Owner's policies.

iv. Comply with all applicable Federal Aviation Administration (FAA), Department of Defense, and Coalinga Municipal Airport safety regulations.

v. Comply with all applicable municipal, county, state, and federal laws, regulations, and ordinances.

vi. Upon termination of this Agreement, restore Site B to a safe and neutral condition, except where termination occurs pursuant to Section 11 or as a result of Owner's uncured material breach, in which case Lessee shall have no restoration obligation.

5.2 Ownership of Improvements. Lessee shall be the sole owner of all right, title, and interest in and to the Improvements, all other personal property installed, used, or maintained on the Premises, and any profits derived exclusively from events conducted on the Premises during the Term.

Upon expiration or earlier termination of this Agreement:

Owner's Election. Within thirty (30) days prior to expiration, or thirty (30) days after a notice of termination, Owner shall notify Lessee in writing whether it elects to purchase some or all Improvements at their then-current fair market value (the "Election Notice"). If Owner fails to deliver an Election Notice within this period, it shall be deemed an election not to purchase any Improvements.

Removal by Lessee. If Owner elects not to purchase, Lessee shall, within one hundred eighty (180) days after the Election Notice deadline, remove the Improvements at its sole expense and repair any damage caused by such removal, restoring the Premises to a safe condition.

Automatic Vesting. Except for Improvements that Owner has elected to purchase under the Election Notice, any Improvements not removed within the one hundred eighty (180) day period following the Election Notice deadline shall automatically vest in Owner without payment or further action required

This Section shall not apply to any termination under Section 11, which governs exclusively as to the disposition of Improvements

5.3 Hazardous or Non-Compliant Improvements. If any improvement constructed, installed, or maintained by Lessee is determined by Owner, in its reasonable discretion, to be hazardous, unsafe, non-compliant with applicable laws, regulations, building codes, or airport standards, or to interfere with airport operations, Owner may require Lessee to modify or remove such improvement at Lessee's sole expense, within thirty (30) days after written notice. Owner's determination shall identify the specific code, standard, or FAA regulation at issue, and Lessee shall have an opportunity to cure or appeal such determination. If Lessee fails to timely comply, Owner may, without liability to Lessee, remove or remediate the improvement at Lessee's expense, and Lessee shall promptly reimburse Owner for all costs incurred.

5.4 FAA Jurisdiction and Compliance. Lessee acknowledges that certain activities may require FAA approval or compliance with FAA regulations, and Lessee shall be solely responsible for securing any such approvals at its own expense. Owner is not responsible for obtaining approvals from the Federal Aviation Administration (FAA) for any development, construction, improvements, or operations undertaken by Lessee on the Premises, including but not limited to airspace determinations, obstruction evaluations, airport layout plan modifications, or operational authorizations. Owner's inability to permit or approve any improvement, operation, or activity due to FAA requirements, restrictions, or denials shall not constitute a material breach of this Agreement, and Lessee shall have no claim against Owner arising from any FAA determination or regulatory requirement that limits, delays, or prohibits Lessee's intended use of the Premises. This Section shall not apply to any FAA requirement, restriction, or determination that results from Owner's own application, submission, act, or omission, and shall not limit Lessee's rights under Section 11

5.5 Insurance. Prior to occupying the Property, Lessee shall obtain the following insurance policies:

i. General Liability Insurance. A general liability insurance policy insuring against bodily injury, personal injury, and property damage caused by Lessee's use of the Premises in an amount not less than two million dollars ($2,000,000) [two million dollars ($2,000,000) per occurrence and five million dollars ($5,000,000) aggregate] of combined single limit liability coverage per occurrence, accident or incident. Owner shall be named as additional insured on all such policies of insurance. Lessee shall cause its insurers to issue endorsements identifying Owner as an additional insured.

5.6 Owner Responsibilities. For the duration of this Agreement, Owner shall have the following responsibilities:

i. Maintain the airfield infrastructure. "Maintain" means to keep in safe, operational condition consistent with FAA regulations and industry standards, subject to reasonable notice of deficiencies. Temporary closures for maintenance, weather, emergencies, or circumstances beyond Owner's control are not breaches. Material breach occurs only upon indefinite runway closure due to Owner's failure to maintain after reasonable notice and opportunity to cure. The maintenance of the airfield infrastructure shall include:

1. The Runway (5,000 ft, 30,000 lbs/axle); and
2. Lighting for nighttime operations / Taxiways, lighting, and perimeter fencing for nighttime and secured operations.

ii. Ensure that utilities, including water and electricity, are available at the facilities located on Site A , B, and C.

iii. Maintain the perimeter security fencing for Site A, B, and C.

iv. Jet-A fueling obligations, performance deadlines, and related rent credits are governed by 3.5 of this Agreement. Owner acknowledges that timely provision of Jet-A fuel is a critical operational requirement for Lessee.

v. Provide and maintain adequate utility capacity (electrical power, water, and communications) to stub-out or connection points located at

the boundaries of Sites A, B and C, sufficient to support Lessee's intended operations. Lessee shall be responsible for the design, permitting, and installation of all internal utility infrastructure within Sites A, B and C from those connection points, at its sole cost.

vi. Coordinate and cooperate with Lessee on all required utility permits, inspections, and tie-ins to ensure timely completion and activation of such utilities.

vii. Refrain from directly or indirectly interfering with Lessee's operations, undertakings, or activities, or from engaging in any activity that may disturb the Improvements or Lessee's activities on the Premises.

viii. Mow and roll the Parachute Landing Section of Site B at least annually, or more frequently as reasonably necessary, to maintain safe conditions.

5.7 Exclusive Operations. During the first ten (10) years of the Term, Owner shall not permit any third party to conduct parachute operation training on Airport property. This restriction applies to both commercial and non-commercial entities, including but not limited to Powered Promotor Operations. After the initial ten (10)-year period, Owner may permit such activities provided they do not constitute a material hindrance to Lessee's operations

6. Taxes. Owner shall be responsible for, and shall timely pay before delinquency, all real property taxes, assessments, and other governmental charges imposed on or arising in connection with the Property itself. Lessee shall be responsible for, and shall timely pay before delinquency, all taxes, assessments, fees, or charges imposed as a result of Lessee's use or activities on the Premises, including but not limited to sales taxes, use taxes, excise taxes, personal property taxes, and business license fees. If any possessory-interest tax or similar charge is assessed on Lessee's leasehold interest, Base Rent shall be reduced dollar-for-dollar by the amount of such tax.

7. Utilities. Owner shall provide adequate water utility capacity to stub-out or connection points at the boundary of Sites A, B and C. Lessee shall be responsible for designing and installing all other utility infrastructure, including electrical, sewer, and communications services, at its sole cost. Lessee shall design and install all internal utility infrastructure from the water connection points at its sole cost. Owner shall coordinate tie-ins and permitting for the water connection to avoid unreasonable delay. Lessee shall pay for all water utilities supplied to the Premises. Owner shall not be liable, in damages or otherwise, for any failure or interruption of water service furnished to the Premises, and no such failure or interruption shall entitle Lessee to terminate this Lease; provided, however, that if such failure or interruption continues for more than sixty (60) consecutive days, Rent shall be abated pro rata

for the duration of the outage, and if such failure continues for more than sixty (60) consecutive days without cure, Lessee may, at its option, terminate this Lease upon written notice to Owner.

8. Maintenance. Lessee shall, at its sole expense, maintain the Premises in good order, condition, and repair, including keeping common and parking areas neat, clean, and orderly, and repairing any damage to the facilities thereof. If Lessee fails to do so, Owner may give written notice specifying the required work. If Lessee fails to promptly commence such work and diligently prosecute it to completion, Owner may, but shall not be obligated to, perform such work and expend funds reasonably required therefor. Any amounts so expended by Owner shall be reimbursed by Lessee upon demand, together with interest at 5 percent (5%) per annum from the date of such expenditure. Owner shall, at its sole cost, maintain all runway surfaces, taxiways, perimeter fencing, and lighting systems serving the Premises. If Owner fails to perform any maintenance obligation under this Agreement within thirty (30) days after written notice, Lessee may perform such work and offset the full cost, together with interest at the Wall Street Journal prime rate plus two percent (2%) per annum, against Rent and any other sums due to Owner.

9. Indemnity. Owner shall defend, indemnify, and hold harmless Lessee, its officers, directors, members, managers, employees, and agents, from and against any and all claims, demands, losses, liabilities, damages, costs, and expenses, including reasonable attorneys' fees, arising directly out of (i) Owner's negligence, gross negligence, or willful misconduct at the Property, or (ii) activities performed or expressly authorized by Owner at the Property, to the extent such claims are not caused by the negligence or willful misconduct of Lessee.

If Owner fails to provide such defense or indemnification as required under this Section, Lessee may bring an independent action to enforce Owner's obligations hereunder. Any such action shall be subject to the applicable statutes of limitations under California law.

The Lessee agrees to defend and indemnify the Owner for any liability stemming from any adverse judgment or settlement against the Owner in connection with any activity performed or allowed by the Lessee at the Property. Specifically, the Lessee shall indemnify the Owner against all liability, claims, demands, losses, damages, costs, charges, and expenses, including reasonable attorneys' fees, that the Owner may in any way sustain, incur or become liable for in consequence of any activities performed or allowed by the Lessee at the Property.

If the Lessee fails to defend and indemnify as set forth in this Agreement, the Owner may bring a separate suit against the Lessee for failure to do so. Any such action shall be subject to the applicable statutes of limitations under California law.

Each Party's indemnity obligations shall apply only to the extent of its own negligence or willful misconduct. Both Parties waive consequential, incidental, and punitive damages arising from this Lease, except for third-party claims subject to indemnity.

10. Default; Termination.

10.1 Notice and Cure. If either Party alleges that the other has breached or defaulted on any representation, warranty, or obligation under this Agreement, the non-defaulting Party shall deliver to the defaulting Party a reasonably detailed written notice of such breach or default. The defaulting Party shall have sixty (60) days from receipt of such notice to cure the default; provided, however, that if the default cannot reasonably be cured within such sixty (60) day period, the defaulting Party shall have such additional time as is reasonably necessary to cure the default, so long as it commences cure within the initial sixty (60) day period and diligently prosecutes such cure to completion.

For purposes of this Agreement, a "material breach" means a breach of any representation, warranty, or obligation that: (a) substantially impairs the benefit of the bargain to the non-defaulting Party; (b) defeats the essential purpose of this Agreement; or (c) makes performance by the non-defaulting Party substantially more burdensome or impossible. Minor, technical, or non-substantive violations that do not significantly affect the Parties' rights or obligations shall not constitute a material breach.

If the defaulting Party fails to timely cure a material breach, the non-defaulting Party may terminate this Agreement and/or exercise any other rights or remedies available at law or in equity; provided that the non-defaulting Party shall use commercially reasonable efforts to mitigate damages arising from such default.

10.2 Termination. Termination is permitted only:

i. for an uncured material breach as defined in Section 10.1

ii. in the event of condemnation or casualty as expressly provided in this lease, or an airport closure exceeding one hundred twenty (120) days; provided that if such closure is caused by, undertaken in connection with, or followed within twenty-four (24) months by a Qualifying Redevelopment as defined in Section 11.2, termination shall be governed exclusively by Section 11;

iii. by mutual written agreement of the Parties; or

iv. pursuant to Section 11 (Early Termination and Strategic Redevelopment Buyout).

v. by Lessee pursuant to Sections 10.3 or 10.4

10.3 **Lessee Termination for Owner Default.** If Lessee terminates this Agreement as a result of Owner's uncured material breach, Lessee shall be entitled to receive the Buyout Price determined under Section 11, together with all rights, security, payment timing, and surrender protections provided in Sections 11.7 through 11.11, in addition to any other remedies available at law or in equity

10.4 **Lessee Early Termination.** Lessee may terminate this Agreement effective as of the last day of Lease Year 5, 10, 20, 30, or 40 by delivering written notice to Owner not less than twelve (12) months before such date.

Lessee may also terminate effective as of the last day of Lease Year 3, upon ninety (90) days' written notice, if as of the date of such notice (i) Owner has not completed delivery of all utilities, perimeter fencing, and vehicular access to Sites A, B and C; (ii) Jet-A fuel is not available for sale at the Airport; or (iii) any FAA or other regulatory action materially restricts Lessee's permitted operations.

Upon any termination under this Section, Lessee shall pay all Rent accrued through the effective date, remove its Improvements and restore the Premises in accordance with Section 5.2, and thereafter have no further liability under this Agreement. Termination under this Section shall not affect, limit, or imply any corresponding right of Owner, and Owner's rights and obligations under Section 11 shall be unaffected.

11. Early Termination and Strategic Redevelopment Buyout.

11.1 Limitation on Owner's Termination Rights. Owner shall have no right to terminate this Lease before expiration of the Term except (a) for Lessee's uncured material default, (b) upon condemnation or casualty as expressly provided in this Lease, (c) by mutual written agreement of the Parties, or (d) under this Section.

11.2 Definitions. For purposes of this Section: "Buyout Price" means the greater of (a) the Predetermined Buyout Amount set forth in Section 11.5 or (b) the Calculated Buyout Amount determined under Section 11.6. Section 11.7 governs how the Buyout Price is determined and paid. "Qualifying Redevelopment" means a bona fide airport redevelopment, repurposing, major capital investment, strategic aviation development, public infrastructure project, or other material airport development opportunity. "Constructive Termination" means any act or omission of Owner, other than one arising from Lessee's uncured material default, that materially impairs Lessee's approved use of the Premises or the operational rights necessary to Lessee's business — including displacement, forced relocation, material reconfiguration or reduction of the Premises (including Site B or the parachute landing areas), loss or material impairment of operational or utility access, or an airport layout change having any such effect. The characterization Owner gives an action — relocation, ALP modification, redevelopment, repurposing, partial taking, operational adjustment, or sponsor planning decision — does not control; the practical effect on Lessee's operations does. "Termination Event" means (a) Owner's election to terminate under Section 11.3, or (b) a Constructive Termination that Lessee elects to treat as a termination under Section 11.4.

11.3 Owner's Termination Right. Owner may terminate this Lease before expiration of the Term only in connection with a Qualifying Redevelopment, and only by (a) delivering not less than thirty-six (36) months' prior written notice to Lessee and (b) paying the Buyout Price as provided in this Section.

11.4 Constructive Termination; Owner's Opportunity to Cure. If Lessee believes Owner has caused a Constructive Termination, Lessee shall notify Owner in writing, describing the action and its operational effect. Owner shall have thirty (30) days to rescind the action or to implement a cure that restores Lessee's operational capability in all material respects.

If Owner does neither, Lessee may elect by written notice to treat the action as a Termination Event, in which case the Buyout Price shall be payable as if Owner had elected to terminate under Section 11.3. The effective termination date shall be the date Lessee designates in its election notice, which shall be not less than one hundred eighty (180) days nor more than thirty-six (36) months after the notice.

Where the impairment is partial, Lessee may instead elect, in its sole discretion, proportionate abatement of Rent together with reimbursement of Lessee's documented costs of adapting its operations to the change, in lieu of the Buyout Price. Lessee's failure to elect within one hundred eighty (180) days after Owner's cure period expires shall waive its rights under this Section as to that action only.

11.5 Predetermined Buyout Amount. The Predetermined Buyout Amount is determined by the Lease Year in which Owner delivers its termination notice or Lessee delivers its election notice under Section 11.4, as set forth in the table below:

Lease Year	Predetermined Buyout Amount
1 – 5	$7,500,000
6 – 15	$10,000,000
16 – 30	$12,500,000
31 – 40	$10,000,000
41 – 50	$7,500,000

Each amount is stated in dollars as of the Rent Commencement Date and shall be adjusted on each anniversary of that date by the percentage increase, if any, in the Consumer Price Index for All Urban Consumers, U.S. City Average (or any successor index), over the preceding twelve (12) months. No

adjustment shall reduce the Alternative Buyout Amount below the amount in effect for the prior Lease Year.

11.6 Calculated Buyout Amount. The Calculated Buyout Amount is the sum of the following:

A. Facility Recovery. The greater of (i) the unrecovered portion of all documented hard and soft costs incurred by Lessee to design, permit, construct, install, equip, utility-serve, and improve the Premises, or (ii) the full payoff amount of all loans, contractor obligations, equipment financing, liens, prepayment charges, and other obligations incurred in connection with the Premises or the Improvements — plus the reasonable costs of releasing liens, discharging financing, satisfying contractor claims, and delivering clear title to any Improvements retained by Owner or its designee.

B. Business Value, Lost Profits, and Comprehensive Economic Loss. The total economic loss resulting from the Termination Event shall be determined by an independent business valuation professional holding industry-standard certifications (including Accredited Senior Appraiser [ASA], Accredited in Business Valuation [ABV], or Certified Valuation Analyst [CVA]). The fees and expenses of such appraiser shall be paid entirely by Owner. The appraisal shall establish value based on Fair Market Value as an ongoing enterprise, without application of discounts for lack of marketability, illiquidity, key-person reliance, or transfer restrictions.

i. Lost Profits Component. In recognition of the specialized, location-dependent nature of Lessee's aviation and skydiving operations, the lost profits component of this buyout shall be fixed at five times (5×) Average Annual Net Operating Income (NOI). "Average Annual Net Operating Income" shall mean total operating revenues derived from operations at or based from the Premises, minus all direct operating expenses, maintenance costs, and operational overhead, calculated as the average over the three (3) most recently completed fiscal years. The 5× NOI multiple is agreed upon as the exclusive formula to compensate Lessee for any and all lost future profits, operational disruption, customer loss, and enterprise earnings lost as a result of early termination or relocation.

ii. Consolidated Transition and Relocation Expenses. In addition to the 5× NOI lost profits calculation under Subsection B.1, the appraiser shall evaluate and incorporate all direct physical, operational, and

setup costs required to reestablish Lessee's platform at a replacement facility, including:

a. reasonable capital allowances necessary to design, permit, utility-serve, and construct a replacement facility of equivalent operational utility;
b. direct costs of equipment relocation, aircraft and vehicle repositioning, gear storage, and operational reestablishment;
c. direct customer/contract transition costs, demobilization/remobilization expenses, and cancellation penalties; and
d. reasonable third-party engineering, legal, accounting, and advisory fees incurred directly as a result of the Termination Event.

C. Prevention of Double Recovery. The appraiser shall aggregate Subsections B.1 and B.2 into a single comprehensive valuation determination. No financial loss, capital expenditure, asset value, moving expense, or overhead item shall be counted more than once.

11.7 **Determination of the Buyout Price**

i. The Buyout Price is the greater of the Predetermined Buyout Amount or the Calculated Buyout Amount. Owner shall obtain the determination of the Calculated Buyout Amount under Section 11.6 at Owner's sole cost and expense, and shall deliver it to Lessee not later than one hundred eighty (180) days after its termination notice
ii. Lessee may, at its sole option and by written notice at any time, elect to accept the Predetermined Buyout Amount in full satisfaction of the Buyout Price, in which case no determination under Section 11.6 shall be required.
iii. If Owner fails to deliver a determination within the period in subsection (a), the Buyout Price shall be Lessee's good-faith determination of the Calculated Buyout Amount, or the Predetermined Buyout Amount, whichever is greater.

11.8 No Double Recovery. No cost, loss, or obligation shall be counted more than once in calculating the Buyout Price.

11.9 Funding, Payment, and Security.

A. Estimate. Within sixty (60) days after a termination notice or Lessee's election notice, Lessee shall deliver to Owner a good-faith written estimate of the Buyout Price with reasonable supporting documentation.

B. Evidence of Funding. Within ninety (90) days after receiving that estimate, Owner shall deliver written evidence that funding for the estimated Buyout Price has been appropriated, dedicated, or otherwise committed.
C. Security. Not later than twelve (12) months before the effective termination date, Owner shall deposit into escrow, or otherwise secure in a manner reasonably acceptable to Lessee, one hundred percent (100%) of the estimated Buyout Price.
D. Facility Recovery. The Facility Recovery amount shall be paid or fully discharged not later than thirty (30) days before the effective termination date.
E. Payment. One hundred percent (100%) of all undisputed amounts shall be paid to Lessee on or before the effective termination date. Any disputed amount shall remain in escrow or otherwise secured until resolved. No valuation dispute shall delay payment of undisputed amounts.
F. Post-Determination Payment. Any amount determined owing after final valuation shall be paid within thirty (30) days after that determination, and any amount unpaid thereafter shall bear interest at the Wall Street Journal prime rate plus two percent (2%) per annum until paid in full.

11.10 Conditions to Effectiveness; No Surrender Before Payment. Termination shall not become effective, and Lessee shall not be required to surrender possession, discontinue operations, remove property, transfer Improvements, release operational rights, or cooperate in transition of the Premises, until:

A. one hundred percent (100%) of all undisputed amounts have been paid;
B. one hundred percent (100%) of any disputed amounts have been escrowed or otherwise secured in a manner reasonably acceptable to Lessee;
C. all facility-related debts, liens, contractor obligations, and financing obligations have been discharged, paid, or fully secured; and
D. Owner has provided the transition access and cooperation reasonably necessary for Lessee to relocate, wind down, or transition operations safely and in an orderly manner.

If the effective termination date arrives before these conditions are satisfied, this Lease shall continue in full force on all its terms, and the effective termination date shall be extended day for day until they are satisfied.

Upon satisfaction of these conditions and payment in full, Lessee shall surrender the Premises and convey to Owner, by quitclaim deed or bill of sale, any Improvements Owner elects to retain, free of liens created by or through Lessee.

11.11 Valuation and Dispute Resolution. If the Parties dispute the Calculated Buyout Amount, each Party shall within thirty (30) days appoint one independent, qualified valuation

professional with experience in commercial real estate, airport facilities, business valuation, or aviation operations.

If the two determinations differ by ten percent (10%) or less, the Calculated Buyout Amount shall be their average. If they differ by more, the two professionals shall within thirty (30) days select a third, and the Calculated Buyout Amount shall be the average of the two closest determinations. Each Party bears the cost of its own professional; the cost of the third shall be shared equally.

Pending final determination, Owner shall pay all undisputed amounts and shall escrow or otherwise secure the disputed amount. No valuation dispute shall require Lessee to surrender the Premises before Section 11.10 is satisfied.

11.12 Third-Party Funding. Owner may satisfy its obligations under this Section with funds provided by a third-party investor, developer, operator, successor airport user, or project sponsor. Owner shall nevertheless remain primarily responsible for timely payment and performance, and no agreement between Owner and any third party shall reduce, delay, condition, or otherwise impair Owner's obligations to Lessee under this Section.

11.13 Eminent Domain. Nothing in this Section limits Lessee's rights under applicable eminent domain law. If Owner or an affiliated public entity acquires the Premises or any material portion by eminent domain in connection with a Qualifying Redevelopment, Lessee shall be entitled to the greater of the Buyout Price or its award under applicable law, to the extent permitted by law.

11.14 Nature of Payment. This Section states the agreed consideration for an optional termination right that Owner is not required to exercise. The Buyout Price is not a penalty, forfeiture, or liquidated damages provision. It is intended to compensate Lessee for the loss of its leasehold position, facility investment, business platform, operating continuity, replacement facility requirements, contract-supported revenue opportunity, and transition costs arising from Owner's voluntary exercise of that right.

11.15 Survival. Owner's obligations under this Section shall survive termination of this Lease until all amounts due to Lessee have been paid in full and all transition obligations have been completed.

12. Assignment and Sublease.

12.1 General Restriction. Lessee shall not voluntarily or by operation of law assign, or transfer its interest in this Lease or in the Premises, nor sublet or license all or any portion of the Premises, without the prior written consent of Owner in each instance, which consent shall not be not

be unreasonably withheld, conditioned, or delayed. Any attempted assignment, transfer, sublease, or license without such consent shall be void and of no effect.

12.2 Related Party Assignment. Notwithstanding Section 12.1, Lessee may assign this Lease to any parent company, subsidiary, affiliate, or other entity under common ownership or control with Lessee and/or its owners (a "Related Party Assignment"), provided that Lessee delivers written notice and copies of the Related Party Assignment documents to Owner. Owner shall promptly acknowledge receipt of such documents in writing and return a copy to Lessee. In no event shall Owner unreasonably withhold or delay such acknowledgement, nor interfere with any Related Party Assignment.

12.3 Right to Sublease. Notwithstanding Section 12.1, Lessee shall have the right to sublease the Premises as follows:

i. Lessee may sublease for aviation-related or Department of Defense–approved uses, subject to Owner's review, which shall not be unreasonably withheld, conditioned, or delayed.
ii. Any sublease for non-core activities shall likewise require review not to exceed twenty (20) business days from receipt of a complete package, after which approval shall be deemed granted.
iii. Legal or administrative fees charged by Owner in connection with its review of any sublease shall not exceed Two Thousand Five Hundred Dollars ($2,500.00) per instance.

12.4 Continuing Liability. In all cases of assignment or sublease, whether or not consent is required or obtained, Lessee shall remain primarily liable for the performance of all obligations under this Lease unless expressly released in writing by Owner.

13. Miscellaneous.

13.1 Entire Agreement. This Agreement, together with its attached exhibits (which are incorporated herein by reference), constitutes the entire agreement of the Parties with respect to the subject matter hereof and supersedes all prior and contemporaneous agreements, understandings, negotiations, and representations, whether oral or written, which shall be of no force or effect. No addition, modification, or waiver of any term of this Agreement shall be effective unless in writing and signed by both Parties. This Agreement shall not be construed more liberally in favor of, or more strictly against, either Party. As used herein, the neuter gender includes the masculine and feminine, and the singular includes the plural, and vice versa, whenever the context so requires. The terms "include," "includes," and "including" shall be deemed to be followed by the phrase "without limitation." Captions and headings are for convenience only and shall not affect the interpretation of this Agreement.

13.2 Governing Law. The terms and provisions of this Agreement shall be governed by, and construed in accordance with, the laws of the State of California, without regard to its conflict of laws principles.

13.3 Legal Counsel and Advice. Each party to this Agreement has had the opportunity to consult with legal counsel and other advisors of its own choosing prior to executing this Agreement.

13.4 Successors and Assigns. This Agreement shall be binding upon, and shall inure to the benefit of, Owner and Lessee, any permitted Assignee, and their respective heirs, transferees, successors, and assigns. All references to "Lessee" in this Agreement shall be deemed to include any Assignee holding a direct ownership interest in this Agreement.

13.5 Notices. All notices or other communications required or permitted hereunder, including payments to Owner, shall be in writing, and shall be personally delivered, delivered by reputable overnight courier, or sent by registered or certified mail, return receipt requested and postage prepaid, to the addresses set forth on the signature page of this Agreement. Notices personally delivered shall be deemed given the day so delivered. Notices given by overnight couriers shall be deemed given on the first business day following the mailing date. Notices mailed as provided herein shall be deemed given on the third business day following the mailing date. Any party may change its address for purposes of this subsection by giving written notice of such change to the other party in the manner provided in this subsection.

13.6 Choice of Law. The Property is located in the County of Fresno, State of California. This Agreement shall be governed by, and construed in accordance with, the laws of the State of California. Venue for any action or proceeding, whether at law or in equity, arising out of or relating to this Agreement shall lie exclusively in Fresno County, California. Both Parties hereby waive any rights under California Code of Civil Procedure Section 394 to seek transfer of venue to a neutral county or other venue.

13.7 Mediation. In the event of any dispute arising under or related to this Agreement, the Parties shall first submit the matter to non-binding mediation before commencing litigation or arbitration. Any Party may initiate mediation by delivering written notice to the other Party. Mediation shall be conducted in accordance with the California Mediation Rules and Procedures, or, by mutual agreement, through another mediation service or mediator. Mediation shall be confidential in accordance with California Evidence Code §1119 et seq. (superseding the outdated reference to §1152.5), and the Parties shall share equally the mediator's fees and costs.

13.8 Arbitration. If the Parties fail to resolve their dispute through mediation, the Parties agree to arbitrate disputes through binding arbitration. Each Party agrees that:

i. any arbitration will occur in Fresno County, in the State of California, and will be conducted confidentially in accordance with the Commercial Arbitration Rules of the American Arbitration Association then in effect (the "AAA Rules"), except as modified by this "Arbitration" section. Arbitration shall be conducted by a single arbitrator, provided that any dispute in which the amount in controversy exceeds Five Million Dollars ($5,000,000) shall be heard by a panel of three (3) arbitrators. Any dispute as to the amount of the Calculated Buyout Amount shall be determined exclusively under Section 11.11 and not by arbitration under this Section; and

ii. that the state or federal courts of the State of California have exclusive jurisdiction over any appeals and the enforcement of an arbitration award.

13.9 Attorney's Fees. In any action, proceeding, or arbitration to enforce or interpret this Agreement, the prevailing party shall be entitled to recover from the non-prevailing party its reasonable attorneys' fees and cost, in addition to any other relief to which such party may be entitled.

13.10 Certified Access Specialist program. Pursuant to California Civil Code §1938, the Parties acknowledge that, as of the execution of this Agreement, no Certified Access Specialist (CASp) inspection has been conducted for the Premises. Lessee acknowledges and agrees that Owner makes no representation as to whether the Premises has been determined to meet all applicable construction-related accessibility standards under California law.

13.11 Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

IN WITNESS WHEREOF, the parties execute this Agreement effective as of the Effective Date.

OWNER:	LESSEE:
_____	_____
[NAME], [BUSINESS]	[NAME], [BUSINESS]
Address for Payment and Notices:	Address for Payment and Notices:

[ADDRESS]
[ADDRESS]
[PHONE]

[ADDRESS]
[ADDRESS]
[PHONE]

EXHIBIT 1

PROPERTY/PREMISES

APN: [APN]

PHOTO/MAP OF PROPERTY

Site Plan

Momentum Tactical - New Coalinga Municipal Airport (C80)

Momentum Tactical proposes to establish a specialized aviation training and operational facility at New Coalinga Municipal Airport to support advanced parachute and aircraft-supported aerial operations for government, military, and approved professional users.

The proposed use is aeronautical in nature and is directly dependent upon aircraft and airport facilities. Planned activities include aircraft-supported parachute operations, equipment preparation and parachute packing, classroom instruction, mission planning, and structured post-flight debriefing. All flight operations will be coordinated with the City of Coalinga and conducted in accordance with applicable FAA regulations, airport rules and regulations, and established aviation safety standards.

Operational activity will occur in scheduled training blocks, rather than as continuous daily use. During the interim operational period, Momentum Tactical anticipates approximately 60 operational days per year, with the potential to increase over time as operational demand develops. Any increase in activity levels would be coordinated in advance with the City and conducted in a manner consistent with the airport's operational capacity, adopted planning documents, and safety requirements.

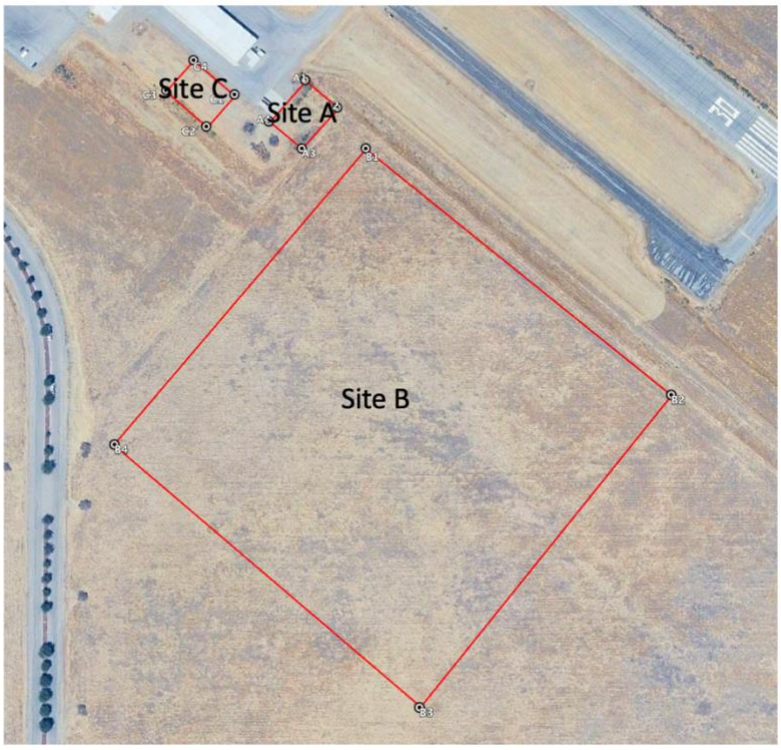
The interim lease period is anticipated to be up to thirty-six (36) months. Development during this period will consist exclusively of temporary or modular facilities, with no permanent foundations proposed. Interim facilities are expected to include modular classrooms, administrative space, equipment storage, and designated parachute packing and staging areas. Site circulation, vehicle access, parking, and security controls will be designed to maintain safe separation from aircraft movement areas and to avoid interference with existing airport operations.

Aircraft utilized for training will be mission-specific and variable, and all aircraft operations will be coordinated in advance to ensure safe integration with other airport users. Participation in training activities will be managed and scheduled to ensure appropriate supervision, operational control, and compliance with airport safety requirements.

If, at a future date, Momentum Tactical elects to pursue permanent facilities or expanded development beyond the interim scope described herein, such development would be subject to separate review, approval, and coordination with the City of Coalinga and any applicable federal or state agencies. Any long-term development would remain consistent with aeronautical land use compatibility requirements and the Airport Layout Plan (ALP).

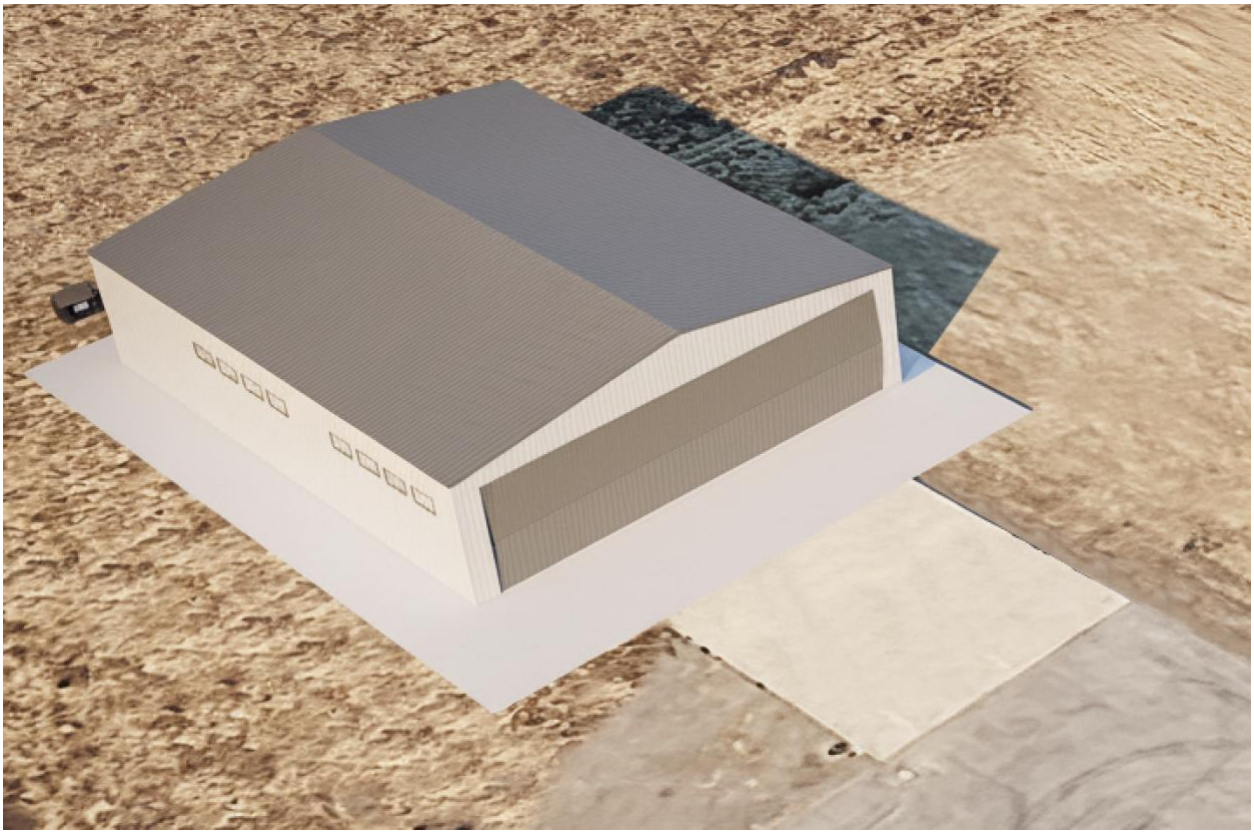
Momentum Tactical is committed to working collaboratively with the City of Coalinga, airport management, and its consultants to provide any additional operational details, plans, or supporting exhibits necessary to ensure the project proceeds in a safe, coordinated, and compliant manner.

Site Boundary Map (Momentum Tactical)
New Coalinga Municipal Airport



Site Boundary Map (Momentum Tactical)
New Coalinga Municipal Airport

Hangar Site (Site A)



Site A is proposed as the location of a future permanent aircraft hangar and associated support space.

- **Total site area:** Approximately **13,000 square feet**
- **Proposed hangar building footprint:** Approximately **8,000 to 10,000 square feet**
- **Estimated building dimensions:** Approximately **100 feet x 130 feet**
- **Maximum roof height:** Approximately **29 feet**

No permanent construction is proposed during the interim period.

Property Boundaries (Site A):
A1: 36° 9'33.81"N; 120°17'28.87"W
A2: 36° 9'33.15"N; 120°17'27.95"W
A3: 36° 9'32.18"N; 120°17'28.96"W
A4: 36° 9'32.82"N; 120°17'29.90"W

Parachute Landing Area (Site B)

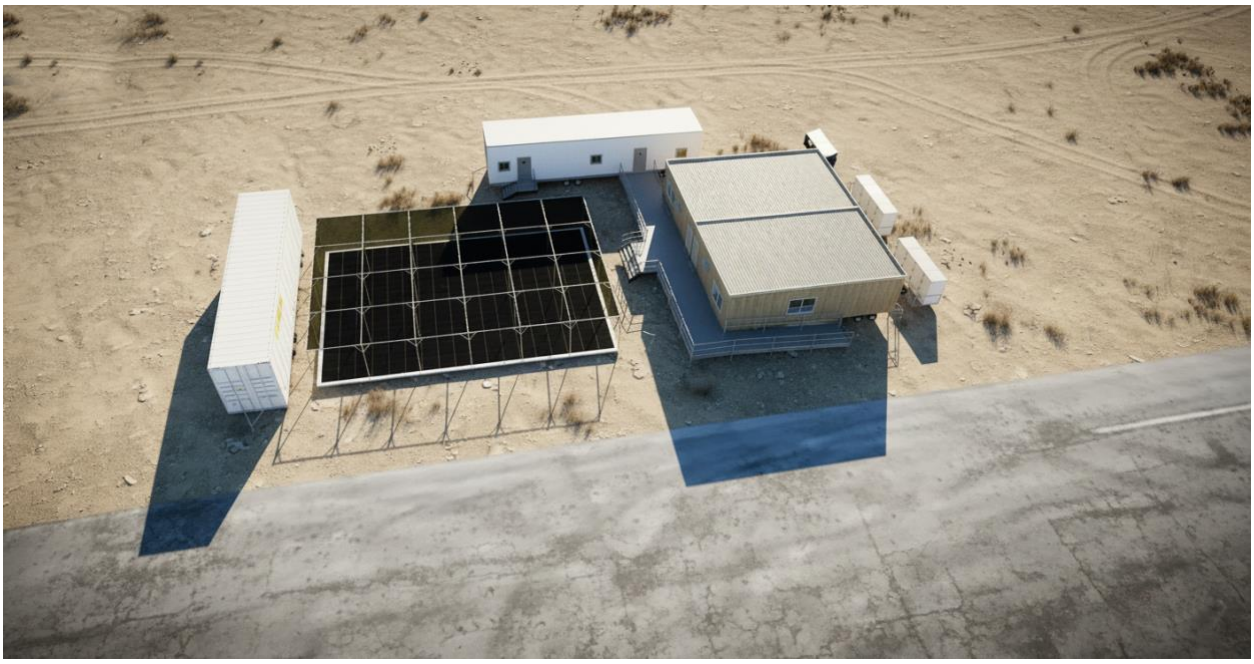
Site B is designated as the primary parachute landing area supporting aircraft-based training operations.

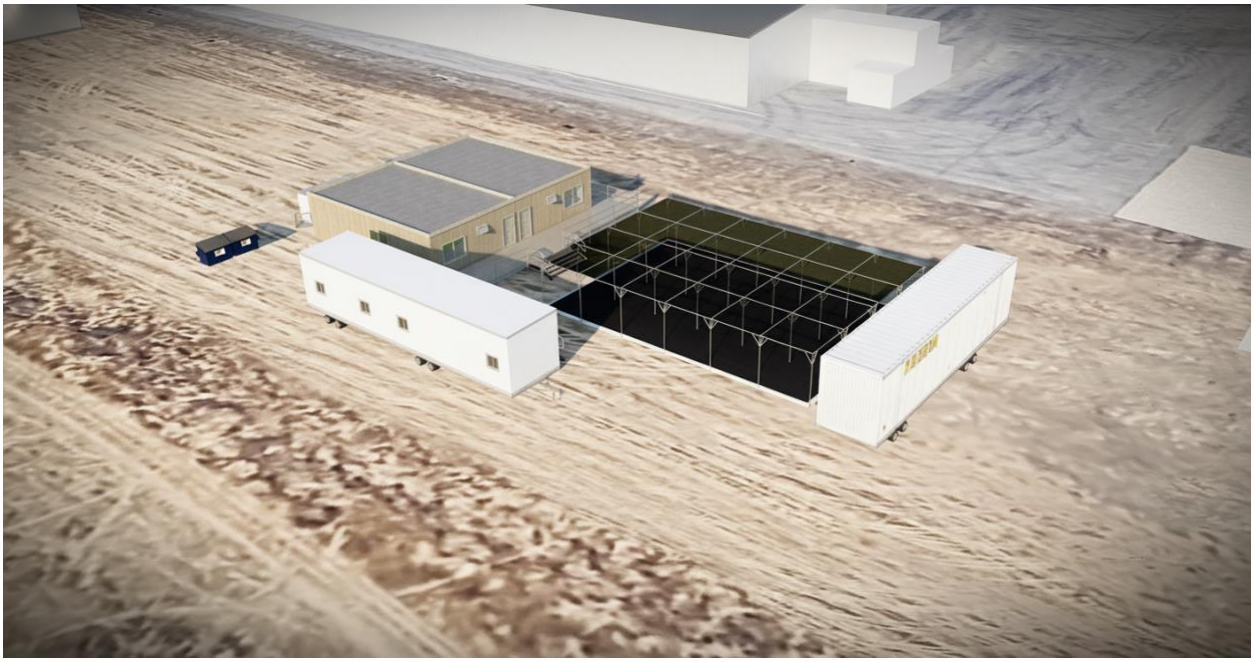
- **Dimensions:** Approximately **900 feet x 900 feet**
- **Total area:** Approximately **810,000 square feet**

This area will be used exclusively for controlled parachute landing operations and will be managed to ensure compatibility with aircraft operations and airport safety standards.

Property Boundaries (Site B):
C1: 36° 9'32.18"N; 120°17'27.14"W
C2: 36° 9'26.49"N; 120°17'18.66"W
C3: 36° 9'19.62"N; 120°17'25.76"W
C4: 36° 9'25.37"N; 120°17'34.15"W

Temporary Facility Complex (Site C)





Site C is proposed as a **temporary modular facility complex** to support interim operations while permanent facilities are planned and developed.

- **Total site area:** Approximately **13,000 square feet**
- **Duration:** Temporary use for approximately **18 to 24 months**

Proposed Temporary Improvements:

- **Two (2) modular classrooms:**
  - 24’ x 40’ x 12’ (960 sq. ft. each)
- **One (1) modular office:**
  - 12’ x 60’ x 12’ (720 sq. ft.)
- **One (1) 40-foot sea-land container:**
  - 40’ x 8’ x 8’ (320 sq. ft.)
- **One (1) mobile restroom trailer:**
  - Approximately 24’ x 8’ x 12’ (192 sq. ft.)
- **Covered parachute packing area:**
  - 40’ x 60’ x 12’ (2,400 sq. ft.)

All facilities will be temporary in nature, removable, and installed without permanent foundations.

Property Boundaries (Site C):
B1: 36° 9'33.47"N; 120°17'30.89"W
B2: 36° 9'32.70"N; 120°17'31.69"W
B3: 36° 9'33.56"N; 120°17'32.87"W
B4: 36° 9'34.29"N; 120°17'32.08"W

STAFF REPORT - CITY COUNCIL/SUCCESSOR AGENCY/PUBLIC FINANCE AUTHORITY

Subject:	Discussion, Direction and Potential Action regarding the League of California Cities 2026 Annual Conference Resolution
Meeting Date:	Thursday, September 3, 2026
From:	Sean Brewer, City Manager
Prepared by:	Sean Brewer, City Manager

I. RECOMMENDATION:

There is no staff recommendation, however a consensus of the Council should be met in order for the voting delegate to vote on the Council's behalf.

II. BACKGROUND:

The League's 2026 Annual Conference is scheduled for September 23rd - 25th in Anaheim. An important part of the Annual Conference is the Annual Business Meeting (during General Assembly), scheduled for 8:30 a.m. on Friday, September 25, 2026. At this meeting, the League members consider and take action on resolutions that establish League Policy.

In order to vote at the Annual Business Meeting, the City Council must designate a voting delegate and up to two alternate voting delegates. The City Council has designated Mayor Vosburg as this year's voting delegate and Mayor Pro-Tem Schindler and Councilman Ramirez as the alternate voting delegates, who may vote in the event that Mayor Vosburg is unable to serve in his capacity.

III. DISCUSSION:

This year, one resolution has been introduced for consideration at the Annual Conference and referred to the League policy committee.

In previous years, the League's resolutions have been brought before the Council to ensure the Council's consensus of the resolutions to be voted on.

IV. ALTERNATIVES:

V. FISCAL IMPACT:

ATTACHMENTS:

File Name	Description
2026-cal-cities-resolution-packet.pdf	2026 League of California Cities Resolution Packet

LEAGUE OF CALIFORNIA CITIES

2025-2026
CAL CITIES OFFICERS

President
Gabe Quinto
Mayor
El Cerrito

First Vice President
Teresa Acosta
Council Member
Carlsbad

Second Vice President
David Cohen
Council Member
San Jose

Immediate Past President
Lynne B. Kennedy
Mayor Pro Tem,
Rancho Cucamonga

Executive Director and CEO
Carolyn M. Coleman

August 10, 2026

TO: Cal Cities Members

RE: Cal Cities 2026 Resolution Packet

Sixty days before the Cal Cities Annual Conference and Expo, Cal Cities members may submit resolutions on issues of importance to cities. This year, Cal Cities received one resolution by the July 25 deadline.

The attached packet contains the proposed resolution, background information, supporting letters from cities and city officials, and an analysis of the resolution by Cal Cities. The packet includes detailed information on the resolution process and the next steps for the resolution.

We encourage each city council to consider the resolution and determine a position so your voting delegate can represent your city's position on the resolution.

Voting Delegates: City councils must appoint a voting delegate to vote during the General Assembly. Each city may also appoint up to two alternate delegates. If your city has not already done so, please appoint your voting delegate by Tuesday, Sept. 1, 2026. The voting delegate packet contains more information.

The 2026 General Assembly will be held Friday, Sept. 25, at 8:30 a.m. in the Anaheim Convention Center during the Annual Conference and Expo.

For questions about resolutions, voting delegates, or the General Assembly, please contact Zach Seals.

LEAGUE OF CALIFORNIA CITIES

2026 Resolution Packet

Information on 2026 Resolutions Process

Consideration by Policy Committee (pre-conference)
Per the Cal Cities bylaws, Cal Cities President Gabe Quinto has referred the submitted resolution to the Housing, Community, and Economic Development Committee. The committee will meet on Thursday, Sept. 17, at 10 a.m. via Zoom to review the resolution and make a recommendation that will be sent to the Resolutions Committee. A public comment period will be held during the meeting. Register for the meeting here.

A list of recommendations the policy committee may make during its meeting is on page two of this packet.

Consideration by Resolutions Committee (during conference)
On Thursday, Sept. 24, at 1:00 p.m. the Resolutions Committee will meet to review the resolution and the recommendation of the policy committee.

The Resolutions Committee consist of one representative from each of Cal Cities caucuses, departments, divisions, and policy committees, as well as up to ten additional appointments made by the Cal Cities President. A public comment period will be held during the meeting. Refer to the onsite conference program for the location.

A list of recommendations the Resolutions Committee may make during its meeting is on page two of this packet.

Consideration by the General Assembly (during conference)
The General Assembly will convene on Friday, Sept. 25, at 8:30 a.m. to consider any resolutions the Resolutions Committee has forwarded. To vote during the General Assembly, voting delegates must have checked in at the voting delegate booth.

Conference attendees will receive materials for the General Assembly on the evening of Thursday, Sept. 24. For more information on voting and discussion procedures during the General Assembly, see page three of this packet.

Petitioned Resolutions (during conference)
The petitioned resolution is an alternate method to introduce policy proposals during the annual conference. To initiate a petitioned resolution, voting delegates from 10% of member cities must sign the petition. The resolution and signatures are due at least 24 hours before the beginning of the General Assembly. Voting delegates who have checked in at the voting delegate booth can receive more information on petitioned resolutions at the booth onsite.

Policy Committee and Resolutions Committee Actions

The submitted resolution will be heard by the policy committee to which it was assigned, and the Resolutions Committee. The table below shows what recommendations these bodies may make on the resolution.

Policy Committee Actions	**Resolutions Committee Actions**
Approve	Approve
Disapprove*	Disapprove*
No Action	No Action
Amend and approve	Amend and approve
Refer to appropriate policy committee for further study*	Approve as amended
Refer as amended to appropriate policy committee for further study*	Refer to appropriate policy committee for further study*
	Refer as amended to appropriate policy committee for further study*
	Approve with additional amendment(s)
	Additional amendments and refer to appropriate policy committee for further study*

**If a resolution is disapproved or referred for further study by all policy committees to which it is assigned and the Resolutions Committee, it will not proceed to the General Assembly.*

General Assembly Voting and Discussion Procedures

Discussion Procedures:
Discussion procedures during the General Assembly are guided by two calendars: the Consent Calendar and the Regular Calendar. As seen below, resolutions are calendared by the recommendations they receive from policy committees and the Resolutions Committee.

For General Resolutions:

Policy Committee Recommendation	Resolutions Committee Recommendation	Calendar
Approve	Approve	Consent Calendar
Approve	Disapprove or refer	Regular Calendar
Disapprove or refer	Approve	Regular Calendar
Disapprove or refer	Disapprove or refer	Does not proceed to General Assembly

For Petitioned Resolutions:

Policy Committee Recommendation	Resolutions Committee Action	Calendar
N/A	Approve	Regular Calendar
	Disapprove or Refer	Regular Calendar
	Disqualified	Does not proceed to General Assembly

Items on the Consent Calendar will be presented as one motion during the General Assembly from the Resolutions Committee chair. Unless an item on the Consent Calendar is set aside by the majority of the General Assembly, a vote will be taken on the whole calendar. If an item is set aside, it will be opened for discussion, followed by a vote.

Items on the Regular Calendar will be presented individually by the Resolutions Committee chair. After a recommendation is presented by the Resolutions Committee chair, the resolution will be opened for discussion by the General Assembly. A vote will take place following discussion.

Voting Procedures:
Per Cal Cities Bylaws Article XII, Sec. 2, all votes will be conducted by voice vote first. If the presiding official cannot determine the outcome, a vote will be taken by an alternative method, typically a raise of voting cards by voting delegates. A roll call vote may be called for by delegates of ten percent or more of the General Assembly.

2026 Resolution

1. Resolution No. 1 submitted by City of Murrieta
    - Letters of concurrence submitted by:
        i. City of Banning;
        ii. City of Calimesa;
        iii. City of Canyon Lake;
        iv. City of Moreno Valley;
        v. City of Norco;
        vi. City of Torrance;
        vii. Crystal Ruiz, Mayor, City of San Jacinto;
        viii. Jessica Alexander, Mayor, City of Temecula
    - Referred to Housing, Community, and Economic Development Committee
    - Policy Committee Recommendation:
    - Resolutions Committee Recommendation:

Resolution No. 1
Submitted by City of Murietta

1. A RESOLUTION OF THE GENERAL ASSEMBLY OF THE LEAGUE OF CALIFORNIA CITIES CALLING FOR A WORKING GROUP TO CONSIDER A STATE CONSTITUTIONAL AMENDMENT OR OTHER FORM OF INITIATIVE TO ENSURE FINAL LOCAL AUTHORITY OVER HOUSING AND LAND USE DECISIONS

Source: City of Murrieta
Concurrence of five or more cities/city officials
Cities/city officials: City of Banning; City of Calimesa; City of Canyon Lake; City of Moreno Valley; City of Norco; City of Torrance; Crystal Ruiz, Mayor, City of San Jacinto; Jessica Alexander, Mayor, City of Temecula
Referred to: Housing, Community, and Economic Development Policy Committee

WHEREAS, California cities have historically been responsible for adopting general plans and zoning regulations, reviewing housing development proposals, and providing or coordinating the streets, water, wastewater, public safety, parks, transportation, and other infrastructure and services necessary to support responsible, environmentally sound, and well-planned residential growth; and

WHEREAS, the League of California Cities is dedicated to protecting and expanding local control for municipalities across the state to ensure their orderly growth and development; and

WHEREAS, the League of California Cities recognizes that local zoning is a primary function of cities and an essential component of home rule, and that a city's general plan should guide its land use planning and strategic decision-making free from pre-emption by the state; and

WHEREAS, increasingly prescriptive statewide housing mandates and development approval requirements can override locally adopted plans, zoning standards, and public review procedures without adequately accounting for differences that exist in each unique jurisdiction in infrastructure capacity, water availability, wildfire and evacuation risks, environmental constraints, fiscal impacts, public service needs, and community priorities; and

WHEREAS, California's housing goals can be more effectively advanced through state funding, streamlined environmental requirements, and voluntary partnerships that support housing production while preserving the authority of locally elected officials to determine how and where housing is best planned and approved;

NOW, THEREFORE, BE IT RESOLVED, by the General Assembly of the League of California Cities, assembled during the Annual Conference in Anaheim, California, on September 25, 2026, that the League of California Cities support the development and advancement of a state constitutional amendment or other legislative, policy, or ballot-based strategies that restore and strengthen local authority over housing and land use matters within municipal boundaries, including general plans, housing elements, zoning, density, design and development standards, project siting, and the approval or denial of housing development applications; and

BE IT FURTHER RESOLVED, that any constitutional amendment or alternative strategy should preserve the State's authority to establish broad statewide housing goals and enforce constitutional and civil rights, fair housing requirements, building and life-safety standards, and generally applicable environmental protections, while protecting cities from state actions that compel, through funding conditions or state law, the approval of housing developments that are inconsistent with locally adopted requirements; override local zoning or density standards; or invalidate locally adopted housing or land use decisions when a city has planned in good faith to accommodate its regional housing needs allocation and maintains adequate capacity for housing at all income levels; and

BE IT FURTHER RESOLVED, that the League of California Cities consider establishing a statewide working group or other appropriate committee(s) to evaluate and develop a proposed constitutional amendment or other legislative, policy, or ballot-based strategies to restore and strengthen local authority over housing and land use matters including but limited to: conducting appropriate legal, fiscal, and policy analyses; engaging cities and other stakeholders; and building a statewide coalition of proponent supporters in preparation for; the November 2030 General Election, or within another reasonable time frame as determined by the working group.

Resolution No. 1: Background Information

Background Information for Resolution

Source: City of Murrieta

Background:
California cities are responsible for planning residential growth, adopting general plans and zoning regulations, reviewing development proposals, and providing or coordinating the infrastructure and public services necessary to support new housing. Since 2010, the State has enacted more than 500 housing-related laws that have increasingly shifted housing and land use authority away from local governments. These laws have expanded by-right development, limited locally adopted standards and review processes, and established enforcement mechanisms, including the builder's remedy, that may override local plans and zoning. Although these measures are frequently presented as solutions to housing affordability, many increase development capacity or restrict local review without delivering the meaningful production of housing needed to address the housing crisis.

At the same time, the State has continued to prioritize increased development capacity without adequately accounting for the infrastructure, public services, economic realities, and safety measures necessary to support housing growth. State mandates often fail to reflect local conditions, including roadway and utility capacity, water availability, wildfire exposure, environmental limitations, fiscal impacts, and the availability of essential services. Cities are consequently required to accommodate additional housing while receiving no funding or assistance to address the resulting infrastructure and service demands.

Local elected officials are directly accountable to the residents who experience the effects of development decisions and are responsible for balancing housing production with infrastructure capacity, public safety, environmental protection, fiscal sustainability, and community needs. Cities of all types in California have been grappling with this dynamic, ranging from urban to rural, coastal to inland, small to large, northern to southern, voicing concerns to legislative representatives with minimal responsiveness. This is an issue of statewide concern that needs the strength and diversity of the League of California Cities to pursue a long-term solution.

The proposed resolution directs the League of California Cities to establish a statewide working group to evaluate a constitutional amendment or other legislative, policy, or ballot-based strategies to restore and strengthen local authority over housing and land use decisions. The working group would be tasked with developing a more balanced framework that preserves the State's role in establishing broad housing goals and enforcing constitutional, civil rights, fair housing, building, life-safety, and environmental requirements, while restoring meaningful local authority to allow cities to determine how statewide housing

objectives should be implemented in a manner that reflects local conditions and community priorities while continuing to support responsible housing production.

As the primary statewide organization representing California cities, the League is uniquely positioned to lead this effort. Its established policy, legal, legislative, communications, and advocacy networks enable it to convene municipalities, evaluate potential strategies, conduct legal and fiscal analyses, build consensus, engage stakeholders, and coordinate with statewide decision-makers. League leadership would help ensure that any recommendation reflects the collective interests of California municipalities and would provide the credibility, organizational capacity, and statewide reach necessary to advance a viable strategy.

Resolution No. 1: Letters of Concurrence

City of Banning
Office of the Mayor

July 23, 2026

President Gabe Quinto
League of California Cities
1400 K Street, Suite 400
Sacramento, CA 95814

Subject: Support for a Resolution Establishing a Working Group to Evaluate a State Constitutional Amendment or Other Initiative to Restore Local Housing and Land Use Authority

Dear President Quinto,

The City of Murrieta is sponsoring a resolution for consideration by the General Assembly of the League of California Cities to establish a statewide working group to evaluate a constitutional amendment or other legislative, policy, or ballot-based strategies to restore and strengthen local authority over housing and land use decisions.

The proposed resolution, together with the required background materials, will be submitted to the Cal Cities for consideration at the 2026 Annual Conference in Orange County on September 24 and 25, 2026. The resolution would direct the League to convene a working group to evaluate potential approaches for addressing the increasingly broad and prescriptive state mandates affecting local housing, zoning, development standards and project approval authority.

On behalf of the City of Banning, this letter confirms our support for the City of Murrieta's submission of the proposed resolution and its consideration by the League of California Cities General Assembly at the 2026 Annual Conference.

Respectfully,

Richard Royce, Mayor
District 4, City of Banning

Colleen Wallace, City Council Member
District 5, City of Banning
President, Riverside County Division
League of California Cities

99 E. Ramsey St. ● P.O. Box 998 ● Banning, CA 92220-0998 ● (951) 922-3100 ● Fax (951) 922-3128

City of Calimesa

908 Park Avenue, Calimesa, California 92320
Telephone 909.795.9801 Facsimile 909.795.4399

www.calimesa.gov
"Preserving and enhancing the open space atmosphere and quality of life in Calimesa"

CALIMESA California

July 21, 2026

President Gabe Quinto
League of California Cities
1400 K Street, Suite 400
Sacramento, CA 95814

Subject: Support for a Resolution Establishing a Working Group to Evaluate a State Constitutional Amendment or Other Initiative to Restore Local Housing and Land Use Authority

Dear President Quinto,

The City of Murrieta is sponsoring a resolution for consideration by the General Assembly of the League of California Cities to establish a statewide working group to evaluate a constitutional amendment or other legislative, policy, or ballot-based strategies to restore and strengthen local authority over housing and land use decisions.

The proposed resolution, together with the required background materials, will be submitted to Cal Cities for consideration at the 2026 Annual Conference in Orange County on September 24 and 25. The resolution would direct the League to convene a working group to evaluate potential approaches for addressing the increasingly broad and prescriptive state mandates affecting local housing, zoning, development standards, and project approval authority.

On behalf of the City of Calimesa, this letter confirms our support for the City of Murrieta's submission of the proposed resolution and its consideration by the League of California Cities General Assembly at the 2026 Annual Conference.

Sincerely,

Jeff Cervantez
Mayor
City of Calimesa

CITY OF CANYON LAKE

www.canyonlakeca.gov
Ⓟ 951.244.2955
Ⓕ 951.246.2022

July 23, 2026

President Gabe Quinto
League of California Cities
1400 K Street, Suite 400
Sacramento, CA 95814

Subject: Support for a Resolution Establishing a Working Group to Evaluate a State Constitutional Amendment or Other Initiative to Restore Local Housing and Land Use Authority

Dear President Quinto,

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The proposed resolution, together with the required background materials, will be submitted to Cal Cities for consideration at the 2026 Annual Conference in Orange County on September 24 and 25. The resolution would direct the League to convene a working group to evaluate potential approaches for addressing the increasingly broad and prescriptive state mandates affecting local housing, zoning, development standards, and project approval authority.

On behalf of the City of Canyon Lake, this letter confirms our support for the City of Murrieta's submission of the proposed resolution and its consideration by the League of California Cities General Assembly at the 2026 Annual Conference.

Sincerely,

Arron Brown
City Manager
City of Canyon Lake

City of Moreno Valley
CITY MANAGER'S OFFICE

Brian Mohan
City Manager

July 23, 2026

President Gabe Quinto
League of California Cities
1400 K Street, Suite 400
Sacramento, CA 95814

Subject: Support for a Resolution Establishing a Working Group to Evaluate a State Constitutional Amendment or Other Initiative to Restore Local Housing and Land Use Authority

Dear President Quinto,

The City of Murrieta is sponsoring a resolution for consideration by the General Assembly of the League of California Cities to establish a statewide working group to evaluate a constitutional amendment or other legislative, policy, or ballot-based strategies to restore and strengthen local authority over housing and land use decisions.

The proposed resolution, together with the required background materials, will be submitted to Cal Cities for consideration at the 2026 Annual Conference in Orange County on September 24 and 25. The resolution would direct the League to convene a working group to evaluate potential approaches to address increasingly broad and prescriptive state mandates affecting local housing, zoning, development standards, and project approval authority.

On behalf of the City of Moreno Valley, this letter confirms our support for the City of Murrieta's submission of the proposed resolution and its consideration by the League of California Cities General Assembly at the 2026 Annual Conference.

Sincerely,

Brian Mohan
City Manager
City of Moreno Valley

www.moval.org/citymanager
951.413.3020
14177 Frederick St.
Moreno Valley, CA 92553

CITY OF
NORCO
HORSETOWN USA

July 22, 2026

President Gabe Quinto
League of California Cities
1400 K Street, Suite 400
Sacramento, CA 95814

Subject: Support for a Resolution Establishing a Working Group to Evaluate a State Constitutional Amendment or Other Initiative to Restore Local Housing and Land Use Authority

Dear President Quinto,

The City of Murrieta is sponsoring a resolution for consideration by the General Assembly of the League of California Cities to establish a statewide working group to evaluate a constitutional amendment or other legislative, policy, or ballot-based strategies to restore and strengthen local authority over housing and land use decisions.

The proposed resolution, together with the required background materials, will be submitted to Cal Cities for consideration at the 2026 Annual Conference in Orange County on September 24 and 25. The resolution would direct the League to convene a working group to evaluate potential approaches for addressing the increasingly broad and prescriptive state mandates affecting local housing, zoning, development standards, and project approval authority.

On behalf of the City of the Norco, this letter confirms our support for the City of Murrieta's submission of the proposed resolution and its consideration by the League of California Cities General Assembly at the 2026 Annual Conference.

Sincerely,

Kevin Bash
City Council Member
(951) 768-8981

2870 Clark Avenue, Norco, CA 92860 www.norco.ca.us

CITY OF
TORRANCE

SHARON KALANI
MAYOR

CITY COUNCIL MEMBERS
DAVID KARTSONIS – District 1
BRIDGETT LEWIS – District 2
ASAM SHEIKH – District 3
VACANT – District 4
BETTY LIEU – District 5
Dr. JEREMY GERSON – District 6

July 29, 2026

President Gabe Quinto
League of California Cities
1400 K Street, Suite 400
Sacramento, CA 95814

RE: Support for a Resolution Establishing a Working Group to Evaluate a State Constitutional Amendment or Other Initiative to Restore Local Housing and Land Use Authority

Dear President Quinto,

The City of Murrieta is sponsoring a resolution for consideration by the General Assembly of the League of California Cities to establish a statewide working group to evaluate a constitutional amendment or other legislative, policy, or ballot-based strategies to restore and strengthen local authority over housing and land use decisions.

The proposed resolution, together with the required background materials, will be submitted to Cal Cities for consideration at the 2026 Annual Conference in Orange County on September 24 and 25. The resolution would direct the League to convene a working group to evaluate potential approaches for addressing the increasingly broad and prescriptive state mandates affecting local housing, zoning, development standards, and project approval authority.

On behalf of the City of Torrance, this letter confirms our support for the City of Murrieta's submission of the proposed resolution and its consideration by the League of California Cities General Assembly at the 2026 Annual Conference.

Local authority is essential because cities are best positioned to craft housing strategies tailored to their unique community conditions, infrastructure capacity, and geographic needs.

3031 Torrance Boulevard • Torrance, California 90503 • 310/618-2801 • FAX 310/618-5841

When given the flexibility to plan locally, cities can achieve meaningful housing results while maintaining the character and balance of their communities.

The City of Torrance has consistently demonstrated that local control and proactive housing production go hand in hand:

- **Housing Corridor Overlay Zone:** Through our approved 6th Cycle Housing Element, Torrance created the Housing Corridor Overlay (HCO). This targeted local framework allows for by-right housing and mixed-use development across seven key commercial and transit-adjacent corridors, streamlining approvals and incentivizing production across a full range of income levels.

- **Housing Element Progress & Accountability:** As documented in our Housing Element Annual Progress Reports (APR), Torrance actively tracks, updates, and implements programs—such as aligning our Land Use and Safety Elements—to clear barriers for residential development while ensuring robust infrastructure and public safety standards.

These initiatives illustrate that local governance can effectively drive housing opportunities without one-size-fits-all mandates from the state. Restoring and protecting local land use authority will allow cities across California to continue developing solutions that work best for their residents.

If you have any questions or require further discussion, please feel free to contact Carlos Huizar, Management Associate at (310) 618-5880 or via email at CHuizar@TorranceCA.gov.

Sincerely,

Sharon Kalani
Mayor, City of Torrance

cc:
Ron Holiday, Mayor Pro Tem, City of Murrieta
Lori Stone, City Councilmember, City of Murrieta
Jeff Kiernan, Los Angeles County Division, jkiernan@cacities.org
League of California Cities, cityletters@cacities.org
Joe A. Gonsalves & Sons, gonsalvi@gonsalvi.com

595 S San Jacinto Ave, San Jacinto, CA 92583
Cell: 951-282-1895 • Office: 951-487-7330 • email: cruiz@sanjacintoca.gov

July 23, 2026

Mr. Gabe Quinto, President

League of California Cities

1400 K Street, Suite 400

Sacramento, CA 95814

Subject: Support for Murrieta's Proposed Resolution on Housing and Local Governance

Dear League of California Cities Leadership,

I am writing in my individual capacity as Mayor of the City of San Jacinto to express my strong support for the City of Murrieta's proposed resolution, which is scheduled for consideration by the General Assembly at the 2026 Annual Conference.

This resolution represents a timely and important opportunity to thoughtfully examine the balance between California's statewide housing goals and the fundamental constitutional principle of local governance. The proposal to establish a statewide working group to explore a potential constitutional amendment, legislative reforms, or other policy initiatives would create a valuable forum for assessing how local authority over housing and land use decisions can be strengthened while still addressing the State's housing challenges.

Cities are uniquely positioned to understand the distinct needs, opportunities, and constraints of their communities. Local elected officials are directly accountable to the residents they serve and are best equipped to make land use decisions that reflect a community's character, infrastructure capacity, economic development priorities, environmental stewardship, and long-term vision. Moreover, local governments carry the primary responsibility for protecting public safety. Issues such as housing density, transportation, emergency access, wildfire preparedness, evacuation routes, law enforcement and fire service capacity, water availability, and critical infrastructure are inherently local matters that demand the knowledge, judgment, and responsiveness of those who serve their communities daily.

While the State has a critical role to play in addressing California's housing needs, a collaborative approach that respects local expertise and preserves meaningful local discretion will result in stronger, safer, and more sustainable communities. The proposed working group offers a constructive path forward to evaluate policies that achieve our shared housing objectives while restoring an appropriate balance between state direction and local authority.

Although this letter reflects my personal position as Mayor and does not constitute an official action or policy of the City of San Jacinto or the San Jacinto City Council, I respectfully endorse the City of Murrieta's submission of this resolution and encourage its favorable consideration by the League of California Cities General Assembly.

Thank you for your leadership and your thoughtful consideration of this important matter.

Respectfully,

Crystal Ruiz

Mayor

City of San Jacinto

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City of Temecula
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July 23, 2026

Mr. Gabe Quinto, President
League of California Cities
1400 K Street, Suite 400
Sacramento, CA 95814

Subject: **Support for the City of Murrieta's Resolution Establishing a Working Group to Evaluate a State Constitutional Amendment or Other Initiative to Restore Local Housing and Land Use Authority**

Dear President Quinto:

I am writing in my individual capacity as Mayor of the City of Temecula to express my strong support for the City of Murrieta's proposed resolution for consideration by the General Assembly of the League of California Cities at the 2026 Annual Conference.

The proposed resolution presents an important opportunity to thoughtfully evaluate the appropriate balance between California's statewide housing objectives and the constitutional principle of local governance. Establishing a statewide working group to examine a potential constitutional amendment, legislative reforms, or other policy initiatives will provide a meaningful forum to assess how local authority over housing and land use decisions can be strengthened while continuing to address the State's housing challenges.

Cities are uniquely positioned to understand the needs, opportunities, and constraints of their communities. Local elected officials are accountable to the residents they serve and are best equipped to make land use decisions that reflect a community's character, infrastructure capacity, economic development goals, environmental stewardship, and long-term vision. Equally important, local governments bear the primary responsibility for protecting public safety. Decisions regarding housing density, transportation, emergency access, wildfire preparedness, evacuation routes, police and fire service capacity, water availability, and critical infrastructure are inherently local matters that require the knowledge and judgment of those who serve their communities every day.

While the State has an important role in addressing California's housing needs, a collaborative approach that respects local expertise and preserves meaningful local discretion will produce stronger, safer, and more sustainable communities. The proposed working group offers an opportunity to evaluate policies that achieve these shared objectives while restoring an appropriate balance between state direction and local authority.

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Although this letter reflects my personal position and is not an official action or policy of the City of Temecula or the Temecula City Council, I respectfully endorse the City of Murrieta's submission of this resolution and encourage its favorable consideration by the League of California Cities General Assembly.

Thank you for your leadership and your thoughtful consideration of this important issue.

Respectfully,

Jessica Alexander
Mayor, City of Temecula
Signing in her individual capacity
and not on behalf of the City of Temecula
or the Temecula City Council.

Resolution No. 1: Staff Analysis

League of California Cities Staff Analysis on Resolution No. 1

Staff: Brady Guertin, Legislative Advocate
Committee: Housing, Community, and Economic Development

Summary:
Resolution No.1 states that the League of California Cities (Cal Cities) will:

1. Support the development and advancement of a state constitutional amendment or legislative, policy, or ballot-based strategy that restores and strengthens local authority over housing and land use matters, including general plans, housing elements, zoning, density, design and development standards, project siting, and the approval or denial of housing development applications.

   Pursuant to the resolution, the strategy should preserve the state's authority to set broad, statewide housing goals and enforce civil rights, fair housing, building safety, and environmental standards while protecting local control by preventing the state from compelling the approval of developments that conflict with local requirements, override local zoning or density standards, or overturn local land use decisions where a city has planned for and maintained sufficient capacity to meet its housing obligations.

2. Consider establishing a statewide working group or other appropriate committee(s) to evaluate and develop a proposed constitutional amendment or other legislative, policy, or ballot-based strategies to restore and strengthen local authority over housing and land use matters. The resolution states: "conducting legal, fiscal, and policy analyses; engaging cities and other stakeholders; and building a statewide coalition of proponent supporters in preparation for the November 2030 General Election, or within another reasonable time period."

Background:
As provided in the background information, the city of Murrieta is sponsoring this resolution in response to concerns over state laws that have increasingly reduced city discretion over housing and land use decisions, including legislation that requires ministerial or by-right approvals for housing projects, limits the application of local development standards, and strengthens state enforcement mechanisms against local governments.

Additionally, the city of Murrieta, in its background information, maintains that these legislative efforts have not resulted in sufficient housing production to address California's housing shortage and have not adequately accounted for

local infrastructure, public service needs, public safety, market, and fiscal considerations.

The resolution states that California's housing goals are better advanced through state funding, streamlined environmental requirements, and voluntary partnerships, while preserving local authority over how and where housing is best planned and approved.

Consideration of the resolution may be informed by a brief examination of how the California Constitution allocates authority between the state and cities with respect to land use decisions.

The constitution grants cities the power to adopt local laws to protect the public's health, safety, and welfare. This grant is called the "police power," which is the basis for local land use regulation. The constitution grants charter cities the additional power to adopt local laws affecting "municipal affairs." This power, commonly referred to as "home rule," is based on the principle that a city, rather than the state, is in the best position to identify and satisfy the needs of the local community.

The constitution's broad grant of police power contains a significant limitation. Local law adopted under the police power is not valid if it "conflicts" with state law. A local law "conflicts" with state law when it regulates the same "field" in which the Legislature has stated its intent to occupy. In that case, state law is said to "preempt" the local law and it cannot be enforced.

An ordinance adopted by a charter city under the municipal affairs power cannot be enforced if it affects a "matter of statewide concern." The subjects that have been identified as "matters of statewide concern" have changed over the years due to economic, social, and political circumstances.

Since the 1960s, the state has enacted numerous laws that limit or preempt aspects of local land use and zoning authority. These laws include the Fair Employment and Housing Act, Housing Element Law, Housing Accountability Act, Density Bonus Law, Permit Streamlining Act, accessory dwelling unit laws, California Environmental Quality Act, and others. In recent years, the state has enacted several laws that Cal Cities was the leading opposition force against, as many of the proposals pre-empted local land use authority, limited public review, and constrained local flexibility. In support of its housing and land use legislation, the Legislature has cited a statewide housing crisis and the need for increased housing production at all income levels while asserting that a uniform approach to local land use decision-making is required.

Discussion:
The resolution does not prescribe a specific policy mechanism. The eight letters in support recommend creating a working group or committee to evaluate potential approaches, including legislative proposals, constitutional amendments, or ballot initiatives to strengthen local authority over housing and land use matters.

A discussion of a strategy to restore and strengthen local authority over housing and land use matters will need to consider the California Constitution's framework for both preemption of police power enactments and municipal affairs, discussed above. It will also need to determine whether changes to the California Constitution will be proposed, and whether they constitute an amendment or a revision, which require different processes.

A constitutional revision is a multistep process blending legislative consensus, voter support, and on occasion, a constitutional convention. It requires significant public engagement.

A constitutional amendment would require a ballot initiative, which includes gathering enough valid signatures to qualify for the ballot, building large coalitions to support election efforts, and campaigning to voters to support the initiative. This process can involve significant costs. In the last major election for ballot initiatives in 2024, proponents spent $8-$18 million to qualify for the ballot and spent nearly $700 million for the full election cycle, averaging out to about $100 million per ballot initiative.

Cal Cities has been engaged in ballot advocacy for over 20 years. In the early 2000s, Cal Cities developed a ballot advocacy infrastructure that included forming an issue political action committee, fundraising, establishing a network of regional managers, and building a coalition with other organizations to ultimately advocate on a ballot measure. Ballot advocacy requires the approval of the Board of Directors with a supermajority vote.

In the Legislature, Cal Cities plays an active and influential role to ensure that local flexibility and autonomy in the land use and housing space is maintained by engaging on dozens of bills every legislative session to ensure that cities' voices are heard at the state Capitol. Below, you will find Cal Cities "Existing Policy" on local control, housing, and land use policies.

Fiscal Impact
The resolution itself would not have a significant direct fiscal impact. However, depending on what actions follow, the fiscal costs could be significant.

Existing Cal Cities Policy

Vision

To be recognized and respected as the leading advocate for the common interests of California's cities.

Mission Statement

To expand and protect local control for cities through education and advocacy to enhance the quality of life for all Californians.

We Believe

- Local self-governance is the cornerstone of democracy.
- Our strength lies in the unity of our diverse communities of interest.
- In the involvement of all stakeholders in establishing goals and in solving problems.
- In conducting the business of government with transparency, openness, respect, and civility.
- The spirit of honest public service is what builds communities.
- Open decision-making that is of the highest ethical standards honors the public trust.
- Cities are vital to the strength of the California economy.
- The vitality of cities is dependent upon their fiscal stability and local autonomy.
- The active participation of all city officials increases the League's effectiveness.
- Partnerships and collaborations are essential elements of focused advocacy and lobbying.
- Ethical and well-informed city officials are essential for responsive, visionary leadership and effective and efficient city operations.

Zoning

Cal Cities believes local zoning is a primary function of cities and is an essential component of home rule. The process of adoption, implementation and enforcement of zoning ordinances should be open and fair to the public and enhance the responsiveness of local decision-makers. State policy should leave local siting and use decisions to the city and not interfere with local prerogative beyond providing a constitutionally valid procedure for adopting local regulations. State agency siting of facilities, including campuses and office buildings, should be subject to local notice and hearing requirements in order to meet concerns of the local community. Cal Cities opposes legislation that seeks to limit local authority over parking requirements.

Housing Element

Housing issues should be addressed in the general plan as other planning issues are. The housing element should be prepared for the benefit of local

governments and should have equal status with the other elements of the general plan.

Encourage Full Community Participation
Foster an open and inclusive community dialogue and promote alliances and partnerships to meet community needs.

Well-Planned New Growth
Recognize and preserve open space, watersheds, environmental habitats, and agricultural lands, while accommodating new growth in compact forms, in a manner that:

- De-emphasizes automobile dependency;
- Integrates the new growth into existing communities;
- Creates a diversity of affordable housing near employment centers;
- Provides job opportunities for people of all ages and income levels.

Support:
The following letters of concurrence were received:
City of Banning
City of Calimesa
City of Canyon Lake
City of Moreno Valley
City of Norco
City of Torrance
Crystal Ruiz, Mayor, City of San Jacinto
Jessica Alexander, Mayor, City of Temecula