PUBLIC REVIEW

Antelope Subbasin

Sustainable Groundwater Management Act

Groundwater Sustainability Plan (Chapter 2A Plan Area - Draft)

February 2021

Prepared For:

Tehama County Flood Control and Water Conservation District

Prepared By:

Luhdorff & Scalmanini

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LIST OF ACRONYMS & ABBREVIATIONS

AB	Assembly Bill
bgs	Below Ground Surface
BMP	Best Management Practice
CalEPA	California Environmental Protection Agency
CalGEM	California Geologic Energy Management Division
CASGEM	California Statewide Groundwater Elevation Monitoring
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CNRA	California Natural Resources Agency
CV-SALTS	Central Valley Salinity Alternatives
CWA	Clean Water Act
CWC	California Water Code
DDW	Division of Drinking Water
DPR	Department of Pesticide Regulation
DTSC	Department of Toxic Substance Control
DWR	California Department of Water Resources
GAMA	Groundwater Ambient Monitoring and Assessment Program
GDE	Groundwater Dependent Ecosystem
GMP	Groundwater Management Plan
GQTM	Groundwater Quality Trend Monitoring
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
GWMP	Groundwater Management Plan
HCM	Hydrogeological Conceptual Model
ILRP	Irrigated Lands Regulatory Program
IRWMP	Integrated Regional Water Management Plan
MCL	Maximum Contaminant Level
MO	Measurable Objective

MT	Minimum Threshold
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SGMA	Sustainable Groundwater Management Act
SWP	State Water Project
SWRCB	State Water Resources Control Board
TAC	Technical Advisory Committee
Tehama County FCWCD	Tehama County Flood Control and Water Conservation District
USBLM	Bureau of Land Management
USBR	United States Bureau of Reclamation
USEPA	United States Environmental Protection Agency
USFS	United States Forest Service
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WCR	Well Completion Report
WDR	Waste Discharge Requirements

1 INTRODUCTION

2 SUBBASIN PLAN AREA AND BASIN SETTING (REG. § 354.8)

Per DWR GSP regulations section §354.8, this section of the GSP describes the components of the plan area of the Antelope Subbasin along with the basin setting. The plan area includes information on land use, existing groundwater wells, monitoring and management in the Subbasin, and notice and communication methods used during the GSP development and implementation process. The basin setting includes a description of the hydrogeologic conceptual model, groundwater conditions, and subbasin water budget.

2.1 Description of Plan Area

The Antelope Subbasin (DWR Subbasin No. 5-021.54) covers 19,091 acres and is located in the Northern Sacramento Valley Groundwater Basin (**Figure 2-1**). The lateral extent of the Subbasin is defined by the Subbasin boundaries provided in Bulletin 118 (DWR, 2018). It is bounded on the north by the Bend Subbasin (DWR Subbasin No. 5-0.21.53) and Red Bluff Subbasin (DWR Subbasin No. 5-021.50), on the east and south by the Los Molinos Subbasin (DWR Subbasin No. 5-021.56), and on the south and west by the Red Bluff Subbasin (DWR Subbasin No. 5-021.50). The eastern and western boundaries of the Subbasin generally follow Antelope Creek and the Sacramento River, respectively, and the southern boundary ends at the confluence of both waterways. A small portion of the northeast border of the Subbasin is adjacent to the Cascade Mountain Range and does not border another groundwater subbasin. The vertical boundaries of the Subbasin are the land surface (upper boundary) and the definable bottom of the basin (lower boundary). The definable bottom is the base of fresh water located at approximately 800-2,000 feet below ground surface (bgs) and was established as part of the development of the hydrogeologic conceptual model (HCM) discussed in the Basin Setting section of this GSP (Section 2.2).

2.1.1 Summary of Jurisdictional Areas and Other Features

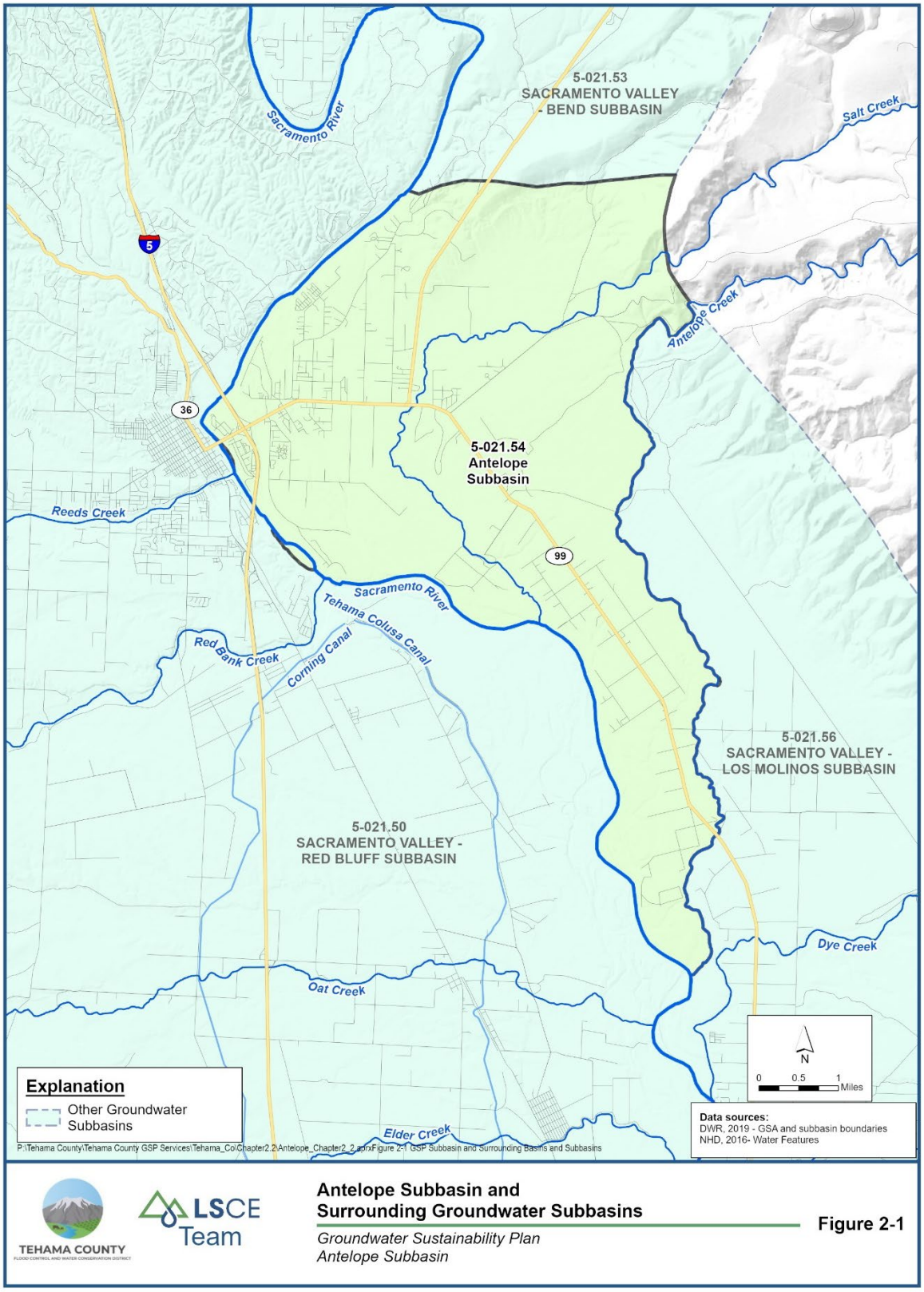
2.1.1.1 Land Ownership

This GSP covers the entire Subbasin, all of which falls within the jurisdictional boundaries of Tehama County. There are no known adjudicated areas within or surrounding the Subbasin.

State and Federal agencies with land ownership in the Subbasin comprise a very small portion of the Subbasin. Federal and State land ownership includes:

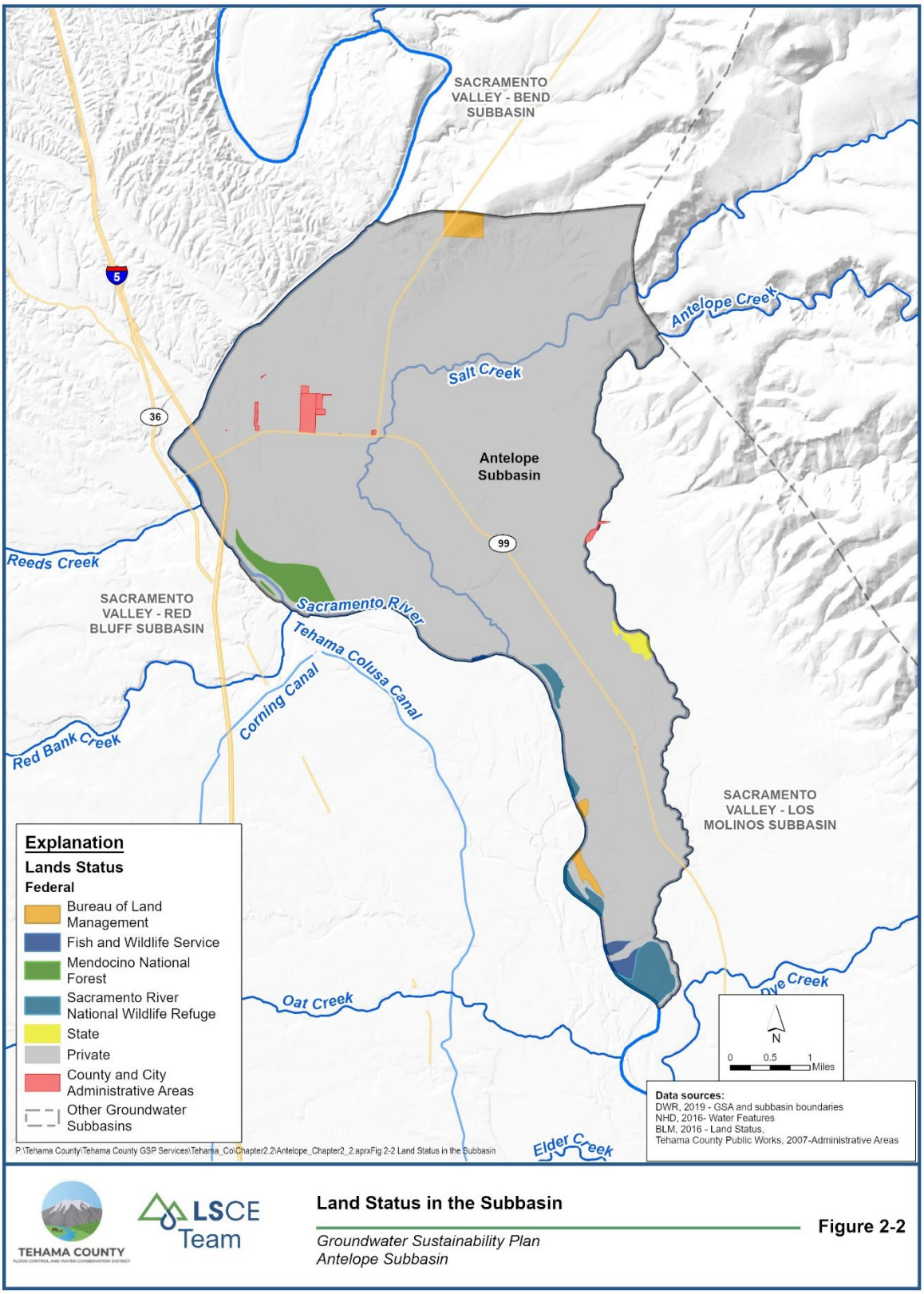
- Mendocino National Forest (U.S. Forest Service (USFS)) (1.5%, 287 acres)
- Sacramento River National Wildlife Refuge (United States Fish and Wildlife (USFWS)) (1.7%, 321 acres)
- State Lands (0.3%, 58 acres)
- United States Bureau of Land Management (USBLM) (0.85%, 163 acres)
- USFWS (0.4%, 77 acres)

The remaining 95.25% of land is privately owned (**Figure 2-2**).



Antelope Subbasin and Surrounding Groundwater Subbasins — **Figure 2-1**

Groundwater Sustainability Plan
Antelope Subbasin


SACRAMENTO VALLEY - BEND SUBBASIN
SACRAMENTO VALLEY - RED BLUFF SUBBASIN
SACRAMENTO VALLEY - LOS MOLINOS SUBBASIN
Antelope Subbasin
Antelope Creek
Salt Creek
Reeds Creek
Sacramento River
Tehama Colusa Canal
Corning Canal
Red Bank Creek
Oat Creek
Elder Creek
5
36
99
Explanation
Lands Status
Federal
Bureau of Land Management
Fish and Wildlife Service
Mendocino National Forest
Sacramento River National Wildlife Refuge
State
Private
County and City Administrative Areas
Other Groundwater Subbasins
N
0 0.5 1 Miles
Data sources:
DWR, 2019 - GSA and subbasin boundaries
NHD, 2016- Water Features
BLM, 2016 - Land Status,
Tehama County Public Works, 2007-Administrative Areas
P:\Tehama County\Tehama County GSP Services\Tehama_Co\Chapter2.2\Antelope_Chapter2_2.aprx\Fig 2-2 Land Status in the Subbasin
TEHAMA COUNTY
LSCE Team
Land Status in the Subbasin
Figure 2-2
Groundwater Sustainability Plan
Antelope Subbasin

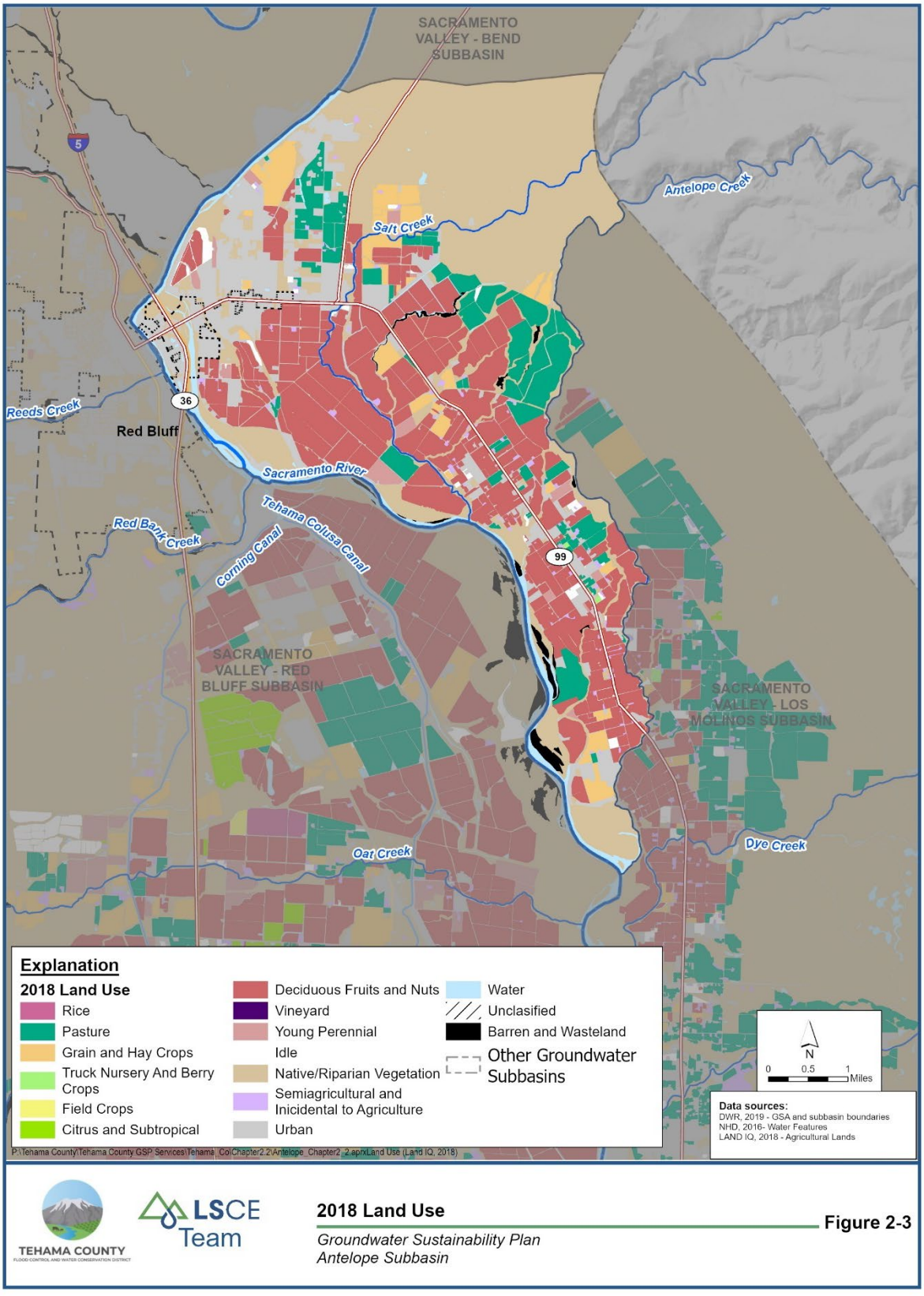
2.1.1.2 Land Use

Land use in the Antelope Subbasin was categorized as: agricultural, urban, and native and riparian vegetation based on the Land IQ dataset which primarily focuses on irrigated lands:

- Agricultural: includes all agricultural crops reported in the Subbasin: rice, pasture, grain and hay crops, truck nursery, and berry crops, field crops, citrus and subtropical, deciduous fruits and nuts, vineyards, young perennial crops, and idle land/land that was cultivated but is now in a state of disuse/abandoned.
- Urban: includes lands classified as urban and semi-agricultural to incidental to agriculture. The only significant urban area in the Subbasin is the eastern portion of the City of Red Bluff.
- Native Vegetation: includes all land covered by native vegetation, riparian vegetation, and water surfaces.

Figure 2-3 displays the land use in the Antelope Subbasin as reported in 2018 through Land IQ-remotely-sensed land use data (Land IQ, 2018).

Annual land use (acres) within each of the three main land use sectors**:** agriculture, urban, and native and riparian vegetation are depicted in **Figure 2-4** and **Table 2-1** for the Antelope Subbasin from 1974 to 2018. The data from 1978-2013 came from the model generated as part of this GSP; the 2018 data is from Land-IQ. The total land use acreage from 1978-2013 (19,040 acres) shown **Figure 2-4** and **Table 2-1** varies slightly (0.25%) from the total Subbasin acreage and 2018 data (19,091 acres) due to the depiction of the model domain. As displayed in the table, native and riparian vegetation (44%) and agriculture (43%) are the leading sources of land use within the Subbasin with approximately 13% of land dedicated to urban use. Agricultural land use categories are further detailed in **Figure 2-5** and **Table 2-2** (*to be inserted later*).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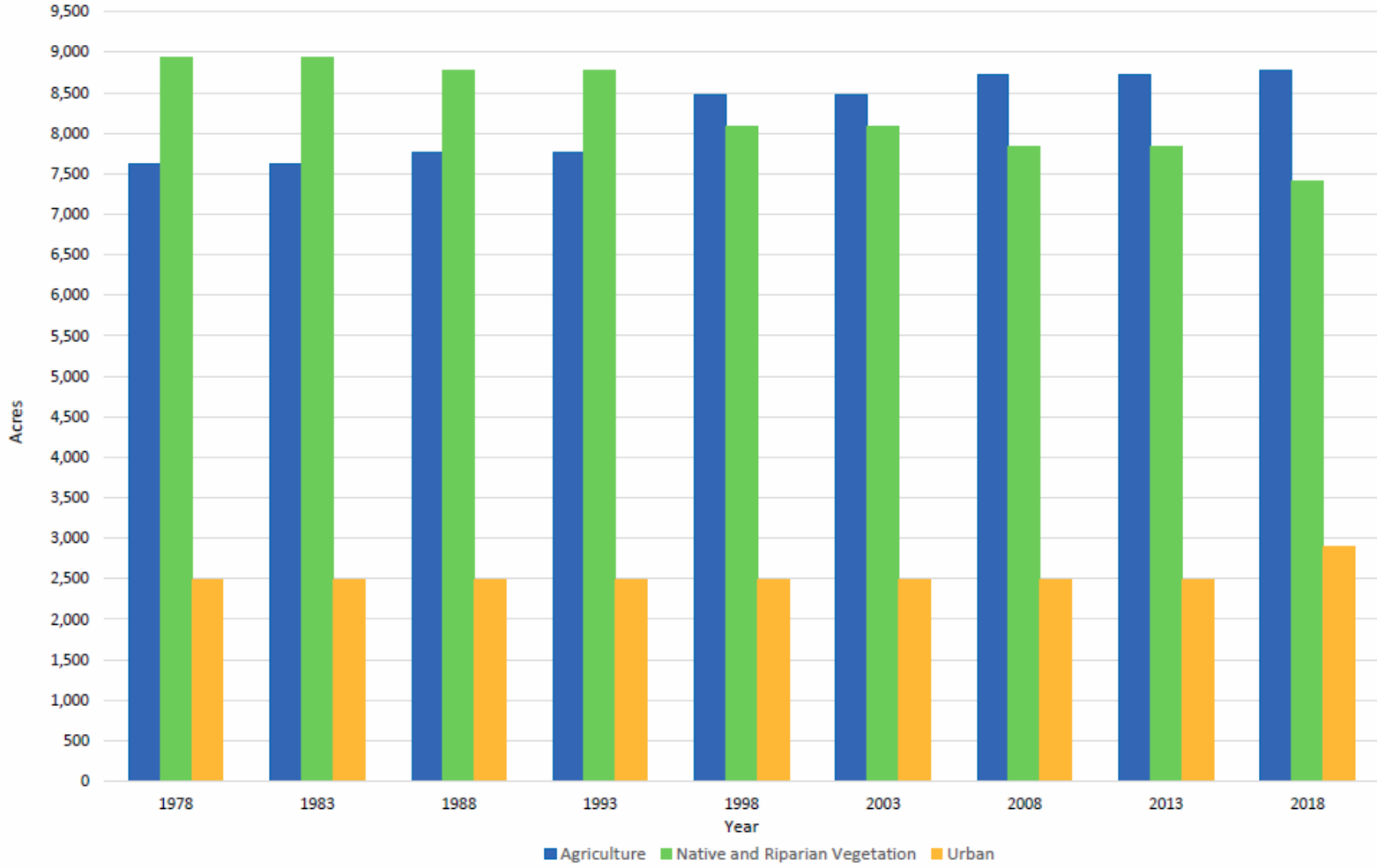
5
36
99
Explanation
2018 Land Use
Rice
Pasture
Grain and Hay Crops
Truck Nursery And Berry Crops
Field Crops
Citrus and Subtropical
Deciduous Fruits and Nuts
Vineyard
Young Perennial
Idle
Native/Riparian Vegetation
Semiagricultural and Inicidental to Agriculture
Urban
Water
Unclasified
Barren and Wasteland
Other Groundwater Subbasins
N
0 0.5 1 Miles
Data sources:
DWR, 2019 - GSA and subbasin boundaries
NHD, 2016- Water Features
LAND IQ, 2018 - Agricultural Lands
P:\Tehama County\Tehama County GSP Services\Tehama_Col\Chapter2.2\Antelope_Chapter2_2.aprx\Land Use (Land IQ, 2018)
TEHAMA COUNTY
LSCE Team
2018 Land Use
Groundwater Sustainability Plan
Antelope Subbasin
Figure 2-3



Note: 1978-2013 total Subbasin acreage = 19,040 and 2018 total Subbasin acreage = 19,091. This is due to different data sources

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Antelope Subbasin Land Use

Groundwater Sustainability Plan
Antelope Subbasin

Figure 2-4

Table 2-1: Antelope Subbasin Land Use (Acres)

Year	Agriculture	Native Vegetation	Urban	Total
1974	7,620	8,940	2,490	19,050
1975	7,620	8,940	2,490	19,050
1976	7,620	8,940	2,490	19,050
1977	7,620	8,940	2,490	19,050
1978	7,620	8,940	2,490	19,050
1979	7,620	8,940	2,490	19,050
1980	7,620	8,930	2,490	19,040
1981	7,620	8,930	2,490	19,040
1982	7,620	8,930	2,490	19,040
1983	7,620	8,930	2,490	19,040
1984	7,620	8,930	2,490	19,040
1985	7,620	8,930	2,490	19,040
1986	7,700	8,850	2,490	19,040
1987	7,700	8,850	2,490	19,040
1988	7,770	8,780	2,490	19,040
1989	7,770	8,780	2,490	19,040
1990	7,940	8,620	2,490	19,050
1991	7,770	8,780	2,490	19,040
1992	7,770	8,780	2,490	19,040
1993	7,770	8,780	2,490	19,040
1994	8,930	7,630	2,490	19,050
1995	7,770	8,780	2,490	19,040
1996	8,470	8,080	2,490	19,040
1997	8,470	8,080	2,490	19,040
1998	8,470	8,080	2,490	19,040
1999	8,900	7,650	2,490	19,040

Year	Agriculture	Native Vegetation	Urban	Total
2000	8,470	8,080	2,490	19,040
2001	8,420	8,130	2,490	19,040
2002	8,420	8,130	2,490	19,040
2003	8,470	8,080	2,490	19,040
2004	8,420	8,133	2,490	19,040
2005	8,420	8,130	2,490	19,040
2006	8,420	8,130	2,490	19,040
2007	8,710	7,850	2,490	19,050
2008	8,720	7,830	2,490	19,040
2009	8,750	7,800	2,490	19,040
2010	8,780	7,770	2,490	19,040
2011	8,750	7,800	2,490	19,040
2012	8,670	7,880	2,490	19,040
2013	8,720	7,830	2,490	19,040
2014	8,900	7,650	2,490	19,040
2015	8,720	7,830	2,490	19,040

*Values were rounded to the nearest 10 acres. These totals differ from the Subbasin acreage (19,091) due to the depiction of the model domain.

Table 2-2: Antelope Subbasin Agricultural Land Use (Acres) (*to be inserted later*)

2.1.1.3 Well Distribution and Density

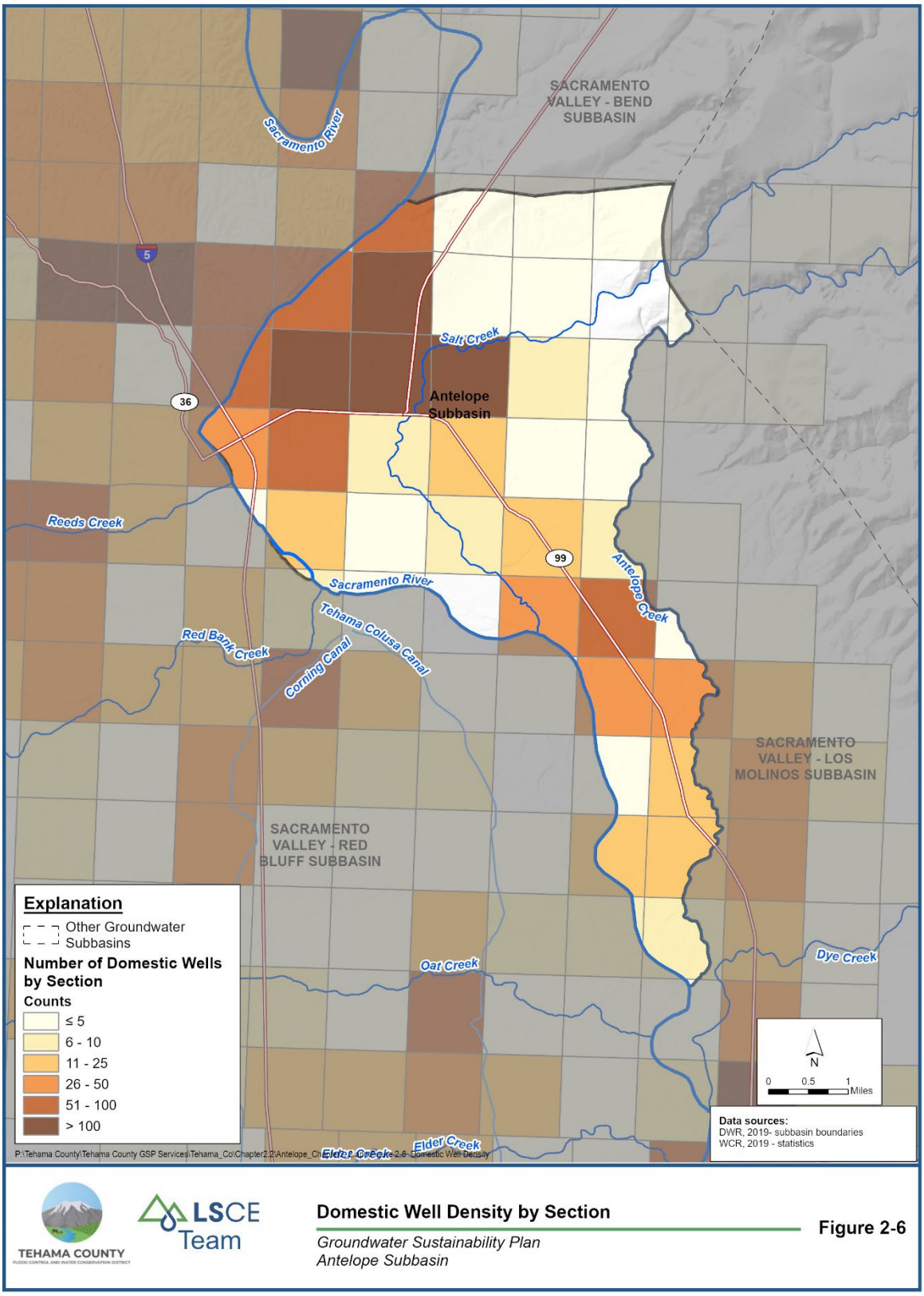
Well construction, type, and distribution for wells in the Subbasin were obtained from Tehama County, DWR's Well Completion Report Map Application (DWR, 2018), the Groundwater Ambient Monitoring and Assessment Program (GAMA), and the CASGEM program.

Wells within the Subbasin are categorized as domestic, production, and public supply. These categories are based on the well use information submitted with the well logs to DWR (**Table 2-3**):

Table 2-3: Well Density

Type of Well	Well Count
Domestic	1,100
Production	160
Public Supply	10
TOTAL	**1,270**

Well density maps were prepared to illustrate the distribution of these wells (**Figures 2-6, 2-7, and 2-8**). The well distribution may not reflect the total number of existing or active wells in the Subbasin. The highest concentration of domestic wells is centered around the City of Red Bluff, production wells are generally scattered throughout the Subbasin, and there are few public supply wells located in the Subbasin.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Explanation
Other Groundwater Subbasins
Number of Domestic Wells by Section
Counts
≤ 5
6 - 10
11 - 25
26 - 50
51 - 100
> 100
N
0 0.5 1 Miles
Data sources:
DWR, 2019- subbasin boundaries
WCR, 2019 - statistics
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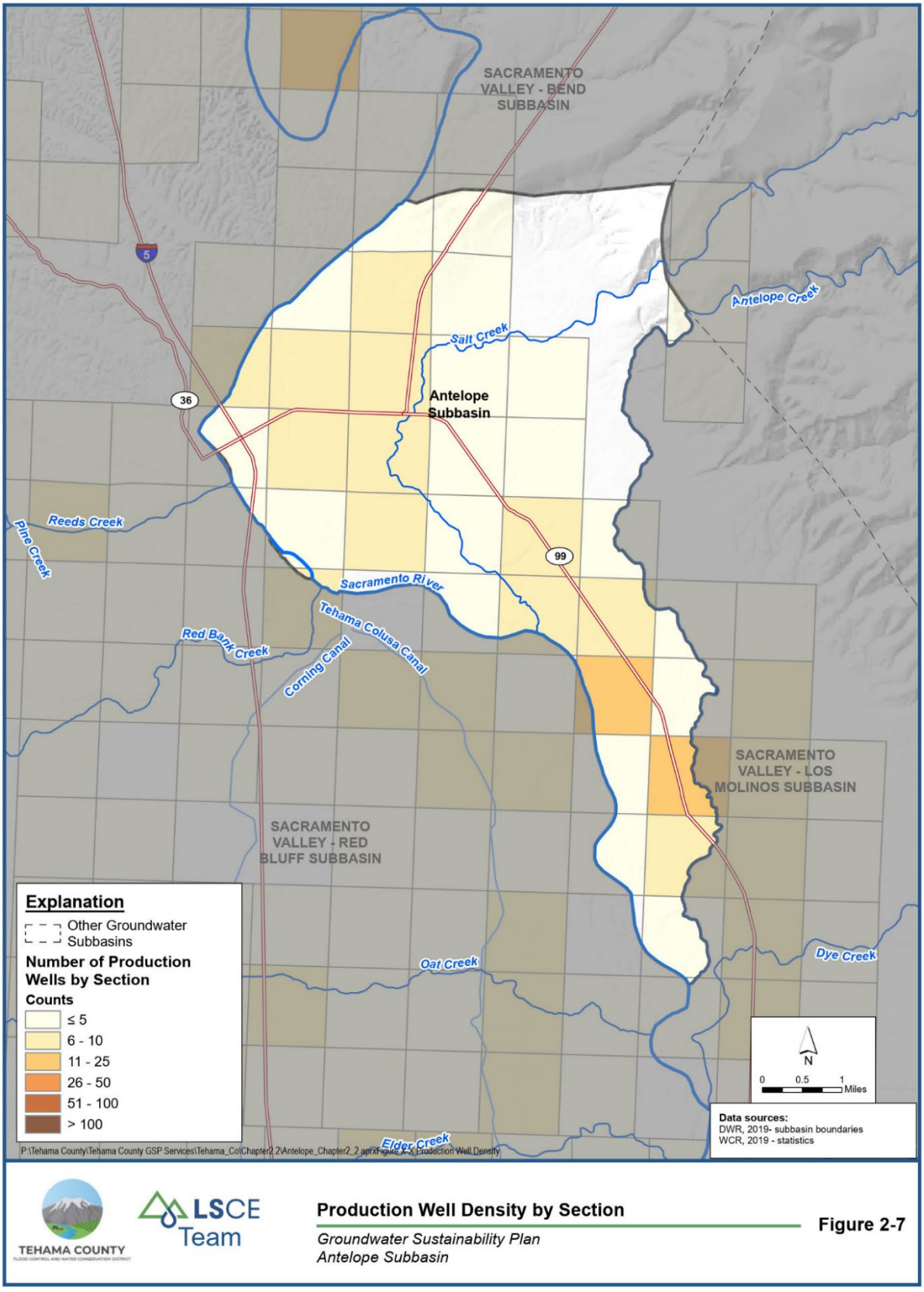
TEHAMA COUNTY
LSCE Team
Domestic Well Density by Section
Groundwater Sustainability Plan
Antelope Subbasin
Figure 2-6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Oat Creek
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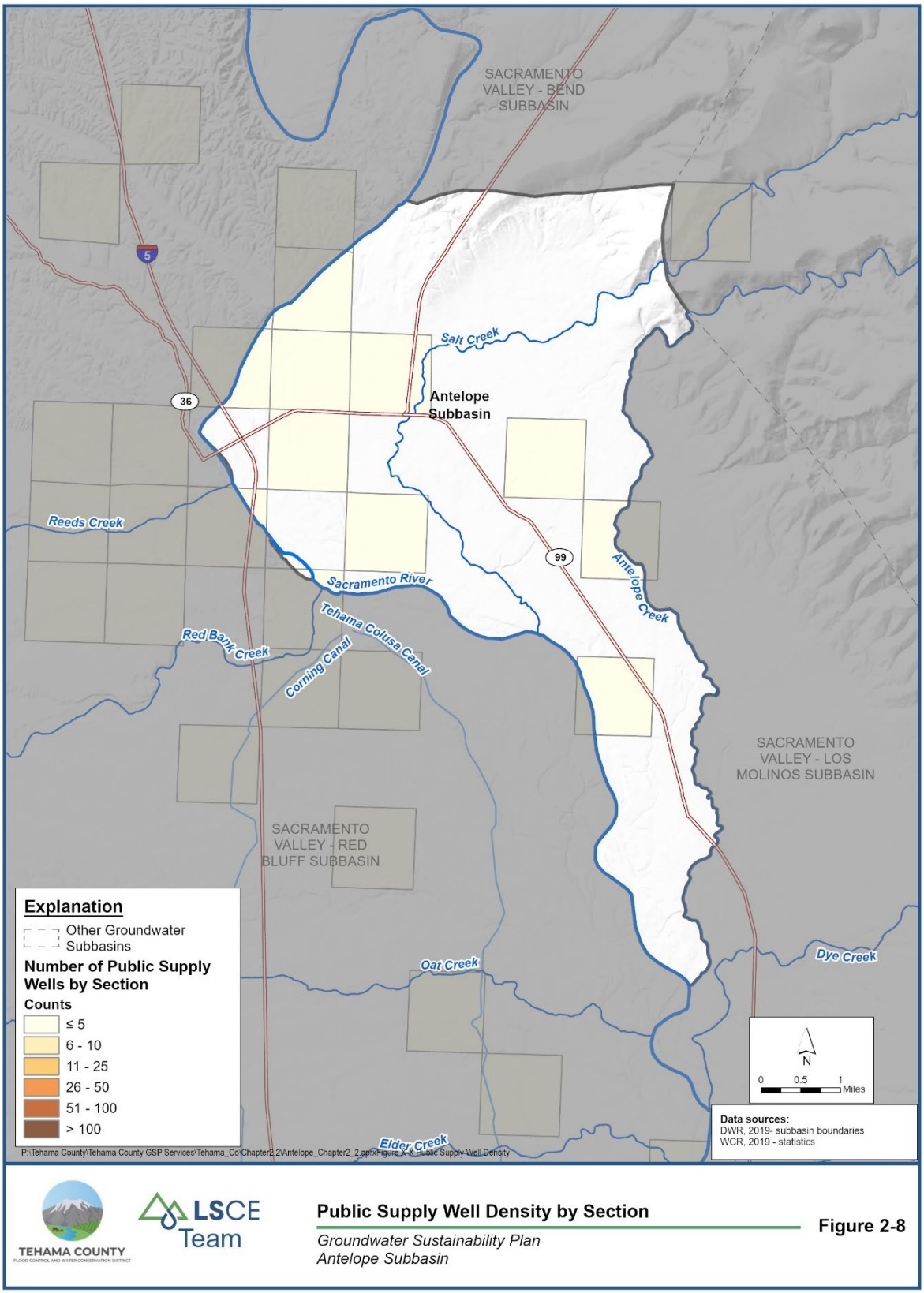
Elder Creek
Explanation
Other Groundwater Subbasins
Number of Production Wells by Section
Counts
≤ 5
6 - 10
11 - 25
26 - 50
51 - 100
> 100
N
0 0.5 1 Miles
Data sources:
DWR, 2019- subbasin boundaries
WCR, 2019 - statistics
P:\Tehama County\Tehama County GSP Services\Tehama_Co\Chapter2_2\Antelope_Chapter2_2_aprx\Figure 2-X Production Well Density
TEHAMA COUNTY
LSCE Team
Production Well Density by Section
Groundwater Sustainability Plan
Antelope Subbasin
Figure 2-7



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Public Supply Well Density by Section — **Figure 2-8**

Groundwater Sustainability Plan
Antelope Subbasin

2.1.2 Water Resource Monitoring Entities, Management Programs, and Data Sources

The Tehama County FCWCD is responsible for surface water and groundwater resource management in Tehama County, including the Antelope Subbasin. The District has been actively managing groundwater resources through existing monitoring, management, and regulatory programs, and implementation of these programs has promoted surface and groundwater preservation in the Subbasin. These existing programs also support the development of the GSP and monitoring network (described in Chapter 3). Each of these programs and a summary of the water planning documents applicable to the GSA are detailed below.

Existing monitoring programs within the Plan area include those implemented by federal, state, and local public agencies to meet regulatory requirements. Data from these programs and associated projects were incorporated (as applicable) into the evaluation of basin conditions and the GSP monitoring network described in Section 3. These entities, programs, and data sources include:

- United States Environmental Protection Agency (USEPA)
- United States Geological Survey (USGS)
- California Natural Resources Agency (CNRA)
    - California Geologic Energy Management Division
    - DWR
    - CASGEM
- California Environmental Protection Agency (CalEPA)
    - California Department of Pesticide Regulation (DPR)
    - California Department of Toxic Substances Control (DTSC)
    - California State Water Resources Control Board (SWRCB)
        - Surface Water Monitoring Programs
        - Division of Drinking Water (DDW)
        - GAMA
        - Central Valley Regional Water Quality Control Board (RWQCB)
- Other Existing Management Programs and Plans
- Existing Regulatory Programs
- Conjunctive Use Programs

Local monitoring programs include the City of Red Bluff and other municipal water system Supervisory Control and Data Acquisition data, monthly pumping records, and surface water delivery data. Existing monitoring entities and programs are described in further detail below. Data from these programs was incorporated as applicable into the development of this GSP.

2.1.2.1 United States Environmental Protection Agency (USEPA)

The USEPA administers the Clean Water Act (CWA) for surface water and wetlands in coordination with state and tribal governments. The CWA designates the SWRCB and RWQCBs as the responsible agencies for water quality, safe and reliable drinking water, and water rights. In addition to water quality oversight, the federal Comprehensive Environmental Response, Compensation and Liability Act established a program to clean up uncontrolled or abandoned hazardous waste sites, accidents, spills, and other emergency releases of pollutants and contaminants. The USEPA seeks cooperation and funding from parties potentially responsible for contaminated "Superfund" sites. Both state and federal Superfund programs maintain a list of sites, with the federal list referred to as the USEPA's National Priority List and the state list referred to as the "Hazardous Waste and Substances Site List."

2.1.2.2 United States Geological Survey (USGS)

The USGS works with state, federal, and local agency data providers to monitor groundwater levels using the framework of the National Groundwater Monitoring Network. The USGS maintains a publicly accessible database (National Water Information System) of water quality and groundwater level information that houses data that has undergone QA/QC by the USGS.

2.1.2.3 California Natural Resources Agency (CRNA)

California Geologic Energy Management Division (CalGEM)

CalGEM (previously the Division of Oil, Gas, and Geothermal Resources) regulates the drilling, operation, maintenance, and abandonment of oil, gas, and geothermal wells in California. Through Waste Discharge Requirements (WDRs), RWQCBs regulate well development drilling fluid, mud disposal, and produced water disposal and reuse, which includes disposal discharge to ponds, roads, and the use of produced water as irrigation water. Water quality is also monitored through the Water Quality in Areas of Oil and Gas Production – Regional Groundwater Monitoring Program undertaken by the SWRCB, which serves to improve the understanding of threats posed to groundwater resources by oil and gas operations.

California Department of Water Resources (DWR)

DWR is responsible for the management and regulation of water usage throughout the State. DWR implements the State Water Project (SWP) which is the nation's largest state-built water conveyance system and manages the submission of Well Completion Reports (WCRs) for construction, alteration, or destruction of water wells, monitoring wells, cathodic protection wells, and geothermal heat exchange wells. WCRs are added to the statewide dataset by the CNRA, made publicly available with private information redacted, and included in DWR's web application. DWR further maintains a variety of databases that contain hydrologic data for the State of California, including the Water Data Library, the Water Data Information System, SGMA Data Viewer and database, and the CASGEM program.

DWR also collects and maintains monitoring data and assists GSAs in the implementation of SGMA through various technical, financial, and planning services. Technical services provided by DWR include offering statewide data and tools for water levels, WCRs, and climate change, publishing best management practices (BMPs), guidance documents, and technical reports. Financial services provided

by DWR include the Sustainable Groundwater Planning Grant Program to assist local agencies in the development of GSPs.

The development of this GSP includes DWR monitoring data, technical tools, and guidance documents. Financial assistance was also attained through DWR Grant programs, Proposition 1 and Proposition 68 funding, Technical Support Services, and Facilitation Support Services.

CASGEM

In 2009, Senate Bill SBX7-6 established that all subbasins need to collect and report groundwater elevations to track seasonal and long-term trends in California's groundwater basins and subbasins. To participate in CASGEM, well owners are minimally required to measure and report groundwater levels annually. DWR maintains this data and allows it to be publicly accessible.

2.1.2.4 California Environmental Protection Agency (CalEPA)

CalEPA maintains regulatory jurisdiction over safe drinking water quality requirements, hazardous waste management and remediation requirements, and pesticide use and reporting requirements. These requirements are maintained under the California DPR, DTSC, and the SWRCB. CalEPA maintains the Regulated Site Portal, a website (https://siteportal.calepa.ca.gov/nsite) that combines data from a variety of state and federal databases from these environmentally regulated sites and facilities in California into a single, searchable database. Regulated activities include hazardous materials and waste, state and federal cleanups, impacted groundwater and surface waters, and toxic materials. The portal integrates data from the following entities:

- CalEPA's California Environmental Reporting System, which tracks hazardous materials and waste
- SWRCB's California Integrated Water Quality System, which manages information pertaining to sites discharging to surface water
- EnviroStar system, which tracks hazardous waste facilities and sites with known or suspected contamination
- SWRCB's GeoTracker sites, which track sites that impact or have the potential to impact water quality in California with an emphasis on groundwater
- SWRCB's Stormwater Multiple Application and Report Tracking System, which collects information on industrial and construction stormwater management
- Toxics Release Inventory which contains information on chemicals managed by industrial or other facilities in California

California Department of Pesticide Regulation (DPR)

The DPR is responsible for enforcing state laws and regulations consistent with the Federal Insecticide, Fungicide, and Rodenticide Act, which mandates regulation of pesticide distribution, sale, and use. County agricultural commissioners are responsible for enforcement and permitting the use of restricted pesticides. DPR conducts regular surface water and groundwater sampling to monitor for pesticide contamination. Additionally, the Pesticide Contamination Prevention Act requires the DPR to protect

groundwater from pesticide pollution through its groundwater protection program. This program includes thresholds for pesticides posing risks to groundwater, a database of wells sampled for pesticides, identification of areas sensitive to pesticide contamination (known as groundwater protection areas), and mitigation measures developed to prevent pesticide transport to groundwater in those areas. DPR maintains databases of groundwater pesticide testing results and provides summaries of annual sampling and test results to the state legislature.

California Department of Toxic Substances Control (DTSC)

The DTSC regulates hazardous wastes through enforcement of the federal Resource Conservation and Recovery Act and California's Hazardous Waste Control Law. Through DTSC's Hazardous Waste Management Program and Site Mitigation and Restoration Program, groundwater is protected through the oversight of hazardous waste management and remediation. DTSC maintains an online database of permitted hazardous waste sites, corrective action facilities, and information regarding site cleanup. DTSC enforces the Toxic Injection Well Control Act and the Toxic Pit Cleanup Act, both of which require monitoring and hazardous waste containment. DTSC shares toxic site cleanup responsibilities with California's RWQCBs.

California State Water Resources Control Board (SWRCB)

SWRCB is responsible for the management of WDRs, underground storage tanks, groundwater cleanup programs, and groundwater and surface water quality policies and enforcement. The SWRCB administers water rights, water pollution control and water quality functions for the state. Through California's Porter-Cologne Water Quality Control Act (Porter-Cologne Act), the SWRCB shares authority with the RWQCBs to implement the federal CWA. The SWRCB provides policy guidance and budgetary authority to the RWQCBs, who adopt Water Quality Control Plans. The Antelope Subbasin is located within the jurisdictional area of the Central Valley RWQCB.

SWRCB and RWQCB enforce groundwater quality protection through WDRs which have control over the following:

- agricultural runoff
- domestic septic systems
- injection wells
- wastewater recycled for reuse or discharged to land
- dairy operations
- timber harvesting

If contamination occurs in violation of any WDR, the State and Regional Boards are responsible for cleanup and abatement of groundwater sites impacted by the contamination. SWRCB maintains an online database containing records of investigations, actions related to cleanup activities, identified known contaminant cleanup sites, and permitted underground storage tanks.

SWRCB maintains environmental data for their regulated facilities in their GeoTracker database. GeoTracker was initially developed in 2000 pursuant to a mandate by the California State Legislature (AB 592, SB 1189 (Stats. 1997, Chapter 814 and 185). Data from these regulated facilities typically includes groundwater level measurements and samples from groundwater monitoring wells at each regulated site.

SWRCB Surface Water Monitoring Programs

In collaboration with the RWQCBs, the SWRCB also implements the National Pollution Discharge Elimination System, stormwater permitting requirements, and the Surface Water Ambient Monitoring Program. The NPDES program was introduced in 1972 and aims to control water pollution by regulating point sources that discharge pollutants, such as rock, sand, dirt, and agricultural, industrial, and municipal waste. Stormwater permitting is managed under General Permits which regulate stormwater discharges and authorized non-stormwater discharges and enforce implementation of Stormwater Pollution Prevention Plans to monitor surface water runoff and pollutants during construction activities. The Surface Water Ambient Monitoring Program conducts monitoring and assessment of water quality in all of California's surface waters to support water resource management in the State.

SWRCB Division of Drinking Water (DDW)

DDW is responsible for enforcing the Safe Drinking Water Act in California. DDW ensures safe access to drinking water through water quality regulations and monitoring requirements for regulated public water systems. Beginning in 2001, Title 22 of the California Code of Regulations Sections 64469 and 64819 established requirements and the format for reporting public water systems' water quality analyses results. All public water systems, certified drinking water analytical laboratories, including those that are subcontractors of other laboratories, are required to submit water quality data directly to the SWRCB DDW in digital, electronic form (Electronic Data Transfer). The Electronic Data Library supplies links to water quality monitoring schedules, files for the DDW water quality database, and houses county small water system water quality data files. All drinking water quality data of public water supply systems submitted to DDW through the Electronic Data Transfer portal can be accessed through the SWRCB DDW Safe Drinking Water Watch Program. Title 22 also includes designated Maximum Contaminant Levels (MCLs) for constituents to ensure water quality meets drinking water standards.

Groundwater Ambient Monitoring and Assessment Program (GAMA)

SWRCB created GAMA in 2000 to house groundwater elevation and groundwater quality data. SWRCB works with agencies from the State and Regional Water Boards, DWR, DPR, USGS, Lawrence Livermore National Laboratory, water agencies, and private owners to provide groundwater data to the public. Data collected by regulatory agencies that submit reports to SWRCB are made accessible through the GeoTracker GAMA database. This differs from the Geotracker database used for environmental sites. GAMA data was an important source of data used in the development of this GSP. Goals of the GAMA Program include:

- Improve statewide comprehensive groundwater monitoring
- Increase the availability to the public of groundwater quality and contamination information

- Establish ambient groundwater quality on a basin-wide scale
- Continue periodic groundwater sampling and groundwater quality studies in order to characterize chemicals of concern and identify trends in groundwater quality
- Centralize the availability of groundwater information to the public and decision makers to better protect groundwater resources.

Central Valley Regional Water Quality Control Board (RWQCB)

The RWQCB regulates water quality in groundwater, surface water, and coastal waters in the Central Valley of California. The RWQCB is responsible for developing Water Quality Control Plans, governing requirements for WDRs, issuing WDRs, taking enforcement action against dischargers who violate permits or otherwise harm water quality in surface waters, and monitoring water quality. The RWQCB's overall mission is to protect surface waters and groundwater in the region through the following tasks:

- Addressing region-wide water quality concerns through the creation and triennial update of a Water Quality Control Plan (Basin Plan)
- Preparing new or revised policies addressing region-wide water quality concerns
- Adopting, monitoring compliance with, and enforcing waste discharge requirements and NPDES permits
- Maintaining the 303(d) list of impaired surface water bodies and administering oversite of Total Maximum Daily Loading projects
- Providing recommendations to the SWRCB on financial assistance programs, proposals for water diversion, budget development, and other statewide programs and policies
- Coordinating with other public agencies that are concerned with water quality control
- Informing and involving the public on water quality issues.

The Basin Plan contains descriptions of the legal, technical, and programmatic bases of water quality regulation for the region. At the regional level, the Basin Plan outlines water quality objectives to define the appropriate levels of environmental quality and to control activities. The Basin Plan provides a definitive program of actions designed to preserve and enhance water quality and to protect beneficial uses in a manner that will result in maximum benefit to the people of California. The Basin Plan fulfills the following:

- Conformance to USEPA requirements in order to allocate federal grants to cities and districts for construction of wastewater treatment facilities
- Provides a basis for establishing priorities as to how both state and federal grants are disbursed for constructing and upgrading wastewater treatment facilities
- Meets the requirements of the Porter-Cologne Act that call for water quality control plans in California
- Provides a basis for the RWQCB to establish or revise waste discharge requirements and for the SWRCB to establish or revise water rights permits
- Establishes conditions for discharge prohibitions that must be met at all times

- Establishes or indicates water quality standards applicable to waters of the Region, as required by the federal CWA
- Establishes water quality attainment strategies, including Total Maximum Daily Loads required by the CWA, for pollutants and water bodies impaired water bodies.

The RWQCB also manages the Irrigated Lands Regulatory Program (ILRP) which includes the Sacramento Valley Groundwater Quality Trend Monitoring Program (GQTM). RWQCB *Order No. R5-2014-0030-R1 Waste Discharge Requirements General Order for Growers in the Sacramento River Watershed that are Members of the Third-Party Group* requires the Sacramento Valley Water Quality Coalition to develop and implement a the GQTM program. The GQTM program involves groundwater quality sampling through a network of wells to monitor regional and long-term trends in groundwater quality in relation to agricultural practices as outlined in Coalition GQTM Workplan submittals to the RWQCB.

2.1.2.5 Groundwater Level Monitoring

Groundwater levels are monitored in the Subbasin and reported from the various sources and programs listed above. A significant amount of the existing groundwater level monitoring information included in the development of this GSP originated from GAMA and CASGEM data sets.

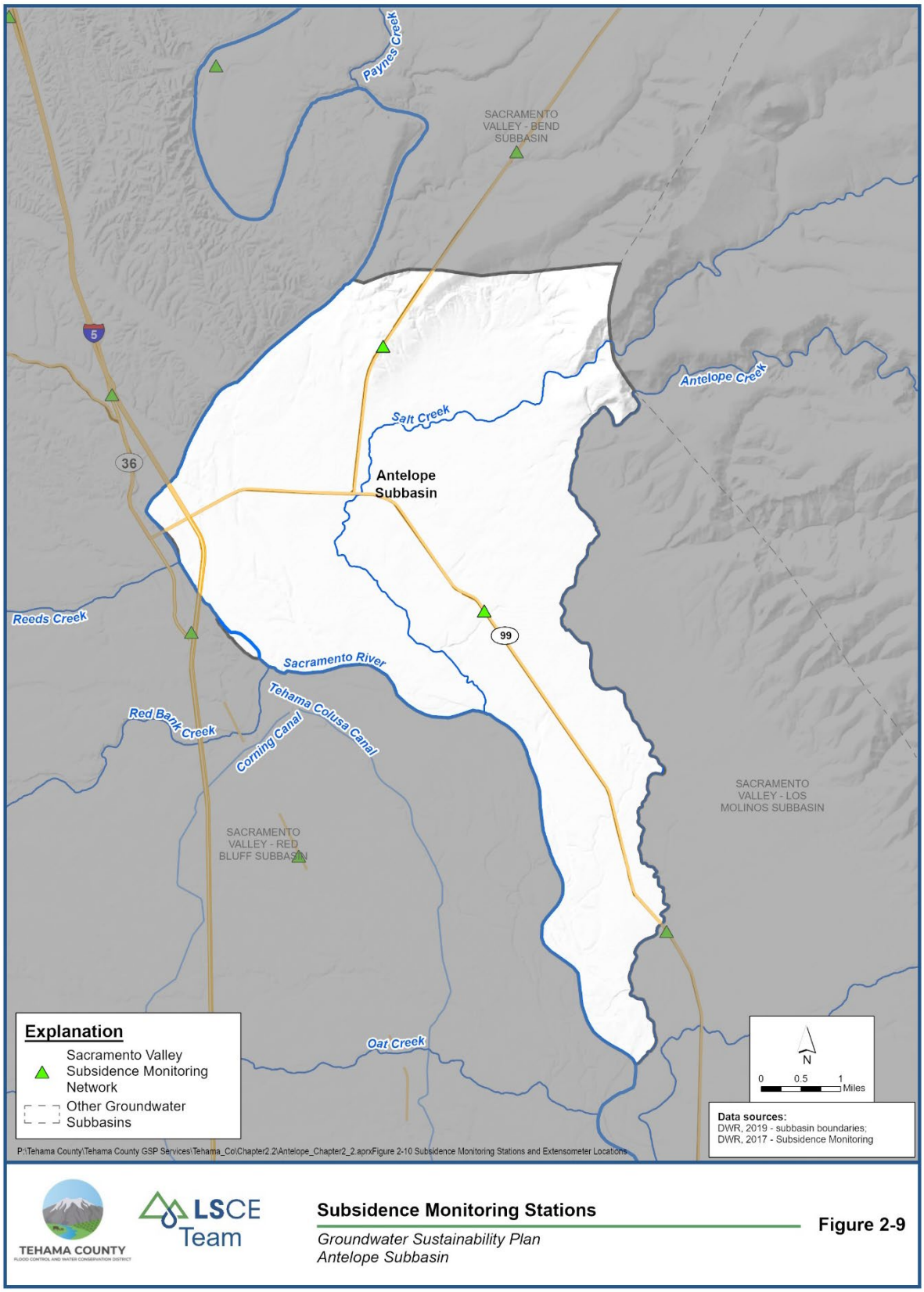
Tehama County has 52 wells that are part of the CASGEM program. Six (6) of these wells are located in the Antelope Subbasin. Groundwater elevations have generally been reported 2-3 times per year with measurements dating back to the early 1970's. Measurements are typically taken during March/April (Spring), July/August (Summer), and October/November (Fall). CASGEM monitoring wells were incorporated into this Plan's groundwater monitoring network as needed.

2.1.2.6 Groundwater Quality Monitoring

Groundwater quality monitoring in the Subbasin has been conducted by a variety of entities. As described in the AB3030 GWMP (Section 253), the Tehama County FCWCD worked with USGS, SWRCB, DWR, California Department of Public Health, and the U.S. Department of the Interior to complete extensive water quality monitoring of wells in Tehama County as part of the GAMA program from 2005-2007. Water quality monitoring is also completed as part of the ILRP, the Sacramento Valley Water Quality Coalition GQTM, and other DWR and Central Valley RWQCB programs (Tehama County, 2012) as described above.

2.1.2.7 Land Subsidence Monitoring

The Tehama County FCWCD established 34 GPS land surface elevation benchmarks in 2008 for use in land subsidence monitoring as part of the Sacramento Valley Subsidence Project. These benchmarks are approximately 3-5 miles apart, covering the valley floor. There are two benchmark locations within the Antelope Subbasin and four additional benchmarks within two miles of the Subbasin boundary. These benchmark locations are shown on **Figure 2-9**. When this project was completed, it was anticipated that land elevations would be measured at each benchmark every 5 years to monitor potential changes in land surface elevation and land subsidence (Tehama County, 2012). These benchmarks were resurveyed in 2017 and exhibited little to no change in subsidence (DWR, 2017).


Paynes Creek
SACRAMENTO VALLEY - BEND SUBBASIN
5
Antelope Creek
Salt Creek
36
Antelope Subbasin
99
Reeds Creek
Sacramento River
Tehama Colusa Canal
Red Bank Creek
Corning Canal
SACRAMENTO VALLEY - LOS MOLINOS SUBBASIN
SACRAMENTO VALLEY - RED BLUFF SUBBASIN
Oat Creek
Explanation
Sacramento Valley Subsidence Monitoring Network
Other Groundwater Subbasins
N
0 0.5 1 Miles
Data sources:
DWR, 2019 - subbasin boundaries;
DWR, 2017 - Subsidence Monitoring
P:\Tehama County\Tehama County GSP Services\Tehama_Co\Chapter2.2\Antelope_Chapter2_2.aprxFigure 2-10 Subsidence Monitoring Stations and Extensometer Locations
TEHAMA COUNTY
LSCE Team
Subsidence Monitoring Stations
Groundwater Sustainability Plan
Antelope Subbasin
Figure 2-9

2.1.2.8 Surface Water Monitoring

Surface water monitoring is completed through the various federal, state, regional, and local programs listed above. Surface monitoring stations located within the Subbasin are shown in **Table 2-4** and on **Figure 2-10**.

Table 2-4: Surface Water Monitoring Stations

Waterway	Source	Site ID	Available Data Period
Sacramento River	USBR	RDB	2001-2020

2.1.2.9 Other Existing Management Programs and Plans

State Water Use Efficiency Programs

The California Irrigation Management Information System hosts a network of automated weather stations owned and operated by DWR and local agencies. These stations provide "real-time" weather data to estimate crop and landscape evapotranspiration rates for irrigation management decisions.

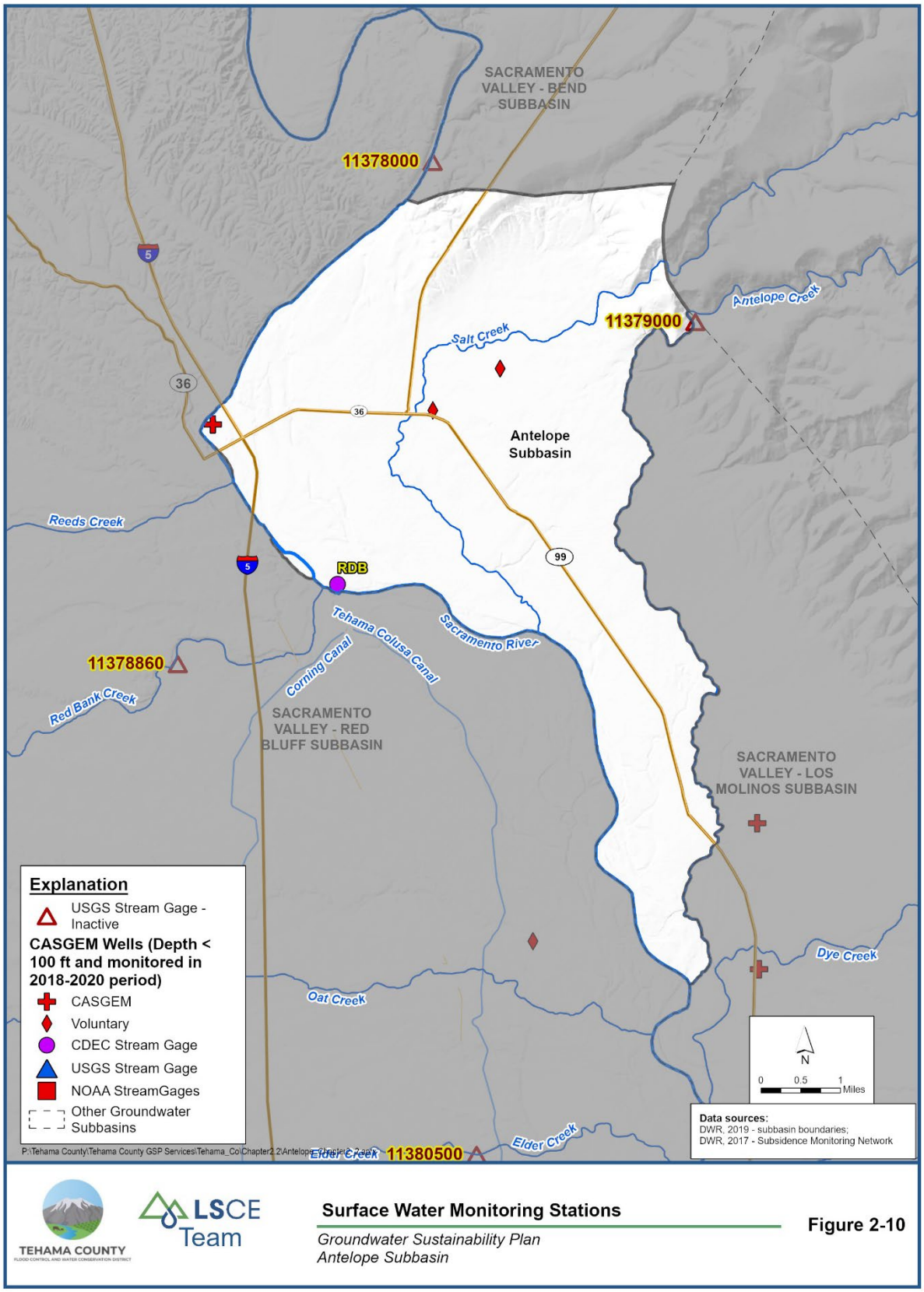
DWR also conducts land use and water use data collection activities in support of statewide water planning. The program includes land use surveys, public water system statistics surveys, statewide irrigation methods surveys, agricultural land and water use estimates, agricultural water use models, and the California Seasonal Application Efficiency Program.

Tehama County AB3030 Groundwater Management Plan (GWMP)

The Tehama County GWMP was first adopted in November 1996 to comply with California Assembly Bill 3030 (AB3030). An update to the GWMP was provided in 2012 through a collaborated effort among the Tehama County FCWCD TAC, the University of California Cooperative Extension, and DWR. Prior to the completion of the AB3030 GWMP, background documents and technical memoranda were developed: Water Inventory and Analysis (2003) and Proposed Groundwater Trigger Levels and Awareness Actions (2008). Separate proposed Groundwater Trigger Levels and Awareness Actions technical memoranda were written for the Subbasins of Tehama County: Antelope, Bend, Bowman, Corning East, Corning West, Dye Creek, Los Molinos, Red Bluff East, Red Bluff West, Rosewood, South Battle Creek, and Vina. Some of the subbasins have since been consolidated (Section 1.3.2, Table 1-2).

The purposes of the AB3030 GWMP include:

- Sustain groundwater levels that balance long-term extraction and replenishment
- Sustain groundwater levels in a manner that allows existing groundwater well infrastructure within Tehama County to remain operational over a long period of time
- Develop a comprehensive groundwater management program to ensure sufficient groundwater supplies of useable quality are maintained for reliable, efficient, and cost-effective extraction
- Implement the GWMP through the development of county-wide consensus where possible


SACRAMENTO VALLEY - BEND SUBBASIN
11378000
11379000
Antelope Creek
Salt Creek
Antelope Subbasin
36
5
99
RDB
Reeds Creek
Tehama Colusa Canal
Sacramento River
Corning Canal
11378860
Red Bank Creek
SACRAMENTO VALLEY - RED BLUFF SUBBASIN
SACRAMENTO VALLEY - LOS MOLINOS SUBBASIN
Dye Creek
Oat Creek
Elder Creek
11380500
Explanation
USGS Stream Gage - Inactive
CASGEM Wells (Depth < 100 ft and monitored in 2018-2020 period)
CASGEM
Voluntary
CDEC Stream Gage
USGS Stream Gage
NOAA StreamGages
Other Groundwater Subbasins
N
0 0.5 1 Miles
Data sources:
DWR, 2019 - subbasin boundaries;
DWR, 2017 - Subsidence Monitoring Network
TEHAMA COUNTY
LSCE Team
Surface Water Monitoring Stations
Groundwater Sustainability Plan
Antelope Subbasin
Figure 2-10

The AB3030 GWMP includes a description of the study area within Tehama County, which includes: location, geology, climate, population, economy, local GWMP interest, groundwater basin conditions, existing monitoring, historic groundwater levels and pumpage, groundwater recharge, and groundwater quality issues. It also provides a three-phase approach to achieving the elements of the plan purpose that includes:

- Phase I – Passive Management
    - data inventory and evaluation
    - monitoring strategies and coordination
    - TAC
    - public education
- Phase II – Tasks
    - water conservation
    - coordination with local land use planning agencies
    - identification and management of wellhead protection areas
    - identification of well construction policies
    - protection of beneficial uses
    - conjunctive management operations
    - development of relationships with state and federal regulatory agencies
- Phase III – Activities
    - construction and operation of groundwater management facilities
    - regulation of contaminated groundwater migration
    - control of saline water intrusion and other contaminants

Many of these actions, assessments, and data are useful in the development of the GSP and align with the GSP requirements under SGMA. Components and data from the AB3030 GWMP were incorporated into the development and implementation of this GSP as necessary.

Northern Sacramento Valley Integrated Regional Water Management Plan (IRWMP)

The IRWMP was developed in 2006 to guide water management policies, programs, and projects in the Sacramento Valley. It was intended to serve as a platform for coordination to allow improved water management to occur at the local, regional, and state level. The main objectives of the development and implementation of the IRWMP are to improve the economic health of the region, improve water supply reliability, improve flood protection and floodplain management, improve and protect water quality, and to protect and enhance the ecosystem. These objectives were developed based on existing water management plans in the Sacramento Valley to ensure mutual objectives are developed for stakeholders and enhanced coordination can be obtained. The IRWMP includes a summary of the Tehama County local

setting, current and future land and water use, and recommendations. The highest priority land use/water related issues identified in the County include:

- Potential groundwater impacts from urban development and protection of county groundwater resources
- Lack of baseline groundwater information and need for more monitoring
- Potential development of the Lower Tuscan and Tehama Formations and funding needed for further study and peer review of existing hydrogeologic data
- Continued protection of water quality

Recommendations listed in the IRWMP include: implementation of the Lower Tuscan Recharge Investigation Program, creation of a database, exploration of funding opportunities for a subsidence monitoring network, exploration of research and funding opportunities to expand knowledge base for the Tehama Formation, continued cooperation with nearby counties, encouragement of agricultural uses and development through land use planning policies, support of efforts to evaluate flood potential, coordination with the Tehama County Planning Department, and support of IRWMP proposed projects (NCWA, 2006).

Issues identified in Tehama County related to land and water use and efforts to integrate and implement the IRWMP were included in the development of this GSP as necessary.

2.1.2.10 Existing Regulatory Programs

Tehama County Groundwater Ordinances

Three applicable ordinances related to groundwater management have been enacted in the County:

- Tehama County Board of Supervisors Ordinance No. 1617 –limits the export of groundwater for use in areas outside of Tehama County
- Tehama County Board of Supervisors Ordinance No. 2006 – amends Titles 9 and 10 of the Tehama County Code relating to groundwater aquifer protection and water wells to require a permit for extraction of groundwater use off-parcel, amend well permitting requirements, and provide requirements for maintenance of dormant wells
- Tehama County Flood Control and Water Conservation District Board of Directors Ordinance No. 2016-1 – establishes the Tehama County Groundwater Commission

Irrigated Lands Regulatory Program (IRLP)

The ILRP was created to mitigate impairment of surface water and groundwater due to waste discharges (sediments, pesticides, nitrates) from irrigated land runoff in the Central Valley of California. The Central Valley RWQCB manages the program and requires irrigated landowners to verify effective water quality protection practices and submit information to their coalition or the RWQCB. Irrigated landowners must adhere to WDRs under this program (California Waterboards, 2020). Components of this program and water quality data were considered in the development of this GSP as necessary.

Central Valley – Salinity Alternatives for Long-Term Sustainability (CV-SALTS)

CV-SALTS is a collaborative stakeholder managed program aimed to develop sustainable salinity and nitrate management planning in the Central Valley. CV-SALTS is in the process of developing scientific and regulatory tools to create a management plan to minimize the impacts of salt and nutrients on water quality. Data from CV-SALTS monitoring was included in the development of this GSP as necessary.

2.1.2.11 Conjunctive Use Programs

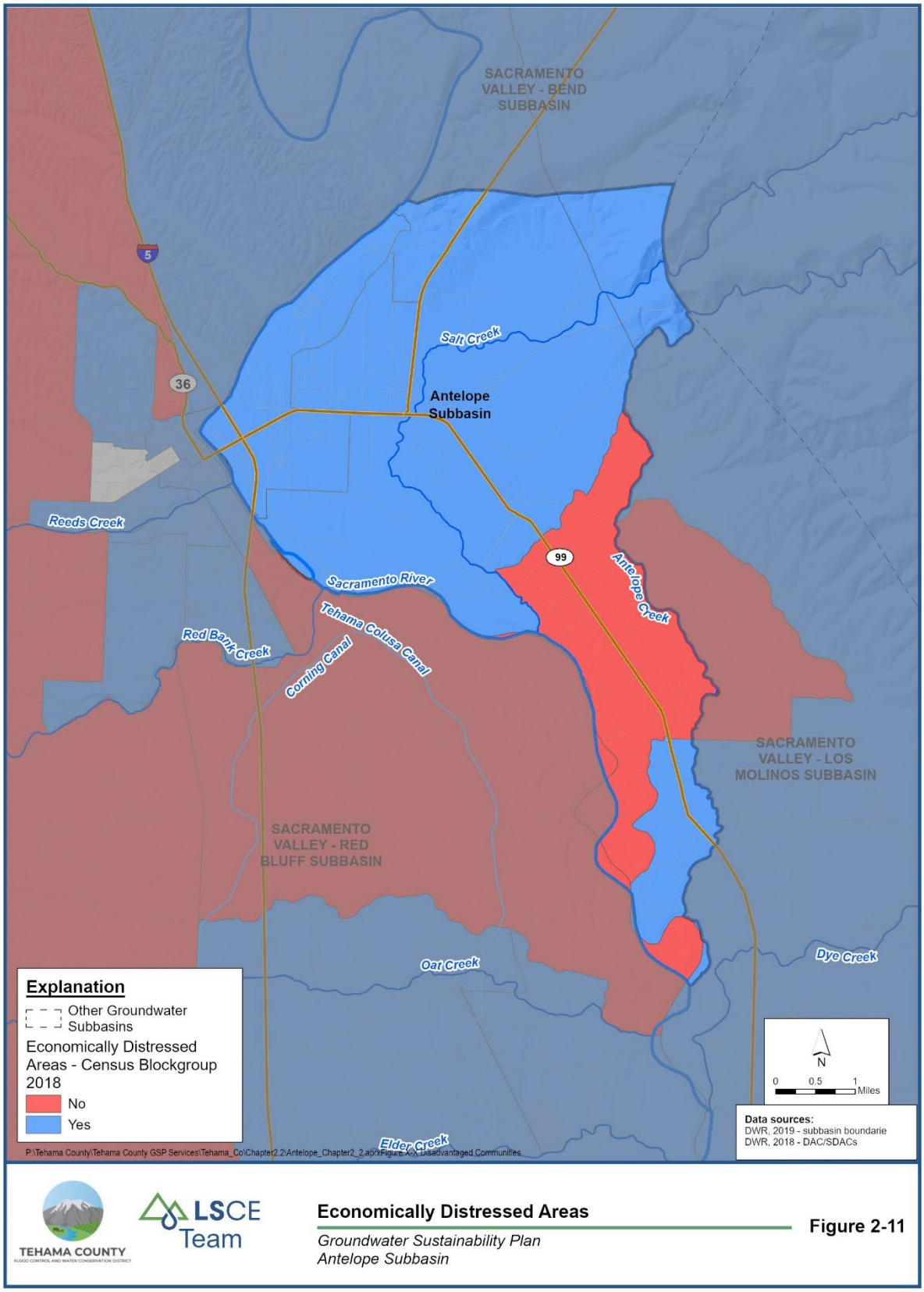
There are no formal conjunctive use programs in the Subbasin.

2.1.2.12 Water Planning Documents

Several water planning documents have been prepared and adopted on a County and region-wide basis to support water and resource management. There have also been several reports and analyses generated to aid in water monitoring and management. These include:

- Regional Plans
    - Northern Sacramento Valley Drinking Water Quality Strategy Document (2005)
    - Sacramento River Basin-wide Water Management Plan (2004)
    - Sacramento Valley Integrated Regional Water Management Plan (2006)
    - Tehama, Butte, Glenn, and Colusa Four-Counties Memorandum of Understanding (2006)
- Tehama County Groundwater Management Plan
    - AB3030 Groundwater Management Plan (Adopted in 1996, Updated 2012)
- Tehama County Groundwater Ordinances
    - No. 1617
    - No. 2006
    - No. 2016-1
- General Plans
    - City of Red Bluff General Plan (2000)
    - Tehama County General Plan (2009)
- Urban Water Management Plan
    - City of Red Bluff (2015)

Information included in these plans and applicable studies completed in Tehama County regarding surface water, groundwater, land use, and monitoring has been included in the development of this GSP as necessary. Development and implementation of the GSP will continue to consider the interests of all beneficial uses and users of groundwater including agricultural users, municipal water users, domestic users, disadvantaged communities (**Figure 2-11**), groundwater dependent ecosystems (GDEs), and other stakeholders.


SACRAMENTO VALLEY - BEND SUBBASIN
Salt Creek
Antelope Subbasin
Reeds Creek
Sacramento River
Tehama Colusa Canal
Corning Canal
Red Bank Creek
Antelope Creek
SACRAMENTO VALLEY - LOS MOLINOS SUBBASIN
SACRAMENTO VALLEY - RED BLUFF SUBBASIN
Oat Creek
Dye Creek
Elder Creek
5
36
99
Explanation
Other Groundwater Subbasins
Economically Distressed Areas - Census Blockgroup 2018
No
Yes
N
0 0.5 1 Miles
Data sources:
DWR, 2019 - subbasin boundarie
DWR, 2018 - DAC/SDACs
P:\Tehama County\Tehama County GSP Services\Tehama_Co\Chapter2_2\Antelope_Chapter2_2.aprx\Figure_X_Disadvantaged Communities
TEHAMA COUNTY
LSCE Team
Economically Distressed Areas
Groundwater Sustainability Plan
Antelope Subbasin
Figure 2-11

2.1.3 Land Use Elements or Topic Categories of Applicable General Plans

The Antelope Subbasin lies entirely in Tehama County, in which the Tehama County General Plan is applicable. A small portion of the City of Red Bluff also lies within the Antelope Subbasin; thus, the City of Red Bluff General Plan and City of Red Bluff Urban Water Management Plan are appliable to the portion of the City of Red Bluff that lies within the Subbasin.

The development and implementation of this GSP will support all goals, policies, and implementation measures described in these general plans, in conjunction with SGMA and GSP regulations, while considering the beneficial uses and users of groundwater.

2.1.3.1 Tehama County General Plan

The Tehama County General Plan, updated in 2009 and in effect until 2029, provides structure for the "physical development of the county or city, and any land outside its boundaries which bears relation to its planning." It creates guidelines for future development and decision-making, and it is detailed in the General Plan that "agriculture remains one of the primary uses of land in Tehama County." The General Plan is comprised of the following elements:

- Land Use (LU)
- Transportation and Circulation (CIR)
- Public Services (PS)
- Economic Development (ED)
- Open Space and Conservation (OS)
- Agriculture and Timber (AG)
- Safety (SAF)
- Noise (N)

All elements focus on the protection and enhancement of agricultural land within the County, as agriculture is depicted as "a way of life and the foundation of the quality of life in Tehama County."

The Tehama County General Plan contains a number of goals, policies, and implementation measures relating to surface water and groundwater resource protection (**Table 2-5**).

Table 2-5: Tehama County General Plan Relevant Goals, Policies, and Implementation Measures

Goal or Policy	Description
Goal ED – 7	Protect and enhance environmentally sensitive lands and natural resources while, at the same time, promoting business expansion, retention, and recruitment.
Goal OS – 1	To ensure that water supplies of sufficient quality and quantity will be available to serve the needs of Tehama County, now and into the future.
Goal OS – 3	To protect, preserve, and enhance fish and wildlife species by maintaining healthy ecosystems.
Goal PS – 4	To promote development in areas where existing water districts have available resources to accommodate development or where existing districts may be expanded to serve new development in a cost-effective manner.
Policy ED – 7.1	The County shall continue to preserve Tehama County's natural resources including agriculture, timberlands, water and water quality, wildlife resources, minerals, natural resource lands, recreation lands, scenic highways, and historic and archaeological resources. The protection of natural resources is of the utmost importance and promoting business expansion, retention, and recruitment should complement and enhance the natural resources while reducing negative impacts.
Policy LU – 10.1	The County shall actively promote the implementation of the County's Groundwater Management Plan: implement the recommended management and monitoring actions of the GWMP and identify and quantify the water production, water quality, and groundwater recharge activities occurring within the County.
Policy OS – 1.1	The County shall protect and conserve water resources and supply systems through sound watershed management: • Maintain local water ordinances to protect the integrity of water supplies in Tehama County (Implementation Measure 1.1a) • Consider and evaluate the need for a Water Conservation Ordinance (Implementation Measure 1.1b) • Ensure that projects adhere to the regulations of the State of California Reclamation Board, California Department of Fish and Game, Regional Water Quality Control Board, and U.S. Government (Implementation Measure 1.1c) • Continue to maintain and implement the Adopted AB3030 GWMP to protect and preserve water supplies and water quality in Tehama County (Implementation Measure 1.1e)

Goal or Policy	Description
	• Encourage involvement in Local, Regional, and Statewide Water Resource coordination, cooperation and collaboration to protect and preserve water supplies and water quality (Implementation Measure 1.1f) • Discourage the export of water from Tehama County (Implementation Measure 1.1h)
Policy OS – 1.2	The County shall work to ensure continued reasonable alternate water supplies: • Encourage water supply agencies and companies in the County to identify and develop water supply sources, other than groundwater, where feasible (Implementation Measure 1.2a) • Require development project approvals to include a finding that all feasible and cost-effective options for conservation and water reuse are incorporated into project design (Implementation Measure 1.2b) • Encourage the use of treated wastewater to irrigate parks, golf courses, and landscaping (Implementation Measure 1.2c) • Promote the installation of sufficient groundwater monitoring wells and data collection facilities to assure non-injury to surrounding areas in the development of community and specific plan projects (Implementation Measure 1.2d)
Policy OS – 1.3	Surface water quality and stream flows for water supply, water recharge, recreation, and aquatic ecosystem maintenance shall be protected while respecting adjudicated and appropriated (California recognized water rights) rights of use: • Protect surface and ground water from major sources of pollution, including hazardous materials contamination and urban runoff (Implementation Measure 1.3a) • Restrict hazardous materials storage in the 100-year floodplain to prevent surface water contamination (Implementation Measure 1.3b) • Educate the community on laws governing the proper handling of hazardous materials, especially those laws which pertain to discharging materials into creeks (Implementation Measure 1.3c) • Require clean-up of contaminated ground and surface water by current and/or past owners or polluters (Implementation Measure 1.3e)

Goal or Policy	Description
	• Require development to incorporate runoff control measures into their site design or to participate in an area-wide runoff control management effort consistent with standards developed by the Public Works Department (Implementation Measure 1.3f) • Establish and require the use of best management practices to protect receiving waters from the adverse effects of construction activities, sediment, and urban runoff (Implementation Measure 1.3g)
Policy OS – 1.4	The County shall encourage development of land for the purposes of improving groundwater recharge: • Consistent with the General Plan, development pattern and where deemed a reasonable on- or off-site improvement by the Advisory Agency, division of lands within all water district or County Service Area boundaries shall be conditioned based on maintaining right-of-way access to irrigation infrastructure and the continued use of open irrigation ditches (Implementation Measure 1.4a)
Policy OS – 1.5	The County shall ensure the high quality of groundwater by emphasizing programs that minimize erosion and prevent the intrusion of municipal and agricultural wastes into water supplies: • Natural Resource Lands land use subcategories shall be used to indicate areas essential to the recharge of groundwater and to afford protection from stream bank erosion (Implementation Measure 1.5a) • The Regional Water Quality Control Board shall monitor irrigation runoff to prevent infiltration of herbicides/fertilizers/pesticides and municipal wastes into streams and rivers of the groundwater basin. The County shall also encourage irrigation water recycling (Implementation Measure 1.5b) • As appropriate and feasible, the County shall install water-conserving landscaping and irrigation on County-owned facilities (Implementation Measure 1.5c)
Policy OS – 1.6	The County shall explore and encourage new water projects that are of local benefit: • Work with local, regional, and state water suppliers to determine the necessary water storage required for projected growth in the County. Investigate potential federal and state funding opportunities related to water infrastructure. Apply for funding to establish water storage facilities (Implementation Measure 1.6a).

Goal or Policy	Description
Policy OS – 1.7	The County shall encourage new development to incorporate water conservation measures.
Policy OS – 3.1	The County shall preserve and protect environmentally-sensitive and significant lands and water valuable for their plant and wildlife habitat, natural appearance, and character.
Policy PS – 3.2	The County shall ensure that water supply and delivery systems are available in time to meet the demand created by new development or are guaranteed to be built through the use of bonds or other financial sureties.
Policy PS – 4.1	The County shall encourage future development to be located with respect to type and intensity/density of land use in order to ensure the long-term, economically feasible and environmentally sound provision of adequate water supply and quality.

GSP Implementation Effects on Water Demands and Sustainability

Implementation of the proposed land use developments under the General Plan are not expected to greatly affect water demands due to the nature of the land use and efficient water management practices encouraged in the County. Policies included in the Tehama County General Plan encourage the implementation of urban water conservation measures (Policy OS-1.7), groundwater recharge (Policy OS-1.4), consideration of reasonable alternate supplies, and water resource management. According to the Tehama County General Plan, population growth within the County can be described as "slow to moderate," and urban growth that occurs is generally limited to areas with access to resources and services which typically occur around the major transportation corridors in Tehama County. The majority of the land use in the County is agricultural, and the County has several policies related to the protection of resource lands for agricultural and other beneficial uses. Therefore, it is not expected that land use changes based on the Tehama County General Plan will have a significant impact on the implementation of this GSP. Additionally, consistent with GSP regulations, minimum thresholds (MTs) and measurable objectives (MOs) established in this GSP were based on long-term planning water and land use assumptions established in the Tehama County General Plan.

GSP Implementation Effects on Water Supply Assumptions

Projects and management actions (Chapter 4) may result in changes in pumping and groundwater recharge to ensure the Subbasin operates within its sustainable yield over its implementation horizon. Expected changes in agricultural water use are described in Chapter 4. Urban water use is not expected to be significantly impacted by the implementation of this GSP, as the majority of water use in the Subbasin is agricultural, and there are not any significant expected changes in land use. Efficient urban water use is also encouraged by the General Plan and regulated by other statutory requirements such as the Urban Water Management Planning Act and the Model Water Efficient Landscape Ordinance. Goals and policies related to land use, water supply, water resources, wetlands, native/riparian areas, and open

spaces were considered in the development of this GSP and are expected to align with GSP implementation efforts to achieve Subbasin sustainability.

2.1.3.2 City of Red Bluff General Plan

A small portion of the eastern branch of the City of Red Bluff is located in the Antelope Subbasin. In this portion of the Subbasin, the City of Red Bluff General Plan is applicable. The City of Red Bluff General Plan is built on the following major themes:

- Housing Element
- Safety Element
- Noise Element
- Land Use Element
- Circulation Element
- Economic Development Element
- Natural Resource Element

Goals, objectives, policies, and implementation measures included in the City of Red Bluff General Plan relevant to resource protection and the development and implementation of this GSP include:

- Promote a continued supply of high-quality ground and surface water in the City of Red Bluff
- Conserve and improve groundwater, natural habitat, mineral, aesthetic, soil, and air resources in the Red Bluff Planning Area
- Maintain and protect watershed and recharge area
- Encourage all existing and new development (residential, commercial, and industrial) to incorporate water conservation methods into plan design so that water waste, use, and runoff can be minimized
- Ensure the continued high quality of groundwater by encouraging projects which minimize soil erosion
- Limit, and wherever possible disallow the intrusion of industrial and agricultural pollutants into the groundwater table
- Continue to preserve and promote Red Bluff's natural resources including agriculture, timberlands, water and water quality, wildlife resources, minerals, natural resource lands, recreation lands, scenic highways, and historic and archaeological resources. The protection of natural resources is of the utmost importance and promoting business expansion, retention and recruitment should complement and enhance the natural resources while reducing negative impacts

GSP Implementation Effects on Water Demands and Sustainability

Since only a small portion of the City of Red Bluff is located within the Antelope Subbasin, the implementation of the Antelope Subbasin GSP is not expected to significantly impact water demands in the City of Red Bluff. Furthermore, any new urban development that does occur based on the land use in

the General Plan is required to follow the statutory water conservation requirements of the Urban Water Management Planning Act and Model Water Efficient Landscape Ordinance.

GSP Implementation Effects on Water Supply Assumptions

Implementation of this GSP will not significantly affect the water supply assumptions in the City of Red Bluff General Plan due to the small portion of the City located in the Subbasin, water resource protection goals and policies defined in the General Plan, the expectation that land use will not significantly change, and efficient conservation measures imposed on new developments.

2.1.3.3 City of Red Bluff Urban Water Management Plan

Urban demand and water management planning in the City of Red Bluff is also regulated by the 2015 City of Red Bluff Urban Water Management Plan. The Urban Water Management Plan was developed pursuant to the CWC to maintain efficient use of urban water supplies, to promote conservation programs and policies, ensure that sufficient water supplies are available for future beneficial use, and provide responses to drought conditions. The City of Red Bluff relies entirely on groundwater for urban water use, and the Urban Water Management Plan identifies efforts to maximize local water resources and reduce water waste. These efforts include water waste prevention ordinances, metering, providing financial incentives to customers who use less water, public education and outreach, and implementation of programs to assess and manage distribution system water losses. A Water Shortage Contingency Plan is also included as part of the Urban Water Management Plan which identifies measures that will be taken to reduce water use and water waste during drought conditions. Furthermore, the City of Red Bluff supported the Tehama County FCWCD's proposal to become the GSA for the groundwater basins in Tehama County, as stated in the Urban Water Management Plan.

GSP Implementation Effects on Water Demands and Sustainability

The City of Red Bluff is only a small portion of the Antelope Subbasin. This small area, coupled with the urban water conservation measures already included in the Urban Water Management Plan, is not expected to significantly impact water demands or sustainability in the City of Red Bluff when this GSP is implemented.

GSP Implementation Effects on Water Supply Assumptions

Implementation of this GSP will not significantly affect the water supply assumptions in the City of Red Bluff Urban Water Management Plan due to the small portion of the City located in the Subbasin and the water conservation measures already included in the Plan. Urban water purveyors are required to submit an updated plan every five years; for the upcoming submittal cycle, the City of Red Bluff will also have the opportunity to align policies with those included in this GSP as needed.

2.1.4 Additional GSP Elements

2.1.4.1 Well Construction, Destruction, and Abandonment Policies

Well construction, rehabilitation, repair, and destruction policies are described in Section 9.42 of the Tehama County Municipal Code and permitting is under the jurisdiction of the Tehama County

Environmental Health Department. The Municipal Code includes requirements for: well location, annular seal, surface construction features, well labeling, disinfection and sanitary requirements, sealing off strata, casing, well development, redevelopment, well conditioning, water quality testing, large-diameter shallow wells, driven wells, rehabilitation, repair, deepening of wells, inspection, well driller's reports, and well maintenance. To obtain a permit to construct a well, a plot plan showing the location of the proposed well, shall be filled out and submitted to the Tehama County Environmental Health Department. Public supply wells must also undergo a DWR review and approval process. Review may be required by additional Tehama County entities if necessary: Planning Department (applies to zoning), Building Department (applies to flood hazard areas), and/or the fire department (applies to parcels formed after 1992).

Abandoned or unused wells in the County, including exploration and test holes, are required to be properly destroyed to assure that the groundwater supply is protected and preserved for future use and to eliminate potential physical hazards. Wells shall be destroyed and/or abandoned per Section 9.42 of the Tehama County Municipal Code which includes requirements for: preliminary work, filling and sealing conditions, materials, placement of materials, and temporary covers.

In response to drought conditions prior to 2015, the Tehama County Board of Supervisors adopted Ordinance No. 2006, "An Ordinance of the Board of Supervisors of the County of Tehama Amending Titles 9 and 10 of the Tehama County Code Relating to Groundwater Aquifer Protection and Water Wells." This ordinance included permit requirements for extraction of groundwater use off parcel, changes to well permitted use, maintenance of dormant wells, and administrative civil penalties. These changes were made to decrease potential impacts of well construction, use, destruction, and abandonment on the groundwater aquifer.

2.1.4.2 Efficient Water Management Practices

Tehama County promotes water conservation through both urban and agricultural efficient water management practices. As described in the AB3030 GWMP, these practices include:

- Coordination with the Tehama County Planning Department to provide groundwater conservation information to prospective developers in the County
- Coordination with the Tehama County Department of Building and Safety to provide groundwater conservation information to builders in the County
- Encouragement of recycled water use
- Collaboration with the Cities of Corning, Red Bluff, and Tehama to support activities that promote urban water conservation
- Providing educational materials to assist agriculture operations to become as efficient as possible
- Providing references to public and private programs and materials designed to improve agricultural efficiency
- Coordination with DWR, Tehama County Farm Bureau, University of California Cooperative Extension, Shasta Tehama Watershed Education Coalition, Tehama County Cattlemen's

Association, and the various agricultural water districts in the County to expand upon and further support agriculture efficiency and water conservation programs

County Irrigation systems for agriculture have transitioned to primarily drip- and microsprinkler- type for efficient water management.

2.1.4.3 Impacts on Groundwater Dependent Ecosystems

Potential impacts on GDEs are described in detail in Section 2.2.2.7, and a GDE Technical Memorandum is provided in **Appendix 2-A**.

2.1.4.4 Control of Saline Water Intrusion

Due to the significant distance of the Antelope Subbasin from the Pacific Ocean, seawater intrusion is not a concern. As noted in the AB3030 GWMP, the potential for saline water intrusion into freshwater aquifers exists in some areas from vertical migration via unsealed or improperly sealed natural gas wells and associated test holes that are no longer active. This is not a significant concern in the Antelope Subbasin. Well construction, protection, and abandonment standards and regulation by CalGEM exists for natural gas wells to best mitigate saline water intrusion.

2.1.4.5 Wellhead Protection and Recharge Areas

As identified in the AB3030 GWMP and 1986 Safe Water Drinking Act, a wellhead protection area is "the surface and subsurface area surrounding a water well or wellfield supplying a public water system, through which contaminants are reasonably likely to move toward and reach such water well or wellfield." Therefore, wellhead protection can refer to both the immediate location of the well and the broader surrounding area.

Wellhead protection is attained for drinking water systems through the completion of Drinking Water Source Assessments and Source Protection Assessments. Municipalities and community services districts use these assessments to identify potential sources of contamination and potential management practices for mitigating such contamination. Drinking water supply wells are also protected by completion requirements regulated by DDW. Wellhead protection for agricultural wells is managed by the DPR Groundwater Protection Program which focuses on preventing potential contamination of groundwater recharge areas by farming activities.

2.1.4.6 Migration of Contaminated Groundwater

Potential groundwater contaminants identified in the AB3030 GWMP include saline water, pesticides, nitrate from sewage systems, and fertilizer practices, organic compounds from industrial activities, and naturally occurring elements in underlying soil and rock formations. The AB3030 GWMP lists nitrate of particular concern in the shallow wells in the Antelope Subbasin. As described in the AB3030 GWMP, contaminants have the potential to enter the groundwater system as result of lateral or vertical migration through abandoned wells, wells with long screens, and unsealed or improperly sealed wells. These wells can be active or abandoned wells, water supply wells, and associated test holes. Water quality results for non-drinking water wells in the Subbasin associated with regulated sites have exhibited DDW primary

drinking water MCL exceedances for arsenic, nitrate, synthetic organic compounds such as 1,2,3-TCP, Heptachlor, Dibromochloropropane, Ethylene Dibromide, volatile organic compounds such as vinyl chloride, benzene, ethylbenzene, xylenes, and MTBE. Secondary MCL exceedances have occurred for manganese and iron in wells in the Subbasin.

Regulation and oversight for contaminants is provided by CalGEM, SWRCB, the Tehama County Environmental Health Department, the Tehama County Department of Agriculture, and other federal, state, and regional agencies. Identified sources of control for upward migration of contaminants include enforcement of well construction policies, extraction reduction, artificial recharge, and coordination with regulatory agencies. Identified sources of control for downward seepage of sewage, agricultural, or industrial contaminants include coordination with land use planning agencies, coordination with the regulatory agencies discussed above, and public education. Identified sources of control for inter-aquifer migration of contaminated groundwater include enforcement of well construction and abandonment standards.

Groundwater cleanup sites are identified on the GeoTracker database which includes leaking underground storage tank sites, Department of Defense Sites, and Cleanup Program Sites. No cleanup sites are located within the Antelope Subbasin.

2.1.4.7 Relationships with State and Federal Regulatory Agencies

The GSA has developed relationships with state and federal interests in the Antelope Subbasin to ensure the proper communication of GSP information and allow stakeholder input on the development of the GSP. **Table 2-6** identifies state and federal agencies with beneficial use and/or users in the Subbasin.

2.1.4.8 Consideration of Existing Land Use Plans

The GSA considered the land use policies of applicable cities in the Subbasin and Tehama County in the development of this GSP. Land use plans are described in Section 2.1.3 (Land Use Elements or Topic Categories in Applicable General Plans).

2.1.5 Notice and Communication

Under the requirements of SGMA, GSAs must encourage diverse, social, cultural, and economic elements of the population to be actively involved in GSP development. Cooperation and engagement of all beneficial users (described below) of groundwater will assist in the successful implementation of the GSP and sustainable management of groundwater in the Subbasin on the path forward.

To facilitate stakeholder involvement in the GSP development process, a Communication and Engagement Plan (**Appendix 2-B**) was created to:

- Enhance understanding and inform the public about water and groundwater resources in the District subbasins, the purpose and need for sustainable groundwater management, the benefits of sustainable groundwater management, and the need for GSPs.

- Engage a diverse group of interested parties and stakeholders and promote informed feedback from stakeholders, the community, and groundwater-dependent users throughout the preparation and implementation process of the GSPs.
- Coordinate communication and involvement between the subbasins and other local agencies, elected and appointed officials, and the general public.
- Utilize the District Board of Directors and Groundwater Commission meetings to facilitate a public engagement process.
- Employ a variety of outreach methods that make public participation accessible and that encourage broad participation.
- Respond to public concerns and provide accurate and up-to-date information.
- Manage communications and engagement in a manner that provides maximum value to the public and constitutes an efficient use of the GSA's resources.

2.1.5.1 Beneficial Uses and Users of Groundwater

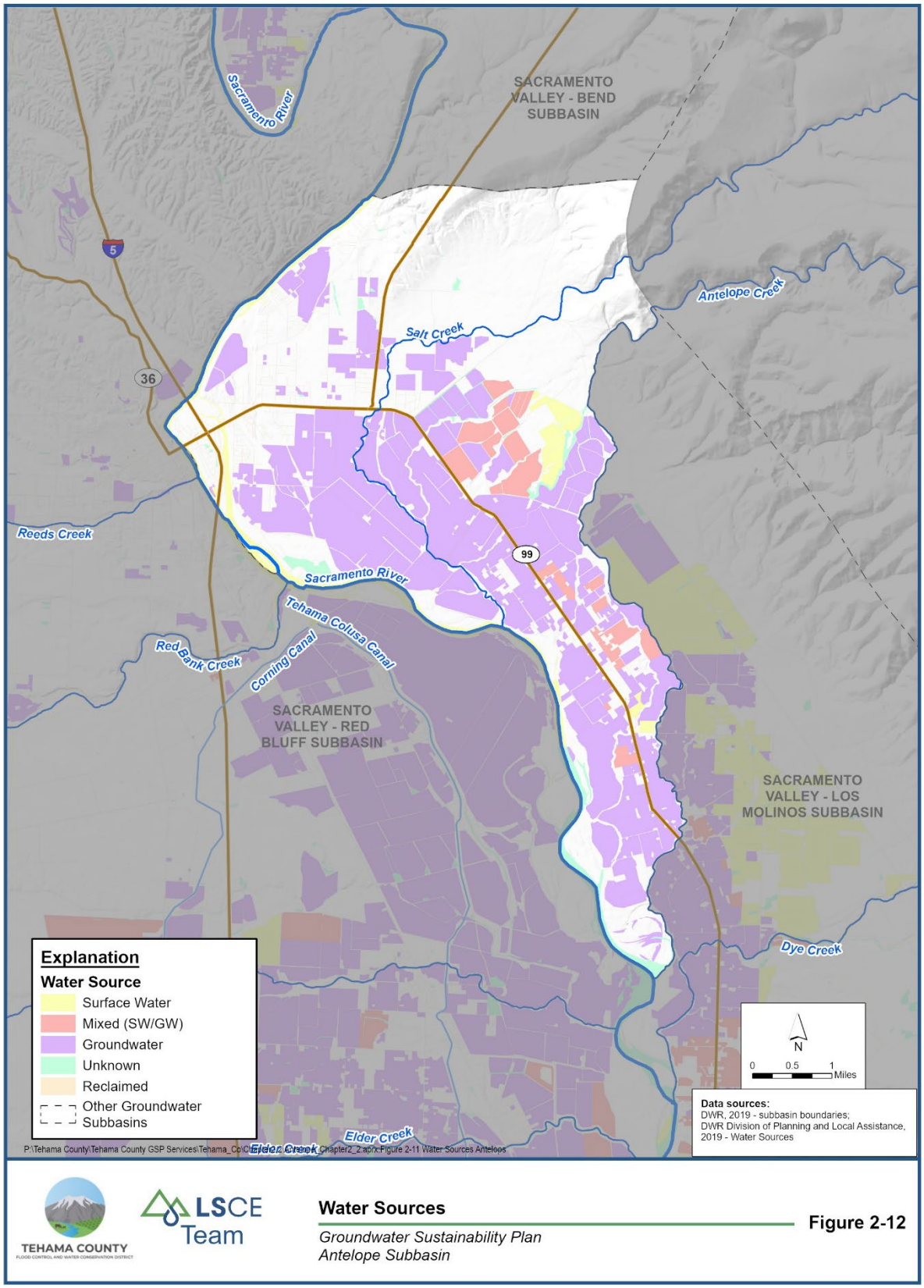
Under the requirements of SGMA, all beneficial uses and users of groundwater in the Subbasin must be considered in the development and implementation of the GSP, and the GSA must encourage the active involvement of such parties. In the Antelope Subbasin, beneficial users include any stakeholders that have interest in groundwater use and/or management in the Subbasin. Beneficial uses and users, as identified in the Communication and Engagement Plan are displayed in **Table 2-6** below. Subbasin water sources are shown in **Figure 2-12** and water users are shown in **Figure 2-13.**

Table 2-6: Beneficial Uses and Users of Groundwater

Category of Interest	Stakeholder Groups
General Public	• Interested individuals or interested parties • Tehama County School District • Latino Outreach of Tehama County • University of California Cooperative Extension • Tehama County Board of Supervisors • Shasta College – Tehama Campus • Red Bluff-Tehama County Chamber of Commerce • Red Bluff City Council • Antelope Elementary School District
Land Use	• Tehama County Planning Department • Tehama County Planning Commission • Tehama County Environmental Health Department • Tehama County Department of Agriculture • City of Red Bluff • Tehama District Fairgrounds
Urban/ Commercial & Non-Commercial Agricultural	• Tehama County Farm Bureau • Tehama County Cattlemen's Association • Tehama County Cattlewomen's Association • Tehama County Agricultural Commissioner • University of California Cooperative Extension • Resource Conservation District of Tehama County • Shasta Tehama Watershed Education Coalition • Golden Meadows Community Services District • Rio Ranch Estates Community Services District • Los Molinos Mutual Water Company • City of Red Bluff
Other Commercial/Municipal Users	• CAL FIRE Stations • Tehama County • Crain Walnut Shelling

Category of Interest	Stakeholder Groups
Environmental and Ecosystem	• Audubon Society • The Nature Conservancy • Trout Unlimited • California Department of Fish and Wildlife (CDFW) • USBR • USBLM • USFS • Natural Resources Conservation Service • DWR • California State Parks • Fire Safe Councils (Tehama Glenn FSC) • USFWS (Sacramento National Wildlife Refuge & Red Bluff Recreation Area)
Surface Water	• Agricultural Users • Riparian Water Right Holders • Anderson-Cottonwood • Corning Water District • Edwards Ranch • J.B. Unlimited • Los Molinos Mutual Water Company
Economic Development	• Tehama County Board of Supervisors • City of Red Bluff City Council • James Gallagher (SA) • Jim Neilson (Senator) • Tehama County Planning Commission • Red Bluff-Tehama County Chamber of Commerce • U.S. Economic Development Administration
Human Right to Water	• Private Well Owners • Small Water Systems • Disadvantaged Communities • Unincorporated County (Antelope Area)

Category of Interest	Stakeholder Groups
	• Portion of the City of Red Bluff • Dairyville • River View Mobile Home Park Gurnsey Ave Mutual Water System • Modern Village Mutual Water Company • Howell's Lakeside Water Company • Antionette Mutual Water Company • Friendly Acres Mobile Home Park • Hunter's Fishing Resort • Juanita Court Mutual Water • Mountain Valley Apartments & RV Park • Gateway Mobile Home Park • Red Bluff Recreation Area
Tribes	• California Indian Water Commission
Integrated Water Management	• IRWMP Stakeholders • Mid Upper Sacramento Regional Flood Management Group


SACRAMENTO VALLEY - BEND SUBBASIN
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Antelope Creek
Salt Creek
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Reeds Creek
Sacramento River
Tehama Colusa Canal
Corning Canal
Red Bank Creek
SACRAMENTO VALLEY - RED BLUFF SUBBASIN
SACRAMENTO VALLEY - LOS MOLINOS SUBBASIN
Dye Creek
Elder Creek
Explanation
Water Source
Surface Water
Mixed (SW/GW)
Groundwater
Unknown
Reclaimed
Other Groundwater Subbasins
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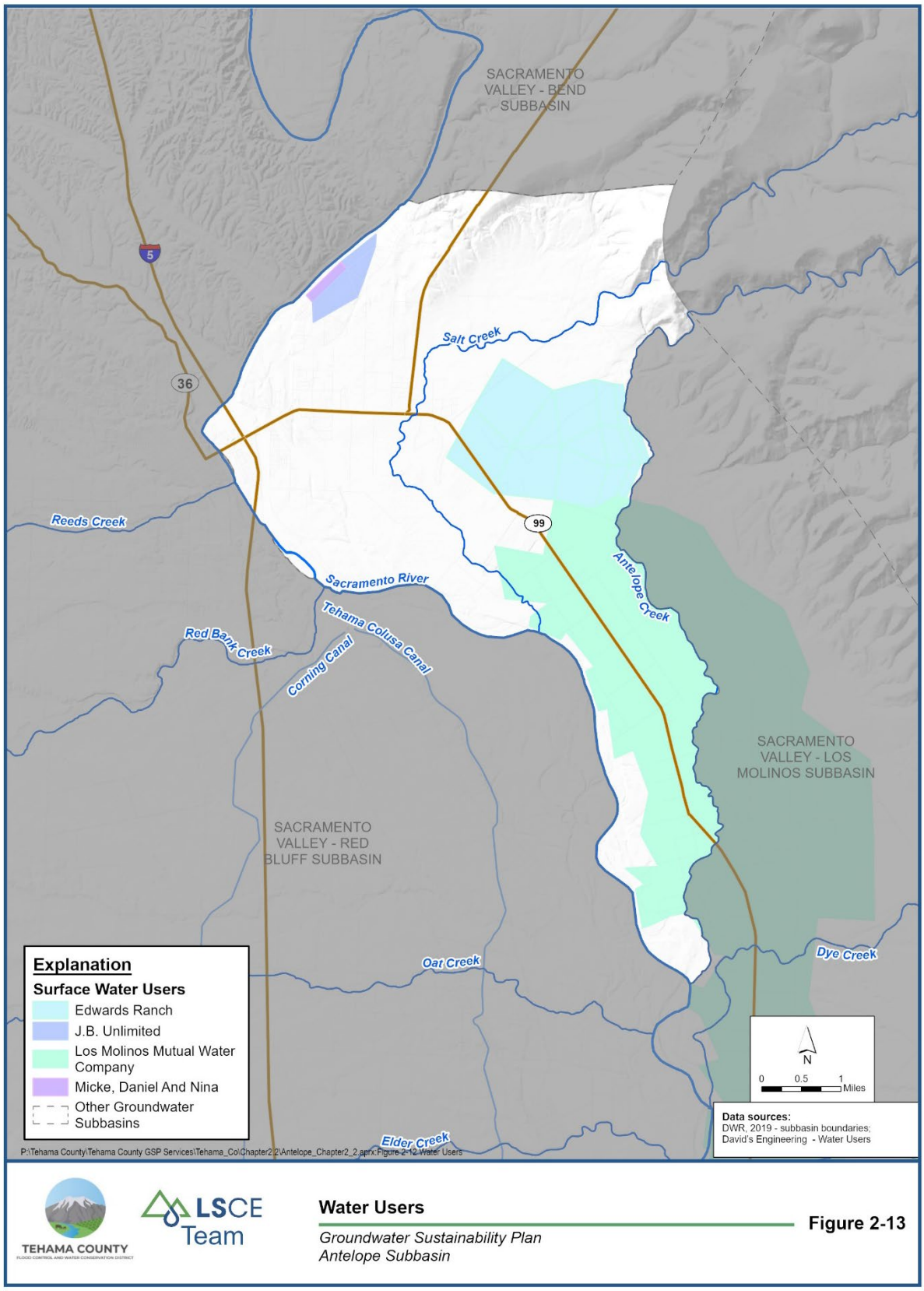
0 0.5 1 Miles
Data sources:
DWR, 2019 - subbasin boundaries;
DWR Division of Planning and Local Assistance, 2019 - Water Sources
P:\Tehama County\Tehama County GSP Services\Tehama_Co_Ch2_Maps\Chapter2_2a\rx Figure 2-11 Water Sources Antelope
TEHAMA COUNTY
LSCE Team
Water Sources
Groundwater Sustainability Plan
Antelope Subbasin
Figure 2-12


SACRAMENTO VALLEY - BEND SUBBASIN
SACRAMENTO VALLEY - LOS MOLINOS SUBBASIN
SACRAMENTO VALLEY - RED BLUFF SUBBASIN
Salt Creek
Reeds Creek
Sacramento River
Tehama Colusa Canal
Corning Canal
Red Bank Creek
Antelope Creek
Oat Creek
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Explanation
Surface Water Users
Edwards Ranch
J.B. Unlimited
Los Molinos Mutual Water Company
Micke, Daniel And Nina
Other Groundwater Subbasins
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Data sources:
DWR, 2019 - subbasin boundaries;
David's Engineering - Water Users
P:\Tehama County\Tehama County GSP Services\Tehama_Co\Chapter2_2\Antelope_Chapter2_2.aprx:Figure 2-12 Water Users
TEHAMA COUNTY
LSCE Team
Water Users
Figure 2-13
Groundwater Sustainability Plan
Antelope Subbasin

2.1.5.2 Opportunity for Public Engagement

Involvement of social, cultural, and economic elements and interested parties was encouraged through public meetings and workshops, public availability of SGMA, GSA, and GSP information, public comment opportunities, and collaboration with cities, districts, state and federal agencies, neighboring GSAs, and stakeholders in the Subbasin. SGMA, GSA, and GSP information was made available to the public through the Tehama County FCWCD website, public hearings, meetings, and workshops.

The Groundwater section of the Tehama County Flood Control and Water Conservation District website (tehamacountywater.org) provides: Groundwater Commission Bylaws and general information, GSA formation documents including: notices of public hearings, resolutions, notices of intent, ordinances, letters of support, formation notifications, basin boundary modification documents, groundwater monitoring data, groundwater related resource materials, and information on the Tehama County Groundwater Commission. The website also includes meeting dates and links to agendas and meeting minutes for Groundwater Commission and Board of Directors meetings and Groundwater Sustainability presentations. Additionally, the public may register for the interested parties list, via the website or by contacting GSA staff, to receive information and notices concerning SGMA, GSP development, and the GSA. The current list is included as **Appendix 2-C** and the Subbasin engagement matrix is included as **Appendix 2-D**.

Active involvement of the public and stakeholders was encouraged in a variety of ways:

- Public Meetings - Groundwater Commission and District Board of Directors meetings were open to the public and followed the requirements of the Brown Act. The public had opportunities to provide comments on programs, plans, and proposals at these meetings.
- Public Hearings - Public hearings were held prior to the adoption of any fees, GSP elements, and the final GSP.
- Public Workshops – These included all educational opportunities where the public could learn about SGMA, GSA, and GSP elements. These events were typically held as tailgates and webinars.
- Public Notices – Notices were sent to the public prior to the initial development of the GSP and to inform the public of ways in which they could be involved in the GSP development and implementation process.
- Stakeholder Briefings – Groundwater Commission members regularly communicated with and disseminated information to the stakeholder groups they represent.

A full list of meetings, public hearings, and workshops during which the public had the opportunity to be engaged is included in **Table 2-7**.

Table 2-7: Opportunities for Public Engagement

Event Name	Date	Location
Tehama County FCWCD Board of Directors Meeting	January 22, 2015 10:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	May 14, 2015, 10:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Public Hearing TCFCWCD Board of Directors (GSA Formation)	June 2, 2015, 1:30 PM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	August 13, 2015, 10:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Public Hearing TCFCWCD Board of Directors (Notice of Intent)	November 3, 2015, 1:30 PM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	December 10, 2015, 10:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	January 27, 2016, 10:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	March 23, 2016, 10:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	May 25, 2016, 10:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	July 27, 2016, 10:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	August 2, 2016, 2:00 PM	Tehama County Dept. of Agriculture 1834 Walnut Street Red Bluff, CA
Groundwater Commission Meeting	September 12, 2016, 9:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	September 26, 2016, 2:00 PM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	November 9, 2016, 10:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA

Event Name	Date	Location
Groundwater Commission Meeting	December 14, 2016, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	January 23, 2017, 10:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	February 22, 2017, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	March 20, 2017, 10:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	March 22, 2017, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	April 26, 2017, 2:00 PM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	May 15, 2017, 10:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	June 28, 2017, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	July 17, 2017, 10:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	August 9, 2017, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	September 27, 2017, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	October 25, 2017, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	December 4, 2017, 2:00 PM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	January 24, 2018, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	February 28, 2018, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA

Event Name	Date	Location
Tehama County FCWCD Board of Directors Meeting	March 19, 2018, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	April 25, 2018, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	May 21, 2018, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	June 14, 2018, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	June 19, 2018, 1:30 PM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	August 22, 2018, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	September 17, 2018, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	October 24, 2018, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	November 19, 2018, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	January 23, 2019, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	March 18, 2019, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	April 24, 2019, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	May 20, 2019, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	May 22, 2019, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	August 28, 2019, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA

Event Name	Date	Location
Tehama County FCWCD Board of Directors Meeting	September 16, 2019, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	October 23, 2019, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	November 18, 2019, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	December 18, 2019, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	January 7, 2020, 10:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	January 27, 2020, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	February 26, 2020, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	March 16, 2020, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	April 22, 2020, 8:30 AM	Virtual
Groundwater Commission Meeting	May 27, 2020, 8:30 AM	Virtual
Tehama County FCWCD Board of Directors Meeting	June 23, 2020, 10:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	June 24, 2020, 8:30 AM	Virtual
Tehama County FCWCD Board of Directors Meeting	July 20, 2020, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	August 26, 2020, 8:30 AM	Virtual
Tehama County FCWCD Board of Directors Meeting	September 21, 2020, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	September 23, 2020, 8:30 AM	Virtual

Event Name	Date	Location
Public Webinar Implementing SGMA in Tehama County	October 8, 2020, 6:00 PM	Webinar
Antelope Subbasin Tailgate Outreach Event	October 14, 2020, 5:30 PM	Tehama District Fairgrounds 650 Antelope Blvd. Red Bluff, CA
Board of Supervisors Informational Presentation	October 20, 2020, 1:30 PM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	October 28, 2020, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	November 16, 2020, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	December 9, 2020, 8:30 AM	Virtual
Public Webinar Progress Update on GSP Development	December 9, 2020, 6:00 PM	Webinar
Tehama County FCWCD Board of Directors Meeting	January 25, 2021, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	January 27, 2021, 8:30 AM	Virtual
Groundwater Commission Meeting	February 24, 2021, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	March 15, 2021, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	March 24, 2021, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	April 19, 2021, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	April 28, 2021, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	May 17, 2021, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA

Event Name	Date	Location
Groundwater Commission Meeting	May 26, 2021, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	June 21, 2021, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	June 23, 2021, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	July 19, 2021, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	July 28, 2021, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	August 16, 2021, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	August 25, 2021, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	September 20, 2021, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	September 22, 2021, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	October 18, 2021, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	October 27, 2021, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	November 15, 2021, 11:00 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Groundwater Commission Meeting	December 8, 2021, 8:30 AM	Board of Supervisors Chambers 727 Oak Street Red Bluff, CA
Tehama County FCWCD Board of Directors Meeting	December 20, 2021, 11:00 AM	Board of Board of Supervisors Chambers 727 Oak Street
Additional Outreach Events		

2.1.5.3 Comments on the Plan

Comments that the Tehama County FCWCD received on the GSP were considered in the preparation of the GSP by the GSA and consultants. Copies of comment letters received are provided in **Appendix 2-E**.

2.1.5.4 Agency Decision Making Process

The Tehama County FCWCD is the GSA for the Antelope Subbasin and has the final decision-making authority for the Subbasin. To assist in the development of the GSP, meetings were held with the Groundwater Commission, Tehama County FCWCD Board of Directors, Tehama County Board of Supervisors, ad hoc committees, and AB3030 TAC to discuss GSP elements as needed. As discussed in Section 1.3.1, the Board of Directors/Board of Supervisors is the five-member elected governing body of the Tehama County FCWCD, the Groundwater Commission is an eleven member advisory committee for the Board of Directors for GSA related matters, and the AB3030 TAC consists of stakeholders with various interests: agricultural pumpers, water district representatives, a natural resource representative, and city representatives. The ad hoc committees consist of a smaller group of Groundwater Commission members that assemble when needed to address specific topics, make recommendations, and report information back to the full Groundwater Commission for direction or recommendation to the FCWCD Board of Directors. Once the specific topic was addressed, the committee would dissolve. These committees formed and met throughout the development of the GSP to ensure specific topics were addressed. Final decisions were then made by the GSA and in coordination with stakeholders and with input from consultants and advisory committees as needed.

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