



County of Ventura

Drought Resilience Plan

March 2026 | Administrative Final



Ventura County Drought Resilience Plan

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Acronyms and Abbreviations

°F	degrees Fahrenheit
ACS	American Community Survey
Calleguas	Calleguas Municipal Water District
CDAG	County Drought Advisory Group
County	Ventura County
CWC	California Water Code
DRP	Drought Resilience Plan
DWR	California Department of Water Resources
EHD	Environmental Health Division
FCGMA	Fox Canyon Groundwater Management Agency
FEMA	Federal Emergency Management Agency
GSA	groundwater sustainability agency
GSP	groundwater sustainability plan
HUC	Hydrologic Unit Code
OES	Office of Emergency Services
OSWCR	Online System for Well Completion Reports
PCT	Ventura County Project Coordination Team
PLSS	Public Land Survey Section
risk assessment	drought and water shortage risk assessment
SAFER	Safe and Affordable Funding for Equity and Resilience
SB	Senate Bill
SGMA	Sustainable Groundwater Management Act
State	State of California
State Water Board	California State Water Resources Control Board
Task Force	Ventura County Drought and Water Shortage Task Force
TDS	total dissolved solids
USFS	U.S. Forest Service
VCCEO	Ventura County Executive Office
VCPWA	Ventura County Public Works Agency
VCRMA	Ventura County Resource Management Agency
WSVE Tool	Water Shortage Vulnerability Explorer Tool
WY	water year

Chapter 1 Introduction

This Ventura County (County) Drought Resilience Plan (DRP) documents how the County, its Drought and Water Shortage Task Force (Task Force) members, and other entities with water supply and drought management responsibilities will address water supply vulnerabilities for state small water systems¹ and domestic wells² within the County.

It describes the water shortage vulnerabilities present in the County; the responses to identified vulnerabilities; and the policy, financial, and regulatory considerations necessary for the implementation of the County DRP. Implementation of the County DRP is led by the Ventura County Public Works Agency (VCPWA) and the Ventura County Executive Office (VCCEO) in close coordination with other departments.

The County DRP was prepared pursuant to Senate Bill (SB) 552: Drought Planning for Small Water Suppliers, State Small Water Systems, and Domestic Well Communities (Hertzberg; see Section 1.2 for additional detail). This County DRP was developed by the County with funding and technical support provided by the California Department of Water Resources (DWR) Drought Resilience Planning Assistance Program.

1.1 Document Organization

Organization of this document draws from DWR's *County Drought Resilience Guidebook* from March 2023. The guidebook is a resource for counties to use in developing a county DRP specifically for state small water systems and domestic wells. Consistent with the guidebook, this County DRP is organized into six chapters, as follows:

- **Chapter 1, Introduction**, provides an overview of the legislation relating to SB 552 and the development of this County DRP. It also includes background on County demographics, hydrology, and land use, as well as an overview of domestic wells and state small water systems within the County's jurisdiction.
- **Chapter 2, County Drought and Water Shortage Task Force**, provides an overview of the Task Force, including its purpose, organization, responsibilities, and communication and engagement approach.
- **Chapter 3, Drought and Water Shortage Risk Assessment**, characterizes the vulnerability of domestic wells and state small water systems within the County to drought and water shortage. This chapter also presents the approach and data used to assess vulnerability. It highlights areas within the County that have a higher risk of drought and water shortage where domestic wells and state small water systems are present.

¹ A state small water system provides piped water to the public for human consumption for at least 5, but not more than 14, service connections and does not regularly serve drinking water to more than an average of 25 individuals daily for more than 60 days out of the year (California Health and Safety Code Section 116275(n)).

² A domestic well is a groundwater well used to supply water for the domestic needs of an individual residence or a water system that is not a public water system and that has no more than four service connections (California Health and Safety Code Section 116681(i) [with equivalent definition in California Water Code Section 1060951(k)]).

- **Chapter 4, Short-Term Response Actions**, details the proposed short-term response actions for emergency and interim drought solutions.
- **Chapter 5, Long-Term Mitigation Strategies and Actions**, discusses the proposed long-term mitigation strategies and actions for improving the water supply resilience of domestic wells and state small water systems.
- **Chapter 6, Implementation Considerations**, presents a roadmap for implementing short-term response actions and long-term mitigation strategies and actions consistent with the mission and authority of the involved agencies. This includes identifying agencies and entities responsible for implementation, the status of implementation, funding, and authorization for implementation. This section also summarizes the level of multi-agency collaboration identified by agencies to support implementation.
- **Chapter 7, References**, provides the list of references used in this plan.

1.2 Legislative Requirements

Signed into law in September 2021 by Governor Gavin Newsom, SB 552 (Hertzberg)³ obligated the State of California (State) and local governments to share the responsibility of preparing for and responding to a water shortage event. These requirements are intended to improve the ability of Californians to manage future droughts and help prevent catastrophic impacts on drinking water for communities vulnerable to the effects of climate change. The bill outlines the requirements for small water suppliers, county governments, DWR, and the State Water Resources Control Board (State Water Board) to implement more proactive drought planning and be better prepared for future water shortage events or dry years.

SB552 also implements legislation on water conservation and drought planning (SB 606 [Hertzberg] and Assembly Bill 1668 [Friedman], as amended) passed by the California State Legislature. The 2018 legislation provides a new framework for urban water use efficiency; directives for eliminating water waste; additional requirements for strengthening local drought resilience for urban areas, vulnerable small water suppliers, and rural communities; and recommendations for improving agricultural water use efficiency and drought planning.

³ In 2018, DWR convened a County Drought Advisory Group (CDAG) to assist in a vulnerability assessment and to develop recommended actions for improving drought planning for small water suppliers and rural communities. The CDAG consisted of representatives from counties and other local agencies, small water systems, tribes, academics, non-profit organizations, and other interested parties. The CDAG's recommendations were provided to the Legislature in March 2021 and served as the basis for SB 552. DWR has also established a standing drought and water shortage interagency task force, in coordination with the State Water Board and other relevant state agencies, to facilitate proactive state planning and coordination for pre-drought planning, emergency response, and post-drought management, consistent with SB 552. The interagency task force, called the Drought Resilience Interagency and Partners Collaborative, serves as a public forum with State and non-State agency members to advance drought strategies and continue building resilience to the increasingly arid conditions California faces.

Water users protected under SB 552 include the following:

- **Domestic Well:** A groundwater well used to supply water for the domestic needs of an individual residence or a water system that is not a public water system and that has no more than four service connections, as defined in HSC Section 116681(i) and Section 10609.51(d).
- **State Small Water System:** A system for the provision of piped water to the public for human consumption that serves at least five, but not more than 14, service connections and does not regularly serve drinking water to more than an average of 25 individuals daily for more than 60 days out of the year, as defined in HSC Section 116275(n) and Section 10609.51(l).
- **Community Water System:** A public water system that serves at least 15 service connections used by yearlong residents or regularly serves at least 25 yearlong residents of the area served by the system, as defined in HSC Section 116275(i) and Section 10609.51(a).
- **Nontransient Noncommunity Water System:** A public water system that is not a community water system and that regularly serves at least 25 of the same persons over six months per year, as defined in HSC Section 116275(k) and Section 10609.51(f).
- **Small Water Supplier:** A community water system serving 15 to 2,999 service connections, inclusive, and that provides less than 3,000 acre-feet of water annually, as defined in California Water Code (CWC) Section 10609.51(k).

As required, this County DRP addresses water shortage vulnerabilities for domestic wells and state small water systems. Other water users protected under SB 552 not included in this County DRP have separate requirements to address water shortage vulnerabilities.

1.2.1 County Requirements

This County DRP fulfills county requirements for preparation of a plan that includes potential drought and water shortage risk and proposed interim and long-term solutions for domestic wells and state small water systems within a county's jurisdiction (CWC Section 10609.70). Applicable county requirements are:

- Establish a standing County Drought and Water Shortage Task Force (CWC Section 10609.70(a))
- Develop a plan that considers, at a minimum, each of the following (CWC Section 10609.70(b)):
 - 1) Consolidations for existing water systems and domestic wells
 - 2) Domestic well drinking water mitigation programs
 - 3) Provision of emergency and interim drinking water solutions
 - 4) An analysis of the steps necessary to implement the plan
 - 5) An analysis of local, state, and federal funding sources available to implement the plan

1.2.2 State Agency Involvement and Implementation

SB 552 defined a series of requirements for the State Water Board and DWR, as described below:

State Water Resources Control Board (CWC Section 10609.70(c))

The state board shall work with counties, groundwater sustainability agencies, technical assistance providers, nonprofit organizations, community-based organizations, and the public to address state small water system and domestic well community drought and emergency water shortage resiliency needs, including both of the following:

(1) Proactive communication to domestic well communities before a drought occurs, such as information on local bottled water and water tank providers.

(2) Funding for installation of basic drought and emergency water shortage resiliency infrastructure, such as well monitoring devices.

California Department of Water Resources (CWC Section 10609.80)

The department shall take both of the following actions to support implementation of the recommendations of its County Drought Advisory Group:

(1) Maintain, in partnership with the state board and other relevant state agencies, the risk vulnerability tool developed as part of the County Drought Advisory Group process and continue to refine existing data and gather new data for the tool, including, but not limited to, data on all of the following:

(A) Small water suppliers and nontransient noncommunity water systems serving a school.

(B) State small water systems and rural communities.

(C) Domestic wells and other self-supplied residents.

(2) Update the risk vulnerability tool for small water suppliers and rural communities periodically, by doing all of the following:

(A) Revise the indicators and construction of the scoring as more data becomes readily available.

(B) Make existing and new data publicly available on the California Open Data internet web portal.

(C) In consultation with other relevant state agencies, identify deficits in data quality and availability and develop recommendations to address these gaps.

(b) (1) The department, in collaboration with the state board and relevant state agencies, shall establish a standing interagency drought and water shortage task force to facilitate proactive state planning and coordination, both for predrought planning and post-drought emergency response, to develop strategies to enhance collaboration between various fields, and to consider all types of water users.

(2) The interagency drought and water shortage task force shall include representatives from local governments, community-based organizations, nonprofit technical assistance providers, the public, and experts in land use planning, water resiliency, and water infrastructure.

1.3 Ventura County Overview

The County was established in January 1873 following its separation from Santa Barbara County. Long before its formation, this region was home to Indigenous nations, including the Fernandeño Tataviam Band of Mission Indians, who inhabited the southern and inland areas of the County, the Chumash, whose ancestral lands extended along the coast, and the Gabrielino-Tongva, whose ancestral territory

included the greater Los Angeles Basin and the Southern Channel Islands (State of California Native American Heritage Commission 2026). The County covers about 1.2 million acres and spans more than 40 miles along the Pacific Coast. As shown in Figure 1-1, Ventura County is bordered by Los Angeles County to the east and south, Santa Barbara County to the west, and Kern County to the north. Its County seat—Ventura—is located approximately 70 miles from the city of Los Angeles. The Los Padres National Forest makes up about 46 percent of the County’s land.

The County’s jurisdiction also covers two islands, Anacapa Island and San Nicolas Island, which are part of the Channel Islands. Anacapa Island is a small volcanic island located roughly 11 miles off the coast and managed as part of Channel Islands National Park. San Nicolas Island is the most remote of California’s Channel Islands, located approximately 61 miles from the mainland coast. The island is currently owned and operated by the US Navy for weapons testing and training. These islands support a variety of plant and animal life and are home to key endemic species.



Figure 1-1. Ventura County Overview

1.3.1 Demographics

Selected demographics of the County are summarized below per the 2020 U.S. census and the 2024 American Community Survey (ACS).

- **Population:** As of the 2024 ACS, the County has a population of 835,427 people, which reflects a slight decline of approximately 1 percent since the 2020 census (US Census Bureau 2020). Oxnard is the largest city in the County, with a population of 200,637.
- **Age:** The County has a relatively balanced age distribution, reflecting a mix of young families, working-age adults, and a significant senior population. The median age is 40.2 years. Around 18 percent of the population is 65 years and older (US Census Bureau 2024).
- **Ethnicity:** The County is a culturally diverse region. Per the 2024 ACS, the three largest ethnic groups in the County are Hispanic or Latino (45.3 percent), White Non-Hispanic (40.5 percent), and Asian (7.6 percent).
- **Household Income:** The County's household income reflects a relatively affluent community. Per the 2024 ACS, the County's median household income is \$114,238 which is higher than the median household income for the State (\$100,149). Between 2023 and 2024, the median income household increased from \$107,327 to \$114,238, marking a 6.4 percent rise.
- **Poverty Level:** According to the 2024 ACS, about 9.3 percent of the County's population lives below the poverty line, which is lower than the State and national average of 11.8 percent and 12.1 percent, respectively. The largest demographic living in poverty is residents under 18 years of age, followed by those 65 years and older, and then those between 18 and 65. Females experience poverty at a slightly higher rate than males. The largest ethnic group living in poverty is the Hispanic or Latino population.
- **Education:** According to the 2024 ACS, approximately 85.3 percent of residents aged 25 and older have at least a high school diploma. About 37.6 percent hold a bachelor's degree or higher, which is slightly less than the State average of 38.1 percent.

1.3.2 Geography

The County is a geographically diverse region in Southern California, stretching from the Pacific Ocean to mountainous inland areas. Positioned on the southern edge of California's Central Coast, the County encompasses a wide range of landscapes and topography, including fertile coastal plains, rolling foothills, and remote forested highlands. This variety creates a rich mix of ecosystems and supports varied land uses such as agriculture, urban development, and protected wilderness areas.

Topography

The County is characterized by a highly varied terrain. The Western Transverse Ranges dominate the County, covering its northern two-thirds with east-west trending mountain ranges and intervening valleys. Mount Pinos, part of the greater Western Transverse Ranges, is the highest point in the County with an elevation over 8,000 feet above sea level. Key Western Transverse Ranges include the San Ynez Mountains, Topatopa Mountains, and Santa Susana Mountains. The San Andreas fault runs through the northeastern corner, placing the County on the Pacific Plate.

The region's diverse topography supports various ecosystems. Higher elevations feature mixed conifer forests, including ponderosa pine and Jeffrey pine. To the south, the Santa Monica-Simi Hills-Santa

Susana Mountains complex consists of relatively low mountains, mostly under 2,000 feet, with unique geology creating diverse microhabitats that support multiple endemic plant species. The Santa Susana Mountains, extending east-west toward Newhall Pass in Los Angeles County, are bordered by the Santa Clara River Valley to the north (Magney 2023).

The Coastal Plain and Valleys region in the western portion of the County includes Rincon Coast, Lower Ventura River, and Oxnard Plain. These regions have been heavily impacted by development, with rich soils in the Oxnard Plain supporting farmland when irrigated. The Anacapa and San Nicolas Islands are geologically significant due to their volcanic origins and unique ecosystems. Topography within the County is shown in Figure 1-2.

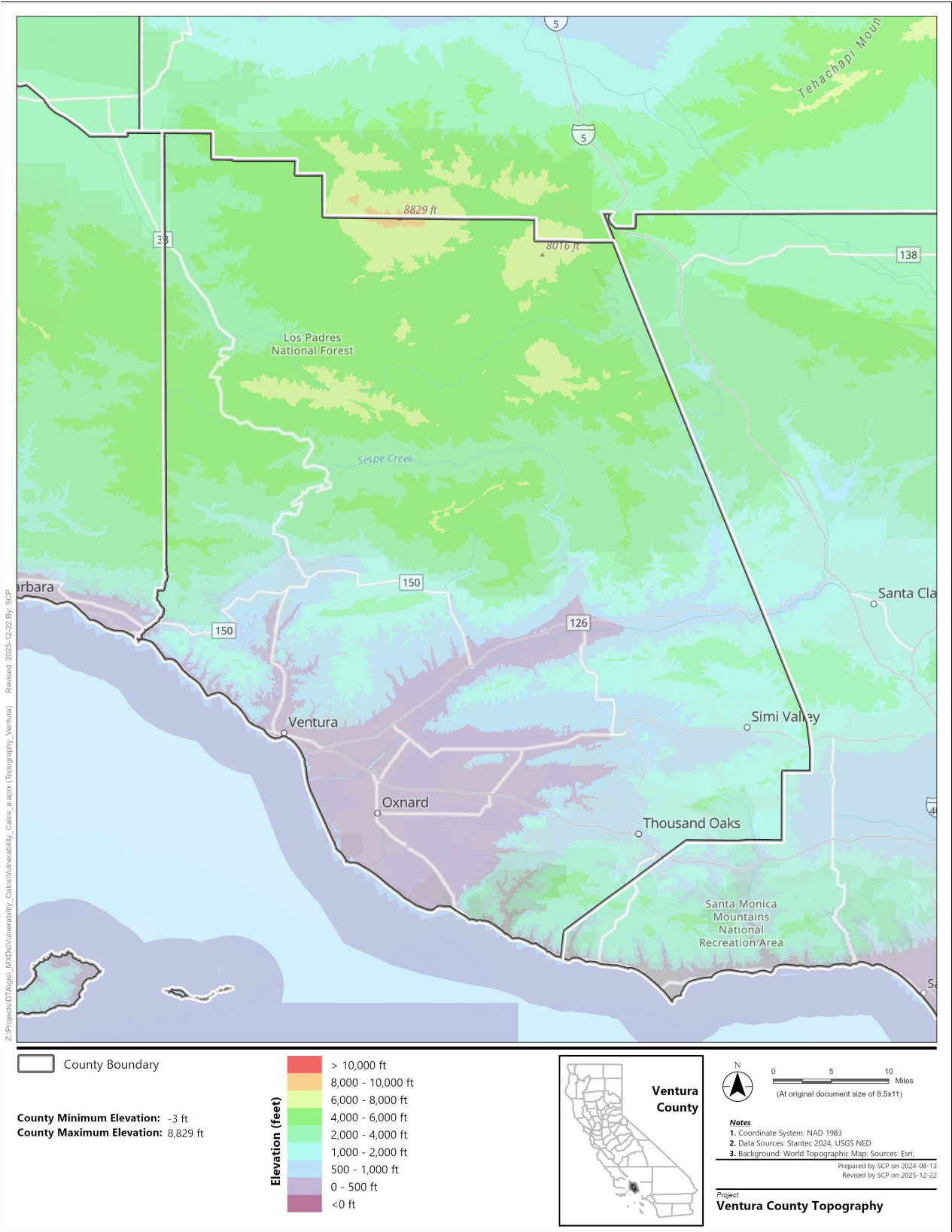


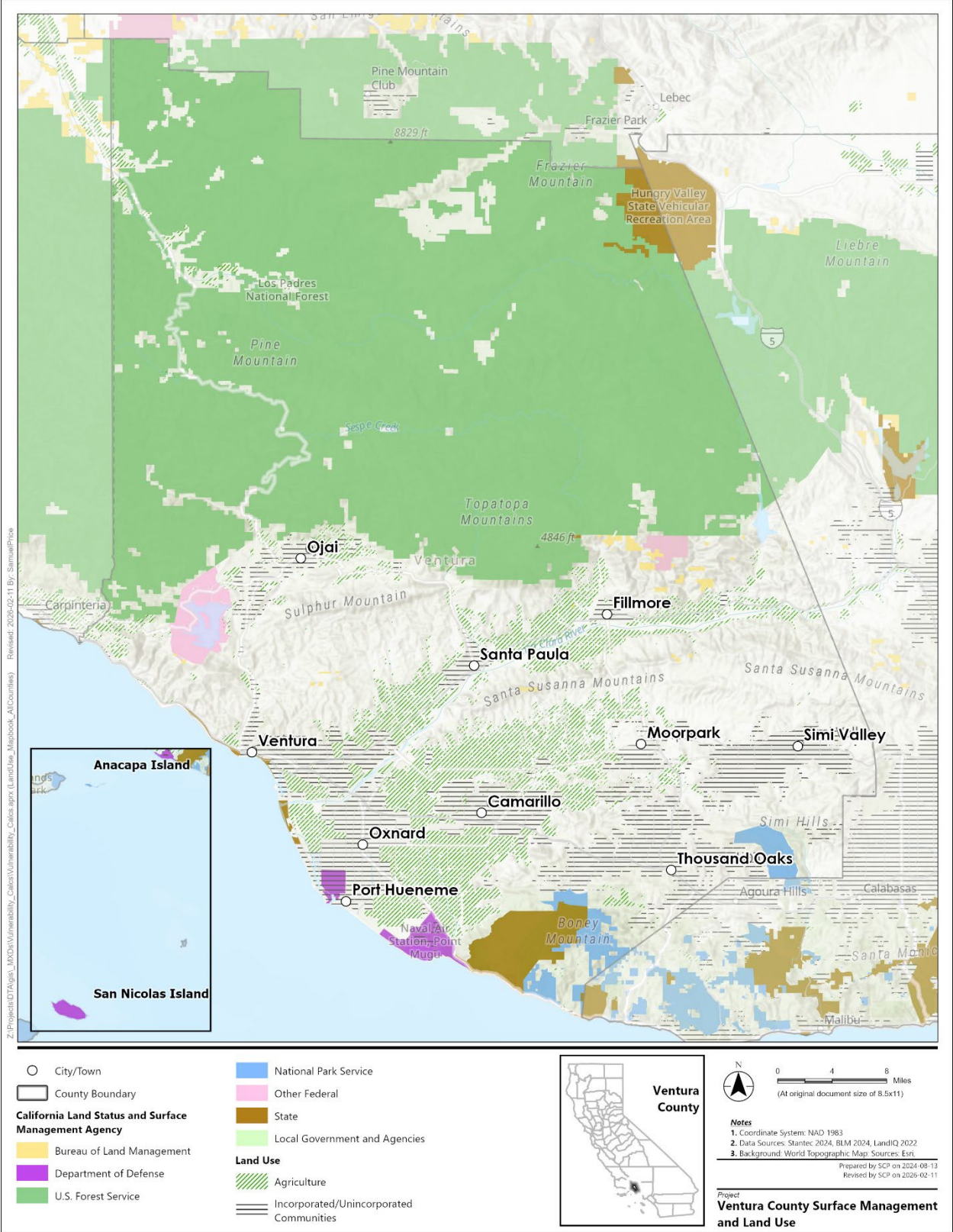
Figure 1-2. Topography of Ventura County

Geology

The County's geology is heavily influenced by its coastal location and proximity to the San Andreas fault. Sedimentary rocks are the most prevalent in the County, particularly within the Ventura Basin. This sedimentary basin was formed during the Miocene Epoch and contains thick sequences of marine and non-marine sediments, including sandstone, shale, and conglomerates. With sedimentary sequences reaching up to 50,000 feet, the Ventura Basin has been a significant site for oil extraction. Igneous rock is primarily found in the northeastern section of the County in the Transverse Ranges and consists of quartz monzonite, quartz diorite, and granodiorite. In some areas, metamorphic rocks such as schist and gneiss can be found near areas with significant tectonic activity. Notable beach and river deposits, such as jasper and travertine, can be found along the County's 42 miles of coastline.

Land Use Management

The County features a mix of undeveloped and developed land, with pockets of urban areas and rural towns. The U.S. Forest Service manages and oversees the Los Padres National Forest, which spans the northern half of the County (Bureau of Land Management 2024). Urban areas, including the cities of Oxnard, Ventura, Camarillo, Thousand Oaks, Moorpark, Port Hueneme, Ojai, Santa Paula, Fillmore, and Simi Valley, are concentrated toward the southern half of the County. Agriculture occurs near Oxnard along the coastal plains and Santa Clara River Valley. As shown in Figure 1-3, agricultural land covers approximately 92,000 acres, and about 100,000 acres are considered urban areas (DWR 2023).



Note: The areas without color or hatching represent non-urbanized private land or areas not managed by a public entity.
Figure 1-3. Land Use and Management Within Ventura County

1.3.3 Water Landscape: Supply, Use, and Management

The County's water landscape is characterized by a diverse management system to maintain the balance between supply and demand and ensure the long-term sustainability of the County's water resources. The County relies on a combination of groundwater, surface water, imported water, and reclaimed water to meet the needs of its urban, agricultural, and industrial sectors.

Precipitation

The County experiences significant seasonal variation in precipitation. Typically, rainy seasons last from October to April, with the heaviest rainfall occurring in February (VCPWA 2020). The County's geography, consisting of coastal areas, valleys, and mountain ranges, also influences its precipitation patterns. Coastal and mountainous areas tend to receive more rainfall compared to the inland valleys; however, precipitation can vary. For example, the city of Ventura, located along the coast, recorded 11.79 inches of precipitation in water year (WY)⁴ 2022, 29.05 inches in WY 2023, and 25.88 inches in WY 2024 (VCPWA 2020). The city of Camarillo, located near the center of the County, recorded approximately 12.04 inches during WY 2022, 22.97 inches in WY 2023, and 14.51 inches in WY 2024 (VCPWA 2020). Alamo Mountain, located in the northern mountain ranges at an elevation of just over 7,000 feet, recorded approximately 9.35 inches of precipitation in WY 2022, 69.88 inches in WY 2023, and 21.9 inches in WY 2024 (VCPWA 2020).

Hydrology

The Hydrologic Unit Code (HUC) system, created by the U.S. Geological Survey, is a hierarchical land classification system that classifies and identifies hydrologic units, the area of the landscape that drains to a portion of the stream network, based on topography. The County lies within the larger Ventura-San Gabriel HUC 6 basin and includes several smaller HUC 8 basins, as shown in Figure 1-8, including portions of the Ventura, Santa Clara, Calleguas, Cuyama, and Santa Monica Bay subbasins and much smaller portions of some other surrounding subbasins.

The County's watersheds are organized into four management zones: Ventura River Watershed (Zone 1), Santa Clara River Watershed (Zone 2), Calleguas Watershed (Zone 3), and Cuyama River Watershed (Zone 4) and Malibu Creek Watershed⁵ (Zone 4) (VCPWA 2024b). The region's major rivers include the Cuyama River in the Cuyama Watershed, the Santa Clara River in the Santa Clara Watershed, and the Ventura River in the Ventura Watershed (VCPWA 2024b). Surface water features in the County include: Matilija Lake, Mirror Lake, and Lake Casitas in the Ventura River watershed; Lake Piru in the Santa Clara watershed; McGrath State Beach in the Calleguas watershed; and Lake Sherwood and Lake Eleanor in the Malibu Creek watershed.

⁴ A water year is defined as the 12-month period from October 1 to September 30, designated by the calendar year in which it ends.

⁵ The Malibu Creek watershed overlaps with HUC 6, Santa Monica Bay subbasin.



Water Supply

The County relies on a diverse mix of water sources, including imported, surface, groundwater, and recycled water. Groundwater is the primary supply in unincorporated areas, and dependence on groundwater increases during drought, causing declining basin levels, subsidence risks, and water intrusion along the coast. There are more than 162 water suppliers in the County, ranging from large districts and city utilities to private and mutual companies (Ventura County 2020). The number of different suppliers adds to the complexity of managing the County's water resources. Water supplies for domestic, industrial, agricultural, and environmental uses within the County are described below.

Water Supplies:

- **Groundwater:** Groundwater represents the primary water supply resource for the County, providing 67 percent of local water supply (VCPWA 2024a). The VCPWA's Groundwater Resources Section oversees groundwater supply in the County. Groundwater supply and management is discussed in more detail under the "Groundwater" section below.
- **Surface Water:** Surface water is another major source of water supply. Ventura County Watershed Protection District oversees the County's reservoir levels. Lake Casitas, Santa Clara River, Ventura River, the Arroyo Simi/Arroyo Las Posas/Calleguas Creek system, Conejo Creek system, and the Honda Barranca/Beardsley Wash/Revolon Slough system are the main surface water sources that provide water for agricultural irrigation, municipal supply, and environmental conservation. Lake Casitas and Lake Piru are significant reservoirs in the County. Lake Casitas is fed by diverted water from the Ventura River and Coyote Creek, and Lake Piru Reservoir was designed for groundwater recharge (Ventura County 2020).
- **Imported Water:** Almost 75 percent of Ventura County residents rely on imported water provided by the Calleguas Municipal Water District (Calleguas) (Ventura County 2020). Calleguas imports and distributes water from the Metropolitan Water District of Southern California, sourced primarily water from the State Water Project. Calleguas serves the County's residents through its 19 member purveyors, which include cities, local water agencies, County waterworks districts, investor-owned utilities, and mutual water companies (Calleguas 2026). These purveyors then deliver water directly to homes and businesses throughout the County. Some purveyors use wells and blend water from Calleguas with groundwater, while others rely solely on Calleguas. Calleguas also stores imported water locally to enhance reliability and has interconnections with other local water agencies to ensure a stable water supply. Lake Bard is also owned and operated by Calleguas and serves exclusively as a storage reservoir for imported water. The volume of imported water fluctuates based on climate, regulations, and regional demand.
- **Recycled Water:** The cities of Fillmore, Oxnard, Thousand Oaks, and Ventura have plants to produce and deliver recycled water, primarily for irrigation, landscaping, and other non-potable uses (Ventura County 2020). The City of Simi Valley also restarted their recycled water project in 2022 to provide recycled water for irrigation in response to drought (Willer-Allred 2022). In partnership with the United Water Conservation District, the City of Oxnard's Transmission East pipeline aims to offset groundwater demand by conveying recycled or stormwater for agriculture and aquifer recharge (Watersheds Coalition of Ventura County 2019). The City of Ventura is implementing VenturaWaterPure, a major potable reuse project that will purify

treated water to drinking-water standards, eventually supplying up to 20 percent of the city's future water demand (City of Ventura n.d.). Ventura County Waterworks District No. 16 is currently upgrading its tertiary treatment for the Piru Wastewater Plant, which will provide domestic and commercial wastewater collection, treatment, and disposal for the town of Piru and unincorporated areas of the County (Pyramid Group International 2025).

Water Uses

Water is used across various sectors in the County, including agriculture, urban areas, industry, environmental conservation, and recreation. Effective management is crucial to balance the needs of each industry and ensure sustainability. Primary water uses in Ventura County are summarized below.

Water Uses:

- **Municipal:** Municipal water systems supply most of the County's domestic water. Cities use about 43 percent of the County's water supply (Farm Bureau of Ventura County 2025). This includes water for residential purposes such as drinking, cooking, bathing, and landscaping.
- **Agriculture:** Agriculture is a major water consumer in the County, with 56 percent of total water demand used for irrigation, maintaining livestock, and other farming activities (Farm Bureau of Ventura County 2025). The majority of growers in the County rely on groundwater from the Oxnard Plain or purchase it from agencies that deliver water imported from Northern California by the State Water Project, or from agencies that collect and distribute water from local reservoirs. Groundwater and surface water are considered the most critical water sources that support the County's agricultural production.
- **Industrial:** Industrial uses account for approximately one percent of the County's total water use (Watersheds Coalition of Ventura County 2019). Industries in Ventura County use water for manufacturing processes, cooling, cleaning, and other operational purposes. This water is often sourced from saltwater and recycled wastewater (Watersheds Coalition of Ventura County 2019).

Water Management Actions

Ventura County has implemented a comprehensive approach to water management to ensure sustainable water use and address challenges, including those related to drought and fire, as well as to accommodate future population growth. Water management actions the County is currently undertaking to ensure sustainable water supply for its residents, agriculture, and natural ecosystems are listed below:

- **County Regulatory Measures:** The County ensures adequate water supply, wastewater disposal, and protection of water quality through its general plan, zoning ordinances, and building codes. It mandates water budgets, reclaimed water use, and water-efficient designs for landscaping.
- **Data Collection:** The County collects extensive water resource data throughout the Ventura County Watershed Protection District, including rainfall gauges, streamflow gauges, groundwater well inventories and inspections, and groundwater monitoring.
- **Groundwater Sustainability Plan (GSP):** The County collaborates with groundwater sustainability agencies (GSAs) to implement the Sustainable Groundwater Management Act

(SGMA). Four GSPs have been prepared for high- and medium-priority subbasins in the County, as described in the following section.

- **Urban Water Management Plan:** The County’s urban water management plan is updated every five years and is intended to ensure that adequate water supplies are available to meet current and future demand. The 2020 update requires drought risk assessments, water shortage contingency plans, and seismic risk analyses.
- **Water Conservation Programs:** VCPWA oversees and enforces permanent water conservation measures regardless of water supply shortage. These include measures related to irrigation and runoff restrictions and requiring timely repairs in the event of a leak or malfunction.
- **Water Shortage Contingency Plans:** Local water agencies in the County have developed water shortage contingency plans that outline specific actions to be taken during different stages of drought.
- **Saltwater Intrusion Management:** Several GSAs managing subbasins affected by saltwater intrusion have implemented measures to mitigate these impacts. One strategy is to follow agricultural land, which reduces groundwater extraction. This approach specifically targets parcels in areas most vulnerable to saltwater intrusion. Some cities have mitigated saltwater intrusion by avoiding coastal pumping and instead relying on diversions of surface water supplies, reducing their dependence on groundwater (FCGMA 2019b).

Groundwater

Groundwater is a critical resource in the County, supplying over 67 percent of the County’s water needs (VCPWA 2024a). The VCPWA’s Groundwater Resources Section is responsible for managing groundwater. The County’s groundwater basins are underlain by permeable materials capable of storing and supplying significant amounts of water to wells. These basins include principal aquifers and major alluvial aquifers.

Sustainable Groundwater Management Act

Passed in 2014, SGMA represents a statewide framework to protect groundwater resources over the long term. SGMA led local public agencies, pursuant to CWC Section 10721(n), to form GSAs in high- and medium-priority basins and develop GSPs to avoid undesirable results and mitigate overdraft within 20 years. Bulletin 118, California’s official publication on groundwater, provides detailed information about the boundaries, conditions, and characteristics of these basins. The GSPs identify management actions to improve groundwater sustainability, including improved monitoring, agricultural efficiency improvements, groundwater trading system development, and aquifer recharge. In some instances, GSPs include domestic well drinking water mitigation programs to protect drinking water access for vulnerable communities. GSPs within the County evaluated domestic well vulnerability based on basin-wide groundwater level trends. Although the GSPs acknowledge potential gaps due to limited data, the majority of domestic wells appear to maintain operability, and therefore the GSPs do not include domestic well drinking water mitigation programs. Analysis completed by DWR to support implementation of SGMA classified 24 Bulletin 118 subbasins within the County, as identified in Figure 1-5, and listed below with related GSA and GSP information

- High priority:

- Cuyama Valley (DWR Basin 3-013) – This critically overdrafted basin is managed by the Cuyama Basin GSA. The GSP was approved in November 2024. There are no active domestic wells within the area affected by lowered groundwater elevations.
- Carpinteria (DWR Basin 3-018) – This basin is managed by the Carpinteria GSA. The GSP was approved in February 2025 and includes a screening-level analysis that identifies areas where domestic wells may be vulnerable to groundwater level decline and seawater intrusion. The analysis revealed that domestic wells have not gone dry in the basin. Local drillers who were also engaged confirmed that they have not seen a rise in deeper replacement wells.
- Ojai Valley (DWR Basin 4-002) – This basin is managed by the Ojai Basin Groundwater Management Agency. The Ojai Valley GSP was approved in October 2023 and includes a screening-level assessment of domestic well vulnerability. The GSP includes a groundwater extraction monitoring program requiring well operators to self-report extractions quarterly
- Santa Clara River Valley – Oxnard (DWR Basin 4-004.02) – This critically overdrafted basin is managed by the Fox Canyon Groundwater Management Agency (FCGMA). The GSP was approved in November 2021 and evaluates groundwater level declines, well depths, and areas of potential drinking water supply risk. The GSP identifies potential mitigation projects and response actions.
- Santa Clara River Valley – Mound (DWR Basin 4-004.3) – The Santa Clara River Valley – Mound Basin is managed by the Mound Basin GSA. The GSP was approved in October 2023 and evaluates vulnerability based on basin-wide groundwater level trends. There are no active domestic wells located in this basin.
- Santa Clara River Valley – Fillmore (DWR Basin 4-004.05) – The Santa Clara River Valley – Fillmore Subbasin is managed by the Fillmore and Piru Basins GSAs. The Santa Clara River Valley – Fillmore GSP was approved in February 2025. Groundwater modeling indicated that domestic wells are unlikely to go dry. Future groundwater levels were also expected to remain similar to historic conditions, and no domestic wells were known to have gone dry in the past
- Santa Clara River Valley – Piru (DWR Basin 4-004.06) – This basin is managed by the Fillmore and Piru Basins GSA. The GSP was approved in February 2025. Groundwater modeling indicated that domestic wells are unlikely to go dry. Future groundwater levels were also expected to remain similar to historic conditions, and no domestic wells were known to have gone dry in the past.
- Santa Clara River Valley – Santa Clara River Valley East (DWR Basin 4-004.07) – This basin is managed by the Santa Clarita Valley GSA. The GSP was approved in November 2024 and acknowledged data gaps in domestic well information, including water quality and water levels.
- Pleasant Valley (DWR Basin 4-006) – This critically overdrafted basin is managed by the FCGMA. The Pleasant Valley GSP, which was approved in November 2021, reported significant declines in groundwater levels, resulting in reduced storage and increased risk of land subsidence

- Las Posas Valley (DWR Basin 4-008) – The Las Posas Valley Basin is managed by three GSAs—FCGMA, Camrosa Water District GSA, and Las Posas Valley Outlying Areas GSA—with FCGMA acting as the primary GSA. This basin has experienced substantial groundwater level decline and comprises three management areas divided by the Somis Fault (FCGMA 2019a). The GSP was approved in January 2023.
- Medium priority:
 - Ventura River Valley – Upper Ventura River Basin (DWR Basin 4-003.01) – This basin is managed by the Upper Ventura River Groundwater Agency. The GSP was approved in April 2023 and evaluated vulnerability based on basin-wide groundwater level trends. The GSP concluded that domestic wells were not expected to experience significant impacts in the future. The GSP includes management actions that involve collecting additional information on domestic wells to enhance groundwater monitoring.
- Very low priority:
 - Upper Ojai Valley (DWR Basin 4-001)
 - Ventura River Valley – Lower Ventura River (DWR Basin 4-003.02)
 - Arroyo Santa Rosa Valley (DWR Basin 4-007)
 - Simi Valley (DWR Basin 4-009)
 - Conejo (DWR Basin 4-010)
 - Tierra Rejada (DWR Basin 4-015)
 - Hidden Valley (DWR Basin 4-016)
 - Lockwood Valley (DWR Basin 4-017)
 - Hungry Valley (DWR Basin 4-018)
 - Thousand Oaks Area (DWR Basin 4-019)
 - Russell Valley (DWR Basin 4-020)
 - Cuddy Ranch Area (DWR Basin 5-083)
- Adjudicated Basin
 - Santa Clara River Valley – Santa Paula (DWR Basin 4-004.04) – The Santa Clara River Valley – Santa Paula Basin has been fully adjudicated since 1996 (amended in 2010), with pumping rights legally defined by the Ventura County Superior Court. United Water Conservation District serves as the court-appointed watermaster (DWR 2026).

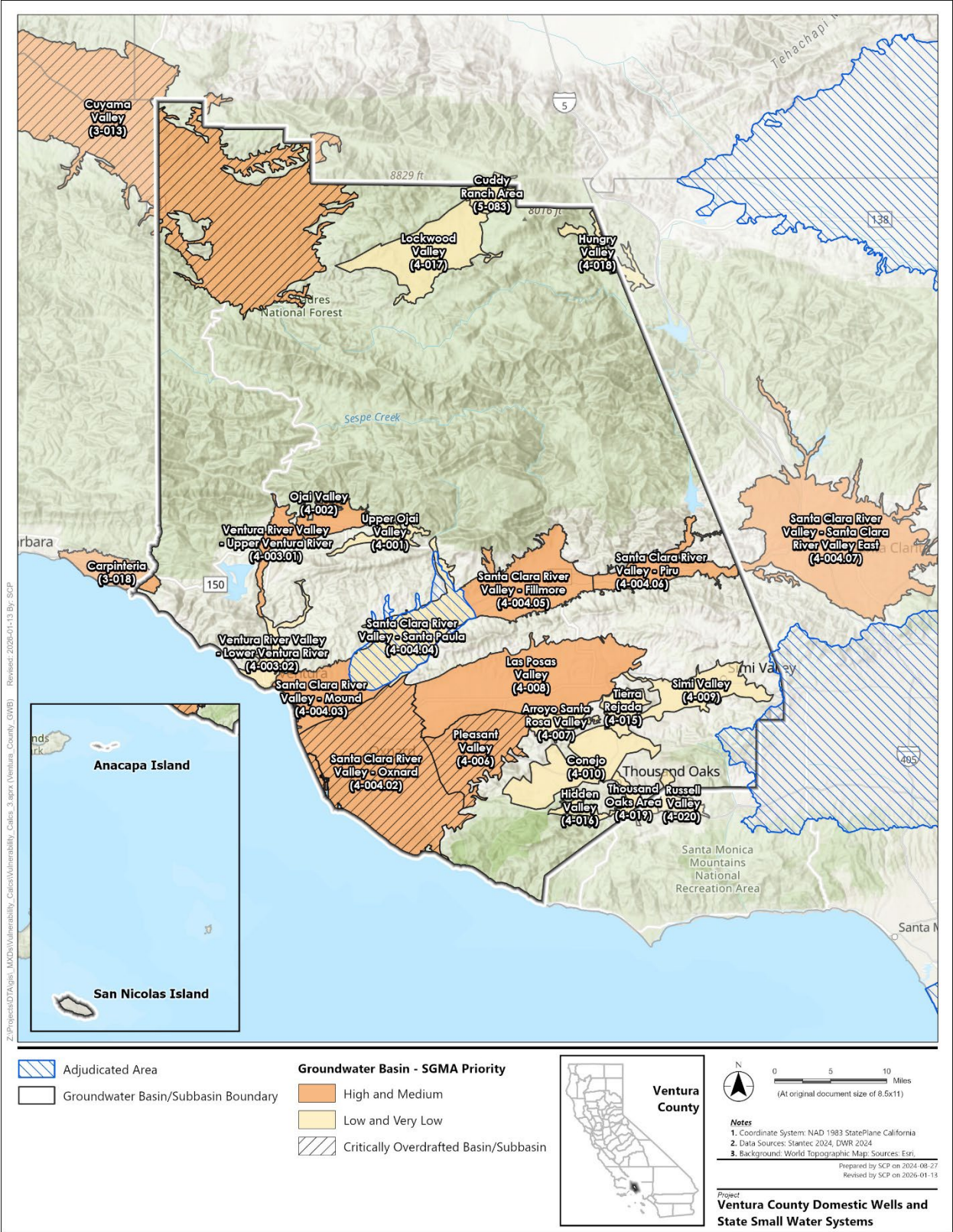
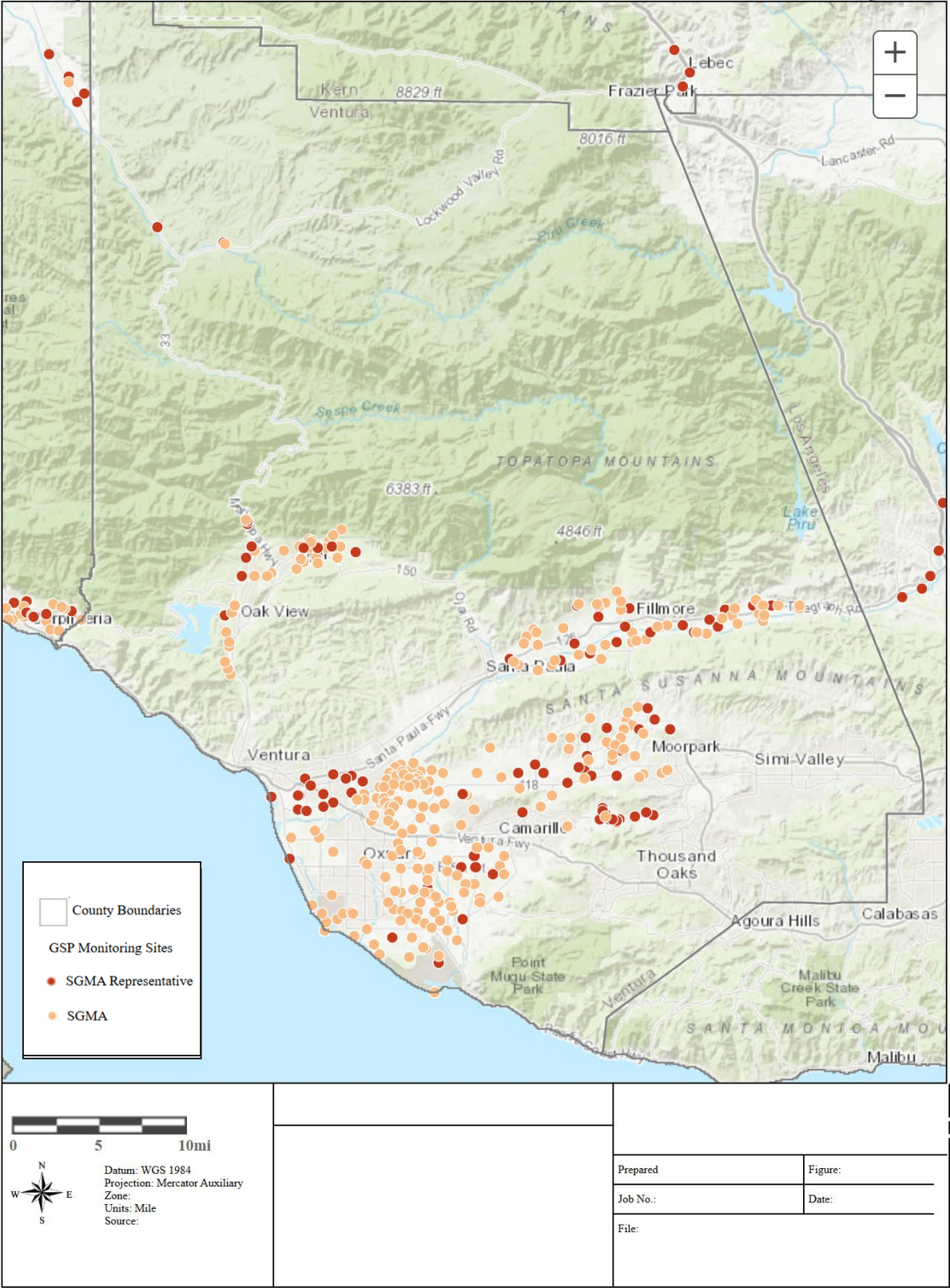


Figure 1-5. Locations of Groundwater Basins in Ventura County

As required by SGMA, each GSA is required to “develop a monitoring network capable of collecting sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions, and yield representative information about groundwater conditions as necessary to evaluate Plan implementation” (California Code of Regulations Title 23 Section 354.34). Figure 1-6 shows the GSP monitoring sites within the County. Groundwater level, subsidence, and/or streamflow measurements are collected at these sites by the respective GSAs in accordance with their GSPs for submittal to DWR through the SGMA Portal’s Monitoring Network Module.



Source: DWR 2025.

Figure 1-6. Groundwater Sustainability Plan Monitoring Sites in Ventura County

1.3.4 Domestic Wells and State Small Water Systems Within Ventura County's Jurisdiction

CWC Section 10609.70 requires that the County DRP address water shortage preparedness for domestic wells and state small water systems. Figure 1-7 shows the location of domestic wells and state small water systems within the County, and Table 1-1 summarizes how many domestic wells and state small water systems are in the Bulletin 118 basins and fractured rock areas. In addition, the figure and table show domestic wells that are outside the County but still within groundwater basins that are within the County. It is also worth noting that the table distinguishes domestic wells drilled before and after 1977. From 1977 onward, state-mandated well completion reports ensured consistent and accurate documentation of domestic wells. Prior to 1977, records were often incomplete or inaccurate. While the domestic wells drilled before 1977 may lack comprehensive reports, the County DRP includes them to ensure a thorough evaluation of potential risks for all existing domestic wells in the County.

Table 1-1. Summary of Groundwater Basins, Domestic Wells, and State Small Water Systems in Ventura County

Bulletin 118 Basin ID ¹	Groundwater Basin Name	SGMA Priority	Within Ventura County			Domestic Wells in Basin but Outside Ventura County
			Domestic Wells Drilled After 1977 ²	Domestic Wells Drilled Before 1977 ²	State Small Water Systems	
3-013	Cuyama Valley (<i>Critical Overdraft</i>)	High	26	11	0	77
3-018	Carpinteria	High	2	0	0	52
4-001	Upper Ojai Valley	Very Low	33	1	1	0
4-002	Ojai Valley	High	37	5	0	0
4-003.01	Ventura River Valley – Upper Ventura River	Medium	33	2	0	0
4-003.02	Ventura River Valley – Lower Ventura River	Very Low	4	1	0	0
4-004.02	Santa Clara River Valley – Oxnard (<i>Critical Overdraft</i>)	High	39	124	2	0
4-004.03	Santa Clara River Valley – Mound	High	2	6	0	0
4-004.04	Santa Clara River Valley – Santa Paula (<i>Adjudicated</i>)	Very Low	32	13	2	0
4-004.05	Santa Clara River Valley – Fillmore	High	81	36	5	0
4-004.06	Santa Clara River Valley – Piru	High	18	5	0	0

Bulletin 118 Basin ID ¹	Groundwater Basin Name	SGMA Priority	Within Ventura County				Domestic Wells in Basin but Outside Ventura County
			Domestic Wells Drilled After 1977 ²	Domestic Wells Drilled Before 1977 ²	State Small Water Systems		
4-004.07	Santa Clara River Valley – Santa Clara River Valley East	High	0	0	0		181
4-006	Pleasant Valley (<i>Critical Overdraft</i>)	High	18	13	0		0
4-007	Arroyo Santa Rosa Valley	Very Low	4	1	0		0
4-008	Las Posas Valley	High	35	24	4		0
4-009	Simi Valley	Very Low	7	31	0		0
4-010	Conejo	Very Low	22	45	0		0
4-015	Tierra Rejada	Very Low	9	3	0		0
4-016	Hidden Valley	Very Low	22	2	3		0
4-017	Lockwood Valley	Very Low	135	9	0		0
4-018	Hungry Valley	Very Low	0	0	0		1
4-019	Thousand Oaks Area	Very Low	1	1	0		0
4-020	Russell Valley	Very Low	1	0	0		9
5-083	Cuddy Ranch Area	Very Low	5	1	0		10
N/A	Fractured Rock Aquifer Wells	N/A	571	122	8		N/A
Total			1,137	456	25		330

Notes:

¹ A Bulletin 118 basin refers to a groundwater basin as defined in *California's Groundwater (Bulletin 118)*, which is the state's official publication on groundwater resources. Bulletin 118 groundwater basins are identified using a numbering system based on California's hydrologic regions. Each basin is assigned a unique ID number that reflects its location within one of the state's 10 hydrologic regions. The first digit of the ID number represents the hydrologic region, while the following digits are specific to the basin within that region.

² Information presented in this table and figure are based on well completion reports. Geographic information in well completion reports may be inaccurate and/or place the well inaccurately. As a result, the number of domestic wells may be overestimated, and the placement of wells may not reflect their actual locations.

Key:

SGMA = Sustainable Groundwater Management Act

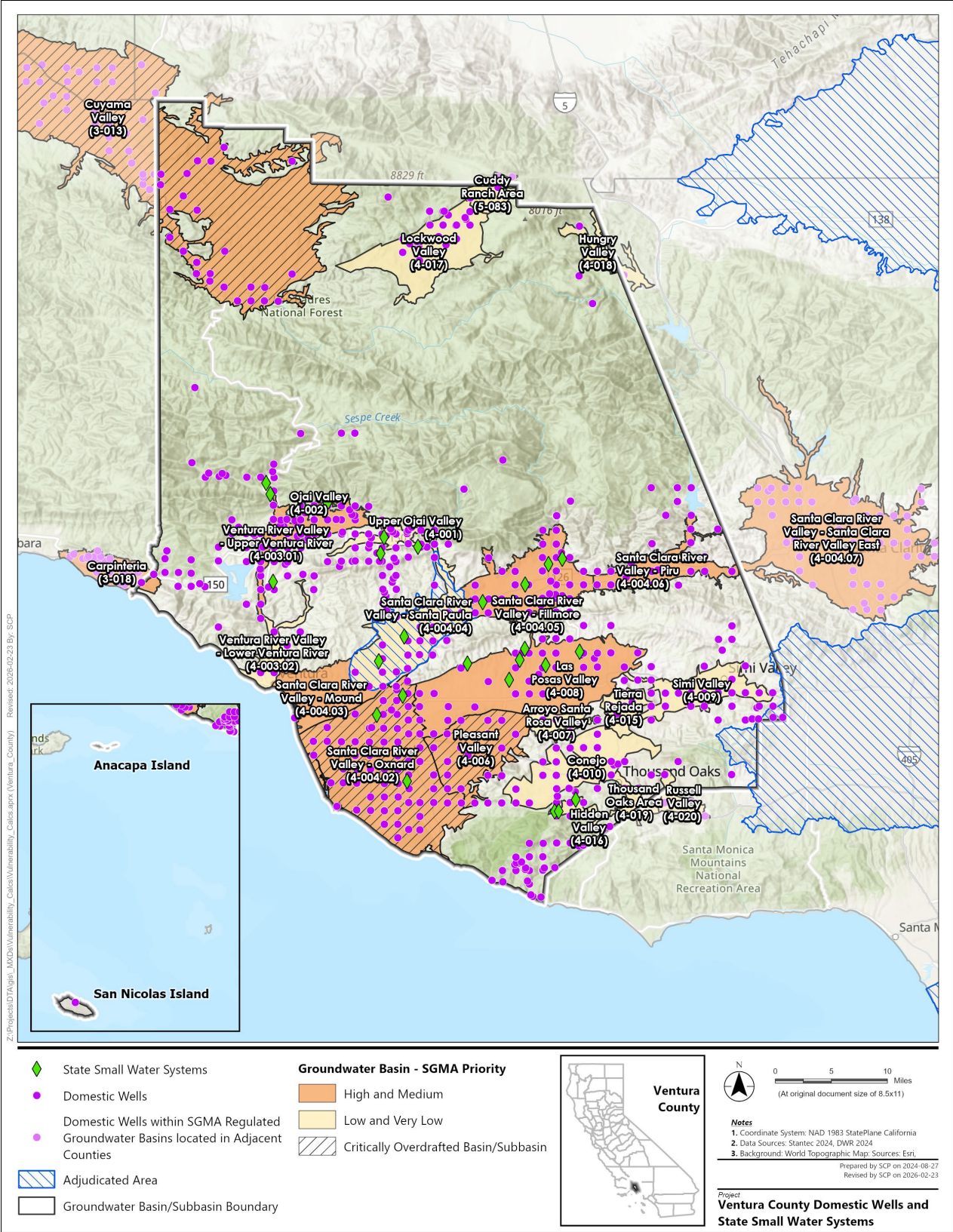


Figure 1-7. Locations of Domestic Wells and State Small Water Systems in Relation to Groundwater Basins in Ventura County

Chapter 2 County Drought and Water Shortage Task Force

2.1 Background and Legislative Directive

The County has established the Task Force to facilitate drought and water shortage preparedness for state small water systems and domestic wells.

CWC Section 10609.70(a)(1) provides:

A county shall establish a standing county drought and water shortage task force to facilitate drought and water shortage preparedness for state small water systems and domestic wells within the county's jurisdiction, and shall invite representatives from the state and other local governments, including groundwater sustainability agencies, and community-based organizations, local water suppliers, and local residents, to participate in the task force.

2.2 Purpose

The purpose of this chapter is to define the roles and responsibilities for the development and implementation of the Ventura County DRP. Parties covered include the Ventura County Project Coordination Team (PCT) and the Task Force, including representatives from State and local governments, local public agencies, community-based organizations, local water suppliers, and local residents interested in the County DRP. These parties seek to achieve the following objectives:

- Facilitate development of a County DRP that supports drought and water shortage preparedness and responsiveness for domestic wells and state small water systems within the County's jurisdiction.
- Facilitate regular coordination and communication among staff of relevant County departments, local water agencies, local water suppliers, GSAs, and others representing the concerns of domestic well and state small water systems users.
- Support implementation of drought and water shortage actions as identified in the County DRP.

2.3 Organization

The County, in compliance with CWC 10609.70(a)(1), established the Task Force in 2025 and invited representatives from government agencies and community organizations that have roles in drought condition monitoring, emergency services, hazard assessment, planning, operations, information coordination, water purveyors/wholesalers or water resources management, as well as representatives from domestic wells and state small water systems. The County conducted communication and outreach efforts using notifications, public engagement efforts, and establishing a County DRP website for community partners to register for the Task Force and stay informed. The membership of the Task Force includes the entities listed on the County DRP website.

The Task Force also includes a PCT subgroup comprised of County staff. The PCT oversees the Task Force and leads County DRP development and implementation. The Task Force is chaired by members of the PCT, with the VCPWA and VCCEO operating as the Task Force leads. PCT members include:

- Representative from VCPWA Engineering Services
- Representative from VCPWA Watershed Protection

- Representative from the County Sheriff's Office of Emergency Services (OES)
- Representative(s) from Ventura County Resource Management Agency (VCRMA) Environmental Health
- Representative(s) from VCRMA Planning
- Representative(s) from VCCEO

2.4 Responsibilities

The Task Force is an advisory body and does not have decision-making authority. It is intended to review and advise the PCT on the development of the County DRP and assist in guiding its implementation.

Task Force members are expected to:

- Review progress on the development of the County DRP, review and make recommendations on the Draft County DRP, and assist in the County DRP's implementation
- Review potential drought and water shortage risks, identify drought-related issues that may impact County residents, and provide input regarding short-term actions and long-term strategies to address identified issues
- Disseminate Task Force findings and recommendations to their respective agencies and organizations, as well as seek feedback that can be shared during Task Force meetings
- Attend Task Force meetings
- Review current drought conditions and facilitate coordination and communication during drought or water shortage emergencies

The PCT, a subgroup of the Task Force consisting of County staff, is responsible for preparing and implementing the County DRP. The PCT convenes and serves as staff to the Task Force. The PCT also consults with other County departments, relevant GSAs, and other local government and agency staff as needed to prepare the County DRP.

2.5 Term

Pursuant to CWC Section 10609.70, counties are required to maintain ongoing coordination, collaboration, and cooperation during development and implementation of a county DRP. The Task Force is anticipated to be an open committee, where members can choose whether to join through an email subscription on the County DRP website.

2.6 Meetings

During the development of this County DRP, the Task Force met to discuss the technical information in this County DRP. The meetings were scheduled with advance notice to Task Force members and held virtually.

After the County DRP is developed, the Task Force is anticipated to meet annually unless drought conditions necessitate more frequent meetings for action, planning, and coordination.

2.7 Communication and Engagement Framework

To assist in disseminating and collecting information to prepare the County DRP, the County implemented a variety of communication and engagement actions. Outreach tools and activities on the

County DRP website have been used to inform, engage, interact with, and respond to interested parties and the public during the development and implementation of the County DRP, including establishing a mechanism for long-term engagement and assisting the County in responding to water shortage events.

2.7.1 County DRP Website

The County established a website⁶ to support Task Force membership and distribute information associated with the County DRP for interested parties to stay up to date on the County DRP development and future implementation activities.

PCT members have maintained and updated the website with timely and relevant information throughout the County DRP development process, including items such as informational materials, Task Force meeting materials and summaries, and planning documents.

It is intended that the informational materials and website content will continue to be updated regularly at key implementation milestones, with periodic updates to reflect the status of the County DRP's implementation. Following the completion of the County DRP, the County DRP website may be used to communicate updates on implementation activities and for communicating during a water shortage emergency.

2.7.2 Public Engagement

As part of its outreach efforts, the County initiated direct communication with both domestic well owners and state small water systems to encourage participation in the Task Force. This includes distributing informational postcard mailers to domestic well owners and conducting direct phone outreach to state small water systems to encourage engagement in the planning process.

Moving forward, the County intends to promote drought resilience-related public meetings, workshops, activities, and resources available during water shortage events. During a water shortage event, it is anticipated that public meetings may be held in person and/or with a virtual meeting option (using an internet-based communication platform such as Microsoft Teams or Zoom) in general accordance with County policies.

2.7.3 Briefings to the Ventura County Board of Supervisors

The PCT may provide as-needed briefings to the Board of Supervisors of the County of Ventura on the development and implementation of the County DRP and any upcoming activities. Briefings would be conducted during regularly scheduled Board of Supervisor meetings.

2.7.4 Public Information

The website may include the Task Force charter, contact information, educational information, meeting agendas, meeting minutes, surveys, and/or an overview about SB 552. The draft and final versions of County DRP may be available online for review and comment by interested stakeholders and members of the public.

Community meetings may be recorded posted on the County DRP website. Community meeting details may also be made available to the public on the County DRP website.

⁶ <https://publicworks.venturacounty.gov/es/wells-drought-and-water-shortage-task-force/>

2.7.5 Collaboration with Relevant Agencies

The County may collaborate with other local and State agencies, such as local water suppliers, community services districts, groundwater management districts, and DWR, to facilitate preparation and implementation of the County DRP and provide notice and coordinate responses to future water shortage events. Collaboration may include information and resource sharing, partnering to host joint meetings, and coordination of targeted outreach activities.

Chapter 3 Drought and Water Shortage Risk Assessment

This drought and water shortage risk assessment (risk assessment) evaluates potential drought and water shortage risk for state small water systems and domestic wells within the County’s jurisdiction, as directed in CWC Section 10609.70(b). This risk assessment evaluates how physical and social hazards may impact water shortage vulnerability for domestic wells, state small water systems, and other community assets within the County and identifies the most vulnerable areas for these sensitive water systems. The outcomes from this risk assessment helped inform the development of short-term response actions to employ when a water supply shortage occurs and long-term mitigation strategies that reduce vulnerability to water shortages.

3.1 Terminology

This County DRP adapted the following definitions from the Federal Emergency Management Agency (FEMA)⁷ *Local Mitigation Planning Handbook* (FEMA 2025) within the context of drought and water shortage planning:

- **Community assets:** The people, structures, facilities, and lifelines that have value to the community. The minimum assets considered as part of the SB 552 DRP include domestic wells, state small water systems, and populations relying on those water supplies.
- **Hazard:** A source of harm or difficulty created by meteorological, environmental, geological, hydrological conditions, or other event. In the context of SB 552, hazards are the natural, human-made, and social processes that can lead to water shortages in the County.
- **Impact:** The consequences or effects of a hazard related to drought and water shortages on the community and its assets.
- **Risk:** The potential for damage, loss, or other impacts (e.g., water shortage) created by the interaction of natural hazards with community assets and their physical and social vulnerabilities.
- **Vulnerability:** Characteristics of community assets or populations that are at risk from the effects of an identified hazard. It includes both physical vulnerability and social vulnerability.

3.2 Risk Assessment Approach

The nature and severity of hazards that can cause water shortages vary at regional and local scales due to differences in conditions, such as precipitation patterns, groundwater levels, topography, geology, infrastructure, and regulatory frameworks. Communities lacking access to reliable water sources are most vulnerable to water shortage caused by such hazards. To address this, a risk assessment was completed that considered many physical and social hazard indicators. The outcomes from the risk assessment informed the development of Chapter 4, Short Term Response Actions, and Chapter 5, Long-Term Mitigation Strategies and Actions, which aim to mitigate impacts and reduce the vulnerability to drought and water shortage events.

The risk assessment consisted of the following steps:

⁷ It should be noted that while this County DRP could make the County eligible for FEMA’s Pre-Disaster Mitigation and Hazard Mitigation Grant programs, this risk assessment does not replace FEMA’s regulatory requirements.

1. **Describe Major Hazards in the County:** Drought, climate change, and water quality hazards were summarized and described.
2. **Define the Scope and Community Assets:** This step identified the scope and objectives for asset protection for drought resilience planning purposes. It also included an inventory of associated assets.
3. **Conduct Risk Assessment using DWR Water Shortage Vulnerability Explorer:** The DWR Water Shortage Vulnerability Explorer Tool (WSVE Tool) was used to identify areas within the County where domestic wells and state small water systems are vulnerable to water supply shortages and to characterize the hazards driving vulnerability. This information was provided for County and Task Force review, feedback, and identification of data gaps for incorporation into the risk assessment.
4. **Summarize Risk Assessment Results:** The County's physical and social vulnerability scores were used to identify the regions of water supply shortage vulnerability. Findings from the revised risk assessment were used by the County and Task Force to develop short-term actions and long-term strategies to improve water supply sustainability, as presented in Chapter 4, Short Term Response Actions, and Chapter 5, Long-Term Mitigation Strategies and Actions.

3.3 Hazards in Ventura County

This section describes the hazards, which include natural, human-made, and social processes that can lead to water shortages, in the County. Identified hazards summarized in this section include water quality, climate change, and drought concerns in the County. Section 3.5, Risk Assessment, provides more detail on the vulnerabilities related to these hazards.

3.3.1 Water Quality

The County faces various water quality concerns regarding its surface and groundwater resources. Regions with notable water quality issues include Oxnard, Conejo Valley, Simi Valley, Ojai Valley, and Santa Clara River Valley.

Given the County's coastal location and extensive agricultural activities, its water quality is heavily influenced by agricultural runoff and saltwater intrusion. These factors collectively contribute to the challenges to maintain high water quality standards in the County. Water quality concerns by source are outlined in more detail below. While most areas of the County are urbanized and rely on a centralized municipal treatment facility, some unincorporated areas rely on septic systems, which can pose a risk of contaminating surface and groundwater.

Surface Water

The County's rivers, creeks, estuaries, and coastal waters are influenced by a wide range of environmental pressures. According to County watershed programs and water-quality monitoring reports, the County's surface water is heavily impacted by stormwater and non-stormwater urban runoff, agricultural runoff, erosion and sedimentation, and naturally occurring geologic contaminants such as chloride and total dissolved solids (TDS) (Ventura Countywide Stormwater Quality Management Program 2024).

Groundwater

Key groundwater quality constituents of concern in the County's groundwater basins include TDS and chlorides, which are elevated due to seawater intrusion in coastal basins such as Oxnard and Pleasant

Valley. Additional contributors include nonpoint-source nitrate contamination from long-term agricultural activity in basins like the Santa Clara River Valley, Piru, Fillmore, and Santa Paula. Wastewater and package treatment plants, urban stormwater runoff, and septic tanks also impact groundwater quality (VCPWA 2024c). Key water quality constituents in groundwater can have significant impacts to human health. Some of the elevated concentrations for select constituents are a result of naturally occurring conditions, although some areas exhibit degraded groundwater quality as a result of groundwater contamination.

The presence of regulated constituents elevated at levels exceeding the prescribed thresholds increases the physical vulnerability of a water supply system. Such contaminants can compromise the safety and potability of the water, rendering it unfit for human consumption and various domestic uses. The contaminants may also impact the environment, affecting aquatic ecosystems, vegetation, and soil quality. Furthermore, they can cause infrastructure corrosion and damage, impacting the reliability and longevity of water supply systems and requiring costly repairs and maintenance efforts. These factors can all compound to render a domestic well or state small water system unable to deliver safe drinking water.

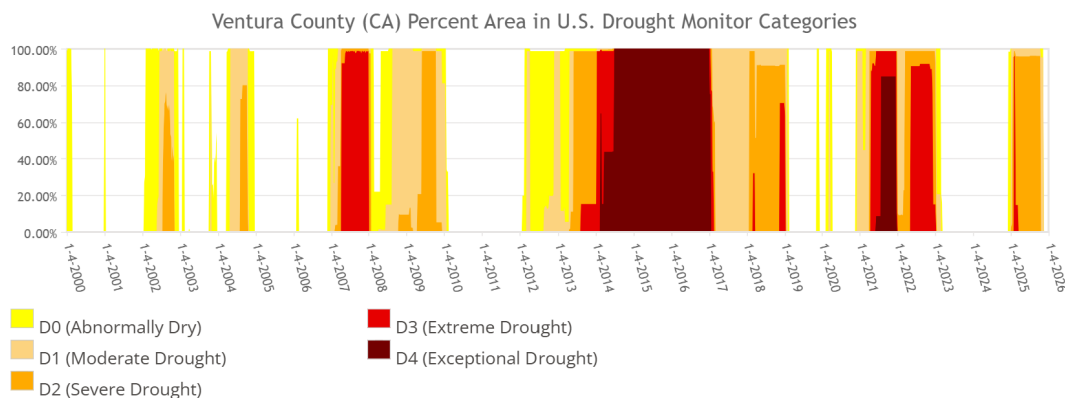
The key water quality constituents identified in the County are summarized below.

- **Nutrients (Nitrates and Phosphates):** These constituents occur naturally in the environment and can also be introduced via fertilizers, mining, septic and landfill leaks, and animal and industrial waste (among other pathways). Ingestion of nitrates, in particular, is known to cause methemoglobinemia in infants and may lead to some types of cancer (ATSDR 2017). Some flame retardants used to combat wildfires, which can be primarily composed of phosphates, may also impact groundwater quality when retardant constituents infiltrate through soils in recharge areas (Patrick 2025). **Per- and Polyfluoroalkyl Substances:** These constituents can lead to various health risks, including cancer and immune system effects. They are resistant to degradation and can accumulate in the environment and human body.
- **Boron:** This constituent occurs naturally in the environment and can also be introduced via sewage, fertilizers, and herbicides. Acute exposure to high doses via ingestion (approximately 66 percent or higher than the average daily intake) has been documented to contribute to death (ATSDR 2010).
- **Chloride:** Given its proximity to the coast, the County is at risk of saltwater intrusion into coastal aquifers. Specifically, reduced water levels in the Oxnard Plain allow saltwater, containing chloride, to infiltrate freshwater aquifers. High chloride concentrations can make groundwater unsuitable for drinking and irrigation. It can also contribute to the corrosion of infrastructure, leading to increased maintenance costs. The U.S. Geological Survey and United Water Conservation District have observed the inland encroachment of saltwater near the Hueneme and Mugu submarine canyons (Ventura County 2020).
- **Arsenic:** This constituent is a metalloid that occurs naturally in the environment, including soils and rock, and is also introduced by anthropogenic activities such as pesticide application and mining of metals. Ingestion of arsenic via drinking water has led to documented human deaths (ATSDR 2007).

- **Chromium-6:** Chromium occurs naturally in the environment and has several forms, including chromium-6. Chromium-6 is listed as a carcinogen by the International Agency for Research on Cancer (ATSDR 2012).
- **1,2,3-trichloropropane:** This constituent is an industrial chemical that may enter the hydrologic environment through spills or manufactured products such as paint removers. Limited data are available on its toxicology for humans; the chemical is listed as a likely carcinogen by the U.S. Environmental Protection Agency (ATSDR 2021).
- **Methyl tert-Butyl Ether:** This constituent is a compound historically added to gasoline. Leaks from storage tanks introduce the chemical into soils and groundwater. No known human studies are available assessing the possibility of death and cancer following exposure (ATSDR 2023).
- **Uranium:** This constituent is heavy metal that occurs naturally in the environment as a radioactive element. It may also be introduced via mining and fertilizer production. No evidence or reports have linked exposure to death or cancer (ASTDR 2013).
- **Elevated bacteriological levels:** Elevated bacteriological levels can be caused by seepage of sewage into well water and can lead to gastrointestinal disease (U.S. Environmental Protection Agency 2024).

3.3.2 Drought

Between 2014 and 2017, the County experienced what the U.S. Drought Monitor categorizes as “Exceptional Drought,” as shown in Figure 3-1. The County recently experienced another period of “Extreme Drought” and “Exceptional Drought” between 2021 and 2022. Figure 3-1 highlights the cyclical nature of droughts within the County, where periods of “Exceptional Drought” are followed by periods without drought. This figure also illustrates how drought conditions can intensify as they persist over time. A higher number of recent dry years may increase the physical vulnerability of water supply conditions due to resource depletion and prolonged periods without sufficient water.



Source: National Drought Mitigation Center, U.S. Department of Agriculture, and National Oceanic and Atmospheric Administration 2024.

Figure 3-1. Occurrence of Drought in Ventura County

3.3.3 Climate Change

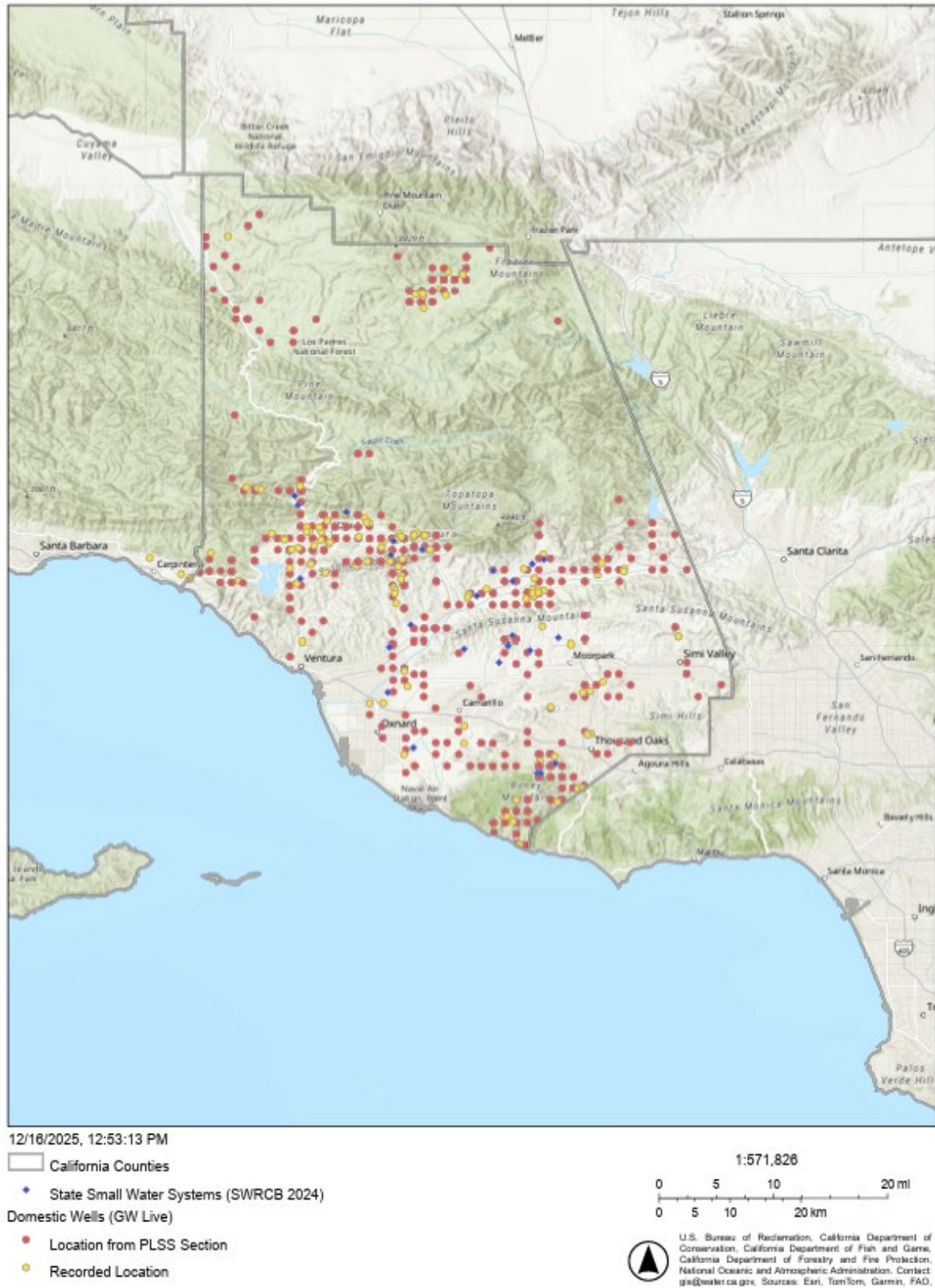
According to California's Fourth Climate Change Assessment, climate change has increased both average temperatures and the frequency and intensity of heat waves or extreme heat events. While global temperature increases are between 1.8 and 3.6 degrees Fahrenheit (°F), local observed increases that affect neighborhoods and ecosystems are more variable and often of greater magnitude. The *Los Angeles Region Report* predicted changes such as higher average temperatures with an approximate increase of 4 to 5°F by the mid-century and 5 to 8°F by the late century (Hall et al. 2018).

Average maximum temperatures are projected to increase by the mid-century by 3.26°F (in the central areas of the County near Ojai Valley) to up to 3.37°F (in the eastern and northeastern areas of the County, including pockets near Simi Valley and Topatopa Mountains). Increased temperatures could increase water supply demands from users, evapotranspiration, and other sources, thereby increasing vulnerability to drought and/or water shortage impacts.

3.4 Scope and Community Assets

The scope of the County DRP risk assessment is, at a minimum, to protect those reliant on domestic wells and state small water systems (Figure 3-2). Well location points indicated in red lacked sufficient location information and were associated with the centroid of the Public Land Survey Section. Additionally, a single point may contain multiple wells at that location.

Domestic well data were obtained from DWR's public well database, the Online System for Well Completion Reports (OSWCR) (DWR 2024a). Well completion reports comply with CWC Section 13751, which requires anyone who constructs, alters, or destroys a water well, cathodic protection well, groundwater monitoring well, or geothermal heat exchange well to file a report of completion with DWR within 60 days of completion of the work. State small water system data is managed by the State Water Board.



Source: DWR 2024b.

Figure 3-2. Locations of Domestic Wells and State Small Water Systems in Ventura County

3.5 Risk Assessment

This risk assessment, developed using DWR's WSVE Tool (DWR 2024b), summarizes areas where domestic wells and state small water systems are most vulnerable to water shortage vulnerability and characterizes the hazards driving vulnerability.⁸ The WSVE Tool, developed by DWR in collaboration with the County Drought Advisory Group (CDAG), is an online geospatial application that assesses water supply hazards using physical and social vulnerability indicators. These indicators were selected by DWR and CDAG to reflect the hazards that could make a domestic well or small water system vulnerable to water supply shortage. DWR periodically revises the WSVE Tool to incorporate improved data and/or updated methodology. The 2024 methodology was used to complete the risk assessment for this County Drought Resilience Plan.

3.5.1 Physical Vulnerability

The physical vulnerability score was calculated at the Public Land Survey Section⁹ (PLSS) scale by normalizing the indicator value between 0 and 1, with 1 representing the highest possible vulnerability. Normalized scores were multiplied by a weighting factor from 1 to 5 that was assigned by DWR and CDAG to capture how some indicators contribute more to water shortage vulnerability than others (Table 3-1). The indicators that are weighted most heavily (weight of 5) are dry domestic well susceptibility in basins (RC3a), domestic well density in fractured rock areas (RC3c), and reported household outage on domestic well (RC5a). Other important indicators impacting overall physical vulnerability scores (weight of 3) include fractured rock area (RC2c), wildfire hazard potential (RC2b), water quality aquifer risk (RC2i), saltwater intrusion (RC2e), chronic declining water levels (RC2g), and surrounding land use (RC2j). The remaining indicators are weighted as 2 or 1.

⁸ The detailed methodology that describes the WSVE Tool indicators and corresponding values, data sources, and weighting factors is available on the WSVE Tool website: <https://water.ca.gov/Programs/Water-Use-And-Efficiency/SB-552/SB-552-Tool>.

⁹ A Public Land Survey Section is a geographic delineation of an area equivalent to 1 square mile.

Table 3-1. Water Shortage Vulnerability Explorer Indicators Used in the Development of Physical Vulnerability Score

Indicator Name ¹	Indicator Description	Indicator Weight
Climate Change Projections		
Temperature Shift (RC1a)	Projected change in maximum temperatures by mid-century	1
Projected Saltwater Intrusion in Coastal Groundwater (RC1b)	Spatial extent of projected 1-meter sea level rise by 2040 into coastal aquifers	1
Wildfire Risk (RC1c)	Projected area burned by 2035–2064	1
Current Environmental Conditions and Events		
Current Year's Precipitation (RC2a)	2024 water year precipitation as percent of normal (compared to 70 percent of normal)	2
Multiple Dry Years (RC2aa)	Count of dry years within the last 5 water years	2
Wildfire Risk (RC2b)	2023 USFS wildfire hazard potential	3
Fractured Rock Area (RC2c)	Fractured rock basin within the PLSS	3
Water Quality Aquifer Risk (RC2i)	SAFER Needs Assessment 2024 water quality composite score	3
Subsidence (RC2d)	Amount of subsidence as measured by remote sensing since 2015	2
Saltwater Intrusion (RC2e)	Presence of saltwater intrusion into coastal aquifer	3
Overdrafted Basin (RC2f)	SGMA critically overdrafted groundwater basin	2
Chronic Declining Water Levels (RC2g)	Amount of declining groundwater levels between 2003 to 2023	3
Amount of Irrigated Agriculture (RC2j)	Proportion of irrigated agriculture in PLSS (2022)	3
Infrastructure Susceptibility		
Dry Domestic Well Susceptibility in Basins (RC3a)	Dry well susceptibility	5
Competing Demand in Fractured Rock Areas (RC3c)	Density of well completion reports	5
Record of Shortage		
Reported Household Outages on Domestic Well (RC5a)	Presence of one or more households with reported outages in PLSS	5

Source: DWR 2024c.

Notes:

¹ Abbreviations are included next to indicator name (e.g., RC1a), which aligns with the WSVE Tool methodology.

Key:

PLSS = Public Land Survey Section

SAFER = Safe and Affordable Funding for Equity and Resilience

SGMA = Sustainable Groundwater Management Act

USFS = U.S. Forest Service

Physical Vulnerability Indicators for Ventura County

Table 3-2 presents a high-level summary of the observed conditions relating to the physical vulnerability indicators for the County listed in Table 3-1. The more heavily weighted indicators (i.e., the factors weighed as three or five) are discussed in more detail in the following sections due to their potential greater influence on the overall physical vulnerability score, grouped by category as shown in Table 3-1.

Table 3-2. Summary of Physical Vulnerability Indicators and Potential Impact on Vulnerability in Ventura County

Physical Vulnerability Indicators	Summary of Indicator and Potential Impact on Vulnerability	Indicator Weight
Climate Change		
Temperature Shift (RC1a)	The average maximum temperature is projected to increase by the mid-century by 3.26°F (in the central areas of the County near Ojai Valley) to up to 3.37°F (in the eastern and northeastern areas of the County including pockets near Simi Valley and Topatopa Mountains). Climate change is expected to also increase temperature variability, which can lead to more frequent and intense extreme maximum temperature events. These temperature extremes, in addition to average maximums, could increase water supply demands from users, evapotranspiration, and other sources, thereby increasing vulnerability to drought and/or water shortage impacts.	1
Projected Saltwater Intrusion in Coastal Groundwater (RC1b)	Given its proximity to the coast, the County is at risk of saltwater intrusion into coastal aquifers. Specifically, reduced water levels in the Oxnard Plain allow seawater, containing chloride, to infiltrate freshwater aquifers. Seawater intrusion contaminates coastal groundwater sources by reducing freshwater availability and quality, compromising domestic wells and state small water systems.	1
Wildfire Risk (RC1c)	Projections indicate moderate to severe increases in wildfire risk throughout the County by 2035–2064. The largest increase is projected for the southern half of the County. While the north-central region of the County is anticipated to be the least affected, there is high risk farther north near the Los Padres National Forest and Lockwood Valley. The projected increase in wildfire frequency and severity includes inherent high risks that increase the vulnerability of water sources.	1
Current Environmental Conditions and Events		
Current Year's Precipitation (RC2a)	Precipitation in water year 2024 was above the historical average in all areas, except for a small region in the most southwestern portion of the County. A dry water year depletes surface reservoirs and groundwater, reducing water supply and increasing vulnerability to water shortages.	2
Multiple Dry Years (RC2aa)	Data show that almost half of the County has been experiencing one to two dry years over the last 5 years. Most of the areas experiencing multiple dry years are concentrated in the southern half of the County, with a higher number of dry years occurring near the foothills and Ojai Valley. A higher number of recent dry years may increase the physical vulnerability of water supply conditions due to resource depletion and prolonged periods without sufficient water.	2
Wildfire Risk (RC2b)	Over half of the County is assigned the “High” and “Very High” U.S. Forest Service wildfire hazard potential. Lower wildfire risk areas are located in south-central area of the County, whereas areas with a higher risk for fire are primarily concentrated near the rural, unincorporated regions, including northern regions near the foothills, mountains, and other parts of the County with dense vegetation and challenging terrain. Increased current risk of wildfire frequency and severity heightens water source contamination, degrades watershed health, and damages water infrastructure, disrupting water supply and quality, thereby increasing vulnerability.	3

Physical Vulnerability Indicators	Summary of Indicator and Potential Impact on Vulnerability	Indicator Weight
Fractured Rock Area (RC2c)	Fractured rock is scattered throughout the County, notably around Ojai and the Ventura River Valley. Water availability in fractured rock areas is more difficult to monitor and, therefore, more uncertain for those relying on it as a source of water. Areas with fractured rock are considered to have high susceptibility to drought impacts.	3
Water Quality Aquifer Risk (RC2i)	This index shows that groundwater likely accessed by domestic wells and state small water systems may contain concentrations of constituents above regulatory levels, specifically in the southern regions of the County. Regions with notable water quality issues include Oxnard, Conejo Valley, Simi Valley, Ojai Valley, and Santa Clara River Valley. Impairment of groundwater quality limits its usability for drinking, agriculture, and industrial purposes, requiring costly treatment and reducing water availability, thereby increasing water shortage vulnerability.	3
Subsidence (RC2d)	Some subsidence has been reported in the County, specifically around the Santa Clara River Valley – Filmore Basin, the Santa Clara River Valley – Oxnard Basin, the Santa Clara River Valley – Santa Paula Basin, the Ojai Valley Basin, the Ventura River Valley – Upper Ventura River Basin, the Ventura River Valley – Lower Ventura River Basin, the Pleasant Valley Basin, and the Las Posas Valley Basin. Subsidence reduces aquifer storage capacity and damages infrastructure, exacerbating water shortages by limiting groundwater availability and increasing reliance on surface water sources.	2
Saltwater Intrusion (RC2e)	Water in the County is tidally influenced and is anticipated to experience saltwater intrusion. Saltwater intrusion can impact water quality in the County, particularly in coastal areas. As seawater intrudes into freshwater aquifer, it raises the salinity levels of the groundwater. This makes the water less suitable for drinking, irrigation, and other uses.	3
Overdrafted Basin (RC2f)	Overdrafted basins have increased physical vulnerability to water shortage and drought. The Pleasant Valley, Santa Clara River Valley, and Cuyama Valley groundwater basins are considered to be critically overdrafted.	2
Chronic Declining Water Levels (RC2g)	Groundwater decline poses a significant issue in several regions, particularly those designated as high-priority or critically overdrafted basins. Key areas experiencing groundwater decline are concentrated near the south-central area of the County, including the Pleasant Valley, Santa Clara River Valley, and Cuyama Valley basins. Consistently declining groundwater levels cause several interconnected challenges and consequences, exacerbating the vulnerability of the groundwater system.	3
Amount of Irrigated Agriculture (RC2j)	Presence of agricultural activities could indicate competing demand for groundwater suppliers, as well as water quality concerns, both of which could create higher vulnerability for domestic wells and state small water systems, especially during a drought or water shortage event. The County has a significant agricultural industry due to its favorable climate and fertile soil. Key areas in the County for farming include the Oxnard Plain, Santa Clara River Valley, Camarillo, Ojai Valley, and Saticoy. Extensive agricultural water use has contributed to declining water levels.	3
Infrastructure Susceptibility		
Dry Domestic Well Susceptibility in Basins (RC3a)	This factor analyzes locations where there are many susceptible wells that may go dry if the current groundwater trends in the County continue. Although data show an overall low likelihood of dry well susceptibility, there are a few pockets of the County that indicate susceptible wells, notably in the Upper Ojai Valley Basin.	5

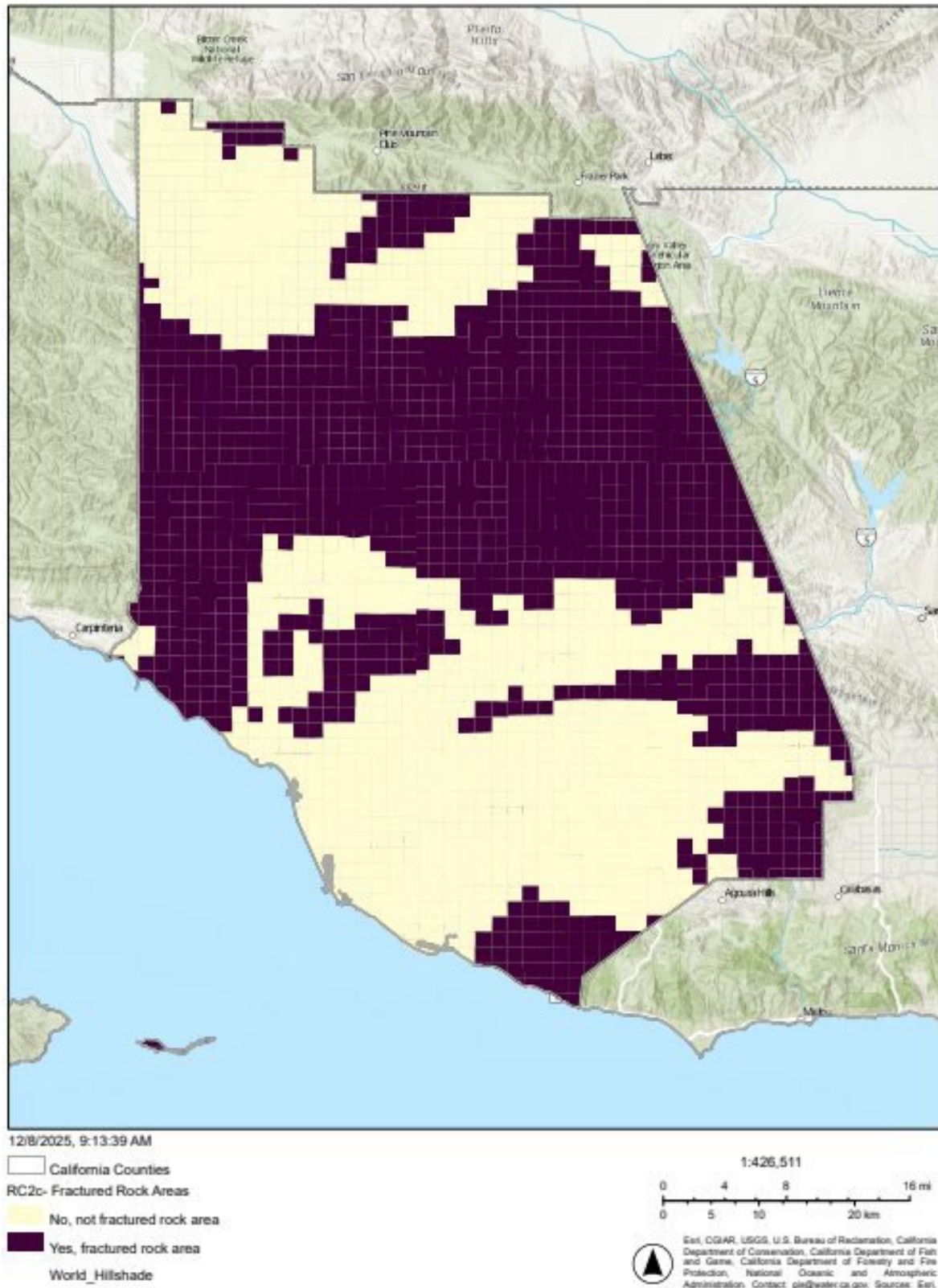
Physical Vulnerability Indicators	Summary of Indicator and Potential Impact on Vulnerability	Indicator Weight
Competing Demand in Fractured Rock Areas (RC3c)	Higher density of domestic wells in a single square mile within a fractured rock area tends to create a higher susceptibility for outages and increase competing demands, especially in a dry period. While data in the County indicate relatively low competing demand in fractured rock areas, there is an exception in small areas in the southernmost regions.	5
Record of Shortage		
Reported Household Outages on Domestic Well (RC5a) Source: DWR 2024c. Key °F = degrees Fahrenheit	Areas that have already experienced outages are more likely to experience similar conditions during future dry years, due to combinations of aquifer sensitivity/fluctuations and shallow wells. No household outages have been reported in the County.	5

Current Environmental Conditions and Events

The 'Current Environmental Conditions and Events' category in Table 3-2 encompasses a broad range of currently known physical factors and occurrences that influence the dynamics of the environment and can affect the quality and availability of water resources. Understanding current environmental conditions and effects is critical for establishing a baseline for existing stressors and future risks. Factors such as precipitation patterns, drought history, wildfire risk, geology, and water quality directly influence the reliability of water supply. These conditions can also amplify physical vulnerability by creating compounding hazards that can increase risk of water scarcity. Evaluating these conditions provides essential context for identifying areas of high vulnerability and developing targeted short-term response actions and long-term mitigation strategies.

Fractured Rock Area

This indicator represents areas of the County within fractured rock areas. Water availability in fractured rock areas is more difficult to monitor and, therefore, more uncertain for those relying on it as a source of water. An underlying driver of water shortage vulnerability in the County is areas that are within a fractured rock area (DWR 2024c). As shown in Figure 3-3, fractured rock areas are scattered throughout the County, notably around Ojai and Ventura River Valley.



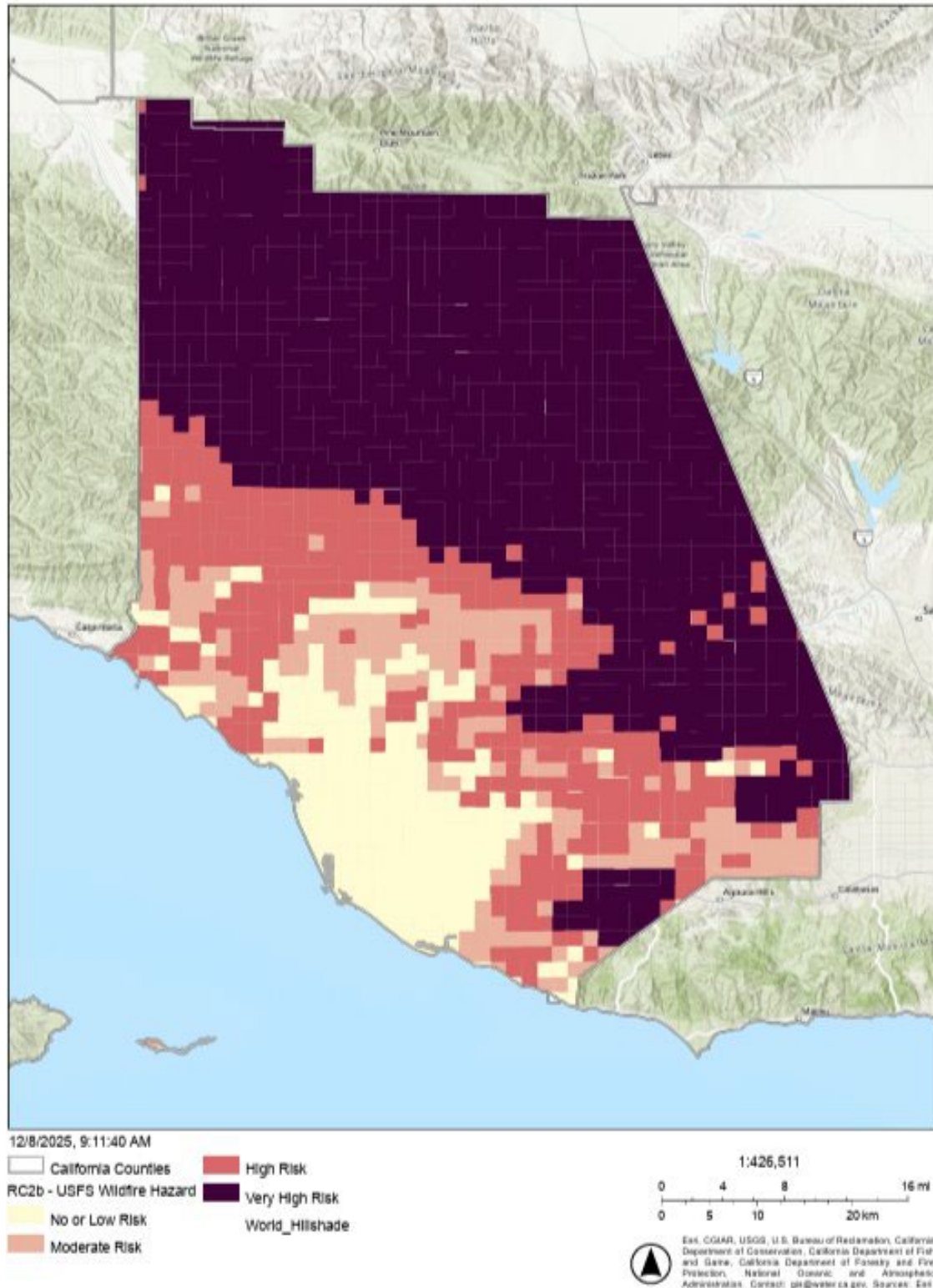
Source: DWR 2024b.

Figure 3-3. Fractured Rock Area in Ventura County

Wildfire Risk

This indicator represents increased current risk of wildfire frequency and severity. Wildfires can heighten water source contamination, degrade watershed health, damage water infrastructure (both natural infrastructure, such as watersheds and natural reaches, as well as built infrastructure, such as pipelines and reservoirs), and disrupt water supply and quality (DWR 2024c). The County has experienced several significant wildfires in recent years, with the most recent being the Mountain Fire in November 2024 (CAL FIRE 2024a). This fire burned over 19,904 acres and destroyed over 200 structures. Other notable fires include the Maria Fire in 2019, which burned almost 10,000 acres, and the Thomas Fire in 2017, which was one of the largest in the state's history, burning over 280,000 acres and destroying over 1,000 structures (CAL FIRE 2024b, CAL FIRE 2024c).

Figure 3-4 shows the U.S. Forest Service (USFS) wildfire hazard potential, with darker shades indicating higher wildfire severity risk. Almost the entire County is considered at risk for wildfire, with the majority of the County having high or very high risk for wildfire. Areas with very high wildfire hazard potential are primarily concentrated in the northern and eastern halves of the County.

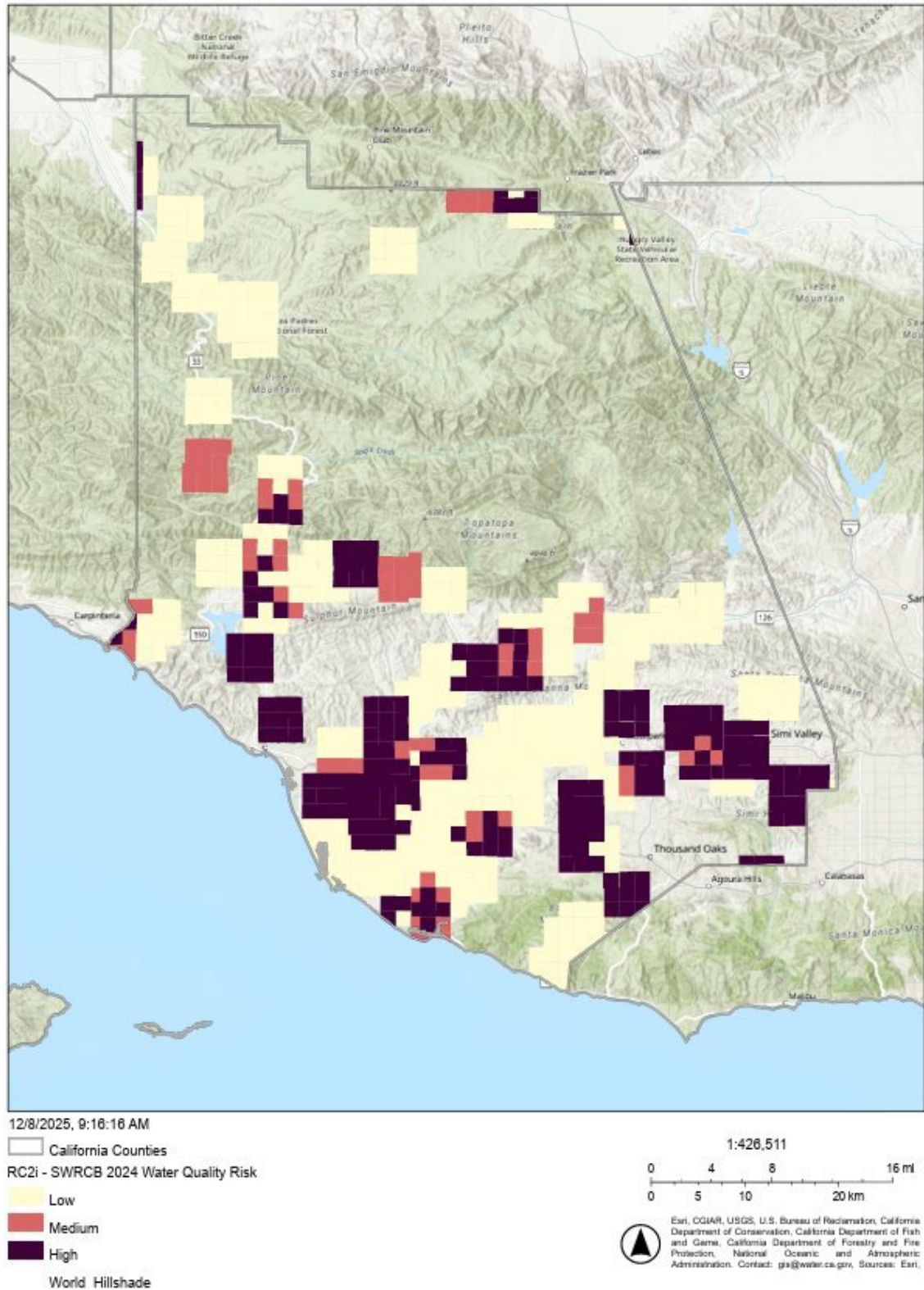


Source: DWR 2024b.

Figure 3-4. USFS Wildfire Hazard Potential in Ventura County

Water Quality Aquifer Risk

This indicator represents the potential groundwater water quality risk in the County. Impairment of groundwater quality limits its usability for drinking, agriculture, and industrial purposes, requiring costly treatment and reducing water availability, thereby increasing water shortage vulnerability (DWR 2024c). This indicator is based on the State Water Board’s Safe and Affordable Funding for Equity and Resilience (SAFER) Needs Assessment results, an annual study that assesses California’s water systems, with a particular focus on smaller water systems and domestic wells (State Water Board 2025). The SAFER Needs Assessment is not intended to depict actual groundwater quality conditions at any given domestic supply well or small water system location, but water quality risk at the location. Figure 3-5 shows the groundwater water quality risk in the County based on the 2024 assessment. Water quality is of particular concern in the southern half of the County, with higher water quality risk near the Santa Clara River Valley – Oxnard and Simi Valley basins.

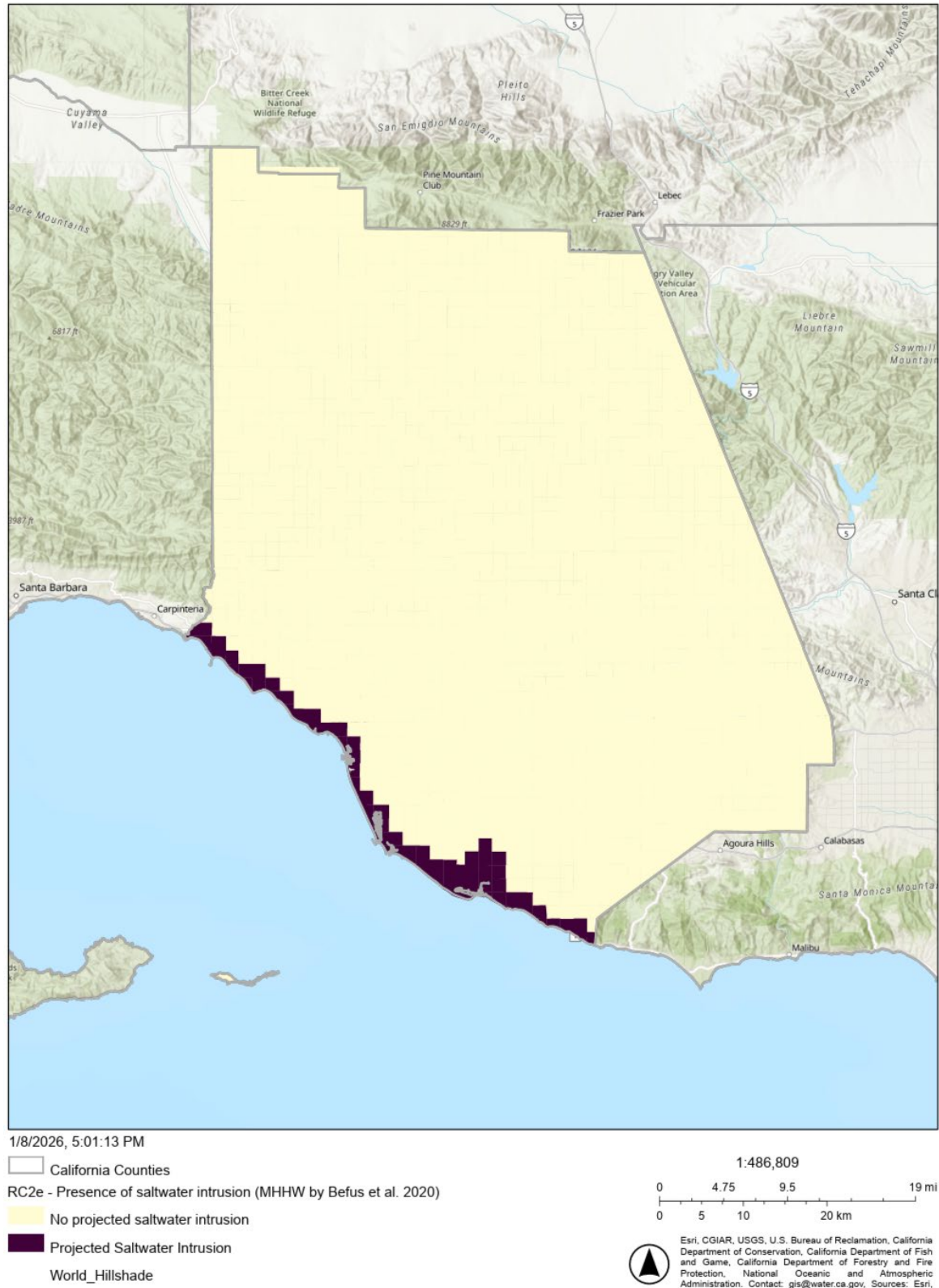


Source: DWR 2024b.

Figure 3-5. State Water Board 2024 Water Quality Risk Indicator in Ventura County

Saltwater Intrusion

This indicator represents modeled saltwater intrusion into coastal aquifers at the present day and is used to indicate the presence of saltwater intrusion in coastal aquifers that may add challenges to suppliers and households reliant on groundwater. Saltwater intrusion contaminates coastal groundwater sources by reducing freshwater availability and quality (DWR 2024c). Figure 3-6 shows the modeled saltwater intrusion into the County’s groundwater, indicating risk of saltwater intrusion along the coast. Additionally, saltwater intrusion introduces chloride contamination into freshwater aquifers, particularly affecting areas like Port Hueneme and Point Mugu within the Santa Clara River Valley – Oxnard basin.

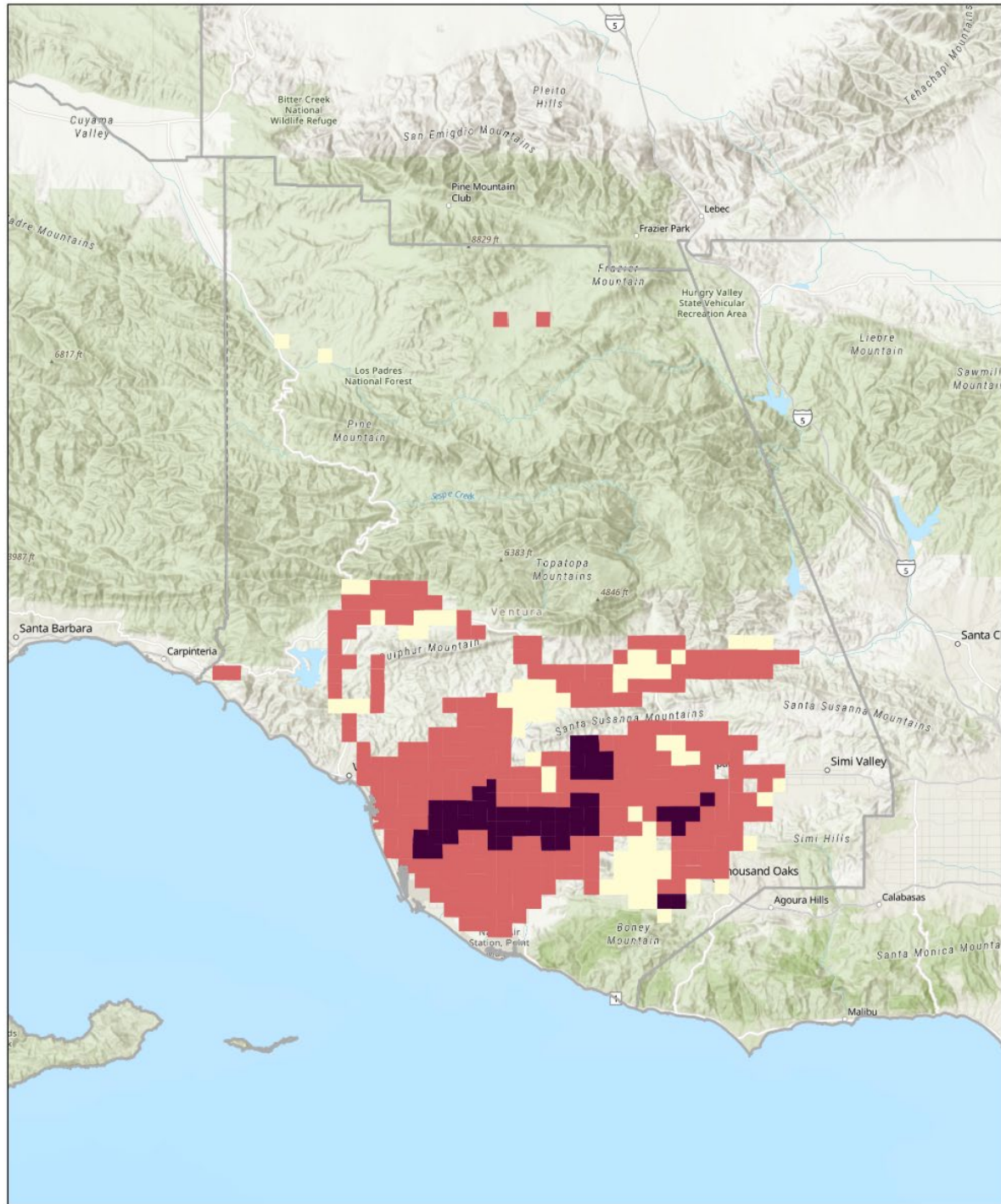


Source: DWR 2024b.

Figure 3-6. Presence of Saltwater Intrusion into Coastal Aquifers in Ventura County

Chronic Declining Water Levels

This indicator represents groundwater level changes in elevation from 2003 to 2023. Chronically declining water levels increase water shortage vulnerability due to the reduced availability of groundwater supply and imposed stress on surface water sources (DWR 2024c). Figure 3-7 shows declining groundwater levels in the south-central portion of the County. Yellow areas indicated as 0 either represent an increase or no change to groundwater levels. Specifically, areas shaded at 0.75 indicate groundwater declines up to 2.5 feet, while the darker areas, primarily in the south-central portion of the County, show declines greater than 2.5 feet., the Pleasant Valley, Santa Clara River Valley, and Cuyama Valley basins are considered to be critically overdrafted.



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California Counties
 RC2g - Groundwater Decline Levels (Rescaled)
 0
 0.75
 1

1:486,809
 0 4.75 9.5 19 mi
 0 5 10 20 km



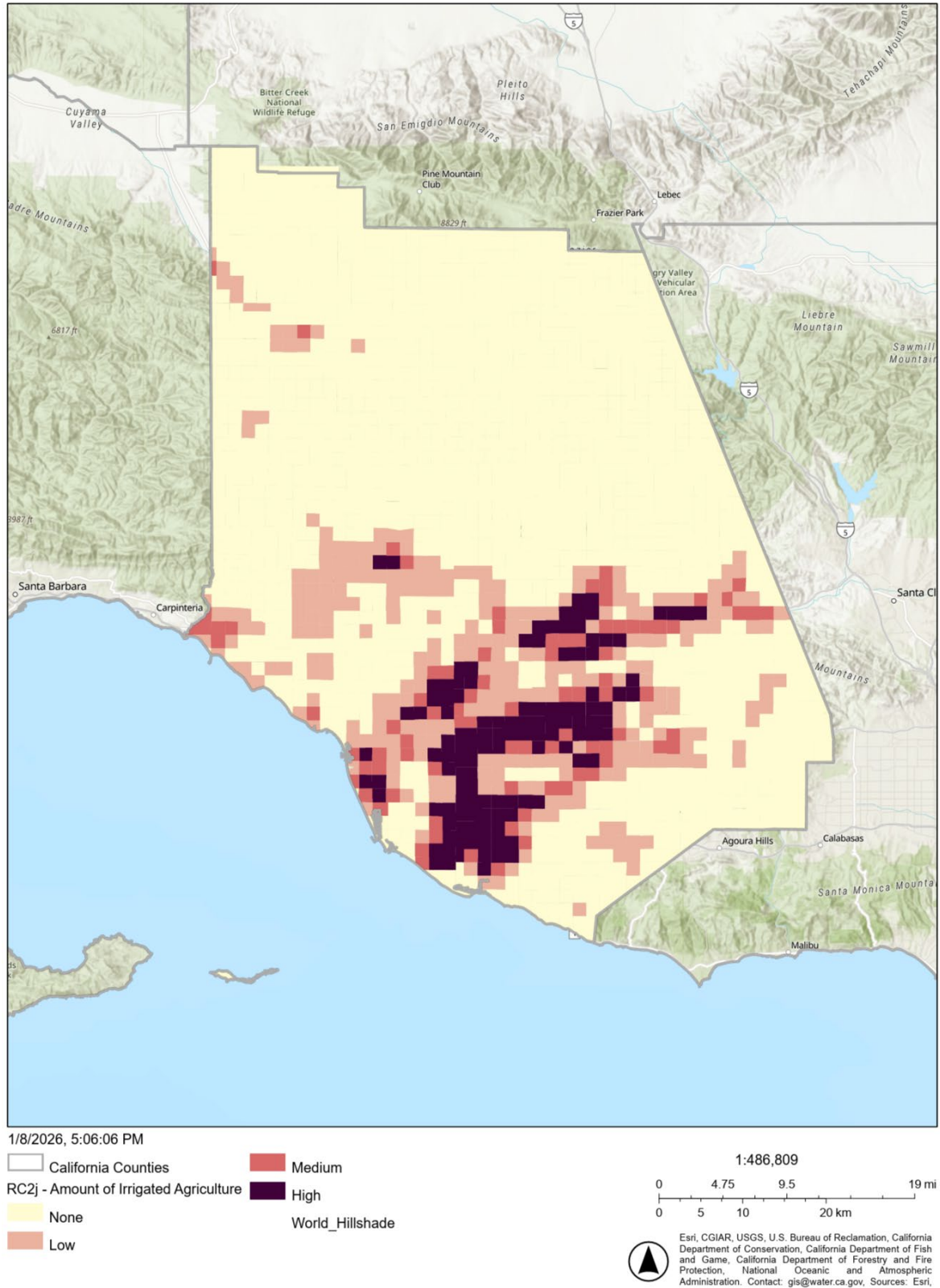
Esri, CGIAR, USGS, U.S. Bureau of Reclamation, California Department of Conservation, California Department of Fish and Game, California Department of Forestry and Fire Protection, National Oceanic and Atmospheric Administration. Contact: gis@water.ca.gov, Sources: Esri,

Source: DWR 2024b.

Figure 3-7. Chronic Declining Groundwater Levels in Ventura County

Amount of Irrigated Agriculture

This indicator shows the proportion of irrigated agriculture present in each PLSS and indicates competing groundwater demands on water use and availability, especially during dry years. Irrigated agriculture demands large water volumes, depleting surface and groundwater resources and increasing water shortage vulnerability (DWR 2024c). As shown in Figure 3-8, the majority of the County's agriculture is located in the Oxnard Plain and Santa Clara River Valley, with a high proportion of the land being used for irrigated agriculture.



Source: DWR 2024b.

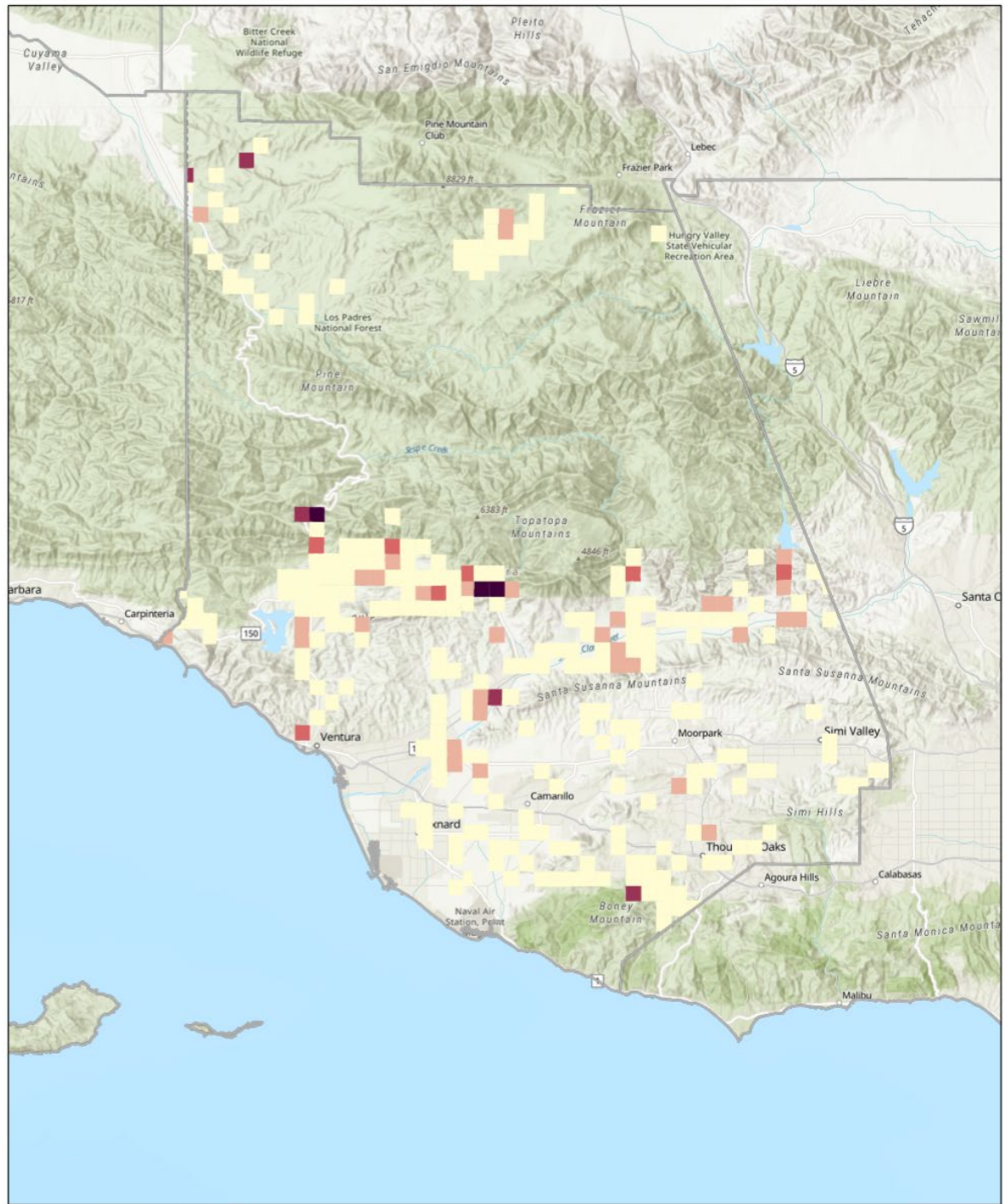
Figure 3-8. Proportion of Irrigated Agriculture in Ventura County

Infrastructure Susceptibility

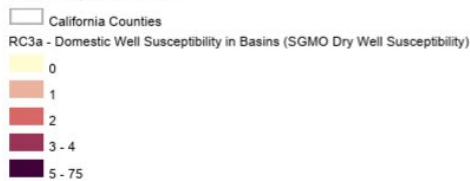
The dry well susceptibility category seeks to indicate the vulnerability of domestic wells to water shortage and drought within each PLSS. It is informed by two datasets that cover distinct geographic areas of the state: dry well susceptibility (for alluvial basins) and density of domestic wells (for areas outside of alluvial basins, or fractured rock areas) (DWR 2024c).

Dry Domestic Well Susceptibility in Basins

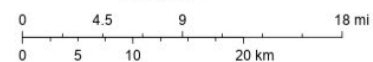
By combining the latest information on domestic well locations and depths and local groundwater level conditions, the dry well susceptibility measure for alluvial basins is a relative density-based indicator that estimates where domestic wells may go dry if recent groundwater trends continue (DWR 2024c). As shown in Figure 3-9, there is overall low likelihood of dry well susceptibility in the County. However, there are a few pockets of the County with domestic wells, notably in the Upper Ojai Valley, Santa Clara River Valley – Fillmore, Santa Clara River Valley – Santa Paula, and Hidden Valley basins, that appear to have more susceptibility of going dry.



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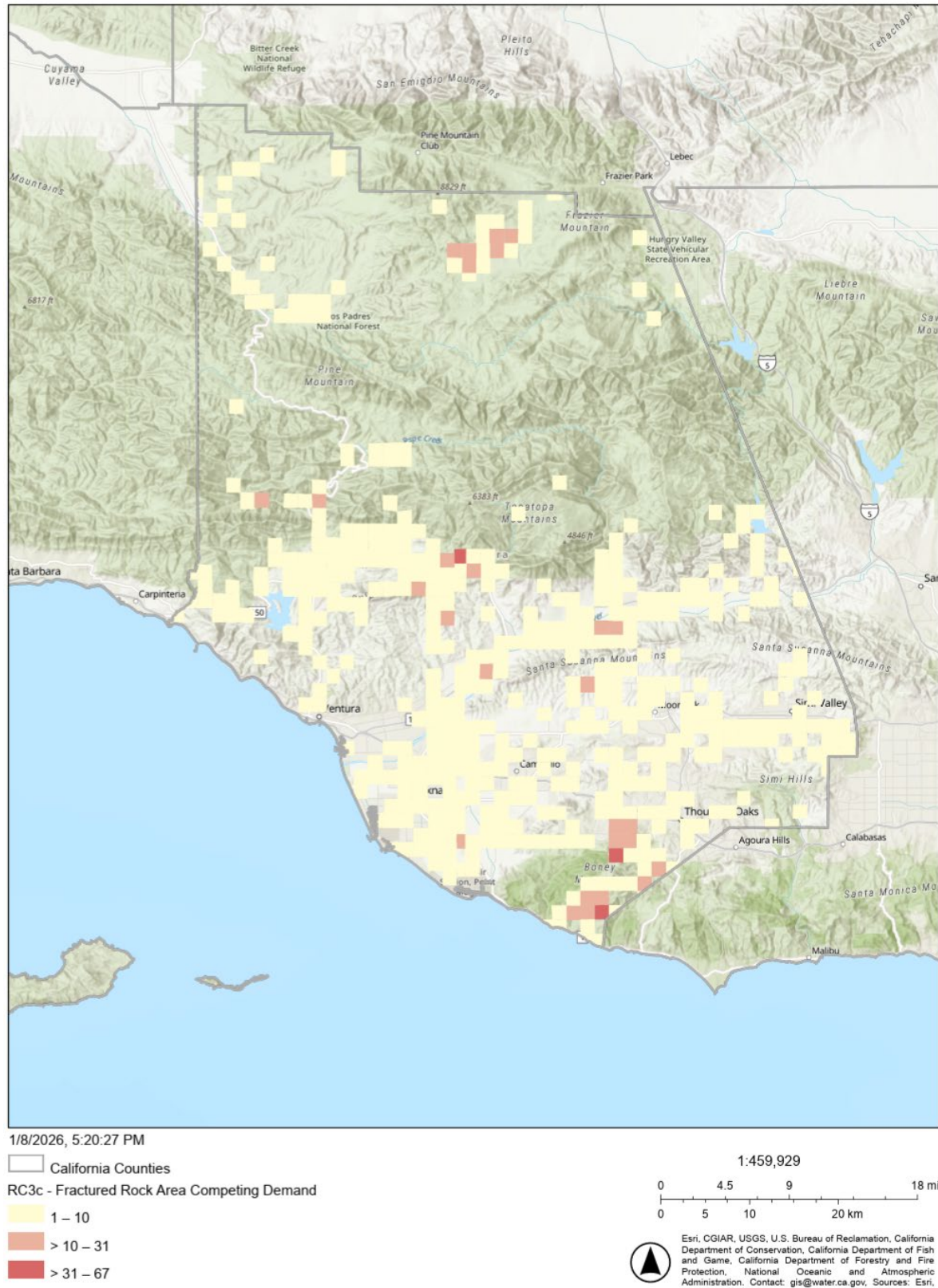
Esri, CGIAR, USGS, U.S. Bureau of Reclamation, California Department of Conservation, California Department of Fish and Game, California Department of Forestry and Fire Protection, National Oceanic and Atmospheric Administration. Contact: gis@water.ca.gov. Sources: Esri,

Source: DWR 2024b.

Figure 3-9. Dry Domestic Well Susceptibility in Ventura County

Competing Demand in Fractured Rock Areas

For areas outside of alluvial basins (i.e., fractured rock areas), where groundwater levels are not monitored and difficult to monitor, the density of domestic wells per PLSS can be used to represent competing demands (DWR 2024c). Figure 3-10 shows the density of domestic wells, with darker colors indicating a higher density and thus vulnerability to shortages. Comparing this density to the fractured rock areas in Figure 3-10 shows there are several fractured rock areas in the County with a high density of domestic wells. While data in the County indicate relatively low competing demand in fractured rock areas, there is an exception in small areas in the southernmost regions, including Sulphur Springs and Wheeler Springs. In these areas, competing demand from the multiple domestic wells in the same area increases the potential for a water shortage during a drought or other conditions that stress the water supply.



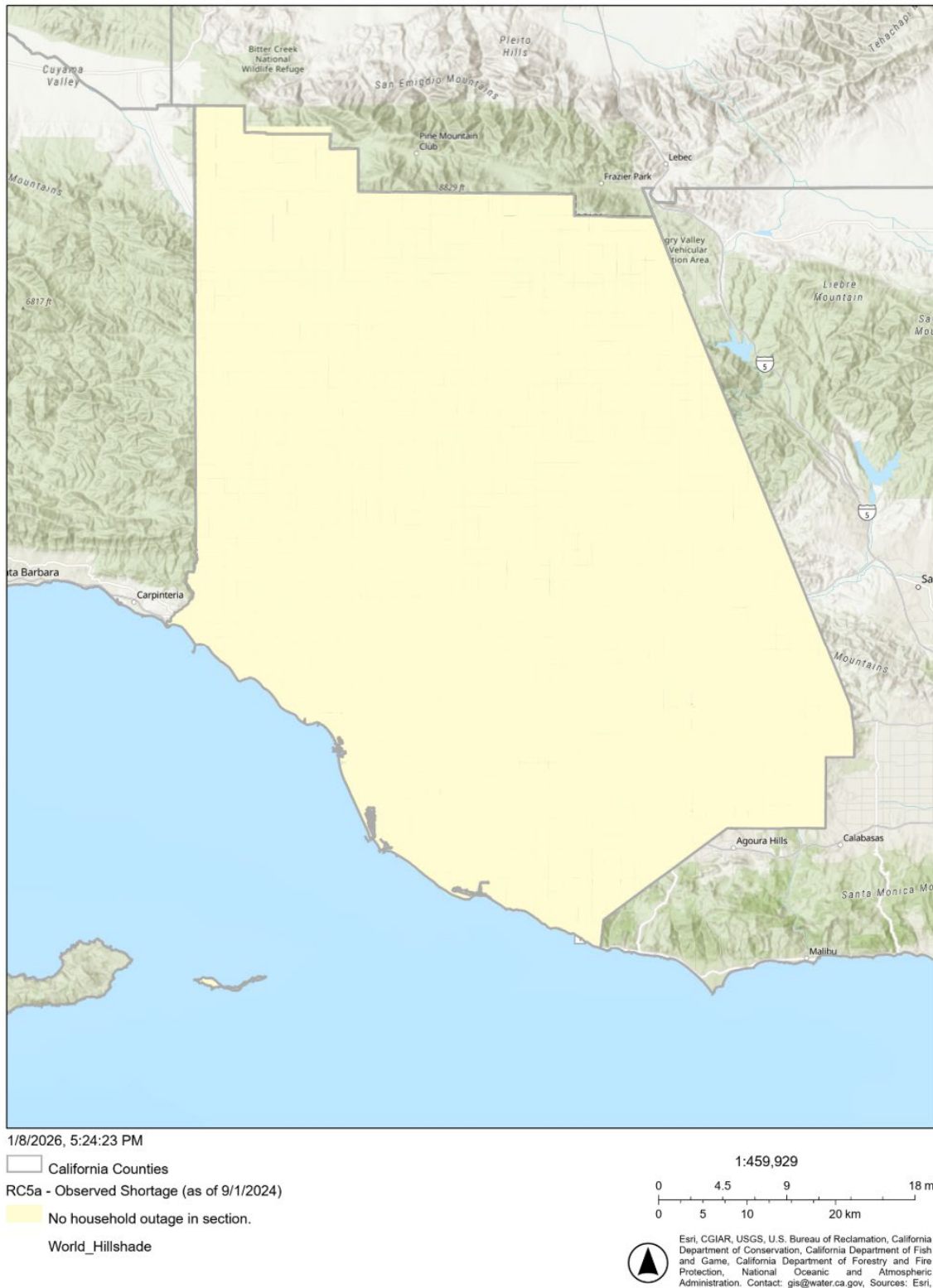
Source: DWR 2024b.

Figure 3-10. Number of Domestic Wells in Fractured Rock Areas in Ventura County

Record of Shortage

Reported Household Outages on Domestic Well

This indicator represents the presence of one or more households with reported outages in a PLSS, as recorded by the State as part of the DWR dry well reporting system. It indicates areas that may experience outages again due to combinations of aquifer sensitivity/fluctuations and shallow wells. A history of reported household outages on domestic wells indicates underlying issues (e.g., declining groundwater levels, unsustainable water demand), making them more vulnerable to future water shortages (DWR 2024c). As shown in Figure 3-11, as of 2024, no household outages have been reported in the County.

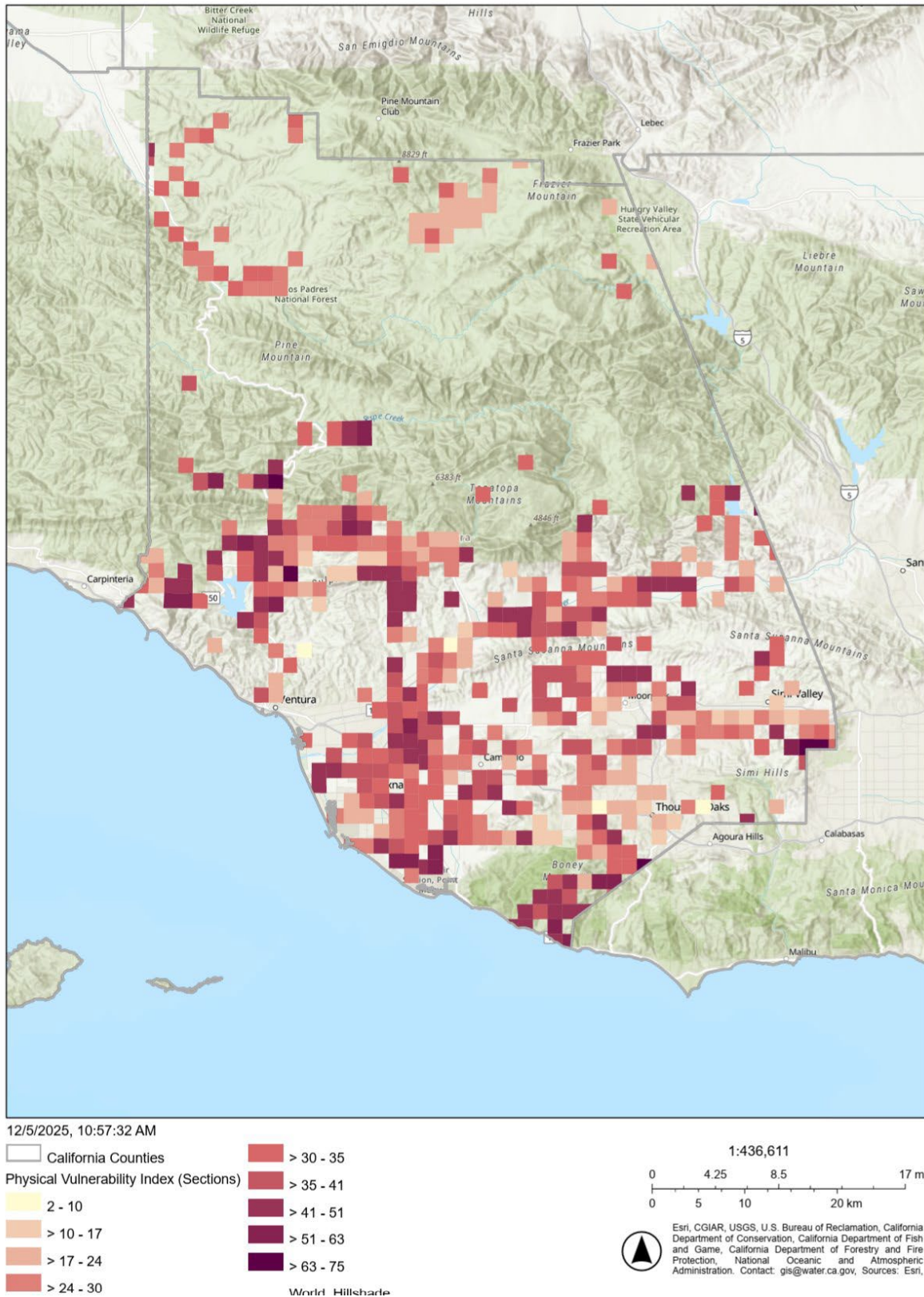


Source: DWR 2024b.

Figure 3-11. Observed Shortages in Ventura County

Physical Vulnerability Score

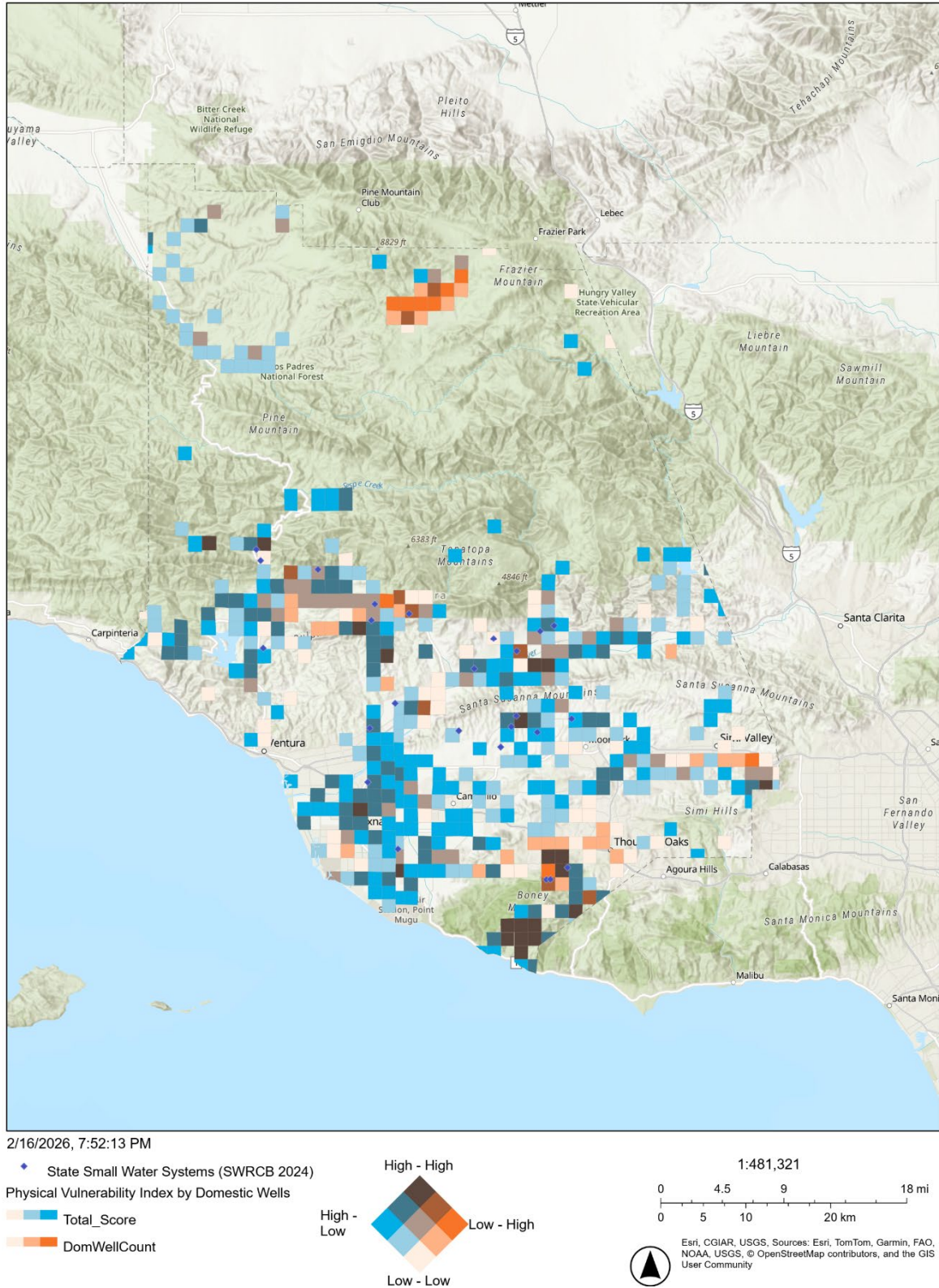
Physical vulnerability scores within the County are shown in Figure 3-12, with darker shaded areas (or PLSSs) indicating higher physical vulnerability scores. If an area is not shaded, it means there are no domestic wells and/or state small water systems within the PLSS. PLSSs with high physical vulnerability to water supply shortages tend to be areas with groundwater from fractured rock aquifers around central and south portions of the County, as well as some areas vulnerable to water quality and wildfire risk around the Santa Clara River Valley, Oxnard, and Simi Valley.



Source: DWR 2024b.

Figure 3-12. Physical Vulnerability to Drought and Water Supply Shortage in Ventura County

Figure 3-13 displays the intersection of physical vulnerability and location of domestic wells within the County. A darker shaded area indicates a higher presence of domestic wells within an area with high physical vulnerability. A blue area has a higher physical vulnerability but a minimal number of domestic wells, and an orange area has a high number of domestic wells but low physical vulnerability. The state small water systems are shown as blue diamonds, and their locations generally align with the presence of the domestic wells within the County. This figure shows where short-term actions and long-term mitigation strategies are most likely to be needed because of the vulnerability to water supply shortages. The areas with high physical vulnerability and a higher density of domestic wells include Oxnard, Fillmore, Ojai, and Mira Monte and southern regions of the County near Deer Creek Canyon. Areas in the northern regions of the County have a high density of domestic wells, but a lower physical vulnerability to water supply shortage compared to other parts of the County.



Source: DWR 2024b.

Figure 3-13. Intersection of Physical Vulnerability and Density of Domestic Wells and State Small Water Systems in Ventura County

3.5.2 Social Vulnerability

Social vulnerability is also an important factor in assessing the risk of water supply shortage and the need for mitigation through short-term actions and long-term strategies as certain communities and individuals may lack access to resources or services during drought and water shortage events.

The WSVE Tool’s social vulnerability score was calculated at the Census Block Group¹⁰ scale by normalizing the indicator value between 0 and 1 and summing the values together without additional weighting. The WSVE Tool results present a spatial representation of social and economic factors, as outlined in Table 3-3, that can affect water shortage vulnerability in the County. It should be noted that the social vulnerability score only includes data available from the U.S. census and therefore does not represent the full extent of populations that are often understood to be at high vulnerability (DWR 2024c).

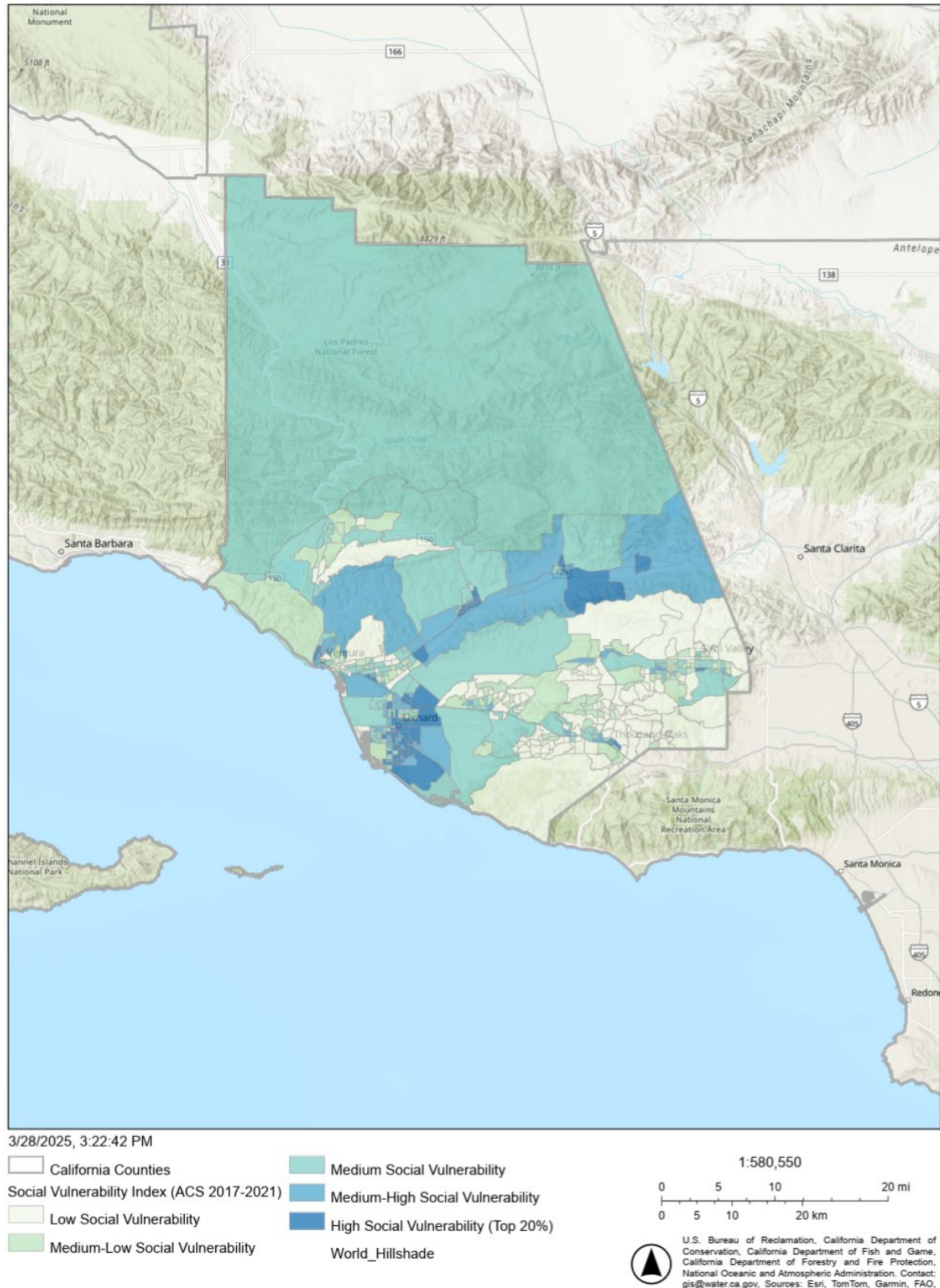
Table 3-3. Water Shortage Vulnerability Explorer Indicators Used in the Development of Social Vulnerability Score

Indicator Name	Indicator Description
Socioeconomic Status	
Poverty Level	Percent of persons below two times the poverty level.
Unemployment	Percent of persons aged 16 years of age or older that are unemployed.
Per Capita Income	Per capita income.
Language and Education	
Education Attainment	Percent of persons without a high school diploma.
English Language Proficiency	Percent of persons who speak little to no English.
Demographics	
Elderly Population	Percent of persons 65 years of age or older.
Non-Adult Population	Percent of persons 17 years of age or younger.
Disability	Percent of persons 5 years of age or older with a disability.
Single Parent Households	Percent of single-parent households.
Housing and Transportation	
Multi-Unit-Housed Population	Percent of households that are multi-unit structures.
Mobile Home-Housed Population	Percent of housing units that are mobile homes.
Crowded Conditions	Percent of households with “crowded” conditions.
No Vehicle Access	Percent of households with no vehicle available.
Group Quarters	Percent population living in group quarters.
Race and Ethnicity	
Persons of Color	Percent of persons that identify with a race other than White or identify ethnically as Hispanic or Latino.

¹⁰ A Census Block Group is a geographic unit with a population between 600 and 3,000 people. It is the smallest geographical unit for which the U.S. Census Bureau publishes data collected from a fraction of households.

Social Vulnerability Score

Social vulnerability scores in the County are depicted in Figure 3-14, with darker shaded areas indicating higher vulnerability. Comparing the social vulnerability scores in Figure 3-14 with the physical vulnerability scores in Figure 3-12 helps characterize how social vulnerability may overlap with the physical vulnerability of domestic wells and state small water systems.



Source: DWR 2024b.

Figure 3-14. Social Vulnerability Scores by Census Block Group in Ventura County

3.6 Risk Assessment Results

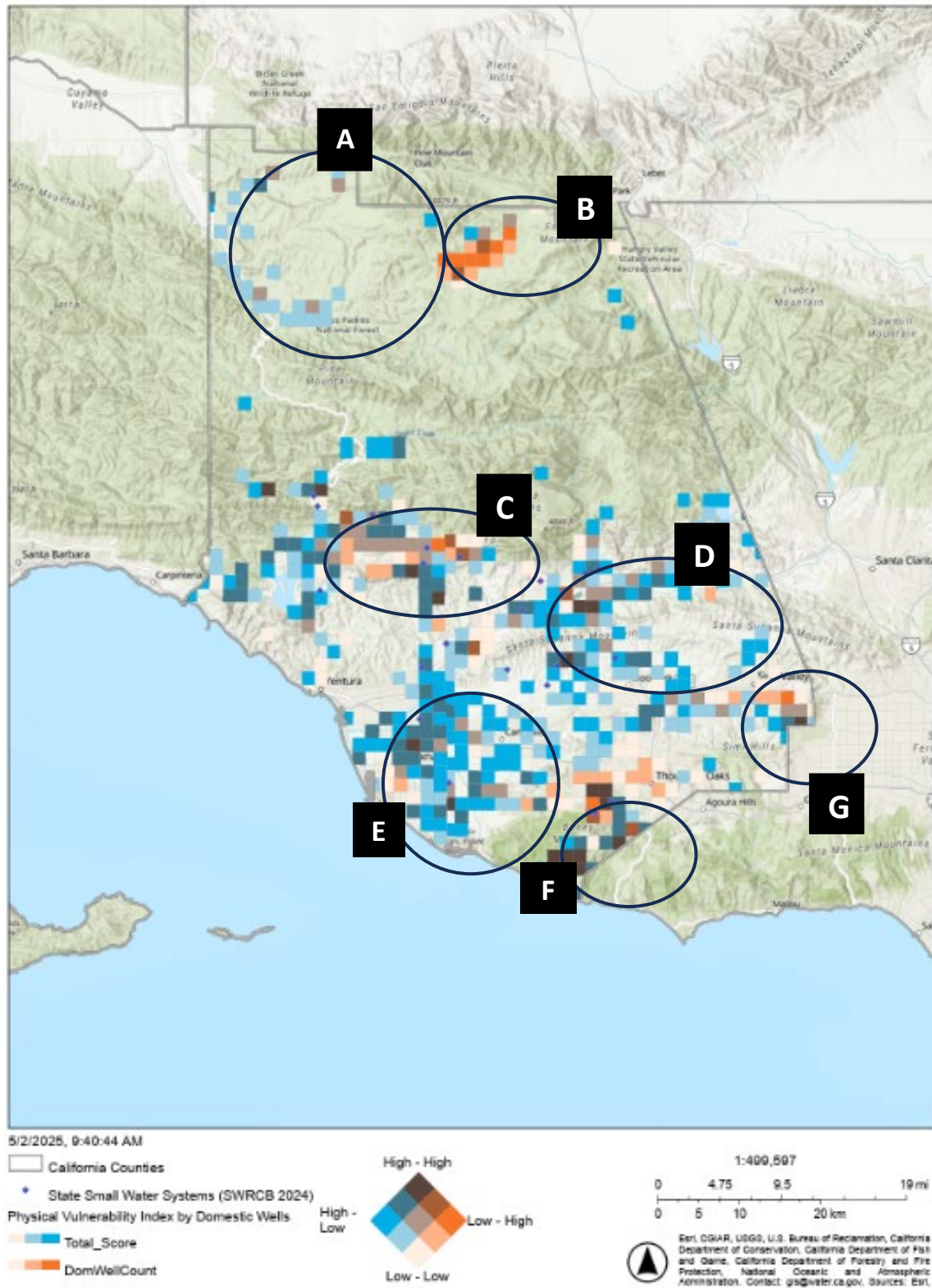
In consideration of the County's physical and social vulnerability scores, and in coordination with the County and Task Force, regions with identified water shortage vulnerability were delineated.

3.6.1 Regions with High Vulnerability

The areas within the County with domestic wells and/or state small water systems that are vulnerable to a water supply shortages, the drivers of those physical vulnerabilities, and the corresponding social vulnerability scores are shown in Figure 3-15 and Figure 3-16 and presented in Table 3-4. This information was used by the County and Task Force to develop short-term actions and long-term strategies for addressing water shortage of domestic wells and state small water systems across the County. While these figures highlight areas of comparatively higher vulnerability, it is important to note that a domestic well or state small water system going dry can result in significant impacts for any affected household, regardless of location.

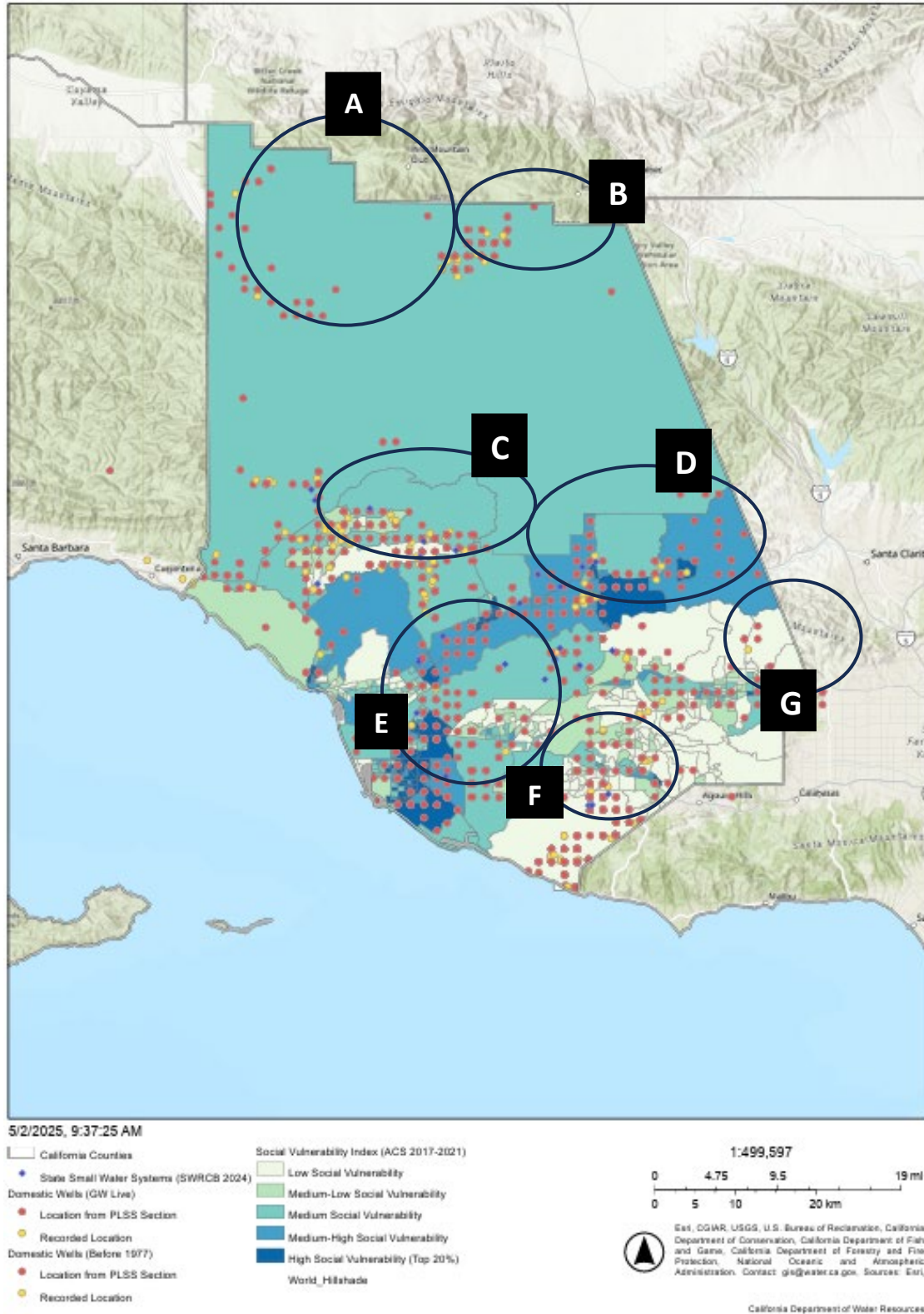
- **A. Isolated domestic wells within the Cuyama Valley Basin:** There is a cluster of domestic wells located in the northwest corner of the County within the Cuyama Valley Basin. Because they are located in a critically overdrafted basin, these domestic wells face heightened vulnerability to water shortages. Additional factors contributing to high physical vulnerability include elevated wildfire risk and water quality concerns. The region's mountainous terrain limits emergency service access, further compounding the risk for residents. This area has medium social vulnerability.
- **B. Areas within the Lockwood Valley Basins:** In the northern areas of the County, particularly near Lockwood Valley, there is a high concentration of domestic wells. These wells are especially vulnerable due to the elevated fire risk in this region, which poses a significant threat to both water quality and availability. These areas have medium social vulnerability.
- **C. Areas within the Ojai Valley and Upper Ojai Valley basins:** There is a high presence of domestic wells and state small water systems that are vulnerable to water supply shortage in fractured rock areas within Ojai Valley. The primary drivers of this vulnerability are water quality issues and wildfire risks in the region. These areas also have a mix of medium to high social vulnerability.
- **D. Areas within the Santa Clara River Valley-Fillmore and Piru basins:** There is a large cluster of domestic wells vulnerable to water supply shortage in and around the Santa Clara River Valley, notably Fillmore, Piru, and Santa Paula. This can be attributed to water quality risk and the amount of irrigation that occurs due to agricultural production. This area's high susceptibility to wildfires also strains water supply systems and exacerbates vulnerability. This region has low to medium-high social vulnerability.
- **E. Areas within the Santa Clara River Valley – Oxnard Basin:** The Santa Clara River Valley – Oxnard Basin is significantly overdrafted, which is a primary driver of physical vulnerability in this area. There is also a significant cluster of domestic wells and a few state small water systems located in this area of the County that are at risk of poor water quality. This area of the County is also susceptible to saltwater intrusion. It has a medium to high social vulnerability score.

- **F. Areas within the Big Sycamore Canyon and Hidden Valley basins:** Southern Ventura County, near Big Sycamore, contains a number of domestic wells vulnerable to water supply shortage. Similar to its northern counterparts in the County, the higher vulnerability score in this region is driven by high wildfire risk, water quality risk, and domestic well density in fractured rock. Due to the lower population density in these areas, this region has a lower social vulnerability score.
- **G. Areas within the Simi Valley Basin:** Domestic wells within and around the Simi Valley Basin face high physical vulnerability due to a combination of very high wildfire risk, water quality concerns, and the presence of fractured rock that limits groundwater storage and reliability. These conditions, paired with pockets of high social vulnerability, create heightened risks for these communities.



Source: DWR 2024b.

Figure 3-15. Summary of Risk Assessment Findings Showing Areas with Water Shortage Vulnerability and Domestic Wells/State Small Water Systems in Ventura County



Source: DWR 2024b.

Figure 3-16. Summary of Social Vulnerability Score and Intersection with Areas with Water Shortage Vulnerability and Domestic Wells/State Small Water Systems in Ventura County

Table 3-4. Summary of Risk Assessment Findings in Ventura County

Area with Water Shortage Vulnerability and Domestic Wells/State Small Water Systems	Physical Vulnerability Indicators	Social Vulnerability Score
A. Isolated domestic wells in the Cuyama Valley Basin	• High wildfire risk • Overdrafted basin • Water quality aquifer risk	Medium
B. Areas within the Lockwood Valley Basin	• High wildfire risk • Fractured rock	Medium
C. Areas within the Ojai Valley and Upper Ojai Valley basins	• Fractured rock • Multiple dry years • High wildfire risk • Water quality aquifer risk	Low to medium-high
D. Areas within the Santa Clara River Valley-Fillmore and Piru basins	• High wildfire risk • Water quality aquifer risk • Multiple dry years • Amount of irrigated agriculture	Low to high
E. Areas within the Santa Clara River Valley – Oxnard Basin	• Overdrafted basin • Groundwater level decline • Water quality aquifer risk • Amount of irrigated agriculture • Saltwater intrusion into coastal aquifers	Medium-high
F. Areas within Big Sycamore Canyon and Hidden Valley basins	• Fractured rock • Water quality aquifer risk • High wildfire risk	Low
G. Areas within the Simi Valley Basin	• High wildfire risk • Water quality aquifer risk • Fractured rock	Low to high

3.6.2 Risk Assessment Gaps

Understanding gaps in the risk assessment helps identify physical and social vulnerabilities that may exist but are not effectively captured using the methodology applied and data available; focuses future efforts to improve future risk assessments; and allows communities to develop long-term continuous monitoring and improvement plans. This proactive approach helps build resilience over time. The risk assessment gaps described below were identified by the County and Task Force during the development of the County DRP.

- **State small water system data alignment:** The County identified that that State Water Board's information for state small water systems may differ from the County's current records for active systems.
- **Earthquake hazard:** A Task Force member identified earthquakes as a hazard that could impact domestic well and state small water systems. Because the WSVE Tool does not include seismic risk, it may underrepresent vulnerability in areas with high seismic activity, including the Santa Monica Mountains and Ojai.
- **Physical vulnerability indicators weighting:** A Task Force member observed that the Multiple Dry Years (RC2aa) and Water Quality Aquifer Risk (RC2i) physical vulnerability indicators may warrant higher weighting due to their substantial impact on water supply reliability. Future updates to the DRP could re-evaluate the weighting to better reflect cumulative drought impacts and identify areas that may currently be underrepresented (e.g. the greater Oxnard area).
- **Data accuracy:** Task Force members noted that local data for groundwater modeling and seawater intrusion data may provide greater accuracy than the statewide datasets used in the WSVE Tool. Incorporating locally sourced data could improve the accuracy of the vulnerability assessments, particularly in areas that may be more prone to groundwater impacts and seawater intrusion.
- **Dry well reporting:** Although the WSVE Tool reports no household outages in the County, the finding may reflect underreporting rather than an absence of impacts. Households reliant on domestic wells may not formally report dry or felling wells, particularly if outages are intermittent or not accurately captured by existing reporting procedures.

Chapter 4 Short-Term Response Actions

The risk assessment presented in Chapter 3, Drought and Water Shortage Risk Assessment, provided insight into regions within the County supplied by domestic wells and state small water systems that may be susceptible to droughts and water shortages and the potential underlying causes. Based on the outcomes of that assessment, County staff identified the following short-term response actions to help address effects during the early stages and ongoing drought conditions and water shortage events that could occur in the County. In the context of this County DRP, short-term response actions are defined as actions taken during and after a water shortage emergency to reduce the impacts of existing and ongoing drought and water shortage impacts, often addressing immediate and basic public safety needs.

To effectively mobilize and coordinate these short-term response actions, it is essential to understand the conditions to formally declare a drought or water shortage emergency. Such declarations communicate the presence of a potential or ongoing emergency. This County DRP outlines a process for classifying water shortage stage, detailed in Appendix A, Water Shortage Emergency Response Process. This process uses indicators of water supply (Appendix A, Table A-1) with defined criteria that place the County in one of three water shortage stages: Readiness, Alert, and Emergency. These indicators and activation considerations were used to develop actions to address a water shortage.

This section describes the short-term response actions included in the County DRP and the Water Shortage Emergency Response Process (Appendix A) developed as part of the County DRP to assist with implementing short-term response actions.

4.1 Legislative Direction

SB 552 requires that each County develop a drought and water shortage plan that includes proposed interim solutions for state small water systems and domestic wells, per CWC Section 10609.70 (**emphasis added** as related to short-term response actions and this section of the County DRP):

(b) A county shall develop a plan that includes potential drought and water shortage risk and proposed interim and long-term solutions for state small water systems and domestic wells within the county's jurisdiction. The plan may be a stand-alone document or may be included as an element in an existing county plan, such as a local hazard mitigation plan, emergency operations plan, climate action plan, or general plan. A county shall consult with its drought task force or alternative coordinating process as established by this section in developing its plan. A county shall consider, at a minimum, all of the following in its plan:

- (1) Consolidations for existing water systems and domestic wells.*
- (2) Domestic well drinking water mitigation programs.*
- (3) Provision of emergency and interim drinking water solutions.*
- (4) An analysis of the steps necessary to implement the plan.*
- (5) An analysis of local, state, and federal funding sources available to implement the plan*

4.2 Ventura County Short-Term Response Actions

Short-term response actions are summarized in Table 4-1 and further described in this section. These short-term response actions provide emergency and interim drinking water solutions and streamline permitting and coordination for new or replacement wells during a water shortage event. The identified short-term response actions are not exhaustive and may be modified in the future as needed.

Table 4-1. Ventura County Drought Resilience Plan Short-Term Response Actions

Identification	Category	Title	Description	Lead and Supporting Agencies
STRA-01	Emergency and Interim Drinking Water Supplies	Individual Emergency Preparedness	The County, in coordination with non-governmental organizations, GSAs, and other relevant entities, should continue to share educational resources- including a list of state-regulated water haulers- to support advance planning for potential water shortages among domestic well and state small water system users. .	County OES (Lead) VCPWA Watershed Protection (Support)
STRA-02	Interties	State Small Water System Intertie, Emergency	The County to provide informational resources and assist in the coordination of facilitating temporary interties between state small water systems and/or public water systems in the event of a water shortage.	VCPWA Watershed Protection and VCPWA Roads and Transportation (Leads)
STRA-03	Permit Streamlining and Coordination	Expedited Well Permitting	The County to continue to expedite permit authorization for construction of replacement wells and/or system modifications to state small water systems and domestic wells in the event of a water shortage emergency.	VCPWA Watershed Protection (Lead), VCRMA EHD (Support)

Key:

County = Ventura County

County DRP = Ventura County Drought Resilience Plan

County OES = Office of Emergency Services

EHD = Environmental Health Division

STRA = short-term response action

VCPWA = Ventura County Public Works Agency

VCRMA = Ventura County Resource Management Agency

4.2.1 Emergency and Interim Drinking Water Supplies

Providing emergency and interim drinking water supplies includes the provision of temporary water solutions until a longer-term, more permanent water supply is secured or the water shortage emergency ends. Emergency and interim drinking water supply solutions are used during water shortage emergencies to meet basic health and safety needs.

Individual Emergency Preparedness (STRA-01)

During water shortage events, the County should help ensure that affected users are aware of individual emergency preparedness measures. This includes helping residents understand steps they can follow to prepare for water supply disruptions, such as maintaining emergency water storage, identifying alternative water sources and State-regulated bulk water hauling, and developing household-level response plans. Much of this information is already maintained and regularly updated through County OES, which provides public-facing guidance and emergency preparedness materials on its website, Ready Ventura County (<https://ready.venturacounty.gov/>). Additional information can also be posted on the County's SB552 website (<https://publicworks.venturacounty.gov/es/wells-drought-and-water-shortage-task-force/>) and cross-linked to Ready Ventura County to increase accessibility. County OES, with support from VCPWA Watershed Protection, should reinforce and direct users to existing resources, while working with non-governmental organizations, GSAs, and community-based organizations to ensure information reaches vulnerable and hard-to-reach populations.

4.2.2 Interties

An emergency intertie is an above-ground, or shallow subsurface pipeline that temporarily connects two or more water systems in the event of a water supply emergency. These connections can be rapidly deployed between neighboring utilities, cities, or community water systems when a system experiences a failure, contamination event, or severe shortage. Interties also help maintain minimum pressure and flow needed for basic domestic use and public health needs. Since interties can provide supplemental supply, communities may avoid or reduce reliance on bottled water, tanker trucks, or large-scale emergency distribution operations.

State Small Water Systems Intertie, Emergency (STRA-02)

VCPWA Watershed Protection and VCPWA Roads and Transportation can help coordinate and facilitate possible temporary interties for domestic wells and state small water systems with local, State, and public water systems that may have available capacity in the event of an emergency water shortage. As the County is not a water purveyor, its role is to serve as a facilitator and convenor to assist in successful execution of such agreements.

4.2.3 Permit Streamlining and Coordination

As drought or water shortage conditions worsen and the production or quality of water at domestic wells or state small water systems declines, well owners may be able to install a new well or rehabilitate an existing well to ensure continued water supply reliability. Streamlined permitting allows the County and agencies to quickly implement emergency water solutions. Delays in permitting can hinder timely access to water for domestic well users and state small water system communities.

Expediting Well Permitting (STRA-03)

VCPWA Watershed Protection's Groundwater Resources Section, manages the well permit process and ensures that all new or modified wells comply with local and State groundwater protection standards.

The Groundwater Resources Section has the ability to expedite permit authorization for the construction of replacement wells and/or system modifications to state small water systems and domestic wells in the event of an emergency. The Groundwater Resources Section usually approve rehabilitated well permits or state small water system modifications within a few days of submission under this process. The Groundwater Resources Section provides clear procedures and contact information for applicants, helping streamline the process for residents seeking well permits. Since they are the lead agency for reviewing and approving well permits in the County, it reduces the need for applicants to navigate multiple agencies independently. Their streamlining process does not relax permitting criteria related to water supply, such as proximity to other wells or water quality requirements.

Chapter 5 Long-Term Mitigation Strategies and Actions

The risk assessment presented in Chapter 3, Drought and Water Shortage Risk Assessment, demonstrates potential localized and regional water supply concerns, including the density of domestic wells in fractured rock areas as well as wildfire and water quality risks. While risks that impact the basic public health and safety of residents can be addressed through short-term response actions, long-term mitigation strategies and actions mitigate and potentially prevent the conditions that lead to water shortage emergencies. Long-term mitigation strategies and actions aim to reduce drought and water shortage vulnerabilities for domestic well and state small water system communities. When implemented, long-term mitigation strategies and actions can reduce the extent and cost of emergency response actions but cannot eliminate the need for emergency response actions.

5.1 Legislative Direction

SB 552 requires that each County develop a drought and water shortage plan that covers long-term solutions for state small water systems and domestic wells, per CWC Section 10609.70 (**emphasis added** as related to long-term mitigation strategies and actions and this section of the County DRP):

(b) A county shall develop a plan that includes potential drought and water shortage risk and proposed interim and long-term solutions for state small water systems and domestic wells within the county's jurisdiction. The plan may be a stand-alone document or may be included as an element in an existing county plan, such as a local hazard mitigation plan, emergency operations plan, climate action plan, or general plan. A county shall consult with its drought task force or alternative coordinating process as established by this section in developing its plan. A county shall consider, at a minimum, all of the following in its plan:

- (1) Consolidations for existing water systems and domestic wells.*
- (2) Domestic well drinking water mitigation programs.*
- (3) Provision of emergency and interim drinking water solutions.*
- (4) An analysis of the steps necessary to implement the plan.*
- (5) An analysis of local, state, and federal funding sources available to implement the plan*

5.2 Ventura County Long-Term Mitigation Strategies and Actions

As shown in Table 5-1 and described further in this section, long-term mitigation strategies and actions have been identified and are organized into four categories: domestic well drinking water mitigation programs, regional water infrastructure investment, system consolidation, and data gaps. The identified long-term mitigation strategies and actions are not exhaustive and may be modified in the future as needed.

Table 5-1. Ventura County Long-Term Mitigation Strategies and Actions

Identification	Category	Title	Description	Lead and Supporting Agencies
LTMSA-01	Domestic Well Drinking Water Mitigation Programs	Drought and Water Shortage Risk Assessment	County staff should review and consider as-needed updates to the County DRP risk assessment to incorporate updated information and revisions to the WSVE Tool.	VCPWA Watershed Protection (Lead) and VCRMA EHD (Support)
LTMSA-02	Domestic Well Drinking Water Mitigation Programs	Aging Infrastructure Assessment	County staff should provide educational resources to domestic well and state small water system users to rehabilitate or replace aging infrastructure.	VCPWA Watershed Protection (Lead)
LTMSA-03	Domestic Well Drinking Water Mitigation Programs	Point-of-Use Water Treatment Resources	County staff should provide informational resources for point-of-use water treatment options (e.g., under sink reverse osmosis, whole-house filter packs) to domestic well and state small water system users.	VCRMA EHD (Lead)
LTMSA-04	Domestic Well Drinking Water Mitigation Programs	Water Shortage Education and Outreach	County staff should collaborate with GSAs, watershed conservation districts, and other relevant agencies to deliver communication and engagement activities that address factors contributing to water shortages.	VCPWA Watershed Protection (Lead)
LTMSA-05	Regional Water Infrastructure Investment	Flood Management Project Identification	County, in coordination and collaboration with existing Integrated Regional Water Management Programs, flood management agencies, and GSAs, could identify how flood management projects could contribute to water supply resilience for domestic wells and state small water systems.	VCPWA Watershed Protection (Lead)
LTMSA-06	Regional Water Infrastructure Investment	County Planning Integration	County updates to multi-jurisdictional hazard mitigation plan and/or related documents should consider interagency roles, responsibilities, and actions associated with implementation of the DRP.	County OES (Lead) VCPWA and VCRMA (Support)
LTMSA-07	System Consolidation	Potential System Consolidation Opportunities	County staff should continue to support domestic well and state small water system communities interested in system consolidations.	VCPWA Water and Sanitation (Lead)
LTMSA -08	Data Gaps	Dry Well Reporting	County staff should consider integrating dry well reporting into the replacement well permitting process.	VCPWA Watershed Protection (Lead) VCRMA EHD (Support)

Identification	Category	Title	Description	Lead and Supporting Agencies
LTMSA -09	Data Gaps	Monitoring in Fractured Rock Areas	County staff should provide education and resources to domestic well and state small water system owners in fractured rock areas on available monitoring tools that can improve groundwater data collection and tracking.	VCPWA Watershed Protection (Lead)

Key:

County = Ventura County

DRP = Drought Resilience Plan

EHD = Environmental Health Division

GSA = groundwater sustainability agency

LTMSA = long-term mitigation strategies and actions

OES = Office of Emergency Services

SGMA = Sustainable Groundwater Management Act

VCPWA = Ventura County Public Works Agency

VCRMA = Ventura County Resource Management Agency

WSVE Tool = Water Shortage Vulnerability Explorer Tool

5.2.1 Domestic Well Drinking Water Mitigation Programs

Based on hydrologic conditions and increased demand for groundwater resources in dry and drought years, certain relatively shallow groundwater wells may be more susceptible to water shortage conditions, given that these wells could run dry more frequently. CWC Section 10609.70 (b)(2) requires counties to consider domestic well drinking water mitigation programs.¹¹ The intention of these programs is to establish the necessary protocols and processes to ensure that residents within the County's jurisdiction have access to resources to reduce water shortage risks or mitigate the impacts of dry wells. The subsequent sections detail proposed domestic well drinking water mitigation programs for the County.

Drought and Water Shortage Risk Assessment (LTMSA-01)

The risk assessment documented in Chapter 3, Drought and Water Shortage Risk Assessment, is a key component of a drinking water mitigation program. It helps define the areas and populations with domestic wells and small water systems with higher vulnerabilities to water shortage. It also characterizes what conditions may be driving water shortage vulnerabilities. Both can help inform the components of a domestic well drinking water mitigation program.

As part of the regular DRP review cycle defined in Section 6.3.1, Adaptive Management, VCPWA Watershed Protection and VCRMA Environmental Health Division (EHD) should review and update the risk assessment as needed to incorporate the latest data, evolving drought conditions, and enhancements to tools including the WSVE Tool. These updates can help ensure that vulnerability analyses remain accurate and actionable, particularly for domestic well and state small water system communities.

Aging Infrastructure Assessment (LTMSA-02)

Many domestic wells and state small water systems in the County are aging and face significant infrastructure challenges. Owners and operators of these systems may lack the financial and technical capacity to properly assess system conditions or identify effective solutions to improve water supply reliability. VCPWA Watershed Protection could provide informational resources and guidance to help owners of these systems evaluate their infrastructure, understand potential vulnerabilities, and explore feasible improvement options. By offering technical support, educational materials, and direction to relevant State and federal funding programs, the County can help domestic well and state small water system users make informed decisions and plan for long-term reliability.

Point-of-Use Water Treatment Resources (LTMSA-03)

Domestic wells and state small water systems in the County may be vulnerable to water supply interruptions due to water quality issues. VCRMA EHD can help provide informational resources on point-of-use water treatment options and a list of manufacturers that install such systems. With additional resources, County staff could provide educational resources- such as links to applicable NGOs that offer funding opportunities- which, while not exhaustive, would help connect domestic well and state small water system communities to grants that can cover all or a portion of the costs of implementing these water treatment systems.

¹¹ CWC Section 10609.70 (b)(2) uses the term, "domestic well drinking water mitigation programs." For the purposes of this County DRP, these programs are considered to be inclusive of both domestic wells and state small water systems.

Water Shortage Education and Outreach (LTMSA-04)

For over 50 years, VCPWA Watershed Protection's Groundwater Resources Section has provided the public with groundwater information, including well water levels, groundwater quality results, and well construction data. Making domestic well and state small water systems aware of these publicly available resources can empower them to better understand local water issues, track changes over time, and take informed steps to protect their household or system's water supply.

Educational outreach to domestic well users and state small water systems in the County plays a key role in preventing water shortages and promoting long-term groundwater sustainability. While VCPWA plays a vital role in managing groundwater and supporting water resilience across the region, it is equally important that the services and resources they provide are widely known and accessible to the public. Many domestic well and state small water system users may not be aware of the tools, data, and support available to them. This lack of awareness can leave communities vulnerable during droughts, water shortages, or even contamination events. Improving public awareness through targeted outreach, clear communication, and accessible platforms can help ensure that residents are informed, engaged, and able to take advantage of available resources and programs.

In collaboration with other County departments, GSAs, and watershed conservation districts, VCPWA could consider sharing educational resources or establishing a recurring schedule of community workshops and webinars. These resources can be promoted through accessible platforms like the County website and tailored to the specific needs and challenges of domestic well and state small water system users. Topics could include emergency preparedness, water conservation techniques (e.g., graywater usage, rainwater harvesting, nature-based solutions, etc.) and available technical and financial resources. For example, the Community Water Center provides additional support across the Central Coast, including in small areas of the County, and offers helpful educational resources and tools like the Drinking Water Tool to help residents identify potential contamination risks.

5.2.2 Regional Water Infrastructure Investment

Regional water infrastructure plays a key role in strengthening water supply reliability for communities across the County, including those served by domestic wells and state small water systems. By participating in and supporting these regional planning efforts, the County can help ensure that smaller and more vulnerable water users benefit from broader investments such as groundwater recharge projects and expanded conveyance systems. The long-term management strategies and actions described in this section outline opportunities for County staff to engage with regional agencies, water districts, and planning bodies to incorporate the needs of domestic well and state small water system users into long-term water management strategies. Integrating domestic well and state small water system considerations into regional water infrastructure projects will help reduce vulnerability during shortages.

Flood Management Project Identification (LTMSA-05)

VCPWA Watershed Protection can systematically evaluate flood control facilities, such as spreading grounds, detention basins, modified channels, and stormwater capture projects within key watersheds to determine their potential to augment groundwater recharge and improve drought resilience for domestic wells and state small water systems. VCPWA Watershed Protection should work closely with County GSAs to ensure that flood-related recharge projects directly support GSPs. Flood management investments should be evaluated for their ability to contribute to measurable groundwater sustainability objectives, such as reducing chronic overdraft.

County Planning Integration (LTMSA-06)

The County will incorporate drought resilience considerations into applicable County plans, programs, and planning updates, including the multi-jurisdictional Hazard Mitigation Plan and other relevant County planning efforts. When these documents are updated, departments should consider the roles, responsibilities, and coordination procedures identified in this County DRP. Doing so will help clarify responsibilities among County departments, regional partners, and external agencies for implementing drought-related actions and support the integration of drought preparedness and long-term resilience into County operations. Alignment among these plans, as summarized in Table 6-3, will strengthen interagency coordination and reduce operational gaps during water shortage conditions.

5.2.3 System Consolidation

CWC Section 10609.70(b) requires that the County DRP, at a minimum, consider consolidation of existing water systems and domestic wells. System consolidation is the physical or managerial joining of two or more water systems. In the context of domestic wells and state small water systems, these systems can be consolidated with each other and/or a larger water system. System consolidation can improve water supply reliability by broadening water supply sources and/or the numbers of users. With more users in a singular system, operating and maintaining that system can be more cost effective compared to smaller or individual systems. This section identifies potential consolidation opportunities for domestic wells and state small water systems.

There are opportunities for system consolidation involving domestic wells and state small water systems, particularly where these systems fall within or near the service boundaries of existing community water systems. While a community water system is not required to provide water service to domestic well and state small water system communities, their proximity may increase the feasibility of system consolidation. Consolidation in these areas could improve water quality and reliability by connecting often under-resourced systems to more comprehensive infrastructure. Policy or institutional hurdles may be less onerous if domestic wells and state small water systems are in an existing service area. Identifying these opportunities, especially in areas that are more vulnerable to water shortages or contamination risks, can help the County advance long-term water security goals.

Potential System Consolidation (LTMSA-07)

Although the County documents and tracks system consolidation, responsibility for coordination is primarily between the individual water system and adjacent water agency or purveyor. In some instances where the County is the water service provider, the County may assume a lead role in consolidation efforts. In all other cases, the County's role is limited to a facilitative and supportive capacity, rather than as a coordinating or decision-making authority.

The proximity of domestic wells and state small water systems to service areas of community water systems can be evaluated to identify system consolidation opportunities. The domestic wells and state small water systems that are within 1 mile of a community water system are highlighted as potential consolidation opportunities (Figure 5-1). Further evaluation should also include outreach to better understand system consolidation opportunities (e.g., interest in and willingness to consolidate, water supply availability and water quality constraints, water delivery infrastructure [distance to, components and capacities, etc.], potential for funding and financing for a system consolidation study and infrastructure, points of contact, and other considerations).

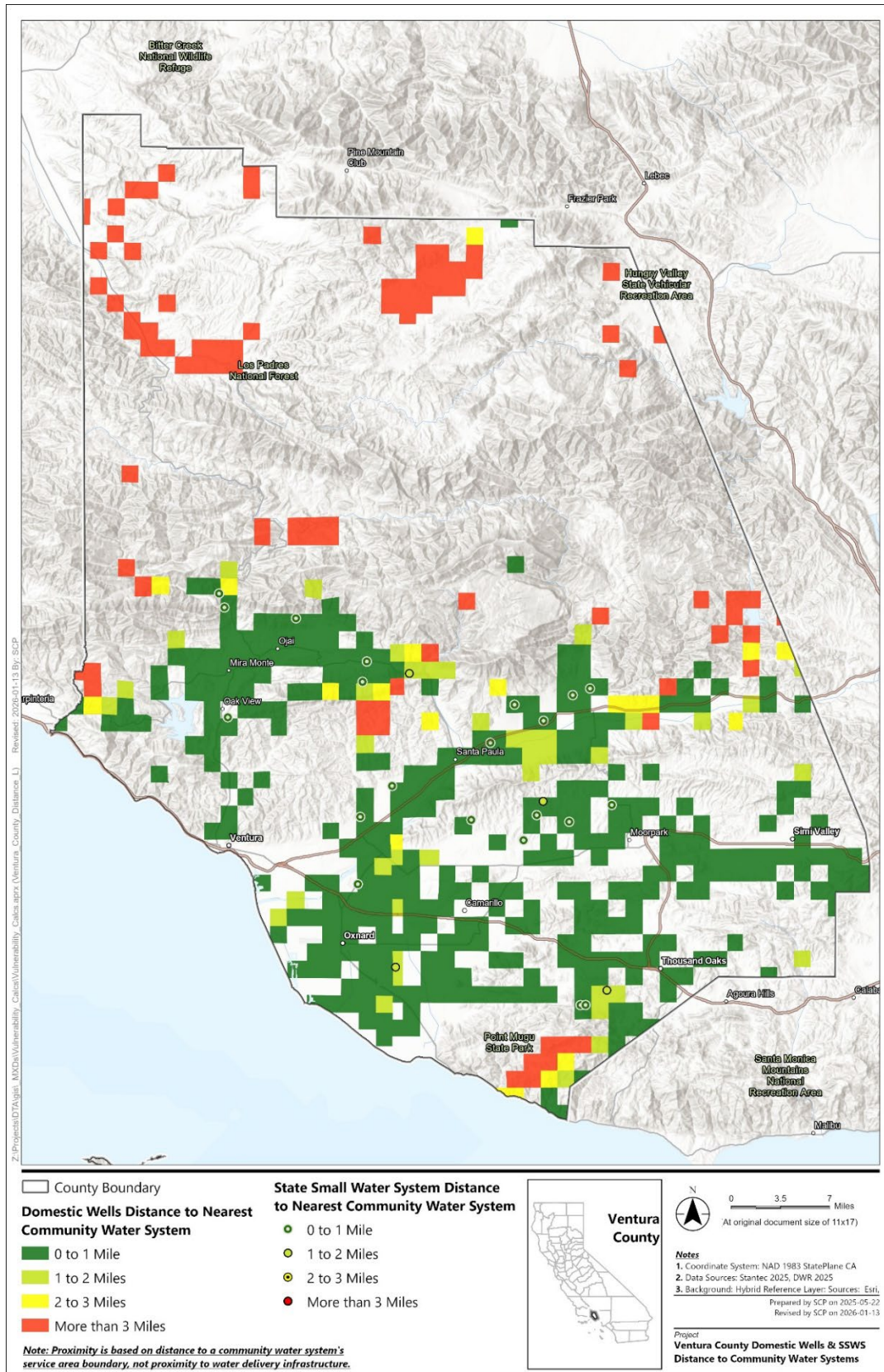


Figure 5-1. Areas with Opportunity for Domestic Wells and State Small Water Systems Consolidation

5.2.4 Data Gaps

The content in this County DRP used available data to support (1) evaluation of the vulnerability of domestic wells and state small water systems to water shortages, and (2) development and alignment of effective short-term response actions and long-term mitigation strategies and actions. Access to new or more accurate and complete data, along with ongoing discussion with the Task Force, would help improve future planning efforts, including updates to the risk assessment. This section details the long-term mitigation strategies and action, as identified in Table 5-1, that would provide new or improved data for use in future planning efforts.

Dry Well Reporting and Abandonment (LTMSA-08)

The risk assessment in Chapter 3, Drought and Water Shortage Risk Assessment, considers the presence of any dry domestic wells located within a particular block group. While the risk assessment indicates that the County is not highly susceptible to dry wells, it remains essential to document and monitor this risk. Reporting dry wells supports proactive water resource planning and helps safeguard domestic well and state small water system communities. DWR has established an online dry well reporting system for domestic well communities to report problems with their wells that impact water supplies.¹² However, not all domestic well and state small water systems users may report when their wells run dry, leaving the original dry well unreported and excluded from official records. To address this gap, VCPWA Watershed Protection and VCRMA EHD should consider integrating dry well reporting into the replacement well permitting process. This would allow for systematic tracking of dry well occurrences, helping to identify drought impacts and inform proactive mitigation strategies. Such data could also support regional planning efforts, including updates to County GSPs, hazard mitigation planning, and coordination with domestic wells or state small water systems that may be experiencing similar impacts.

Monitoring in Fractured Rock Areas (LTMSA-09)

The WSVE Tool revealed that fractured rock is scattered throughout the County, particularly around the Ojai and Ventura River Valley. County staff have also noted that groundwater conditions in these formations are difficult to assess due to their remoteness and inaccessibility. As a result, communities in these areas are more susceptible to drought impacts and may experience sudden changes in water availability.

To help address this gap, County staff can provide educational resources, technical guidance, and information on available monitoring technologies which can range from manual sensors to automatic water-level data loggers. Expanding monitoring coverage will help residents detect declining water levels earlier in drought cycles.

¹² DWR Dry Well Reporting System. <https://mydrywell.water.ca.gov/report/>

Chapter 6 Implementation Considerations

The short-term response actions and long-term mitigation strategies and actions identified and described in Chapter 4, Short-Term Response Actions, and Chapter 5, Long-Term Mitigation Strategies and Actions, represent the range of in-progress and proposed activities. Implementation of these short-term response actions and long-term mitigation strategies and actions often (1) falls under the authorities and jurisdictional responsibilities of the multiple County departments and other local and State public agencies, and (2) requires the involvement of other interested parties. To implement these short-term response actions and long-term mitigation strategies and actions, and contribute to continued improvement of water supply reliability for domestic well and state small water system communities, this section describes the implementation steps designed to assist the County with the following:

- Ongoing water supply monitoring and interagency collaboration
- Outlining short-term response action and long-term mitigation strategy and action implementation responsibility, status, and resource needs
- Identifying opportunities to align the County DRP with other County policy and County and regional planning documents
- Incorporating adaptive management
- Identifying funding opportunities

6.1 Legislative Direction

SB 552 requires the County to develop a drought and water shortage plan that analyzes the steps to implement the plan and funding sources available to support implementation, per CWC Section 10609.70 (**emphasis added** as related to plan implementation and this section of the County DRP):

(b) A county shall develop a plan that includes potential drought and water shortage risk and proposed interim and long-term solutions for state small water systems and domestic wells within the county's jurisdiction. The plan may be a stand-alone document or may be included as an element in an existing county plan, such as a local hazard mitigation plan, emergency operations plan, climate action plan, or general plan. A county shall consult with its drought task force or alternative coordinating process as established by this section in developing its plan. A county shall consider, at a minimum, all of the following in its plan:

- (1) Consolidations for existing water systems and domestic wells.*
- (2) Domestic well drinking water mitigation programs.*
- (3) Provision of emergency and interim drinking water solutions.*
- (4) An analysis of the steps necessary to implement the plan.***
- (5) An analysis of local, state, and federal funding sources available to implement the plan***

6.2 Implementation Roadmap

The County DRP describes existing and proposed short-term response actions and long-term mitigation strategies and actions that, when executed, help the County meet its objectives under CWC Section 10609.70 (b)(1), (b)(2), and (b)(3). Implementing these short-term response actions and long-term mitigation strategies and actions will require resources and clear roles and responsibilities. The identified short-term response actions and long-term mitigation strategies and actions include existing or new activities to be implemented under existing authorities and funding of County departments as well as activities that are dependent on appropriation of funds from local, State, or federal resources. This section presents the implementation roadmap for this County DRP; identification of ongoing monitoring and collaboration with County staff; and conduct of management oversight, prioritization, and resource identification needs. Many identified short-term response actions and long-term mitigation strategies and actions have funding and resource requirements beyond those currently available to the County.

6.2.1 Monitoring and Collaboration

Supply monitoring and interagency collaboration support County DRP implementation by evaluating water supply reliability and maintaining ongoing coordination and collaboration among County departments, related organizations, and the Task Force. County staff may regularly conduct a variety of monitoring activities, as outlined in Table 6-1.

Table 6-1. Ventura County Drought Resilience Plan Monitoring and Collaboration Activities

Activity	Description	Lead Agency	Estimated Timing
Task Force Meeting	County staff to schedule and facilitate a minimum of one Task Force meeting annually to review current drought conditions, coordinating response efforts and evaluating the implementation and progress of short-term response actions and long-term mitigation strategies and actions. Discussion shall support County staff, in collaboration with its Task Force, with identifying potential activation of water shortage response measures as described in this plan if deemed necessary.	VCCEO, VCPWA Watershed Protection	Once a year
Water Supply Monitoring and Coordination	VCPWA to monitor physical risk factors and water supply conditions associated with domestic well and state small water system communities	VCPWA Watershed Protection	As needed
GSA Coordination	County staff to engage, where applicable, with GSAs and other technical groups/committees where those activities help inform or implement actions that complement the County DRP. This may include additional coordination based on water supply conditions.	VCPWA Watershed Protection	As needed
County DRP Website Update	County staff to update the DRP website content and resource materials. This includes any contact information, list of resources (vendors, links to external websites, etc.), and other website content. Website to be hosted by the County.	VCPWA Watershed Protection	Once a year prior to Task Force meeting, and/or as water supply conditions merit

Key:

County = Ventura County

DRP = Drought Resilience Plan

GSA = Groundwater Sustainability Agency

GSP = Groundwater Sustainability Plan

VCCEO = Ventura County Executive Office

VCPWA = Ventura County Public Works Agency

6.2.2 Responsibilities and Resource Needs

Table 6-2 details the implementation of the County DRP short-term response actions and long-term mitigation strategies and actions, including the responsible and coordinating entities, implementation priority and status, and resource requirements. This County DRP assigns the identified short-term response actions and long-term mitigation strategies and actions to County departments and agencies pursuant to each agency's regulatory and policy authorities. The information in Table 6-2 may change outside the County DRP process and should be regularly updated.

Table 6-2. Ventura County Drought Resilience Plan Implementation Matrix

Action and/or Strategy Identification and Title	Lead Agency	Supporting Agency	Status ¹	Additional Resource Requirements ²		
				Staff Time	County Budget	Outside Funds
STRA-01: Individual Emergency Preparedness	County OES	VCPWA Watershed Protection	Available	Yes	No	No
STRA-02: State Small Water System Intertie, Emergency	VCPWA Watershed Protection and VCPWA Road and Transportation		Proposed	Yes	No	No
STRA-03: Expedited Well Permitting	VCPWA Watershed Protection	VCRMA EHD	In progress	Yes	No	No
LTMSA-01: Drought and Water Shortage Risk Assessment	VCPWA Watershed Protection	VCRMA EHD	Proposed	Yes	No	No
LTMSA-02: Aging Infrastructure Assessment	VCPWA Watershed Protection		Proposed	Yes	No	No
LTMSA-03: Point-of-Use Water Treatment Resources	VCRMA EHD		Available	Yes	No	No
LTMSA-04: Water Shortage Education and Outreach	VCPWA Watershed Protection		Available	Yes	Yes	No
LTMSA-05: Flood Management Project Identification	VCPWA Watershed Protection		Proposed	Yes	No	No
LTMSA-06: County Planning Integration	County OES	VCPWA and VCRMA	Proposed	Yes	No	No
LTMSA-07: Potential System Consolidation Opportunities	VCPWA Water and Sanitation		Proposed	Yes	Yes	Yes
LTMSA-08: Dry Well Reporting	VCPWA Watershed Protection	VCRMA EHD	Proposed	Yes	No	No
LTMSA-09: Monitoring in Fractured Rock Areas	VCPWA Watershed Protection		Proposed	No	No	No

Notes:

¹ The status column is intended to represent implementation status and is categorized as follows:

- Available: Action or strategy may be available for implementation due to near-term timeline and availability of required resources.
- In progress: Action or strategy is currently being implemented.
- Proposed: Action or strategy is proposed for future implementation, either due to timeline or resourcing.

² The resource requirement column identifies anticipated additional resource requirements such as additional staff time, County budget, and/or outside funds (e.g., grants, financing, federal funding, and future State funding) beyond what the County currently has available to implement the identified actions and strategies.

Key:

County = Ventura County

EHD = Environmental Health Division

LTMSA = long-term mitigation strategy and action

OES = Office of Emergency Services

STRA = short-term response action

VCPWA = Ventura County Public Works Agency

VCRMA = Ventura County Resource Management Agency

6.3 Policy Alignment for Implementation

The information and actions contained in this document provide mutual benefits toward realizing goals and objectives of other County and regional planning efforts that may impact domestic well and state small water communities. Table 6-3 describes how the County DRP aligns with other County and regional planning efforts and makes recommendations to be considered in any future planning updates.

Table 6-3. Ventura County Drought Resilience Plan Policy Alignment and Integration

Related Planning Effort	Status	Lead Agency	Relation to the County DRP	Alignment/ Recommendation
County and City General Plans	Updated between 2015 and 2025	County and City Planning Departments	The County DRP builds on the County and municipal general plans by identifying drought vulnerabilities in areas where growth is planned and ensuring water supply reliability aligns with future development.	County and city planning departments to maintain policies in future general plan updates to help increase drought resiliency for new development.
Multi-Jurisdictional Hazard Mitigation Plan	Adopted July 2022, 2027 update is in progress	County OES VCPWA VCRMA	The County DRP complements the multi-jurisdictional hazard mitigation plan by offering water-specific mitigation strategies that can be integrated into broader hazard response efforts.	Strategies for drought resilience, emergency response, and long-term water security should account for the unique vulnerabilities and needs of communities served by domestic wells and state small water systems. While County OES leads the comprehensive plan update, participating entities- including other county departments (e.g. VCPWA and VCRMA), cities, and water agencies- are responsible for identifying and prioritizing mitigation strategies specific to their regions.
Cuyama Valley Basin GSP	Adopted January 2025	Cuyama Basin GSA	The GSP guides the management of groundwater supplies in the Cuyama Valley Basin. The region covered by the plan includes domestic well users.	Cuyama Basin GSA to review vulnerability data on domestic well and state small water system communities to inform monitoring and project prioritization

Related Planning Effort	Status	Lead Agency	Relation to the County DRP	Alignment/ Recommendation
Carpinteria Basin GSP	Adopted November 2023	Carpinteria GSA	The GSP guides the management of groundwater supplies in the Carpinteria Basin. The region covered by the plan includes domestic well users.	Carpinteria GSA to review vulnerability data on domestic well and state small water system communities to inform monitoring and project prioritization.
Ojai Valley Basin GSP	Adopted January 2022	Ojai Basin Groundwater Management Agency	The GSP guides the management of groundwater supplies in the Ojai Valley Groundwater Basin. The region covered by this plan includes domestic well users and state small water systems.	Ojai Basin Groundwater Management Agency to review vulnerability data on domestic well and state small water system communities to inform monitoring and project prioritization.
Santa Clara River Valley – Oxnard Basin GSP	Adopted December 2019	Fox Canyon Groundwater Management Agency	The GSP guides the management of groundwater supplies in the Santa Clara River Valley – Oxnard Basin. The region covered by this plan includes domestic well users and state small water systems.	FCGMA GSA to review vulnerability data on domestic well and state small water system communities to inform monitoring and project prioritization.
Santa Clara River Valley – Mound Basin GSP	Adopted November 2021	Mound Basin GSA	The GSP guides the management of groundwater supplies in the Santa Clara River Valley – Mound Basin.	Mound Basin GSA to review vulnerability data on domestic well and state small water system communities to inform monitoring and project prioritization.
Santa Clara River Valley – Fillmore Basin GSP	Adopted January 2024	Fillmore and Piru Basins GSA	The GSP guides the management of groundwater supplies in the Fillmore Basin. The region covered by this plan includes domestic well users and state small water systems.	Fillmore and Piru Basins GSA to review vulnerability data on domestic well and state small water system communities to inform monitoring and project prioritization.
Santa Clara River Valley – Piru Basin GSP	Adopted July 2024	Fillmore and Piru Basins GSA	The GSP guides the management of groundwater supplies in the Santa Clara River Valley – Piru Basin. The region covered by this plan includes domestic well users.	Fillmore and Piru Basins GSA to review vulnerability data on domestic well and state small water system communities to inform monitoring and project prioritization.

Related Planning Effort	Status	Lead Agency	Relation to the County DRP	Alignment/ Recommendation
Santa Clara River Valley – Santa Clara River Valley East Basin GSP	Adopted January 2022	Santa Clarita Valley GSA	The GSP guides the management of groundwater supplies in the Santa Clara River Valley East Basin.	Santa Clarita Valley GSA to review vulnerability data on domestic well and state small water system communities to inform monitoring and project prioritization.
Pleasant Valley Basin GSP	Adopted December 2019	Fox Canyon Groundwater Management Agency	The GSP guides the management of groundwater supplies in the Pleasant Valley Basin. The region covered by this plan includes domestic well users.	Fox Canyon Groundwater Management Agency to review vulnerability data on domestic well and state small water system communities to inform monitoring and project prioritization
Las Posas Valley Basin GSP	Adopted December 2019	Fox Canyon Groundwater Management Agency	The GSP guides the management of groundwater supplies in the Las Posas Valley Basin. The region covered by this plan includes domestic well users and state small water systems.	Fox Canyon Groundwater Management Agency to review vulnerability data on domestic well and state small water system communities to inform monitoring and project prioritization.
Ventura River Valley – Upper Ventura River Basin GSP	Adopted January 2022	Upper Ventura Groundwater Agency	The GSP guides the management of groundwater supplies in the Ventura River Valley – Upper Ventura River Basin. The region covered by this plan includes domestic well users.	Upper Ventura Groundwater Agency to review vulnerability data on domestic well and state small water system communities to inform monitoring and project prioritization
Urban Water Management Plan for United Water Conservation District	Adopted June 2021	United Water Conservation District	The urban water management plan outlines a long-term strategy to meet the water needs of the United Water Conservation District service area, including the cities of Oxnard and Fillmore, as well as the town of Piru.	The Watersheds Coalition of Ventura County IRWMP supports domestic well and state small water system communities by promoting coordinated watershed management through regional collaboration and infrastructure investment.

Related Planning Effort	Status	Lead Agency	Relation to the County DRP	Alignment/ Recommendation
Ventura County IRWMP	Amended 2019	Watersheds Coalition of Ventura County	The County DRP complements watershed-scale climate adaptation initiatives by addressing water resilience at a County level.	Each agency to review drought and water shortage emergencies for domestic and state small water system communities as a component of IRWMP

Key:

County = Ventura County

DRP = Drought Resilience Plan

GSA = Groundwater Sustainability Agency

GSP = Groundwater Sustainability Plan

IRWMP = Integrated Regional Water Management Plan

OES = Office of Emergency Services

VCPWA = Ventura County Public Works Agency

VCRMA = Ventura County Resource Management Agency

6.3.1 Adaptive Management for the County DRP

The County DRP will be updated periodically or in response to updated information or changing conditions to ensure findings, short-term response actions, and long-term mitigation strategies and actions are appropriate and relevant. At a minimum, this County DRP will undergo review within 180 days of activation in response to a local drought proclamation. The County DRP may also be revisited after major droughts, water shortage events, changes in GSA status, as well as when new data, strategies, policies, or requests from the Task Force arise. If needed, the designated County lead entities are responsible for initiating and coordinating updates to their respective short-term response actions and long-term mitigation strategies listed in the County DRP.

Updates to the County DRP may include: (1) reviewing the risk assessment findings to reflect local data or incorporate new and improved information that better characterizes water supply vulnerability, (2) evaluating progress on short-term response action and long-term mitigation strategy and action implementation, (3) updating any communications and outreach materials and information, (4) updating Task Force details, and (5) revising the County DRP content to incorporate any changes.

6.4 Funding Opportunities and Assistance Programs

County DRP implementation could involve a variety of activities both for County staff and for community partners including plan administration, management, and updates; submitting funding applications and administering agreements; outreach and communications; coordination with other agencies and entities; Task Force engagement; managing assistance programs; development and construction of infrastructure and associated operations; and other efforts. Those activities require funding—both short term for projects with a finite schedule and long term for ongoing activities. As SB 552 does not provide funding for implementation activities, this County DRP analyzed local, State, and federal funding sources available to implement the plan.

A combination of funding and support sources could be used to support County DRP implementation with various agencies and entities involved in securing and administering each source. These might include grants, loans, agency staff time, services provided by others (e.g., in-kind work, technical or training assistance through a State or federal agency). The availability of these internal and external funding sources will impact the success and timeliness of the County DRP implementation.

Tracking and applying for grants or other funding sources to implement short-term response actions or long-term mitigation strategies and actions typically requires additional staff time and resources that may not always be available. However, additional support and resources could help secure adequate funding to implement the short-term response actions or long-term mitigation strategies and actions.

Domestic well and state small water system communities are also limited in their ability to access reliable funding due to limited staff, reserves, and flexibility. They may find that it is cost- and resource-prohibitive to implement drought or water shortage solutions by themselves, that solutions frequently require participation or involvement of other entities, and that it is challenging to prepare for, navigate, apply for, and administer the various local, State, and federal funding mechanisms that could be available at any given time. These system owners/operators may need assistance. Note that the County does not have the authority to require domestic well or state small water system communities to implement any actions to enhance their resilience.

Table 6-4 compiles funding opportunities and assistance programs that may be available to assist in the implementation of the short-term response actions and long-term mitigation strategies and actions identified for the County, as listed in Section 4.2, Ventura County Short-Term Response Actions, and Section 5.2, Ventura County Long-Term Mitigation Strategies and Actions. Table 6-4 may be used as a basis for developing future funding strategies, but it is neither a complete list nor an exhaustive one. Additionally, as available funding sources are constantly changing (e.g., programs may currently be inactive but could reopen in future funding cycles), funding needs, timing, and potential opportunities must be evaluated and balanced prior to commitment to implementation.

Table 6-4. Funding Opportunities and Assistance Programs for Drought Resilience Plan Implementation

Agency	Program	Description
County	General Fund	The County General Fund is primarily supported by discretionary revenues such as sales and property taxes. Allocation of these funds is subject to approval by the County Board of Supervisors, allowing flexibility to support a range of County priorities and services.
California State Library	California Grants Portal (https://www.grants.ca.gov/)	Searchable webpage with information on State funding opportunities (input and updated by State administering agencies and departments). Grants Portal hosts State funding opportunities offered on a competitive or first-come basis (other types of grants are not listed).
State Water Board	County-wide and Regional Funding Programs (SAFER) (https://www.waterboards.ca.gov/safer/funding_solicitation.html)	Grant funding to implement regional programs that address drought-related and/or contamination issues for domestic wells and state small water systems serving disadvantaged communities and low-income households.
State Water Board	Domestic Water Wells and State Smalls Program (https://www.waterboards.ca.gov/water_issues/programs/grants_loans/drinking_water_well.html)	Assistance to disadvantaged individuals or households served by a domestic well or state small water systems with a water quality issue.
State Water Board	Drinking Water SRF (https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/fundingincentives.html)	Drinking Water SRF webpage specific to funding and incentives for consolidation and regionalization projects.
State Water Board	Financial Assistance Funding: Grants and Loans Website (https://www.waterboards.ca.gov/water_issues/programs/grants_loans/)	Information on grant and loan programs (State Water Board and other agencies).
DWR	Technical Assistance (https://water.ca.gov/Work-With-Us/Technical-Assistance)	Technical guidance and assistance resources to local and regional organizations through 4 regional offices.
California DWR	Grants and Loans (https://water.ca.gov/Work-With-Us/Grants-And-Loans)	Information on grant and loan programs that support integrated watershed management activities addressing environmental stewardship, water supply reliability, flood risk, groundwater sustainability, drought, and more.

Agency	Program	Description
California Financing Coordinating Committee	California Financing Coordinating Committee Funding Information (https://www.cfcc.ca.gov/)	Information on grants, loans, and bond financing for infrastructure projects from 4 State agencies (State Water Board, DWR, California Department of Housing and Community Development, California Infrastructure and Economic Development Bank) and 2 federal agencies (U.S. Bureau of Reclamation, U.S. Department of Agriculture Rural Development) also has information on and links to the California Rural Water Association and Rural Community Assistance Corporation and tabs for funding fairs, infrastructure funding programs, and additional funding programs.
California Governor's Office of Land Use and Climate Innovation	Integrated Climate Adaptation and Resiliency Program (https://lci.ca.gov/climate/icarp/)	Information on planning and implementation of grant programs, technical assistance, and other resources to support planning for and adapting to climate change.
National Oceanic and Atmospheric Administration, National Integrated Drought Information System	Funding Opportunities (https://www.drought.gov/drought-in-action/funding-opportunities)	Information on and links to funding offered by the National Integrated Drought Information System and its partners related to drought early warning research across many sectors and fields including science, education, and technology. Webpage also includes links to other drought-related federal funding opportunities.
Federal Emergency Management Agency	Hazard Mitigation Assistance Grants (https://www.fema.gov/grants/preparedness)	Funding for eligible long-term solutions that reduce the impact of disasters in the future. Information on many funding/assistance opportunities.
U.S. Department of Agriculture, Rural Development	Rural Utilities Service Water and Environmental Programs: Water and Environmental Grant and Loan funding (https://www.rd.usda.gov/programs-services/water-environmental-programs)	Technical assistance, training, and financing to develop drinking water and waste disposal systems in rural communities (populations of 10,000 or less).
U.S. Department of Agriculture, Rural Development	Emergency Community Water Assistance Grants (https://www.rd.usda.gov/programs-services/water-environmental-programs/emergency-community-water-assistance-grants)	Funding to prepare for or recover from an emergency that threatens the availability of safe, reliable drinking water.

Agency	Program	Description
U.S. Department of Agriculture, Rural Development	Water and Waste Disposal Loan and Grant Program (https://www.rd.usda.gov/programs-services/water-environmental-programs/water-waste-disposal-loan-grant-program)	Funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and stormwater drainage to households and businesses in eligible rural areas, for qualified applicants not otherwise able to obtain commercial credit on reasonable terms.
U.S. Department of the Interior, Bureau of Reclamation	WaterSMART Program (https://www.usbr.gov/watersmart/)	Supports collaborative projects designed to improve water supply reliability and water management and build long-term drought resilience.
U.S. Department of the Interior, Bureau of Reclamation	Small Storage Program https://www.usbr.gov/smallstorage/	Provides cost-shared federal funding for planning, design, and construction of small water storage projects.

Key:

County = Ventura County

DWR = California Department of Water Resources

SAFER = Safe and Affordable Funding for Equity and Resilience

SRF = State Revolving Fund

State Water Board = State Water Resources Control Board

Chapter 7 References

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Appendix A: Water Shortage Emergency Response Process

Administrative Final

Water Shortage Emergency Response Process

This appendix outlines the Water Shortage Emergency Response Process, which is designed to help the County monitor water supply conditions that affect domestic wells and state small water systems. The purpose of this process is to identify actions appropriate for each stage of a water shortage, helping to mitigate potential impacts on these vulnerable water sources.

The emergency response process defines three stages of water shortage: Readiness, Warning, and Emergency. In the Readiness Stage, there is no major drought or potential for water shortage. In the Warning Stage, drought or the potential for water shortage exists, but there is no active water shortage emergency. If a State or federally declared water shortage emergency is imminent or actively occurring, the County is in the Emergency Stage. In this stage, County staff, in coordination with the Task Force and County Board of Supervisors, would declare a water shortage emergency and activate the short-term response action.

Declaring a drought or water shortage is important as it communicates a potential or ongoing emergency and is the first step in accessing State and federal resources that may be available to assist the County in implementing short-term response actions. Federal and State authorities have their own processes for declaring a drought or water shortage emergency, and County staff should understand current processes and be aware of potential revisions. An emergency declaration by federal or State authorities influences the implementation of the short-term response actions identified in this County DRP. In the event of a federal or State disaster declaration, the County should consider how to leverage additional resources to activate the short-term response actions identified in the County DRP.

Table A-1 presents key indicators related to water supply conditions and activation considerations used to assess the current status. While the table provides examples of potential indicators and considerations, it is not exhaustive. The County may rely on additional indicators not listed in Table A-1.

To support each water shortage stage, the County has aligned specific actions and designated lead agencies, as shown in Table A-2. Further details regarding these actions can be found in Chapter 4, Short-Term Response Actions of the County DRP. The County retains discretion to implement additional activities beyond those listed in Table A-2 and will determine the most appropriate strategies based on the nature of the shortage.

Table A-1. Water Shortage Indicators and Activation Considerations in Ventura County

Indicator Name	Indicator Description	Warning Stage Indicators and Activation Considerations	Emergency Stage Indicators and Activation Considerations
U.S. Drought Monitor ¹³	The U.S. Drought Monitor is a map updated weekly that shows the location and intensity of drought across the country. It uses a 5-category system, from Abnormally Dry (D0) conditions to Exceptional Drought (D4). The County can use this resource to understand the prevalence and severity of drought within the County and surrounding areas.	If U.S. Drought Monitor classification reaches Severe Drought (D2) or worse within the County, initiate Warning Stage review. Combine with other indicators before activation.	If classification reaches Extreme (D3) or Exceptional (D4) Drought, heighten monitoring of all other indicators; the County is to activate Emergency Stage only if corroborated by supply or impact data. An Extreme or Exceptional Drought classification may not solely indicate that a water shortage emergency is occurring or imminent.
Public Water System Shortage Stage	Public water systems are required to maintain a water shortage contingency plan (or have one within an urban water management plan) that specifies stages of water shortage tied to projected water supply shortfalls. The drought stages that public water systems use may be a proxy for overall drought conditions within the County.	Public water systems' water shortage stages could alert the County to consider whether the Warning Stage is warranted for domestic wells and state small water systems. Public water systems that use the same groundwater supplies are a better direct proxy than those that rely on different types of water supplies.	Water shortage contingency plans include an Emergency Stage that is only used when water supply shortages are imminent. If a public water system in the County is in an Emergency Stage, especially if the system uses the same groundwater supplies as domestic wells or state small water systems, this should be an Emergency Stage activation consideration.

¹³ <https://www.drought.gov/data-maps-tools/us-drought-monitor>
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Indicator Name	Indicator Description	Warning Stage Indicators and Activation Considerations	Emergency Stage Indicators and Activation Considerations
Water Quality	Water quality data from water systems available to the County could indicate water quality issues. The presence of potential water quality issues that may result in water supplies being unusable can be used to establish a water shortage stage. Note that other hazards such as droughts or wildfires can exacerbate poor water quality conditions and should also be considered in combination with this indicator.	Indicators such as water quality observations that are noted as being of concern (for unregulated chemicals or those without an established water quality level) or measured water quality that is outside of established standards (maximum contaminant levels, primary or secondary standards, etc.) without a boil-water notice or other intervention limiting use in place will initiate Warning Stage review.	Observed water quality that is outside public health standards (maximum contaminant levels, primary or secondary standards, etc.) and/or a boil-water notice or intervention limiting use is in place will activate the Emergency Stage.
Applications for Replacement Well Permits	Water quality data from water systems available to the County could indicate water quality issues. The presence of potential water quality issues that may result in water supplies being unusable can be used to establish a water shortage stage. Note that other hazards such as droughts or wildfires can exacerbate poor water quality conditions and should also be considered in combination with this indicator.	If the County is in a drought condition (U.S. Drought Monitor, public water system, or other indicators) and there is an increase in replacement well permit applications, then the County should evaluate if the new applications are due to water shortages for domestic wells and state small water systems and initiate Warning Stage.	If after evaluating the dry well reports, the County finds that the features of the dry well (e.g., depth, age) are consistent with other wells in the area, that may indicate the potential for widespread water shortages; consider Emergency Stage activation.
Dry Well Reports	California has a dry well reporting system that well owners or operators can use to report a dry well. The County can use this to help identify where a water shortage is occurring.	Any dry well reports submitted within the County should activate evaluation of the cause of the water shortage to determine if the cause is due to an isolated issue (e.g., very shallow well, aging infrastructure) and if the cause was exacerbated by drought. If consistent with area-wide well characteristics and drought impacts, initiate Warning Stage.	If after evaluating the dry well reports, the County finds that the features of the dry well (e.g., depth, age) are consistent with other wells in the area, that may indicate the potential for widespread water shortages; consider Emergency Stage activation.

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Indicator Name	Indicator Description	Warning Stage Indicators and Activation Considerations	Emergency Stage Indicators and Activation Considerations
GSA Monitoring	GSAs in SGMA priority basins are required to undertake regular monitoring (typically in October and April) of groundwater conditions as part of their reporting. The County can use data from these monitoring programs, if available to the County, to inform a water shortage stage.	If monitoring or analysis by a GSA indicates a decline in groundwater levels below an established threshold (such as a MT or Measurable Objective, as defined in the associated GSP) that could cause water supply issues, then initiate Warning Stage review.	Consider Emergency Stage if monitoring or analysis by a GSA results in the GSA implementing response actions to avoid water shortages, and domestic wells or state small water systems supplies could be impacted in that area.
Non-Drought Hazards	Other hazards that could result in a water shortage include wildfires, earthquakes, floods, and power outages (either planned or unplanned), and the County should monitor conditions following a hazard event. Water supply impacts of some of these hazards can be worsened by drought conditions, and such events can also influence other indicators such as water quality.	Initiate Warning Stage review if hazards temporarily interrupt domestic well or state small water system supplies for up to 2 days.	Activate Emergency Stage if hazards interrupt domestic well or state small water system supplies for an extended period (3 or more days), including public safety power shutoffs.

Key:

GSA = groundwater sustainability agency

GSP = groundwater sustainability plan

MT = minimum threshold

SGMA = Sustainable Groundwater Management Act

U.S. Drought Monitor = United States Drought Monitor

Table A-2. Water Shortage Emergency Response Process

Water Shortage Stage	Description	Ventura County Actions
Readiness	No major drought or potential water shortage	Annual Drought Task Force Meeting to discuss County DRP Implementation and review water supply health
		Proactive long-term mitigation strategy communications
		Conduct water supply and quality assessment
		Annual website update (as needed)
Warning	Drought or other hazard occurring could cause a water shortage	As-needed Drought Task Force Meeting
		Share available resources for individual emergency preparedness
		As needed, coordinate with relevant organizations: water purveyors, watershed conservation districts, other County departments, non-government organizations
Emergency	Water shortage is occurring or is imminent	Initiate Drought Task Force Meeting
		Expedite permit authorization for construction or replacement wells

Key:

County = Ventura County

DRP = Drought Resilience Plan

Task Force = Ventura County Drought and Water Shortage Task Force

