

Solano County Drought Resilience Plan

Administrative Final



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Solano County

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Abbreviations and Acronyms

°F	Fahrenheit
µg/L	microgram/liter
Bay Area	San Francisco Bay Area
CDAG	County Drought Advisory Group
CDPH	California Department of Public Health
County	Solano County
CWC	California Water Code
Delta	Sacramento-San Joaquin Delta
DRP	Drought Resilience Plan
DWR	California Department of Water Resources
DWWMP	Drinking Water Well Mitigation Program
EIDWD	Emergency and Interim Drinking Water Distribution
FEMA	Federal Emergency Management Agency
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
HSC	California Health and Safety Code
I-80	Interstate 80
LTMSA	long-term mitigation strategies and action
MCL	Maximum Contaminant Level
OES	Office of Emergency Services
OSWCR	Online System for Well Completion Reports
PCT	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
SCWA	Solano County Water Agency
SGMA	Sustainable Groundwater Management Act
SID	Solano Irrigation District
SSWS	state small water system
State Water Board	State Water Resources Control Board
State	State of California
STRA	short-term response action
TAF	thousand acre-feet
Task Force	Drought and Water Shortage Task Force
USDM	U.S. Drought Monitor
UWMP	Urban Water Management Plan
WSVE	Water Shortage Vulnerability Explorer

1.0 Introduction

The Solano County (County) Drought Resilience Plan (Plan) 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 two types of systems in the County: domestic wells, as defined in California Health and Safety Code (HSC) Section 116681(i) and California Water Code (CWC) Section 10609.51(d), and state small water systems (SSWSs), as defined in HSC Section 116275(n) and CWC Section 10609.51(l). The Plan 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 Plan 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 the DWR's *County Drought Resilience Plan Guidebook* (Guidebook) (DWR 2023). The guidebook is a resource for counties to use when developing a Plan specifically for SSWSs and domestic wells. Consistent with the guidebook, this Plan is organized into six chapters, as follows:

- **Chapter 1, Introduction**, provides an overview of the legislation relating to SB 552 and the development of the Plan. This chapter also includes background on County demographics and geography and an overview of domestic wells and SSWSs within the County's jurisdiction.
- **Chapter 2, County Drought and Water Shortage Task Force**, provides an overview of the Task Force, including its development process and charter, membership, roles, purpose, and meeting frequency.
- **Chapter 3, Drought and Water Shortage Risk Assessment**, characterizes the vulnerability of domestic wells and SSWSs 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 SSWSs are present. Additionally, data gaps are identified to help inform potential long-term strategies.
- **Chapter 4, Short-Term Response Actions**, details the proposed short-term response actions (STRAs) for emergency and interim drought solutions, including specific actions, local response triggers, and public engagement.
- **Chapter 5, Long-Term Mitigation Strategies and Actions**, details the proposed long-term mitigation strategies and actions (LTMSAs) for improving the water supply resilience of domestic wells and SSWSs.
- **Chapter 6, Implementation Considerations**, presents a roadmap for implementing STRAs and LTMSAs consistent with the mission and authority of involved agencies. This includes identifying agencies and entities responsible for implementation, the status of implementation, funding, authorization for implementation, and anticipated schedule. This section also summarizes the level of multi-agency collaboration identified by agencies to support implementation.

- **Chapter 7, References**, provides a list of references used in this plan.

1.2 Legislative Requirements

Signed into law in September 2021 by Governor Gavin Newsom, SB 552 (Hertzberg)¹ obligated the State of California (State) and local governments to share the responsibility of preparing for and responding to a water shortage event. These new requirements are expected 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 new 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.

SB 552 also implements legislation on water conservation and drought planning (SB 606 [Hertzberg] and Assembly Bill 1668 [Friedman], as amended; collectively referred to as the “2018 legislation”) passed by the 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.

Water users protected under SB 552 include the following:

- **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 (CWC Section 10609.51(k)).
- **Community Water System:** A public water system that serves at least 15 service connections used by year-long residents or regularly serves at least 25 year-long residents of the area served by the system, as defined in HSC Section 116275(i) and Section 10609.51(a).
- **SSWS:** A system for the provision of piped water to the public for human consumption that serves 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, as defined in HSC Section 116275(n) and CWC Section 10609.51(l).
- **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 has no more than four service connections, as defined in HSC Section 116681(i) and CWC Section 10609.51(d).

¹ 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 State 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. More information is available at: <https://water.ca.gov/drip>.

- **Nontransient Noncommunity Water System:** A public water system that is not a community water system and regularly serves at least 25 of the same persons for over 6 months per year, as defined in HSC Section 116275(k) and Section 10609.51(f).

Among the water users protected under SB 552, this Plan addresses water shortage vulnerabilities for domestic wells and SSWs. Other water users protected under SB 552 not covered by this Plan have separate requirements to address water shortage vulnerabilities.

1.2.1 County Agency Requirements

This Plan fulfills county requirements for preparation of a plan that addresses potential drought and water shortage risk and proposed interim and long-term solutions for domestic wells and SSWs within a county's jurisdiction (CWC Section 10609.70). While measures to protect small water suppliers and nontransient noncommunity water systems are not within the scope of this Plan, it considers integration opportunities with these systems consistent with the intent of SB 552. 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) Analysis of the steps necessary to implement the plan
 - 5) 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. These include:

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(a)):

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 Purpose of Solano County Drought Resilience Plan

This Plan documents how the County, Task Force members, and other entities with water supply and drought management responsibilities intend to address water supply vulnerabilities of water users covered under SB 552 in the County. It has been prepared as a single document for ease of reference and to facilitate future updates. 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 Plan. Implementation of the Plan will be managed through a collaboration of departments, including the Solano County Department of Resource Management, Solano County Administrator's Office, Solano County Office of Emergency Services (OES), and Solano County Agriculture Department.

1.4 Solano County Overview

Solano County is located in Northern California, situated between the San Francisco Bay Area (Bay Area) and the Sacramento Valley. It is bordered by Napa County to the northwest, Yolo County to the north and northeast, Sacramento County to the east, Contra Costa County to the south, and Sonoma County to the west. Solano County lies along the Interstate 80 (I-80) corridor, which connects San Francisco and

Sacramento, making it a significant transportation corridor. The county seat is Fairfield, and the largest city is Vallejo. Figure 1-1 shows the location of Solano County and its neighboring counties.

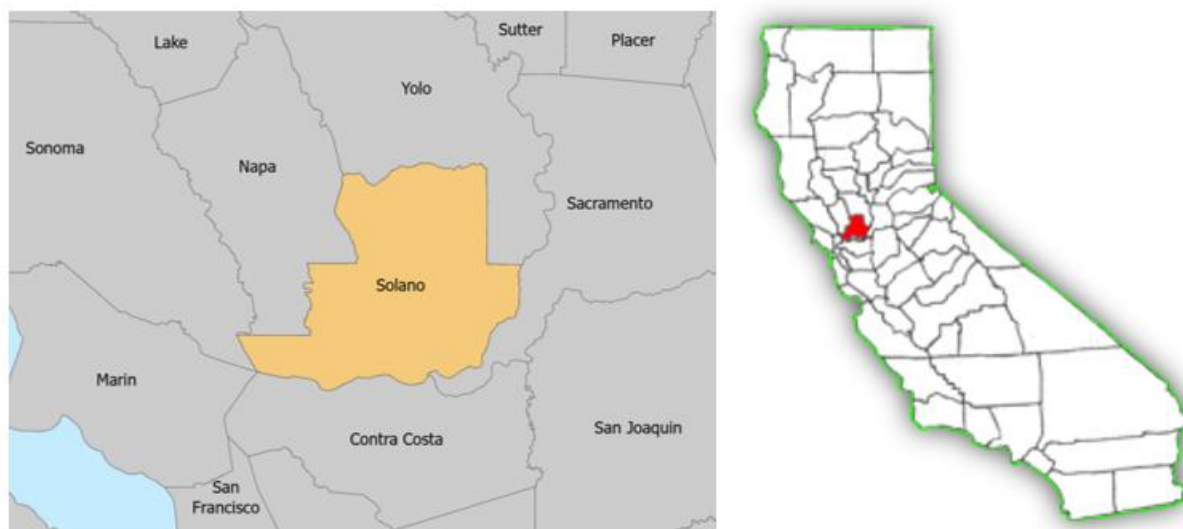


Figure 1-1. Map of Solano County and its Neighboring Counties

1.4.1 Demographics

Selected demographics of the County are summarized below per the 2020 census and 2022 American Community Survey (U.S. Census Bureau 2020).

- **Population:** The County has a population of 453,491 people: 96 percent of this population resides in urban and suburban areas, with 4 percent residing in rural areas.
- **Age:** The County has a median age of 40. Around 21.5 percent of the population are under 18 years old, while 18 percent are 65 years and older.
- **Ethnicity:** The five largest ethnic groups in the County are White (Non-Hispanic) (35.5 percent), Asian (Non-Hispanic) (15.3 percent), Black or African American (Non-Hispanic) (12.9 percent), White (Hispanic) (10.5 percent), and Other (Hispanic) (10.4 percent) (Data USA 2022).
- **Household Income:** The median household income in the County is \$97,037. The household median income grew from \$89,648 to \$97,037, an 8.24 percent increase, between 2021 and 2022 (Data USA 2022).
- **Education:** The County has a lower-than-average percentage of residents with a bachelor's degree or higher at around 29.1 percent compared to 37.5 percent for California overall. The County's diversity and mix of ages, immigration, and education levels provide a vibrant tapestry of cultures, perspectives, and experiences.
- **Poverty Level:** About 10.4 percent of the population for whom poverty status is determined in the County live below the poverty line, a number that is lower than the national average of 12.0 percent. The largest demographics living in poverty are females aged 25 to 34, followed by females aged 35 to 44, and then females aged 55 to 64. The most common racial or ethnic group living below the poverty line in the County is White, followed by Hispanic and Black.

1.4.2 Geography

Solano County is the easternmost county of the north San Francisco Bay Area. It offers a mix of rural and suburban lifestyles and easy access to all of the urban amenities associated with two of the nation's most dynamic metropolitan regions, San Francisco and Sacramento—the State capital (Solano County 2025a).

1.4.2.1 Hydrology

Putah Creek, draining from Lake Berryessa to Yolo County, forms the northern border of the County, and the southern boundary extends from San Pablo Bay through Carquinez Strait and Suisun Bay to the Sacramento River, as shown in Figure 1-2. The Napa River flows through the western part of the County.

A large portion of southern Solano County is under tidal influence. Tidal effects extend from Suisun Bay and the Sacramento River as far up north as Cordelia, Suisun City, and portions of Fairfield. Tidal conditions also occur in Vallejo, Benicia, Collinsville, Denverton, and Rio Vista.

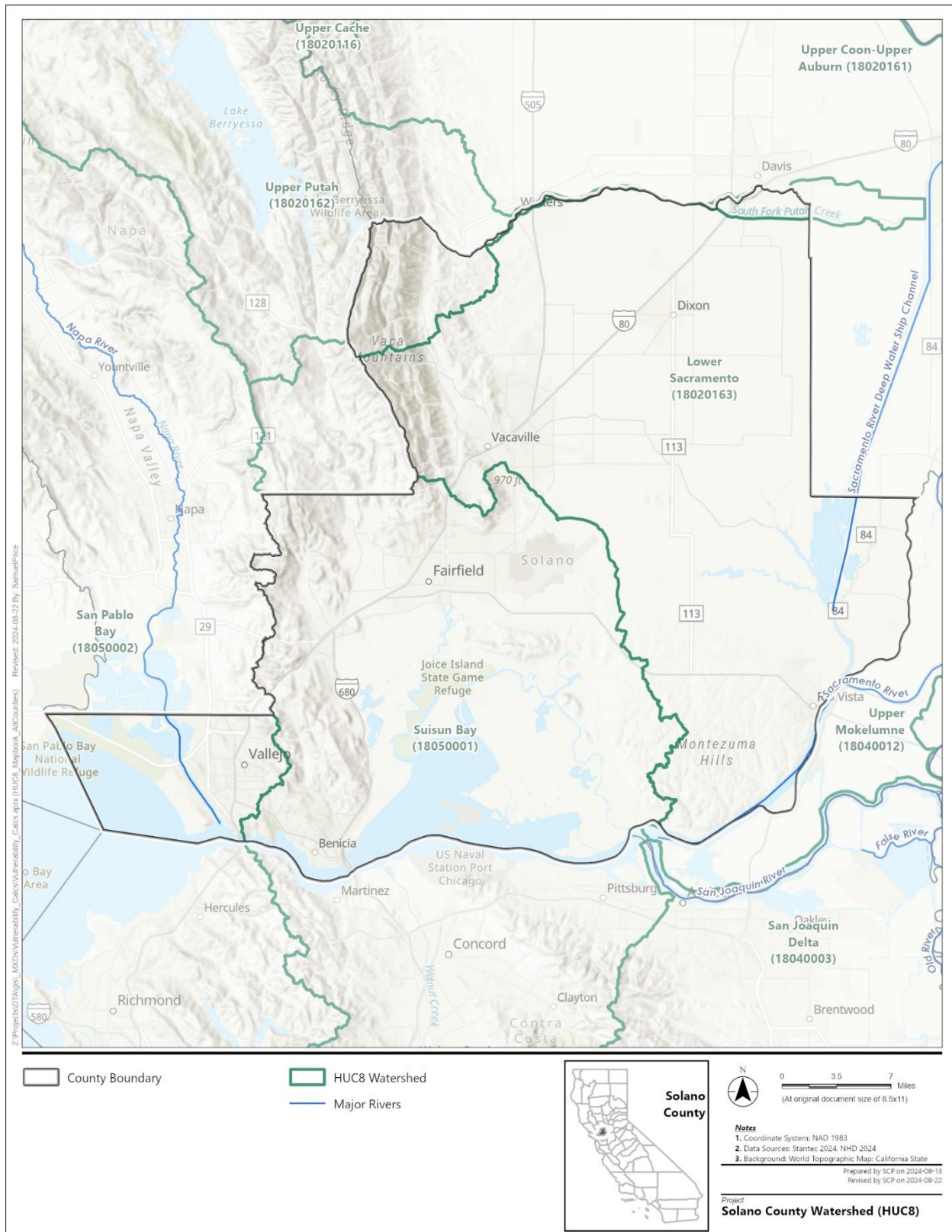


Figure 1-2. Hydrologic Subregions Within Solano County

1.4.2.2 *Precipitation*

Precipitation in the County derives from frontal storms over the Pacific Ocean. Precipitation occurs generally as rain, although some snow flurries occur over the Vaca Mountains. Rain occurs during the wet season, which extends from October to April. Rainfall distribution is greatly affected by topography. Most rainfall is concentrated along the western County border over the Vaca Mountain range. This results from the orographic effect of the mountains, which causes rain-bearing air (coming from the west) to rise and discharge a large portion of its moisture over the mountains and immediately downwind. The greatest rainfall in the area, averaging over 40 inches per year, occurs over the Vaca Mountains. The rainfall level decreases easterly, away from the mountains, and is lowest (14 inches per year) at the County's southeastern corner. The overall mean annual precipitation in the County is approximately 20 inches.

1.4.2.3 *Topography*

Prominent topographic features of the County are the Vaca Mountains and Montezuma Hills. Except for the Vaca Mountains and Montezuma Hills, the County is otherwise flat, as shown in Figure 1-3. Over 60 percent of the County is below elevation 100 feet and has slopes ranging from 0 to 15 percent.

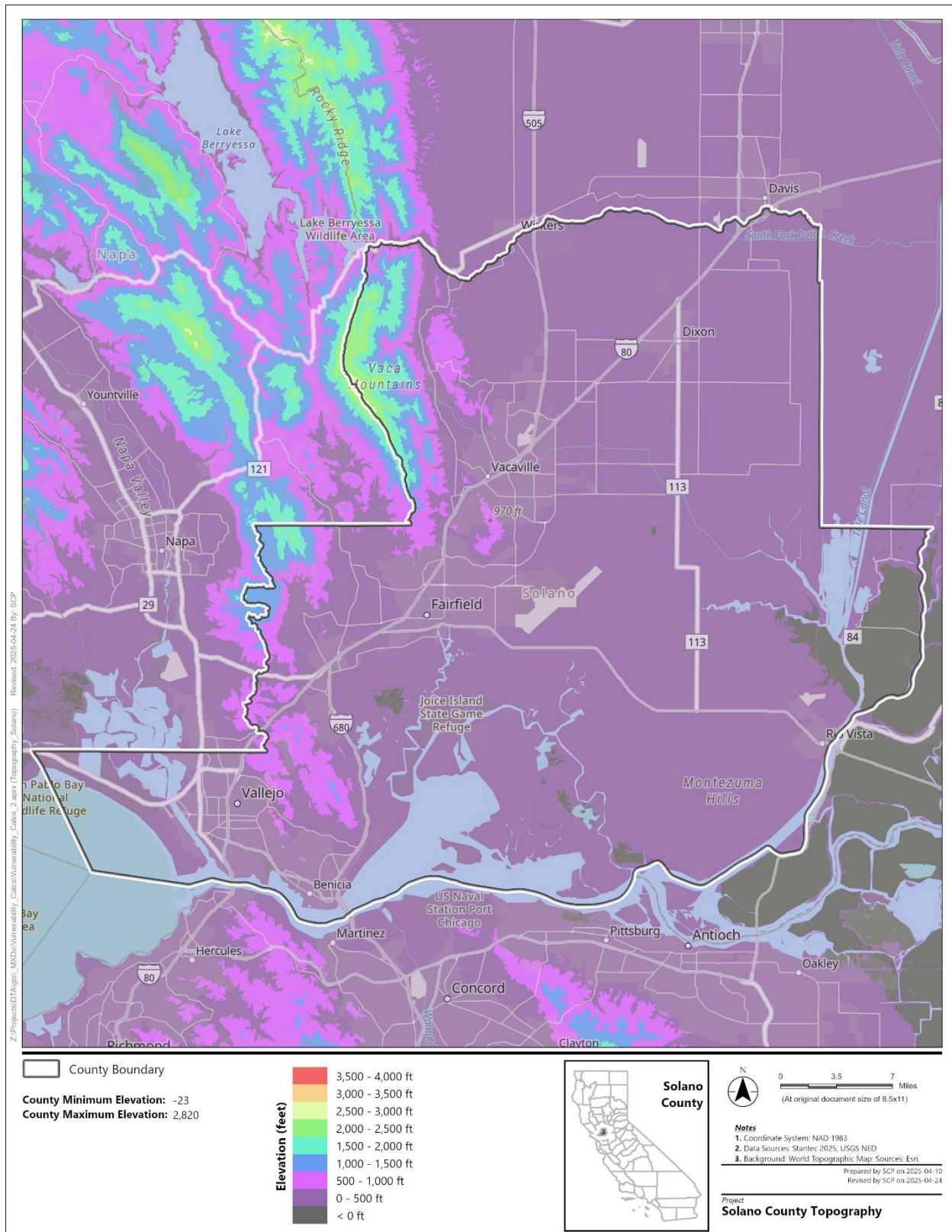


Figure 1-3. Topography of Solano County

1.4.2.4 *Land Use*

Land use in the County is predominantly agricultural or rural open space, as shown in Figure 1-4. The most extensively developed areas of the County are located along the I-80 corridor and include Vallejo/Benicia, Cordelia, Fairfield/Suisun, Vacaville, and Dixon. The only other town in the County is Rio Vista, which is located near the southeast corner of the County. These cities are largely residential, with commercial and industrial sections.

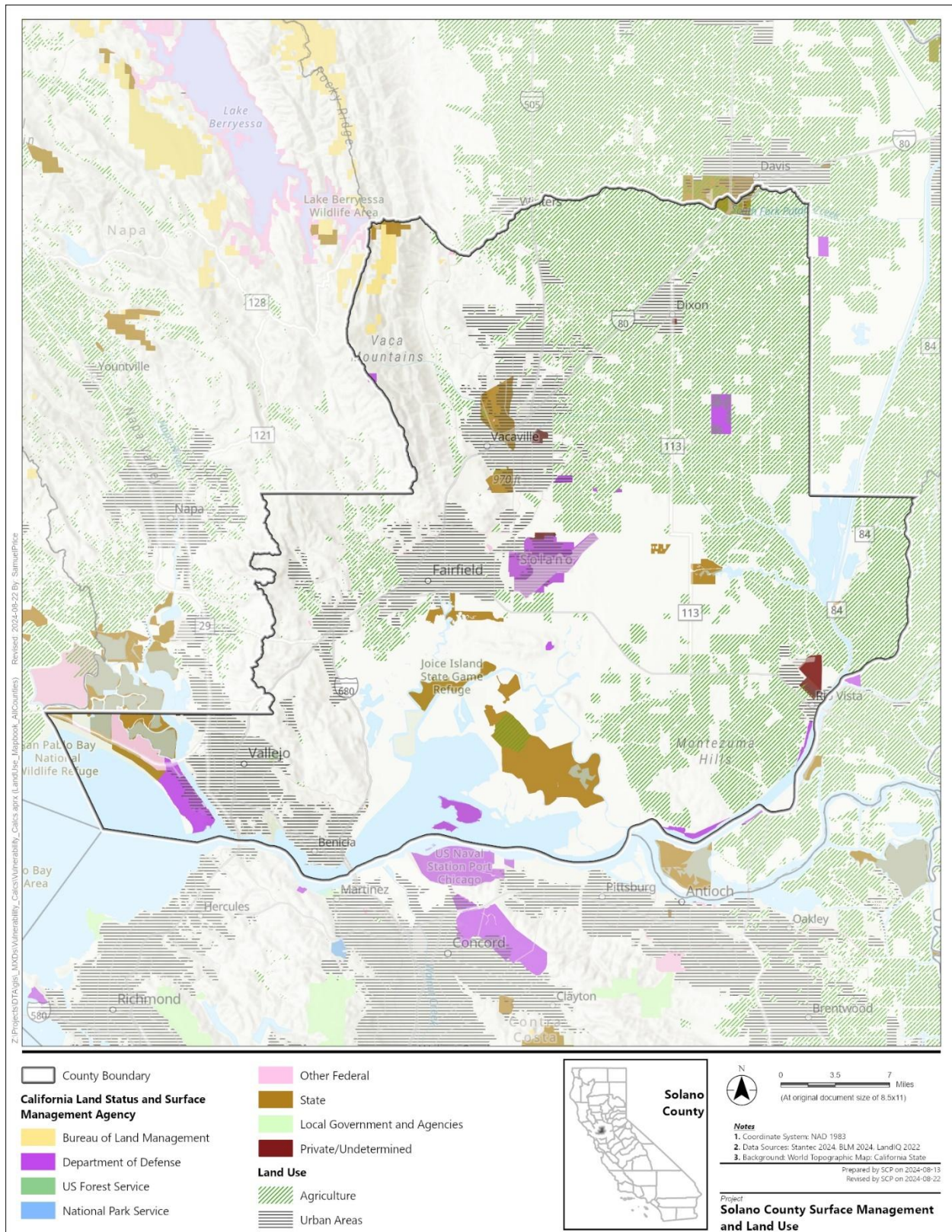


Figure 1-4. Land Use Within Solano County

1.4.2.5 *Geology*

Fractured rock areas increase water supply vulnerability. Water supplies in these areas are complex to monitor and, as such, introduce uncertainty for those depending on them as a primary water source. An intricate network of fractures makes it difficult to gauge water quantity and sustainability accurately. This necessitates sophisticated monitoring approaches and comprehensive water management strategies to address uncertainties and enhance resilience in fractured rock environments. Domestic well and SSWS owners may not have the resources to implement these measures effectively. Approximately 16 percent of County land is characterized as fractured rock, located in the western and northwestern parts of the County.

Alluvial basins, such as the Solano Subbasin, have higher porosity and permeability, making them sources of water for agricultural, industrial, and municipal uses.

1.4.3 *Water Landscape: Supply, Use, and Management*

Water supplies for domestic, industrial, agricultural, and environmental uses within the County are described below.

1.4.3.1 *Water Supplies*

Surface Water

Surface water is the primary source of water supply, accounting for more than 70 percent of the County's supply. Key contributors include Lake Berryessa (Solano Project), Delta Water, North Bay Aqueduct (State Water Project), and other local water sources (Solano County and Subbasin Groundwater Sustainability Plan [GSP] 2025). Figure 1-5 shows the major surface water features across the County. Approximately 500 thousand acre-feet (TAF) of surface water was used in water year 2024, with agricultural consumption of about 390 TAF, urban consumption of about 11 TAF, and 102 TAF used by managed wetlands and native vegetation (Solano County and Subbasin GSP 2025).

The Solano Project is a federal project with the U.S. Department of the Interior, Bureau of Reclamation that stores water in Lake Berryessa, behind Monticello Dam on Putah Creek, for delivery to users throughout the region (SCWA 2025a). The project was designed to irrigate approximately 96,000 acres of land and provides municipal and industrial water to the principal cities of the County (Reclamation 2025).

Solano County also receives water from the Sacramento-San Joaquin Delta (Delta) via the North Bay Aqueduct as part of the State Water Project. The North Bay Aqueduct, located northeast of San Francisco, is an underground pipeline that provides water supply for Napa and Solano counties (DWR 2025a).

A significant portion of eastern Solano County that is within the Delta has access to riparian water, named water rights, and/or is part of the North Delta Water Agency, which has a contractual agreement with DWR to ensure water rights in the North Delta are not impacted by the State Water Project (State Water Board 2014).

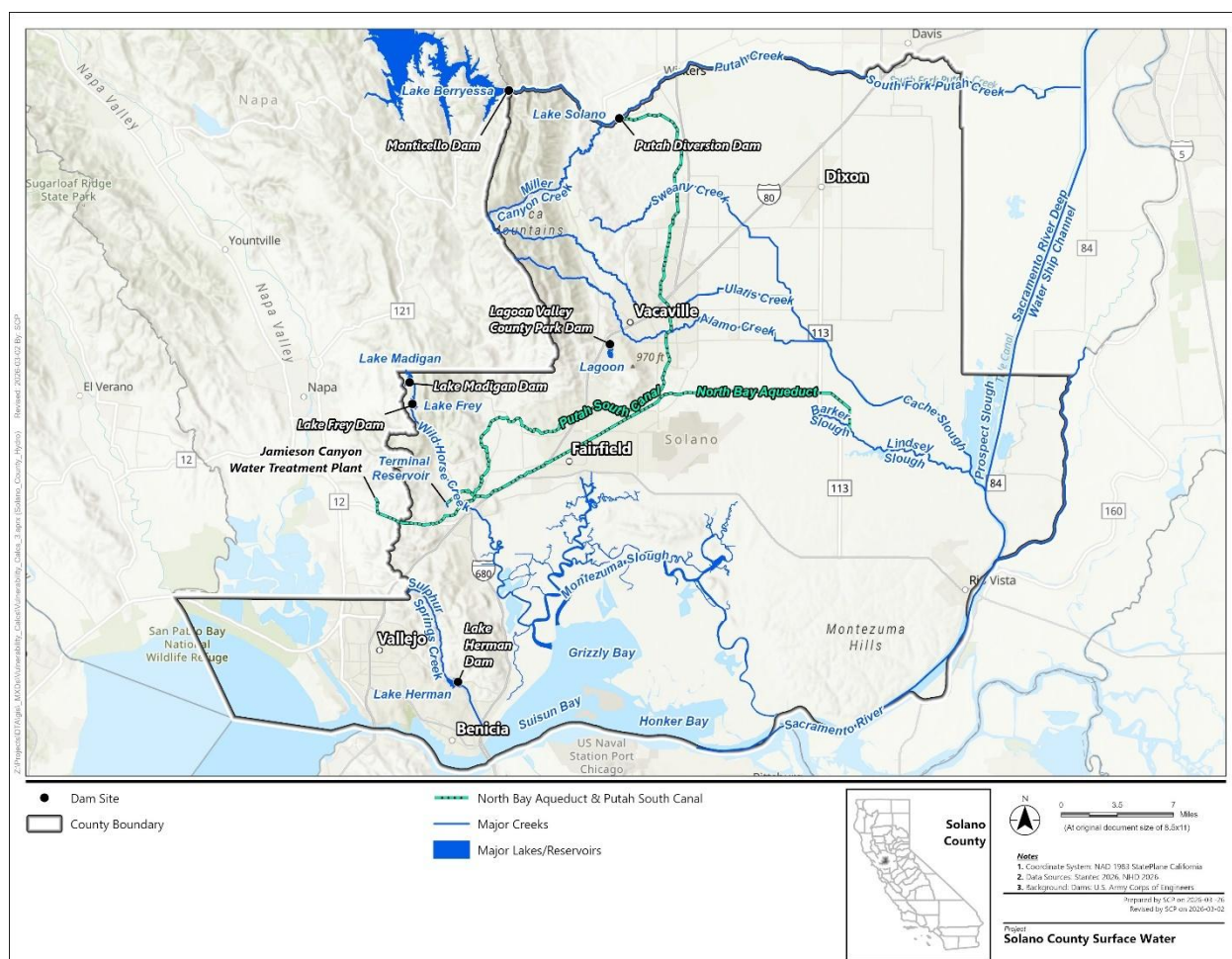


Figure 1-5. Surface Water Within Solano County

Groundwater

The County's groundwater supply is drawn mainly from the Solano Subbasin of the Sacramento Valley Groundwater Basin. Approximately 150 TAF of groundwater was used in water year 2024, with agricultural consumption of about 120 TAF, urban consumption of about 27 TAF, and 3 TAF used by managed wetlands and native vegetation (Solano County and Subbasin GSP 2025). In addition to Solano Subbasin, the County contains other groundwater basins where extraction occurs, though at significantly lower volumes. Additional detail on groundwater supplies is provided in Section 1.4.4.

Imported Water

The County receives water from the State Water Project, mostly for urban areas. This source depends heavily on precipitation levels and statewide water allocations.

1.4.3.2 Water Uses

Agriculture

Agriculture is the biggest use of water in the County, consuming around 60 to 70 percent of the County's water supply. Irrigated crops like almonds, tomatoes, and alfalfa are the primary agricultural product from the County (DWR 2021, SCWA 2019, Solano County 2024).

Municipal and Industrial

Residential, commercial, and industrial areas use approximately 30 to 40 percent of total water in the County, with domestic needs and landscaping being major contributors (SCWA 2016, 2025b). These uses represent a significant portion of demand, particularly in urbanized areas where outdoor irrigation and household needs dominate. While public water systems serve most urban areas, a significant portion of rural and semi-rural communities rely on domestic wells for their water supply.

Table 1-1 summarizes the number of service connections, SAFER (Safe and Affordable Funding for Equity and Resilience) status, and how many domestic wells and SSWs are within each water service area.

Table 1-1. Summary of Water Service Areas, Domestic Wells, and State Small Water Systems in Solano County

Water Service Area ¹	Number of Service Connections	SAFER Status ²	Domestic Wells ³	State Small Water Systems
California State Prison - Solano	1	Not At-Risk	1	0
California Water Service Company - Dixon	3,067	Potentially At-Risk	0	0
California Water Service Company - Travis Airforce Base	1	Not At-Risk	13	0
City of Benicia	9,595	Not At-Risk	7	0
City of Dixon	3,800	Not At-Risk	35	0
City of Fairfield	32,910	Not Assessed	104	2
City of Rio Vista	5,646	Potentially At-Risk	19	2
City of Vacaville	30,935	Not Assessed	394	1
City of Vallejo	36,795	Not Assessed	71	0
Collinsville Water Works	15	At-Risk	1	0
Cresta Mesa Parque	14	Potentially At-Risk	16	0
Delta Conservation Camp	4	Potentially At-Risk	1	0
Hidden Acres Trailer Villa	54	Not At-Risk	11	0
Lakes Water System (owned and operated by the City of Vallejo)	860	Not At-Risk	0	0
Rural North Vacaville Water District	398	Potentially At-Risk	709	0
SID - Blue Ridge Oaks	19	Potentially At-Risk	8	0
SID - Elmira	88	Not At-Risk	0	0
SID - Gibson Canyon	162	Not At-Risk	44	0
SID - Peabody	17	Not At-Risk	3	0
SID - Pleasant Hills Ranch	27	Potentially At-Risk	26	0

Water Service Area ¹	Number of Service Connections	SAFER Status ²	Domestic Wells ³	State Small Water Systems
SID - Quail Canyon	40	Potentially At-Risk	22	0
Snug Harbor RV LP	110	At-Risk	2	0
Suisun City's Suisun Solano Water Authority (operated by SID)	8,713	Not At-Risk	14	0
University of California - Davis (Yolo County)	4,656	Potentially At-Risk	8	0
Total			1,509	5

¹ Water Service Area boundary layer is retrieved from State Water Board 2019.

² SAFER status is retrieved from the SAFER Dashboard at [SAFER Dashboard | California State Water Resources Control Board](#)

³ Information presented in this table is 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 actual locations.

Key:

SAFER = Safe and Affordable Funding for Equity and Resilience

SID = Solano Irrigation District

1.4.3.3 Water Management Actions

Conservation Programs

Both urban and agricultural water conservation programs incentivize efficient water use through rebates, education, and improved irrigation practices. Solano County Water Agency (SCWA) has been working in partnership with its member agencies for over two decades to provide the most efficient and cost-effective water conservation programs for the residents of the County. These programs have included rebates to install high-efficiency fixtures both inside and outside homes and businesses, as well as free water surveys to help residents use less water (SCWA 2021). Also, the Agricultural Water Conservation Committee assists growers in the County with irrigation management and water use efficiency at farms.

Groundwater Sustainability Plans

Local agencies have developed plans to manage groundwater extraction and recharge, aiming for long-term sustainability. In 2024, DWR approved the Solano Subbasin GSP. Five Groundwater Sustainability Agencies (GSAs) in the Solano Subbasin have organized to form the Solano Collaborative to sustainably manage groundwater in the subbasin: Solano Subbasin GSA, City of Vacaville GSA, Northern Delta GSA, Sacramento County GSA, and Solano Irrigation District (SID) GSA. The Solano Collaborative has the goal of achieving basin-wide sustainability within 20 years of GSP implementation with regard to groundwater levels and storage, seawater intrusion, water quality, interconnected surface water, and land subsidence (Solano Subbasin GSP 2021b).

Recycled Water Initiatives

Recycled water initiatives include exploring and expanding the use of treated wastewater for non-potable purposes, such as irrigation and industrial processes. The City of Vacaville adopted a recycled water master plan in 2021, which opened up opportunities to increase the region's water supply with a sustainable and reliable alternative to surface water and groundwater for beneficial uses including agricultural irrigation, urban irrigation, and industrial reuse (City of Vacaville 2020).

Urban Water Management Plans

Urban water management plans (UWMPs) have been prepared by the Suisun-Solano Water Authority, SID, and the cities of Benicia, Dixon, Fairfield, Vacaville, Rio Vista, and Vallejo and are updated every 5 years. These plans include local/individual DRPs and support the suppliers' long-term resource planning to ensure that adequate water supplies are available to meet existing and future water needs. The latest version of UWMPs were updated in 2020 and the 2025 UWMPs are due July 1, 2026 (DWR 2020).

San Francisco Bay Area Integrated Regional Water Management Plan

The San Francisco Bay Area Integrated Regional Water Management Plan (IRWM Plan) is a collaborative effort that identifies and implements water management solutions on a regional scale that increase regional self-reliance, mitigate drought impacts, and build water and climate resilience (Bay Area IRWM Plan 2019, DWR 2025b).

SCWA leads efforts to protect rights to existing sources of water and works to secure new sources of water in support of water supply reliability and future growth (Bay Area IRWM Plan 2019). However, the San Francisco Bay/Sacramento-San Joaquin Delta Estuary Water Quality Control Plan sets significant regulatory burdens and could result in reduced water supply resiliency for all of the County's surface water supplies (City of Fairfield 2025).

Drought Preparedness

Increasing temperatures and more frequent and severe droughts are expected to heighten competition for water for urban/residential use, agriculture, and energy production. The Solano County Emergency Operation Plan (2024) and Solano County Multi-Jurisdictional Hazard Mitigation Plan (2022) provide information on drought preparedness, response, and recovery process within the jurisdiction. Drought response is managed per the Solano County Drought Plan, which provides information on response organization and responsibilities. Drought response is led by the Drought Task Force. During a drought response, critical tasks may include the following:

- Reduce water use.
- Identify supplemental water supplies.
- Enforce water restrictions and respond to variance requests.
- Establish, communicate, and amplify key messages to the public.

Groundwater is a critical component of California's water supply portfolio, providing close to 40 percent of supply during normal years and up to 60 percent in drought years. Groundwater levels in the Solano Subbasin are generally stable, with seasonal fluctuations, temporary downward trends during drought periods, and recovery during wet periods. Solano Subbasin's GSP includes detailed strategies on maintaining groundwater sustainability during droughts such as implementing a monitoring network of groundwater, water use efficiency outreach and implementation, and so on (Solano Subbasin GSP 2021a).

1.4.4 Groundwater Detail

The County is partially covered by four Bulletin 118 subbasins:² (1) Solano Subbasin (part of the Sacramento Valley Basin, DWR Basin Number 5-021.66), (2) Yolo Subbasin (part of the Sacramento Valley Basin, DWR Basin Number 5-021.67), (3) Suisun-Fairfield Valley Basin (DWR Basin Number 2-003), and (4) Napa-Sonoma Lowlands Subbasin (part of the Napa-Sonoma Valley, DWR Basin Number 2-002.03). The classification of priority basins under the Sustainable Groundwater Management Act (SGMA) is determined by DWR. The Yolo Subbasin was classified as high-priority subbasin, the Solano Subbasin as a medium-priority subbasin, the Suisun-Fairfield Valley Basin as a low-priority basin, and the Napa-Sonoma Lowlands Subbasin as a very-low-priority subbasin. The remainder of the County lies in a fractured rock area (DWR 2024). The Yolo Subbasin GSP was adopted by the Yolo Subbasin Groundwater Agency Board of Directors (Yolo Subbasin GSP 2022), and the subbasin is not addressed further in this Plan as only a small portion of the County overlaps with the Yolo Subbasin.

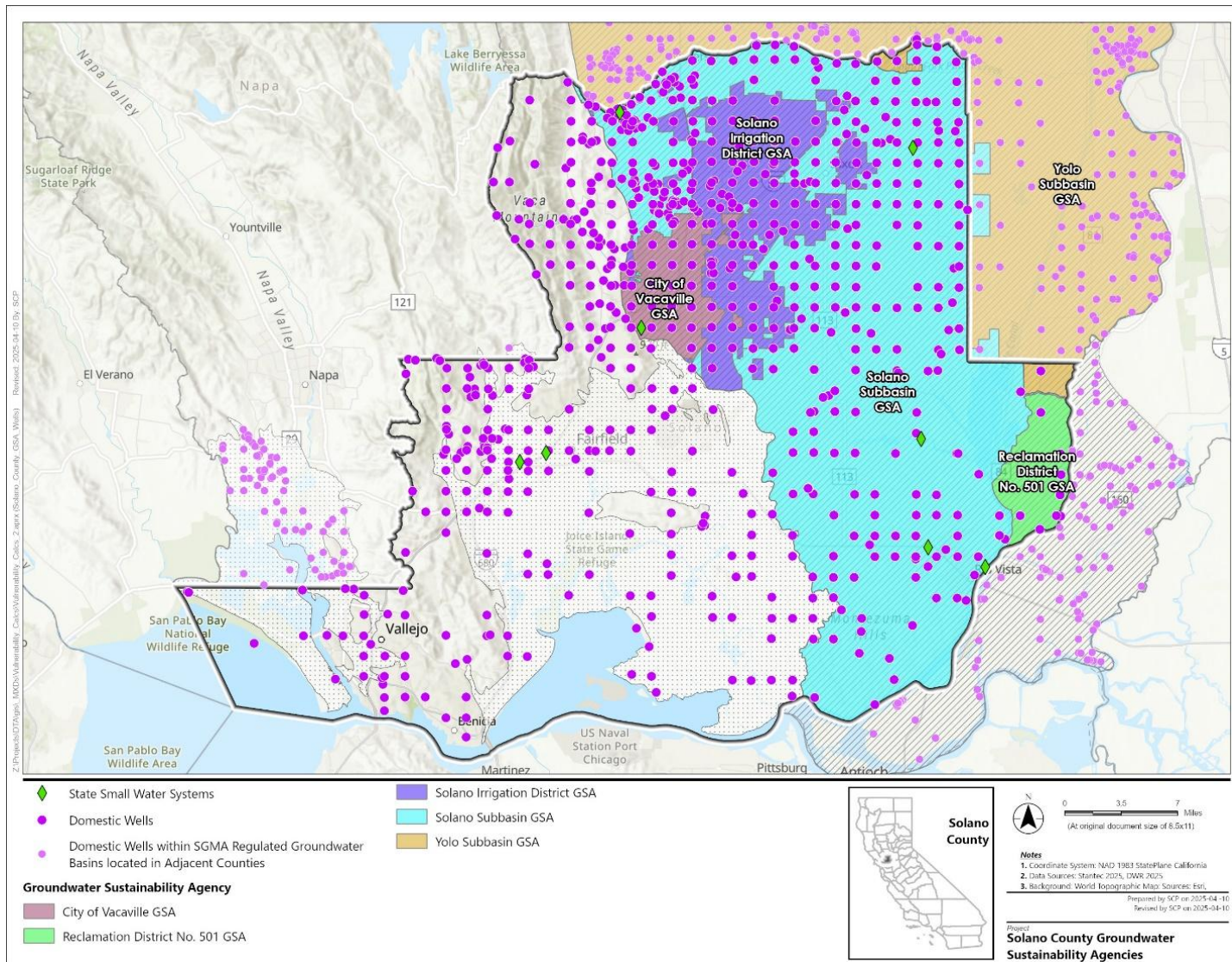
Under SGMA, only the medium and high priority basins are mandated to be sustainably managed. Therefore, the Solano Subbasin is the only groundwater basin that is being managed in the County.

The Solano GSP was developed by the Solano Subbasin Collaborative to sustainably manage the Solano Subbasin, which consists of five GSAs in the Solano Subbasin. Figure 1-6 shows the Solano County GSAs and the locations of domestic wells and SSWs within the County. The corresponding GSAs are:

1. City of Vacaville GSA
2. Reclamation District No. 501 GSA
3. SID GSA
4. Solano Subbasin GSA
5. Yolo Subbasin GSA

Key activities associated with implementing the Solano Subbasin GSP include regular monitoring and reporting on conditions in the Solano Subbasin and performing management actions. The GSAs have initiated efforts to fill key monitoring data gaps by installing new shallow wells. In 2022, the Solano Subbasin collaborated with local water agencies to collect water quality data and prepared recruitment letters for those who could benefit from the monitoring program. As GSP implementation proceeds, the GSAs will identify additional funding avenues needed to support groundwater management activities in the Solano Subbasin, including all monitoring and reporting required to comply with the SGMA. Based on analyses conducted during GSP development, most of the Solano Subbasin is anticipated to maintain sustainable groundwater conditions without substantial intervention by the GSAs. The only exception is an approximate 38,000-acre area in the northwestern region of the Solano Subbasin, identified as the “Northwest Focus Area” (Figure 1-7). This area has experienced localized decline in groundwater levels of approximately 10 feet between 1988 and 2018 (Solano Subbasin GSP 2021b). Project management and actions have been developed by the GSP to address this specific region.

² A Bulletin 118 subbasin is a groundwater subbasin defined by the State of California and documented in DWR’ California’s Groundwater Bulletin 118, which provides detailed information on groundwater occurrence, characteristics, and management.



Note: Location of domestic wells are either from recorded locations or associated to the centroid of the Public Land Survey Section. A point may represent more than one well at that location.

Figure 1-6. Groundwater Sustainability Agencies Within Solano County

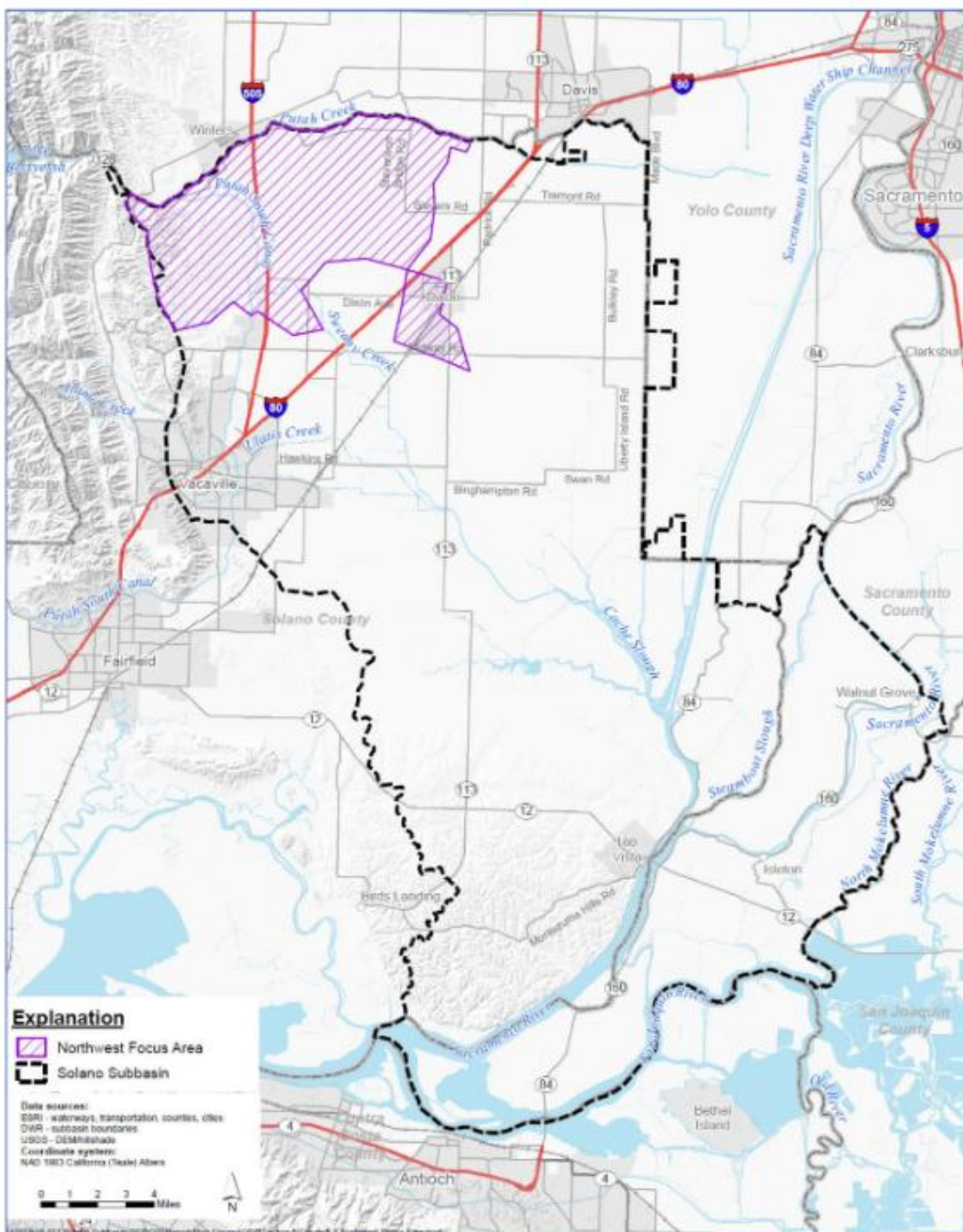
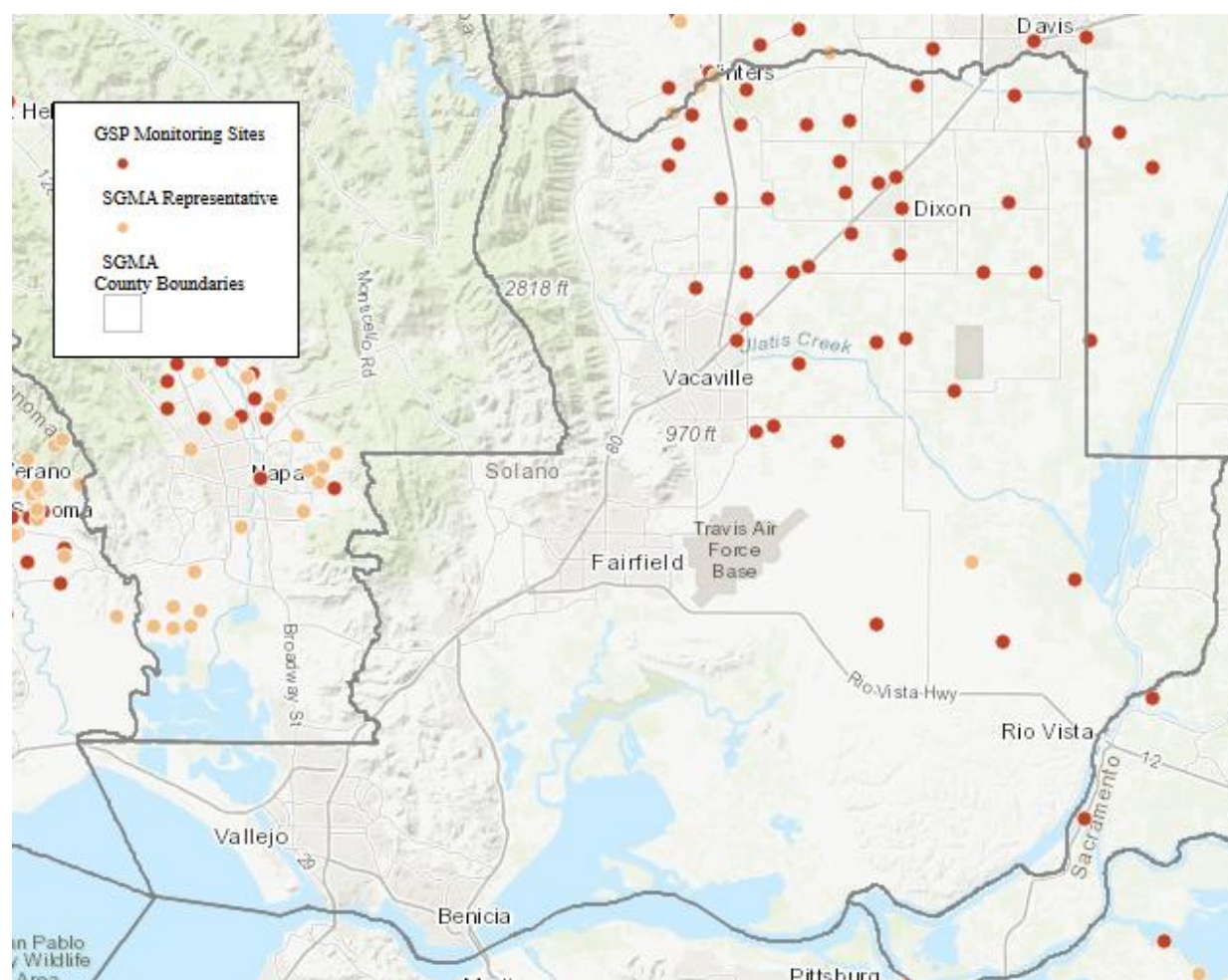


Figure 1-7. Map of the Northwest Focus Area Within Solano County

There are approximately 85 SGMA representative monitoring wells within the County, all of which are in the Solano Subbasin, as shown in Figure 1-8.



Source: <https://sgma.water.ca.gov/webgis/?appid=SGMADataViewer#gwlevels>. Accessed December 2025.

Figure 1-8. Groundwater Sustainability Agency Monitoring Wells in Solano County

1.4.5 Water Systems Within Solano County's Jurisdiction

CWC Section 10609.70 requires the Plan to incorporate domestic wells and SSWs into drought planning measures within the County's jurisdiction. Table 1-2 summarizes how many domestic wells and SSWs are in the Bulletin 118 basins and fractured rock areas. The majority of domestic wells and SSWs reside in a medium-priority basin. There are domestic wells that may lie outside of County boundaries but still be within a GSA service area (Figure 1-9). It is important to consider these wells in drought and water shortage planning, as they compete for the same groundwater resources. Table 1-3 summarizes domestic wells and SSWs by GSA and the inventory of dry wells as self-reported to the State via its Dry Well Reporting System (DWR 2025c). There has been a total of seven dry well reports submitted to the State. Four of the seven reported dry wells were eighty feet or less in depth. Dry-well reports are tracked by County Environmental Health Division; however, the County does not conduct response actions for wells, regardless of whether they are located within a GSA service area.

Table 1-2. Summary of Groundwater Basins, Domestic Wells, and State Small Water Systems in Solano County

Bulletin 118 Basin ID	Groundwater Basin Name	Coverage	SGMA Priority	Domestic Wells Drilled After 1977 ¹	Domestic Wells Drilled Before 1977 ¹	Domestic Wells in Basin but Outside County	State Small Water Systems
2-002.03	Napa-Sonoma Valley - Napa-Sonoma Lowlands	Partial	Very Low	9	14	216	0
2-003	Suisun-Fairfield Valley	Partial	Low	200	111	6	2
5-021.66	Sacramento Valley - Solano	Partial	Medium	1,533	1,223	210	6
5-021.67	Sacramento Valley - Yolo	Partial	High	2	5	3,702	0
N/A	Fractured Rock Aquifer Wells		N/A	427	239	N/A	0
Total				2,171	1,592	4,134	8

Note:

¹ Information presented in this table and Figure 1-9 are based on well-completion reports. Geographic information on well completion reports may be insufficient and/or inaccurate and may not reflect the actual well location.

Key:

N/A = not applicable

SGMA = Sustainable Groundwater Management Act

Table 1-3. Summary of Groundwater Basins, Domestic Wells, and State Small Water Systems in Solano County by Groundwater Sustainability Agency and Fractured Rock Regions

Groundwater Sustainability Agency ID	Groundwater Sustainability Agency Name	Coverage	Domestic Wells Drilled After 1977	Domestic Wells Drilled Before 1977	Reported Dry Wells	Domestic Wells in Basin but Outside County	State Small Water Systems
180	Solano Irrigation District GSA	Full	458	425	0	0	0
217	Yolo Subbasin GSA	Partial	2	5	0	3,702	0
272	City of Vacaville GSA	Full	60	181	0	0	1
340	Solano Subbasin GSA	Partial	1,002	603	3	4	5
384	Reclamation District No. 501 GSA	Full	12	14	0	0	0
N/A	Area Not Covered by GSA	N/A	637	364	4	N/A	2
Total Alluvial Groundwater			1,534	1,228	3	3,706	6
Total Fractured Rock Groundwater			637	364	4	N/A	2
Total			2,171	1,592	7	3,706	8

Key:

GSA = Groundwater Sustainability Agency

Figure 1-9. Locations of Domestic Wells and State Small Water Systems in Solano County

2.0 Solano County Drought and Water Shortage Task Force

2.1 Background

In addition to the development of a Drought Resilience Plan, SB 552 also directs each county to establish a standing Task Force or establish an alternative process that “facilitates drought and water shortage preparedness for SSWS and domestic wells within the County’s jurisdiction” (CWC Section 10609.70(a)(2)). This process will inform the development of the Plan and cultivate the continued practices of drought planning and improving long-term water resilience.

2.2 Legislative Direction

CWC Section 10609.70 stipulates, in part:

(a)(1) 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) In lieu of the task force required by paragraph (1), a county may establish an alternative process that facilitates drought and water shortage preparedness for state small water systems and domestic wells within the county's jurisdiction. The alternative process shall provide opportunities for coordinating and communicating with the state and other local governments, community-based organizations, local water suppliers, and local residents on a regular basis and during drought or water shortage emergencies.

2.3 Purpose

The purpose of the Task Force is to:

- Facilitate drought and water shortage preparedness for SSWSs and domestic wells within the County’s jurisdiction.
- Facilitate coordination and communication on a regular basis as well as during drought or water shortage emergencies among relevant County departments, local water agencies and suppliers, GSAs, and others representing the concerns of SSWSs, local small water systems, and domestic wells. Task Force will not be responsible for supplying potable water; rather, it will support and facilitate the implementation of STRAs by the designated lead agency.
- Advise County staff in the development of the Plan to facilitate drought and water shortage preparedness for SSWSs, local small water systems, and domestic wells within the County’s jurisdiction.

2.4 Organization

The Task Force was established to comply with CWC Section 10609.70 (a)(1). It consists of representatives from government agencies and community organizations that have roles in drought condition monitoring, emergency services, hazard assessment, planning, operations, information

coordination, or water resources management, as well as representative domestic well owners and SSWs.

The Task Force was established in August 2022, through extension of the County OES drought discussion group that was formed in late 2021, to support development of the Plan. The Task Force is chaired and led by the Solano County Department of Resource Management, Environmental Health Division. The membership of the Task Force includes the County entities listed below:

- Solano County Department of Resource Management
- Solano County Administrator's Office
- County OES
- Solano County Agriculture Department

The County also invited staff from the following stakeholder groups to join the Task Force:

1) Local Governments and Agencies:

- i. City of Benicia
- ii. City of Dixon
- iii. City of Fairfield
- iv. City of Rio Vista
- v. City of Vacaville
- vi. City of Vallejo
- vii. SCWA
- viii. SID as the operating agency for the Suisun-Solano Water Authority, serving the City of Suisun City
- ix. Solano Subbasin Collaborative

2) State Partners:

- i. DWR
- ii. State Water Board
- iii. California Office of Emergency Services

3) Non-city Water Suppliers and others:

- i. SID
- ii. Solano Resource Conservation District
- iii. Dixon Resource Conservation District

4) Consulting Firms:

- i. Luhdorff & Scalmanini Consulting Engineers
- ii. Kennedy-Jenks

5) County Residents:

- i. Residents from a well-served community or private residence

The Task Force effort also includes a Project Coordination Team (PCT) subgroup. The PCT oversees the Task Force, Plan development, and drought planning and is tasked with Plan implementation. The PCT consists of the Environmental Health Division and Water and Natural Resources Program.

2.5 Decision-Making Structure

2.5.1 Drought and Water Shortage Task Force

The Task Force is an advisory body and does not have decision-making authority.

2.5.2 Project Coordination Team

The Solano County Environmental Health Division is the lead for implementing the Plan in coordination with the remainder of the PCT. The PCT convenes and coordinates the work of the Task Force with other County departments, GSAs, and other agency staff to prepare the Plan. The PCT will present the draft Plan to the Solano County Board of Supervisors and coordinate its implementation once the final version is approved.

2.5.3 Board of Supervisors

The County Board of Supervisors is the decision-making body of the County. The PCT and Task Force will provide informational briefings and recommendations to the board. Currently, the County does not plan to formally adopt the Plan; however, the recommendations and strategies outlined in the Plan will guide future planning and decision-making related to drought preparedness and response.

2.6 Responsibilities

The Task Force will review and advise the PCT on the development of the Plan and assist in guiding its implementation. Member participation in the Task Force will be frequent and as needed as the Plan is being developed. Ongoing participation in the Task Force and any associated subgroups during Plan implementation will depend on current conditions and needs identified in the Plan.

Task Force members are expected to:

- Review progress on the development of the Plan, review and make recommendations on the draft Plan, and assist in the Plan's subsequent implementation once adopted.
- Review current drought conditions and potential risk factors using tools provided by State agencies, identify drought-related issues that will impact County residents, and help develop short-term actions and long-term strategies to address identified issues.
- Disseminate Task Force findings and recommendations to their respective agencies and organizations, providing information and seeking feedback that can be shared during Task Force meetings.
- Attend scheduled Task Force meetings.
- Facilitate coordination and communication during drought or water shortage emergencies.

2.7 Meetings

During the development of the Plan, the Task Force met monthly to discuss the technical information under review for inclusion in the Plan. The meetings were scheduled with advance notification to the Task Force members and materials provided for review and discussion.

After the Plan is developed, the Task Force will meet quarterly unless drought conditions necessitate more frequent meetings for action planning and coordination.

Attendance at all meetings is expected. Alternatively, Task Force members may designate someone to attend in their place, provided the alternate is aware of all Task Force developments and can productively engage in discussions and provide input on behalf of their respective agency.

2.8 Communication and Engagement

The County will provide opportunities for coordinating and communicating with the State and other local governments, community-based organizations, local water suppliers, and local residents on a regular basis and during drought or water shortage emergencies. The County will implement the strategies defined below:

- Website: The County Office of Emergency Services has established a webpage [<https://www.solanocounty.gov/government/office-emergency-services/prepare-emergency/drought-0>] to support distribution and dissemination of information associated with the Plan. The webpage includes general information that includes:
 - Background on SB 552 and related links such as:
 - DWR Direct Technical Assistance Program.
 - DWR Water Shortage Vulnerability Tool.
 - Meeting materials and summaries, information materials, and draft documents.
 - Contact information of the County’s project manager (email).
- Notifications: Updates to the Plan will be posted on the County Office of Emergency Services webpage and will be provided through mailed public outreach flyers and through the media as coordinated by the County Public Information Officer.
- Communications and Engagement Activities List: The Task Force will also provide periodic updates to the County Board of Supervisors, Solano Subbasin Collaborative GSAs, County OES, and the SCWA, including milestone updates and an opportunity for public engagement.

3.0 Drought and Water Shortage Risk Assessment

A drought and water shortage risk assessment (risk assessment) was conducted during development of the Plan as directed in CWC Section 10609.70(b). This risk assessment evaluated how potential hazards impact drought and water shortage vulnerability risk of the County's domestic wells and SSWs. The outcomes from the risk assessment informed response plans with short-term actions and long-term mitigation strategies and actions to reduce water shortage vulnerability (see Sections 4 and 5). This section presents the risk assessment results for the County.

The risk assessment presented in this Plan does not replace the regulatory requirements of the Federal Emergency Management Agency (FEMA). The Plan could make the County eligible for FEMA's Pre-Disaster Mitigation and Hazard Mitigation Grant programs. However, if a jurisdiction is also seeking approval of the drought and/or water shortage risk assessment within the local hazard mitigation plan, it should follow the requirements outlined in the *FEMA Local Mitigation Planning Handbook* (FEMA 2013).

3.1 Terminology

The Plan adapted the following definitions from the *FEMA Local Mitigation Planning Handbook* (FEMA 2013) within the context of drought and water shortage planning:

- **Community assets:** The people, structures, facilities, and systems that have value to the community. The minimum assets considered as part of the SB 552 Plan includes domestic wells, SSWs, and populations relying on those water supplies.
- **Hazard:** A source of harm or difficulty created by a meteorological, environmental, geological, hydrological, 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.
- **Risk Assessment:** Product or process that collects information and assigns values to risks for the purpose of informing priorities, developing or comparing courses of action, and informing decision-making.
- **Vulnerability:** Characteristics of community assets or population that make them susceptible to damage from a given hazard. This includes both physical vulnerability and social vulnerability.

3.2 Risk Assessment Methodology

The nature and severity of hazards can cause water shortages for communities lacking access to reliable water sources. Impacts can vary at regional and local scales due to differences in precipitation patterns, groundwater levels, topography, geology, infrastructure, regulatory frameworks, and other conditions. To address this, a thorough risk assessment was completed that considered physical and social hazard indicators related to drought and water shortage risk.

The risk assessment was completed following the four steps outlined below.

1. **Describe Major Hazards in the County:** Drought, climate change, and water quality hazards were summarized and described.
2. **Complete Draft Risk Assessment using DWR Water Shortage Vulnerability Explorer:** The DWR Water Shortage Vulnerability Explorer (WSVE) Tool was used to (1) identify areas within the County where domestic wells and SSWSs are vulnerable to water supply shortages, and (2) characterize the hazards driving vulnerability. This information was included in a draft risk assessment. The County and Task Force reviewed the draft risk assessment, provided feedback, and identified data gaps. Additional detail on the WSVE Tool and how it was applied in the risk assessment is included below.
3. **Revise the Draft Risk Assessment:** County and Task Force feedback on the draft risk assessment was used to develop a revised risk assessment.
4. **Incorporate Results of the Revised Risk Assessment into the Plan:** Information from the revised risk assessment is included in this Plan (Section 3.4). 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 (Sections 4 and 5).

Developed by DWR in collaboration with the County Drought Advisory Group (CDAG), the WSVE Tool is an online geospatial application that assesses water shortage vulnerability using physical and social vulnerability indicators (Table 3-1 and Table 3-2). These indicators were selected by DWR and CDAG to reflect the hazards that could make a domestic well or SSWS vulnerable to water supply shortage.

The WSVE Tool calculates both a total physical vulnerability score and a total social vulnerability score, which is summarized below:

- The total physical vulnerability score was calculated at the Public Land Survey Section³ (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 ranging from 1 to 5, assigned by DWR and CDAG, to capture the varying contributions of different indicators to water shortage vulnerability.
- The total social vulnerability score was calculated at the Census Block Group⁴ scale by normalizing the indicator value between 0 and 1 and adding the values together without additional weighting.

DWR periodically revises the WSVE Tool to incorporate improved data and/or updated methodology. Data for the risk assessment was accessed in December 2024 and used the 2024 methodology (DWR 2024). The detailed methodology that describes the WSVE Tool indicators and corresponding values, data sources, and weighting factors is available on California Natural Resource Agency's Open Data Portal website ([Water Shortage Vulnerability Technical Methods - Dataset - California Natural Resources Agency Open Data](#)).

³ A PLSS is a geographic delineation of an area equivalent to 1 square mile.

⁴ 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.

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

Indicator Name ¹		Indicator Description
Climate Change		
Temperature Shift (RC1a)		Projected change in maximum temperatures by mid-century.
Saline Intrusion Projected (RC1b)		Spatial extent of projected 1-meter sea level rise by 2040 into coastal aquifers.
Wildfire Risk (RC1c)		Projected area burned by 2035–2064.
Current Environmental Conditions and Events		
2024 Precipitation (RC2a)		If water year 2024 precipitation was less than 70 percent of normal.
Multiple Dry Years (RC2aa)		Count of dry years within the last 5 water years (2020–2024).
Wildfire Risk (RC2b)		USFS Wildfire Hazard Potential.
Geology (RC2c)		Fractured rock basin within the PLSS.
Water Quality Aquifer Risk (RC2i)		SAFER Needs Assessment 2024 water quality composite score.
Subsidence (RC2d)		Amount of subsidence as measured by remote sensing.
Basin Salt (RC2e)		Presence of saltwater intrusion into coastal aquifer.
Overdrafted Basin (RC2f)		SGMA critically overdrafted groundwater basin.
Chronic Declining Water Levels (RC2g)		Amount of declining groundwater levels over the last 20 years (water years 2003 to 2023).
Surrounding Land Use (RC2j)		Proportion of irrigated agriculture in the PLSS for 2022.
Infrastructure Susceptibility		
Dry Domestic Well Susceptibility in Basins (RC3a)		Dry well susceptibility.
Domestic Well Density in Fractured Rock Areas (RC3c)		Density of well completion reports.
Record of Shortage		
Reported Household Outage on Domestic Well (RC5a)		Presence of one or more households with reported outages in the PLSS.

Notes:

¹ Abbreviations are included next to indicator name (e.g., “RC1a”) for clarity to underlying 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

Table 3-2. Water Shortage Vulnerability Explorer Indicators Used in Development of the Social Vulnerability Score

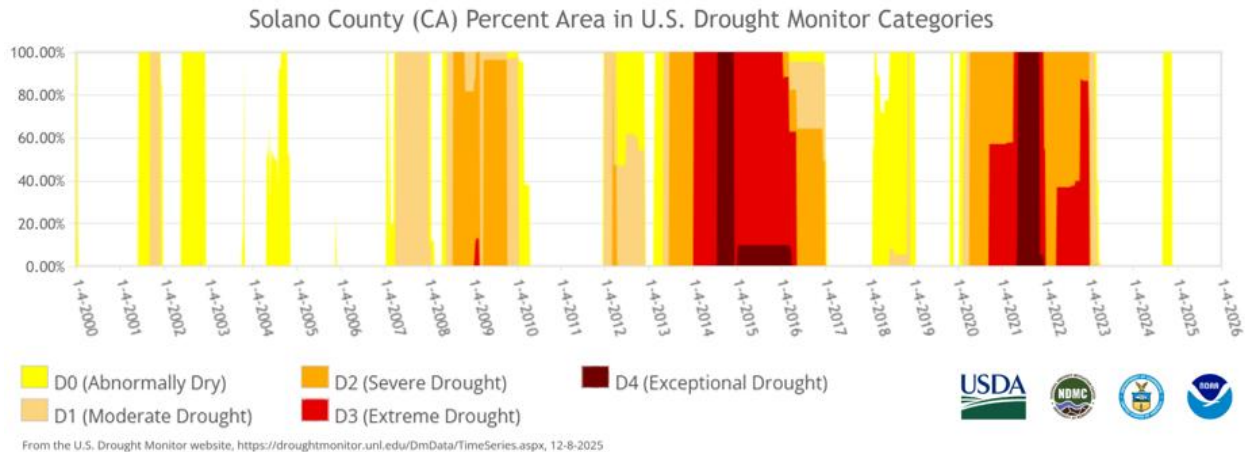
Indicator Name		Indicator Description
Socioeconomic Status		
Poverty Level		Percent of persons below poverty level.
Unemployment		Percent of persons aged 16 years of age or older that are unemployed.
Per Capita Income		Per capita income.
Language and Education		
Education Attainment		Percent of persons 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.
Minority Population		Percent of persons that are in a minority population.
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 persons living in a multi-unit structure.
Mobile Home-Housed Population		Percent of persons living in a mobile home.
Crowded Conditions		Percent of persons living in conditions with more than one person per room.
No Vehicle Access		Percent of households with no vehicle available.
Race and Ethnicity		
Persons of Color		Percent of persons that identify with a race other than White or identify ethnically as Hispanic or Latino.

3.3 Hazards in Solano County

This section summarizes the recent drought hazards, projected climate change, current water quality, and groundwater hazards in the County. Section 3.4 provides more detail on the vulnerabilities related to these hazards.

3.3.1 Drought

The U.S. Drought Monitor (USDM) identifies areas in drought and labels them by intensity. The USDM uses four categories of drought, from D1—the least intense—to D4, the most intense. It also highlights areas with no drought and uses the D0 category to indicate abnormally dry areas that could be entering or recovering from drought (USDM 2025). Since 2010, the County has fluctuated between severe or exceptional drought and drought-free conditions—sometimes within a 2-year period, as shown in Figure 3-1. These patterns and frequency of drought periods highlight the County’s vulnerability to drought.



Source: <https://droughtmonitor.unl.edu/DmData/TimeSeries.aspx>, Accessed December 2025

Figure 3-1. Occurrence of Drought in Solano County

3.3.2 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 far more variable and often of greater magnitude. The assessment predicted changes over this century to include higher average temperatures with more warming in the summer than the winter (with July–September increases of 2.7°F–10.8°F) and greater warming inland than in coastal regions (by as much as 7.2°F). These expected changes translate into an average daily maximum temperature increase in the County by 8.5°F to 10°F by the end of the century (California Natural Resource Agency 2018).

Droughts in California are triggered by a lack of large winter storms, and water shortages are further exacerbated by high temperatures, which increase the evaporative loss of water from soils, rivers, canals, and reservoirs. Drought conditions, particularly when persisting for several years, can cause mental and physical stress in people, reduce the number of workable farm-labor days, and lead to deteriorated air and water quality (Barreau et al. 2017, Greene 2018).

Historical data show that daily precipitation extremes have intensified in most areas of the country, including California. As the atmosphere continues to warm, extreme precipitation events could become more frequent as storms can hold about 3 to 4 percent more water for each degree Fahrenheit of warming. Climate model simulations that consider such effects suggest that this trend will continue. Simulations of future climate indicate only modest changes in annual precipitation accumulation, with some shifts in the seasonality of precipitation that may be relevant for water management: less precipitation from November through January and possibly more from February through May.

Anthropogenic climate change has contributed to the increase in areas burned in wildfires in the American West. Specifically, rising temperatures and increased periodic droughts increase the likelihood of wildfires. Wildfires can damage infrastructure and cause water quality issues, including those discussed in Section 3.3.3.

3.3.3 Water Quality

The County faces various water quality concerns across both its surface and groundwater resources. Groundwater quality in the County and its subbasins is generally suitable for all beneficial uses, most notably for drinking water uses that typically have the most restrictive water quality standards. Key groundwater quality constituents of interest identified in the Solano Subbasin include total dissolved solids, nitrate, arsenic, boron, hexavalent chromium, and chloride. Some areas with elevated concentrations of these key constituents exist in the Solano Subbasin within the County. Elevated concentrations for select constituents are a result of naturally occurring conditions from historical human activities (e.g., plumes). Such impacted areas, and actions to address these conditions, are overseen by other regulatory programs and entities. The key water quality issues are summarized below in Sections 3.3.3.1 and 3.3.3.2.

Water bodies and pollutants that exceed protective water quality standards are placed on the California Clean Water Act Section 303(d) list, which is determined by the Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (State Water Board 2024). The County has 13 water bodies on the 303(d) list, as noted in Table 3-3 and shown in Figure 3-2. Each of these water bodies/segments is classified as Category 5, where the standards are not met and a total maximum daily load is required, but not yet completed, for at least one of the pollutants being listed for the segment.

Table 3-3. 303(d)-Listed Water Bodies/Segments in Solano County

Water Body Name	303(d) List Category	Impaired ¹	Threatened ²
Carquinez Strait	5	Y	N
Delta Waterways (northwestern portion)	5	Y	N
Delta Waterways (western portion)	5	Y	N
Lake Chabot (Solano Co)	5	Y	N
Lake Herman	5	Y	N
Sacramento-San Joaquin Delta	5	Y	N
San Pablo Bay	5	Y	N
Suisun Bay	5	Y	N
Suisun Marsh Wetlands	5	Y	N
Suisun Slough	5	Y	N
Laurel Creek (Solano County)	5	Y	N
Suisun Creek	5	Y	N
Ulatis Creek (Solano County)	5	Y	N

Notes:

¹: Impaired waters are water bodies not fully supporting their designated uses under the Clean Water Act.

²: A Clean Water Act Section 303(d)-listed impaired water is a water body that is impaired or threatened and needs a total maximum daily load restoration plan.

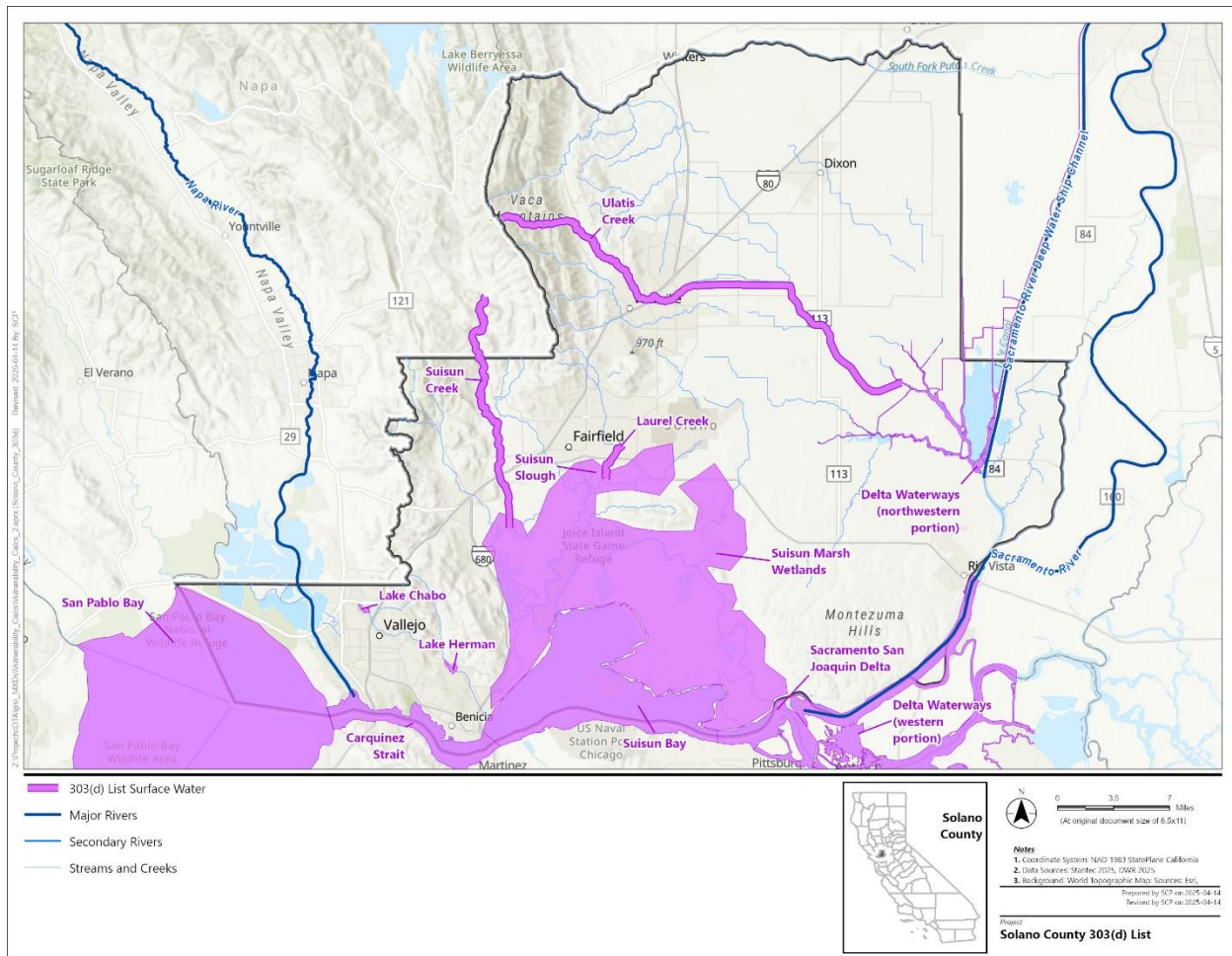


Figure 3-2. California's Clean Water Act Section 303(d) Water Bodies in Solano County

3.3.3.1 Surface Water

Salinity Intrusion

As seawater levels rise due to climate change and reduced freshwater flows, saltwater can infiltrate rivers and bays, increasing salinity levels and impacting water quality for agriculture, wildlife, and recreation. Currently, water quality in the Suisun Marsh is generally adequate in terms of salinity (San Francisco Bay Conservation and Development Commission 2024). Potential sea level rises of 1-1.5 feet by 2050 and over 4 feet by 2100 are expected to cause significant damage through saltwater intrusion, increased flooding, and degradation of water quality and freshwater wetlands and infrastructure.

Nutrient Pollution

Excess agricultural runoff, urban wastewater, and other sources can contribute to high levels of nutrients like nitrogen and phosphorus, leading to algal blooms, oxygen depletion, and harm to aquatic ecosystems (San Francisco Bay Regional Water Quality Control Board 2004).

Contaminants

Traces of pesticides, herbicides, and other chemicals from agricultural and industrial activities can contaminate surface water, potentially posing health risks to aquatic life. The water source for SID is

surface water from Lake Berryessa, which could contain microbial contaminants, inorganic contaminants, pesticides and herbicides, and organic chemical contaminants (SID 2023).

Sedimentation

Erosion and land development can lead to increased sediment entering waterways, hindering fish spawning, clogging infrastructure, and reducing water clarity. The Suisun Marsh Protection Plan, developed in 1976, aims to preserve the marsh and address potential impacts, including sedimentation (San Francisco Bay Conservation and Development Commission 2024).

3.3.3.2 Groundwater

Nitrate and Other Contaminants

Similar to surface water, agricultural runoff and other sources can lead to elevated levels of nitrate and other contaminants in groundwater, posing health risks and impacting drinking water quality.

Nitrate as nitrogen concentrations exceed the maximum contaminant level (MCL) of 10 milligrams per liter regionally in and around the cities of Dixon and Vacaville, and more localized high nitrate areas also exist around several regulated facilities (i.e., contamination sites) within the Solano Subbasin (Solano Subbasin GSP 2021b).

Salinity and Arsenic

Some areas of the County naturally have high levels of salinity and arsenic in groundwater, making it unsuitable for drinking or irrigation without treatment. Potential for saltwater intrusion associated with sea level rise would mostly impact wells in the Suisun-Fairfield Valley Basin.

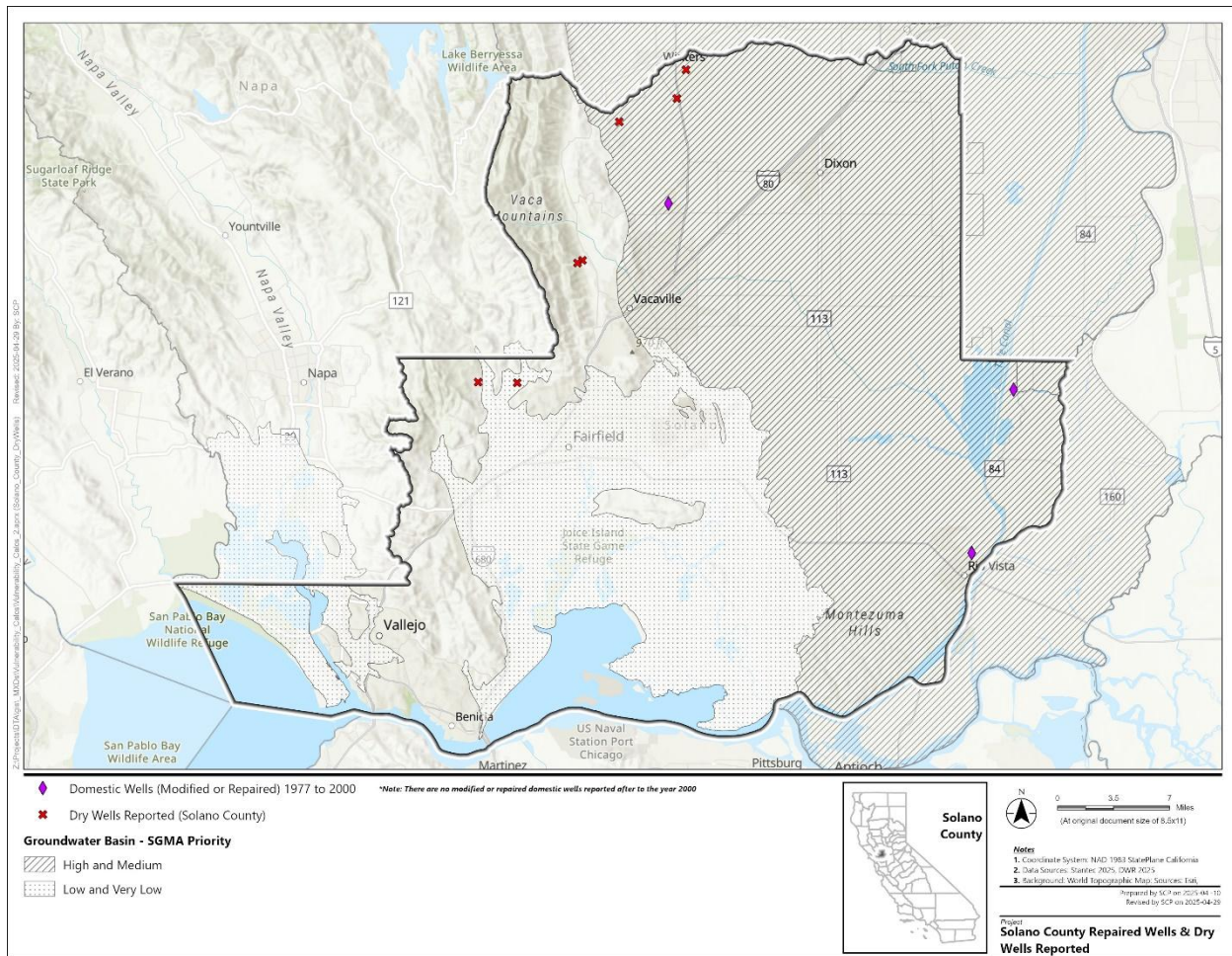
Arsenic exceedances of the MCL of 10 micrograms per liter ($\mu\text{g/L}$) are most common in the more southern parts of the Solano Subbasin, occurring due to naturally occurring arsenic in the local geologic materials (Solano Subbasin GSP 2021b).

Chromium-6

Areas in the northern Solano Subbasin were identified with elevated levels of chromium-6, a known carcinogen, in groundwater. Although most concentrations were below the total chromium MCL of 50 $\mu\text{g/L}$, there was one monitoring well that exceeded the minimum threshold for chromium-6 in 2024. The elevated chromium-6 levels are believed to be primarily a result of natural rock sources and geochemical processes; however, since 2014, efforts have been initiated to evaluate factors that may relate to the water quality exceedance (Solano Subbasin GSP 2021b, Solano County and Subbasin GSP 2025).

3.3.4 Household Outages

Within the County, there have been six household and one ag/irrigation dry well reports, reported between 2014-2022. Four of the seven wells have a reported depth of 80 feet or less. Figure 3-3 shows the locations of the reported outages. Out of seven reported outages, 3 are located in the Solano Subbasin and have been modified or repaired; the ag/irrigation well has been replaced. Dry well reports are submitted to the CA Department of Water Resources by users online via the Dry Well Reporting System (DWR 2025c).



Source: <https://mydrywatersupply.water.ca.gov/report/>

Figure 3-3. Dry Wells Reported in Solano County

3.4 Risk Assessment Results

This section summarizes the risk assessment results, the County's total physical and social vulnerability scores, and the individual indicators driving physical vulnerability. This information was used to identify the regions of water supply shortage vulnerability described in Section 3.5.

3.4.1 Total Physical Vulnerability and Social Vulnerability Scores

Total physical vulnerability scores within the County are shown in Figure 3-4, with darker shaded areas (or PLSSs) indicating higher physical vulnerability scores. Physical and social vulnerability were scored for the entire State, but the figures in this DRP show PLSSs only containing domestic wells and/or SSWs. Vulnerability scores are used to highlight areas with domestic wells and SSWs in the County that are vulnerable to water shortages. The risk assessment showed that highly vulnerable communities often resided in western and northwestern areas of the County, such as the Vaca Mountain canyons, Pleasants and Vaca valleys, and English Hills area. Wells completed in these regions are in fractured rock, suggesting that steep terrain and limited groundwater accessibility contribute to the high physical vulnerability, despite lower well density in this area.

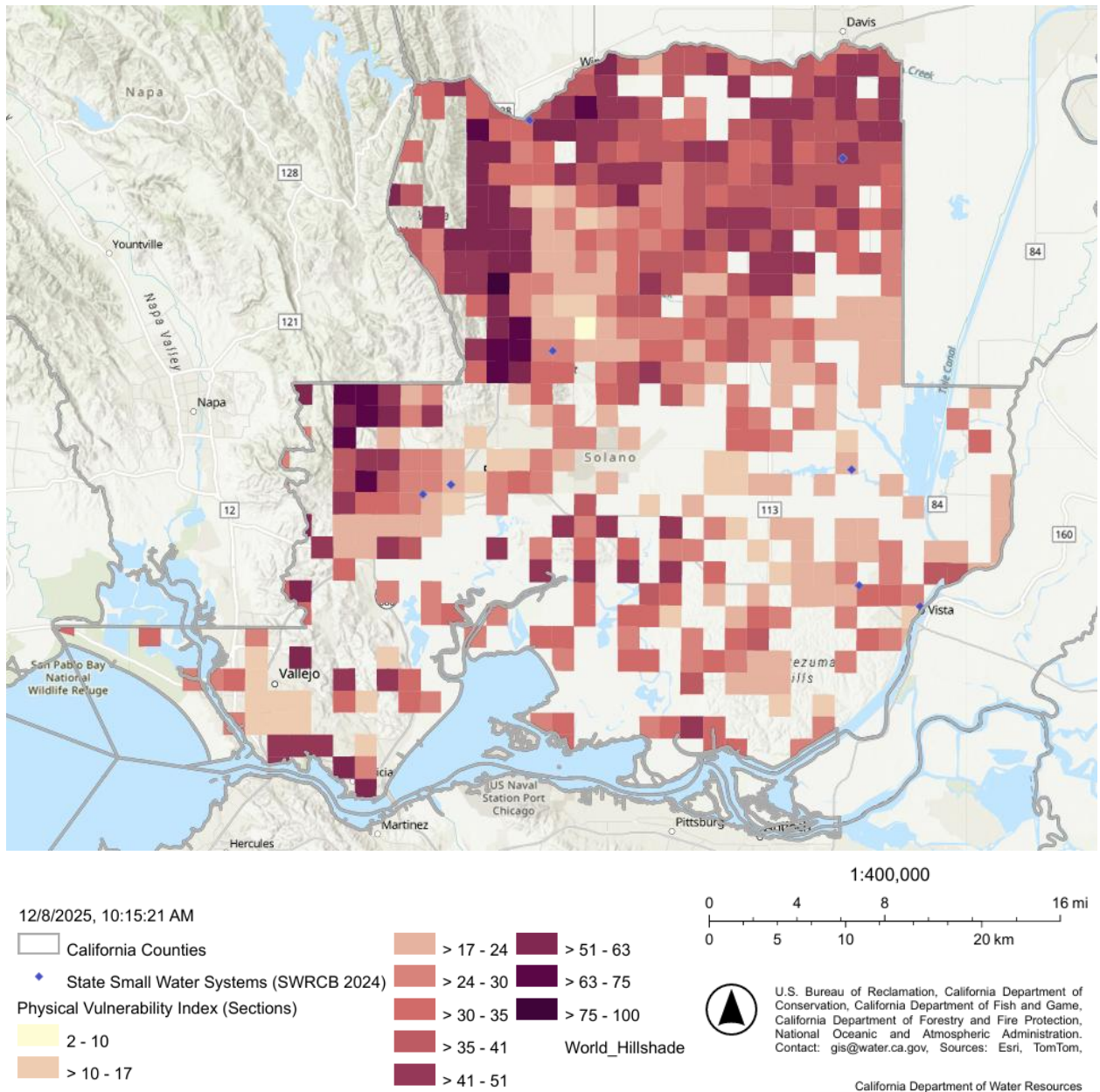
Figure 3-5 displays the intersection of physical vulnerability and location of domestic wells within the County. Dark brown shades indicate a higher presence of domestic wells within an area with high

physical vulnerability. A blue area has a higher physical vulnerability but minimal domestic wells, and an orange area has a high number of domestic wells but low physical vulnerability. The SSWs are shown as blue diamonds, and they are mostly located in PLSSs with domestic wells. This figure helps identify vulnerable communities and inform where STRAs and LTMSAs are most likely to be needed should a water shortage event occur.

Areas with high physical vulnerability and a high density of domestic wells are shown in brown and include north and northwest portions of the County in the Vaca Mountain canyons, Pleasants and Vaca valleys, English Hills area, and Solano Subbasin between Dixon and Vacaville. While not explicitly labeled on Figure 3-5, areas with low physical vulnerability and low well density can be found throughout the County, often coinciding with agricultural lands or sparsely populated areas where access to reliable groundwater might be limited.

Social vulnerability is also an important factor in assessing the risk of water supply shortage and need for mitigation through short-term actions and long-term strategies. Total social vulnerability scores in the County are depicted in Figure 3-6, with darker shaded areas indicating higher vulnerabilities. Comparing the social vulnerability scores in Figure 3-6 with the physical vulnerability scores in Figure 3-5 helps characterize how social vulnerability may overlap with the physical vulnerability of domestic wells and SSWs. Areas with high physical vulnerability and domestic well presence on the County's western side have lower social vulnerability scores. The north-central part of the County, which also has high physical vulnerability and domestic well presence, has high social vulnerability.

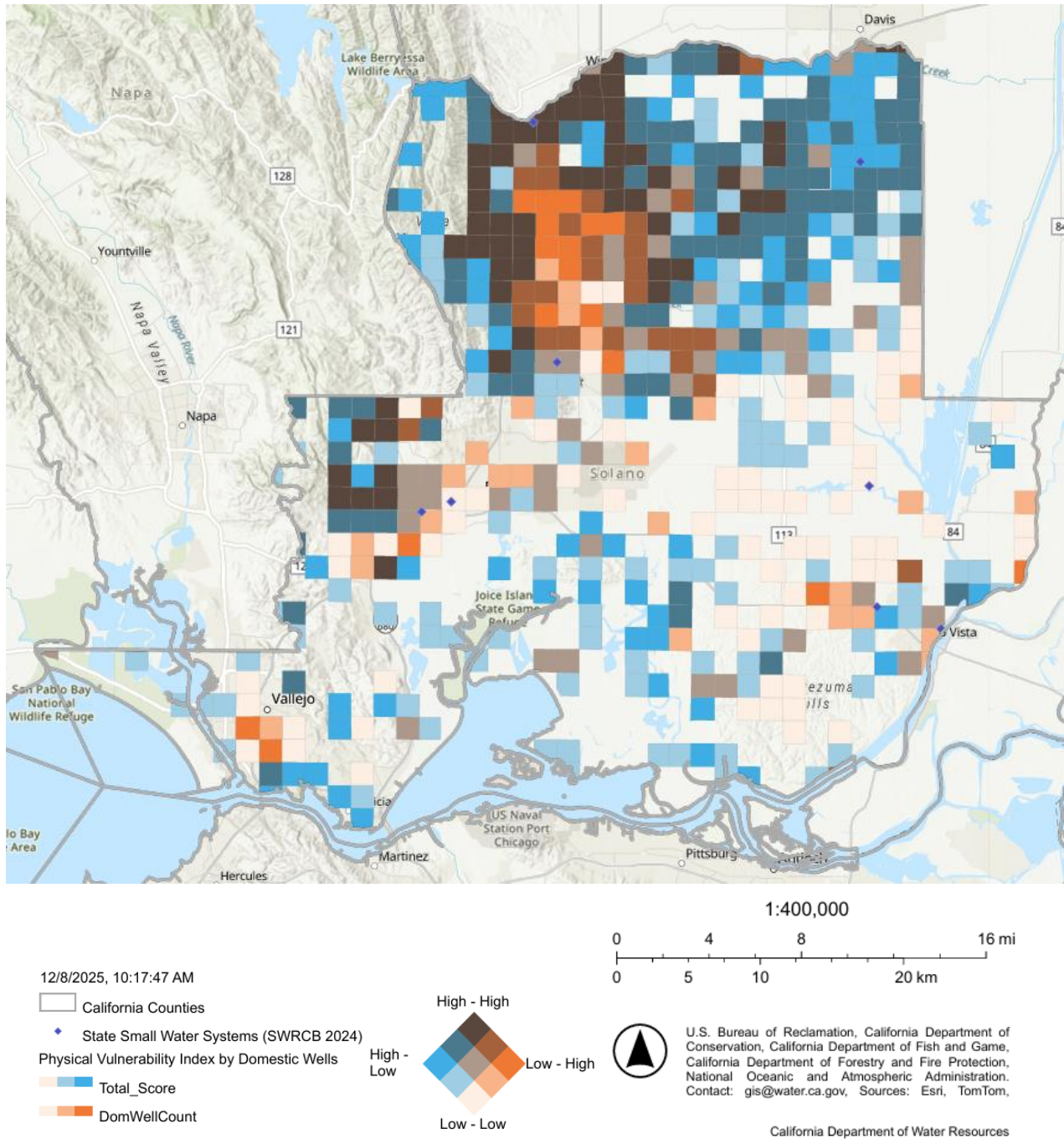
3.0 Drought and Water Shortage Risk Assessment



Source: DWR 2024

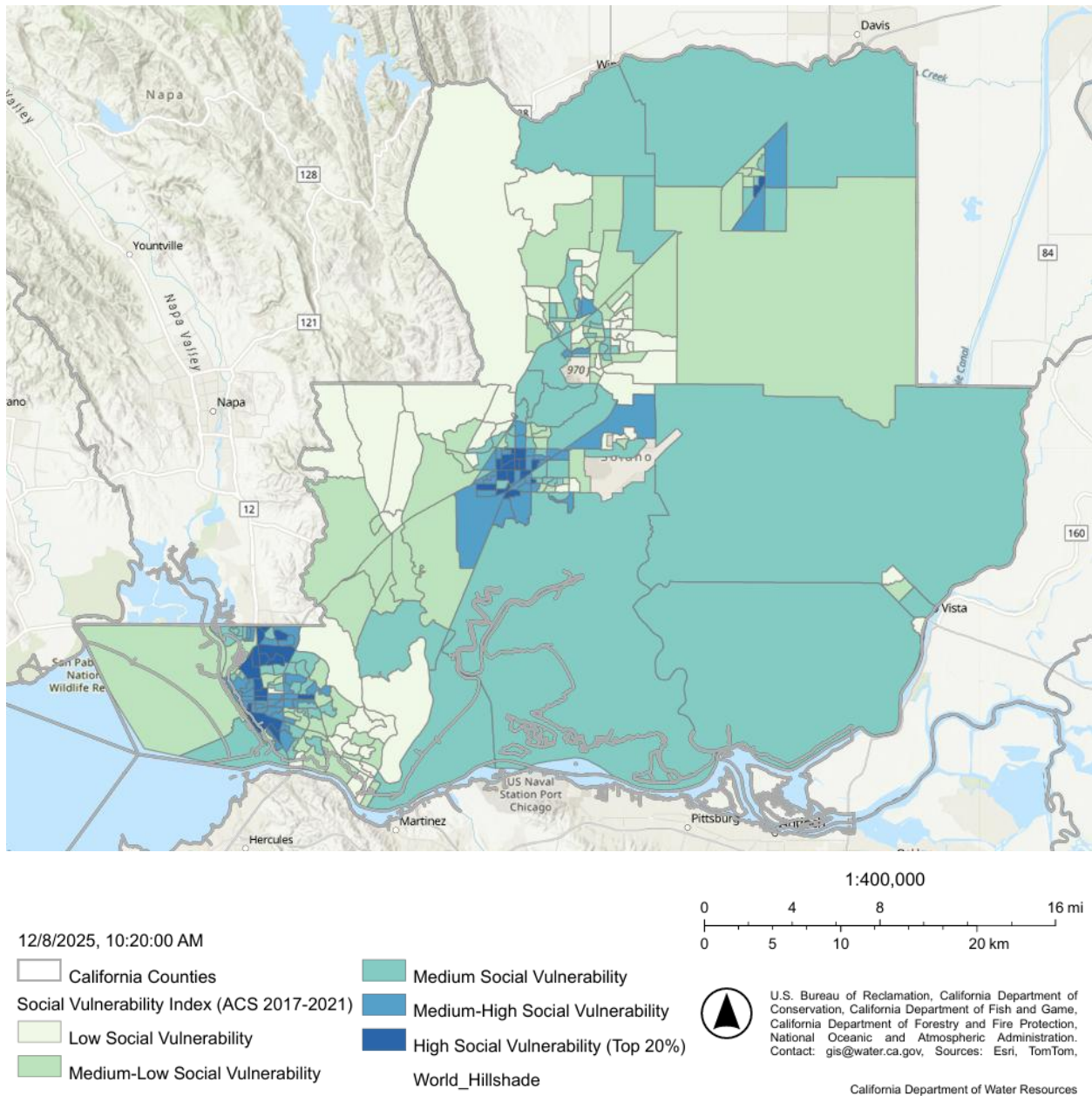
Figure 3-4. Physical Vulnerability of Drought and Water Supply Shortage in Solano County

3.0 Drought and Water Shortage Risk Assessment



Source: DWR 2024

Figure 3-5. Intersection of Physical Vulnerability and Density of Domestic Wells and State Small Water Systems in Solano County



Source: DWR 2024

Figure 3-6. Social Vulnerability Score by Census Block Group in Solano County

3.4.2 Physical Vulnerability Indicators

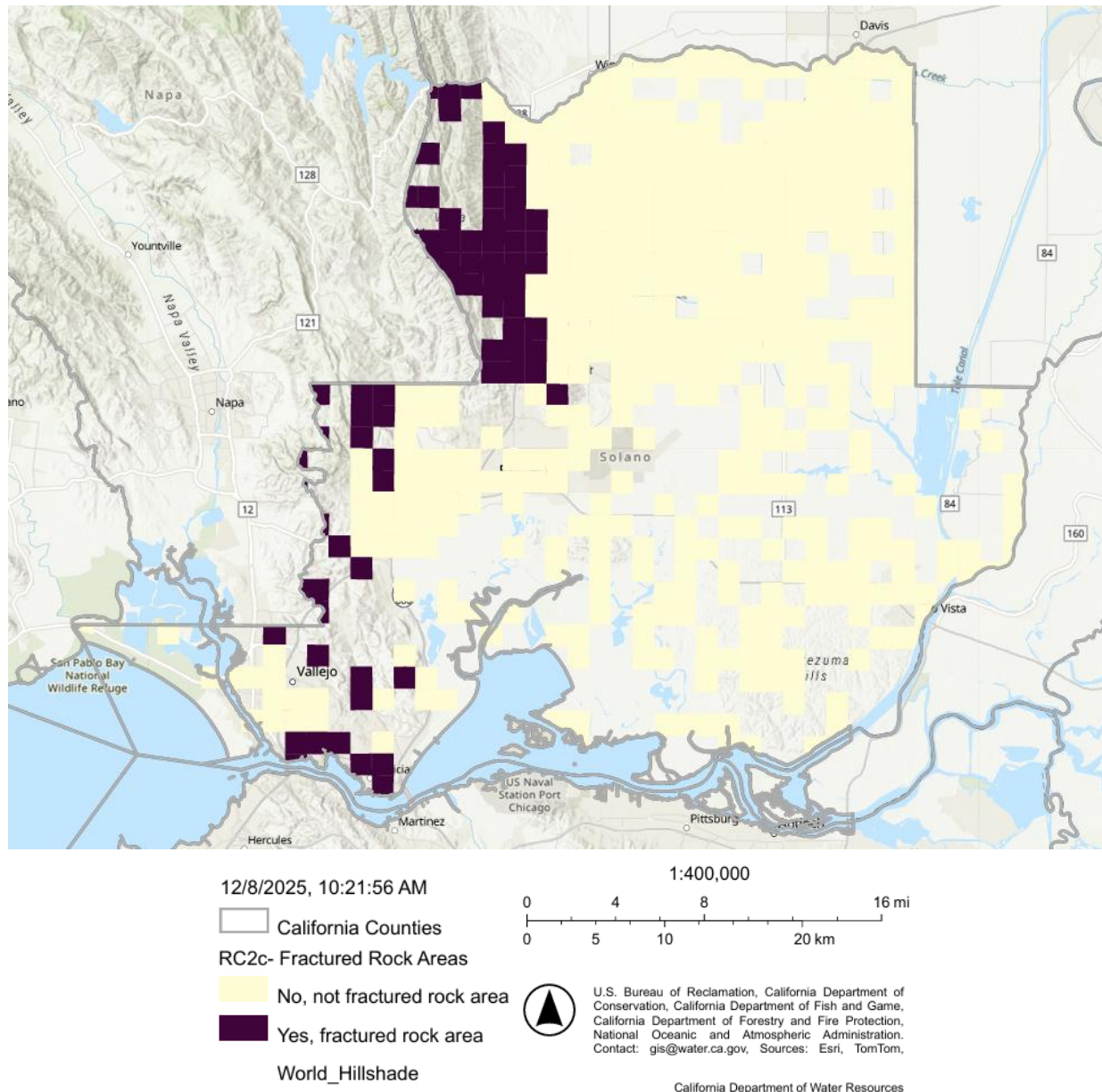
The risk assessment identifies regions with domestic wells and SSWs that are most vulnerable to drought and water shortage. This section describes factors that are driving water shortage risk within the County. Identifying and characterizing these drivers of physical vulnerability informs effective short-term actions, long-term strategies, and their implementation.

Within the County, the primary indicators driving physical vulnerability are domestic well density in fractured rock areas, water quality aquifer risk, surrounding land use, and multiple dry years. Details on

3.0 Drought and Water Shortage Risk Assessment

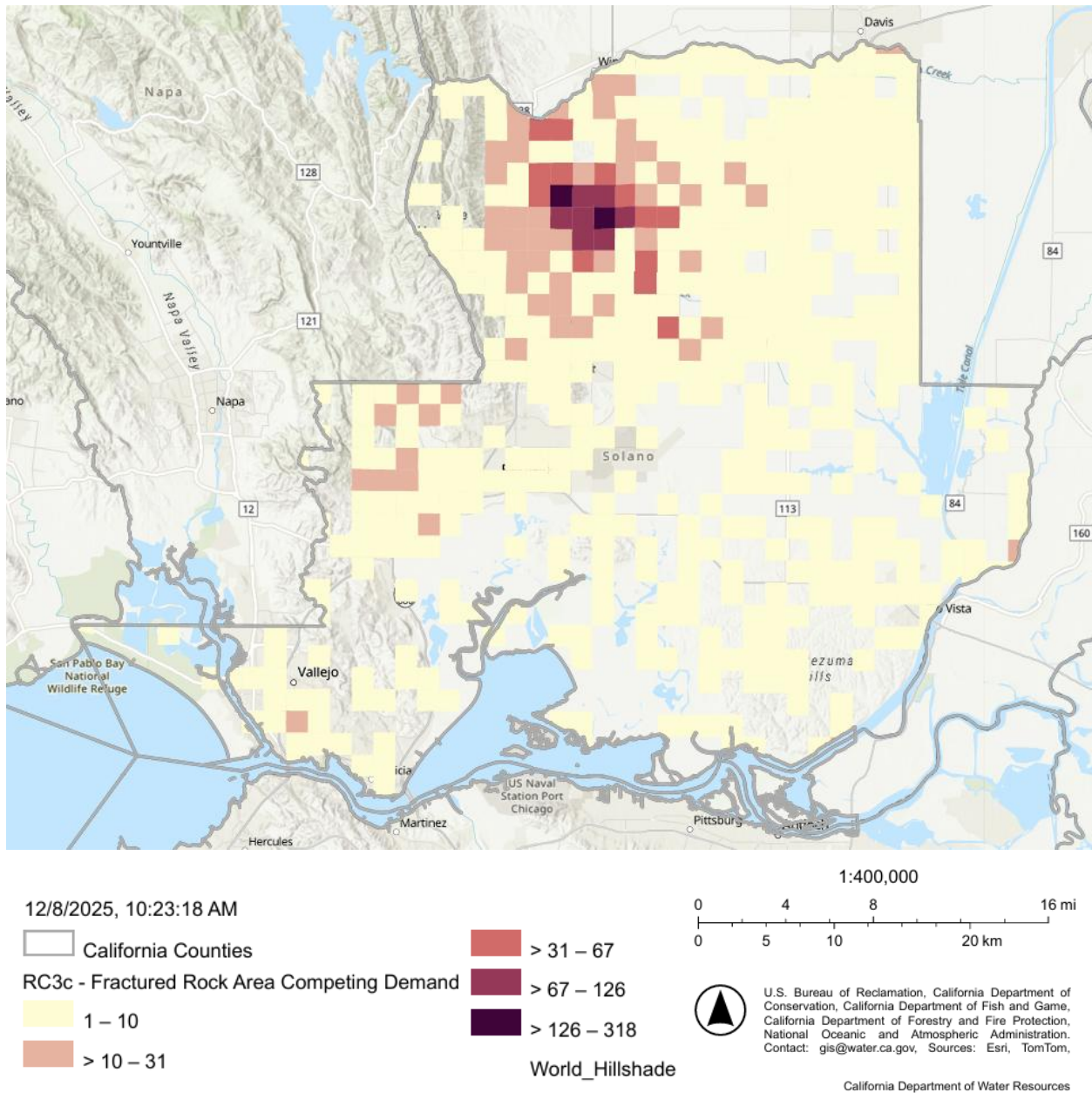
these four indicators are included below, and information on all physical vulnerability indicators is summarized in Table 3-4.

An underlying driver of water shortage vulnerability is the presence of fractured rock areas, which include the western and the northwestern portion of the County (Figure 3-7). Water availability in fractured rock areas is more difficult to track and manage due to the complex nature of the geology. Figure 3-8 shows the County has several locations, and up to 31 domestic wells, within fractured rock basins. These areas include the Vaca Mountain canyons, Pleasants, Vaca, and Lagoon valleys, English Hills, Rockville Hills, and Cook Canyon areas. Within these areas, competing demand from domestic well use stresses the water supply, thus increasing vulnerability to water shortage during a drought.



Source: DWR 2024

Figure 3-7. Geology Indicator Showing Fractured Rock Area in Solano County



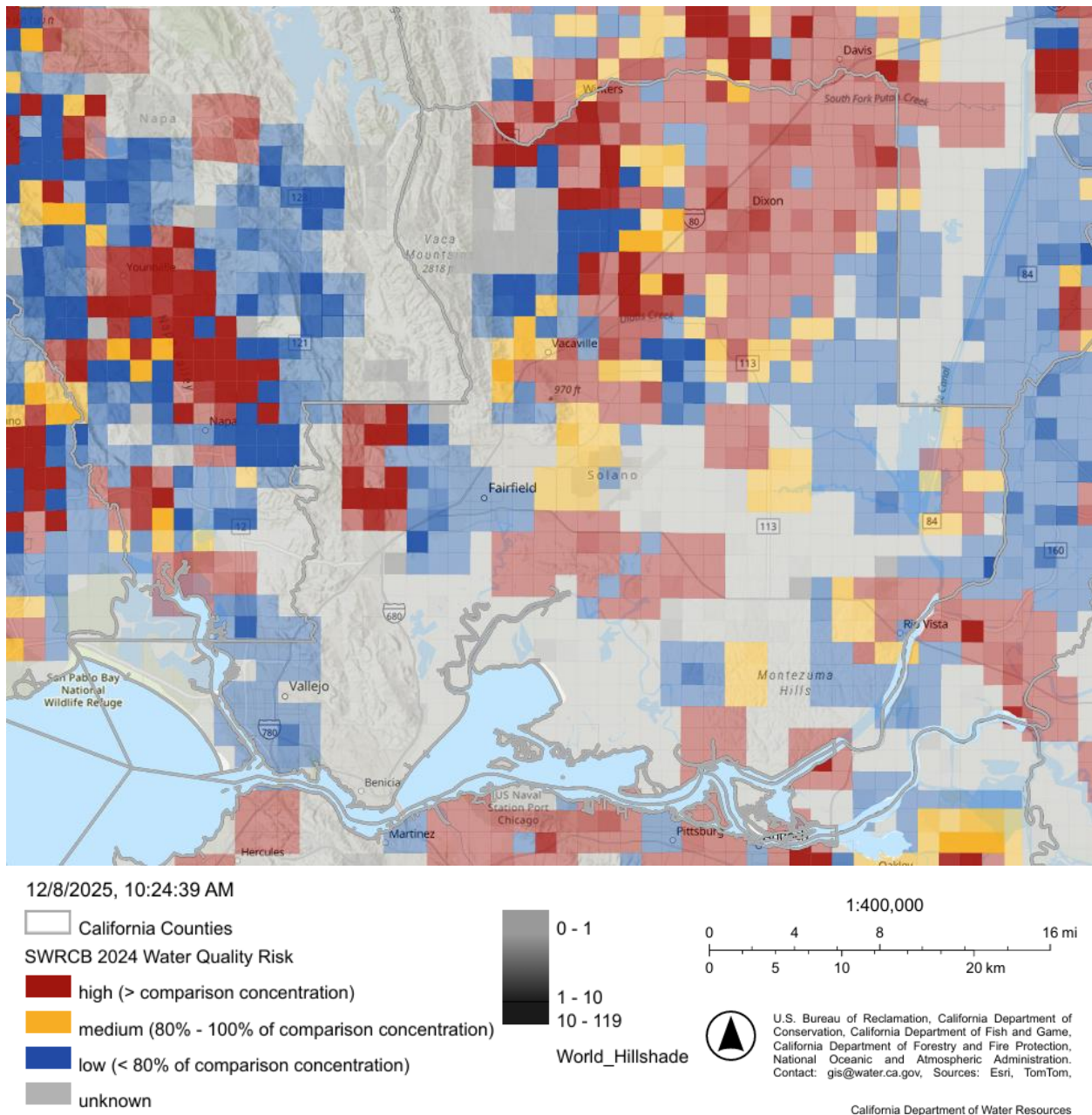
Source: DWR 2024

Figure 3-8. Domestic Well Density in Fractured Rock Areas Indicator in Solano County

Figure 3-9 shows potential water quality risk to groundwater in the County based on the 2024 State Water Board SAFER Needs Assessment by PLSS. Note the information shown in this map does not reflect actual water quality conditions. The SAFER Needs Assessment uses existing water quality reports from previously sampled wells of a similar depth to domestic wells and SSWs to evaluate potential long-term (20-year average) and short-term (5-year average) water quality contaminant levels. An area was assigned a high water quality risk score if average levels of any potential contaminant over the long term or over the past 5 years were above the comparison concentration. A PLSS was assigned a high water quality risk score if the long-term or short-term average was above the comparison concentration for one or more contaminants. A medium water quality risk score was assigned if the long-term or short-

3.0 Drought and Water Shortage Risk Assessment

term average was 80 to 100 percent of the comparison concentration for one or more contaminants. A low score water quality risk score was assigned if both the long-term *and* short-term averages were below 80 percent of the comparison concentration. Areas of high risk, shown in red, are primarily within the Solano Subbasin, northeastern parts of the County, and fractured rock basins in western Solano County.

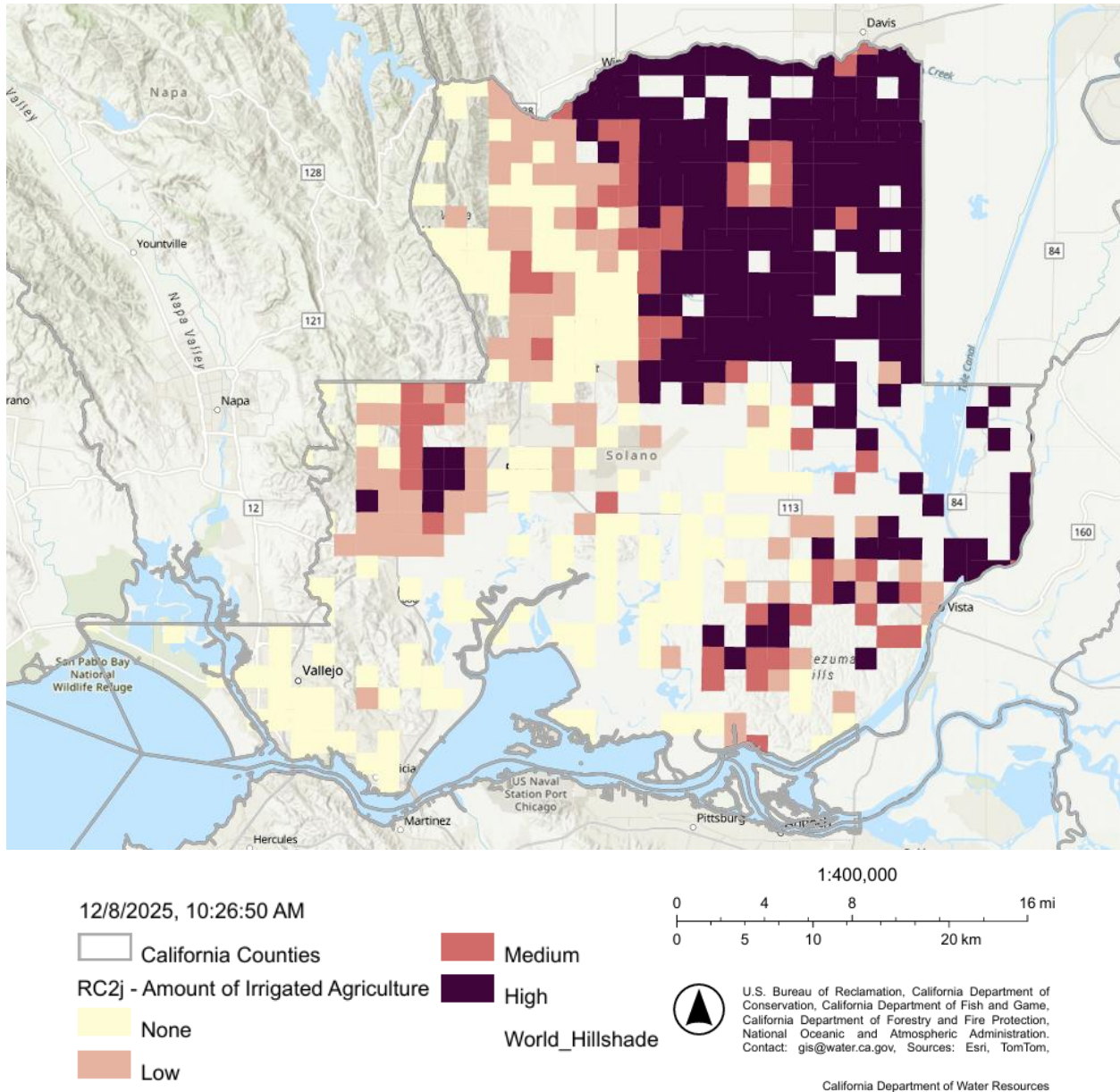


Source: DWR 2024

Figure 3-9. Water Quality Aquifer Risk Indicator in Solano County

Figure 3-10 shows the results of the surrounding land use indicator in the County for 2022, with darker shades indicating higher presence of agricultural land use. The dark purple, or 'High' designation, indicates that over 75% of the PLSS is irrigated agriculture. A higher portion of irrigated agriculture leads

to increased groundwater competition and a higher potential for water quality issues. Figure 3-10 shows that agriculture is the dominant land use in the eastern portion of the County. Conversely, on the western side, with only a few exceptions, there is a minimal presence of irrigated agriculture in each PLSS unit. This stark contrast underscores the regional disparity in agricultural practices, highlighting the concentration of irrigated farming activities in the east while the west predominantly relies on non-irrigated agricultural methods in most areas.

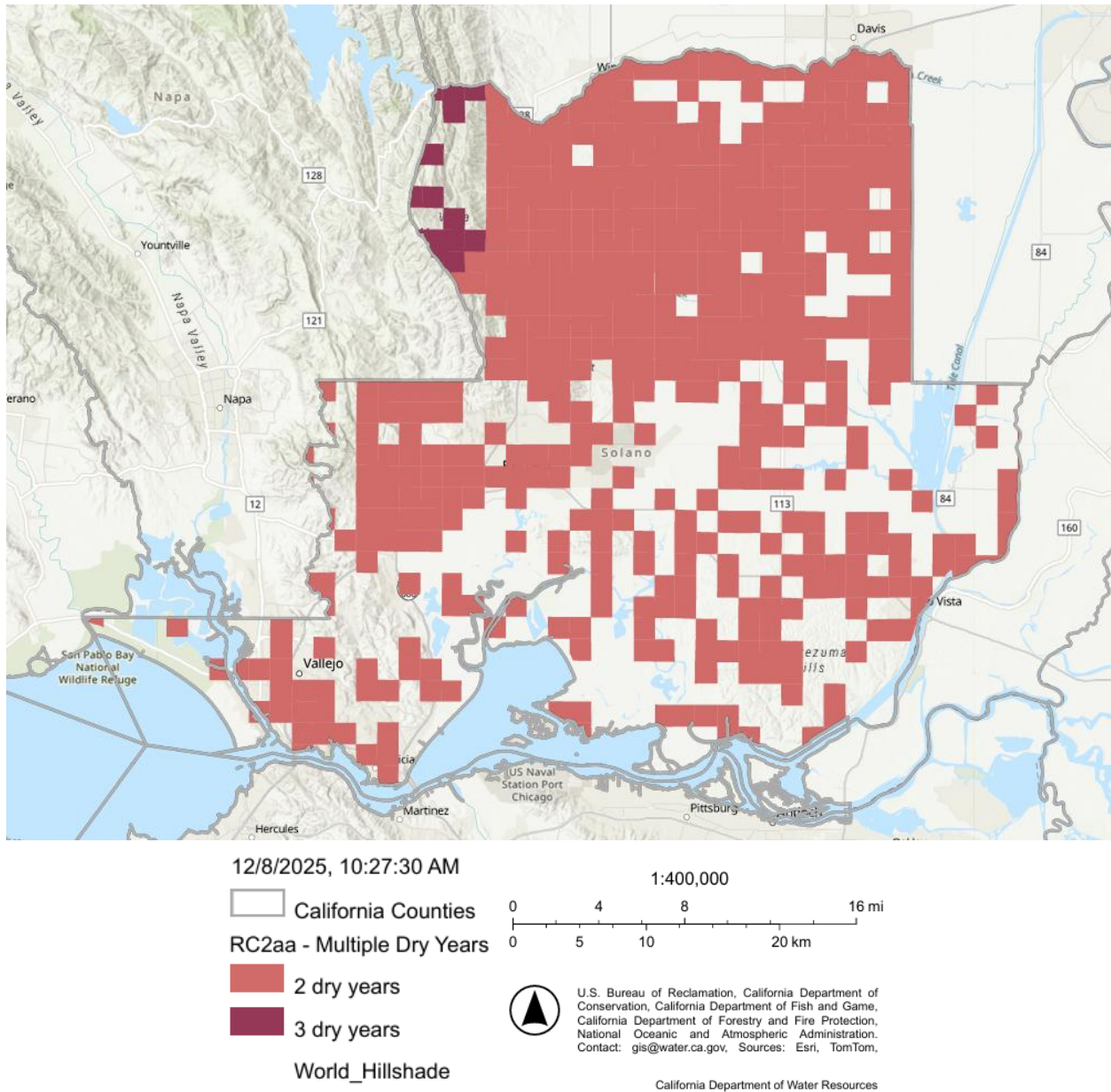


Source: DWR 2024

Figure 3-10. Surrounding Land Use Indicator in Solano County

Figure 3-11 shows the results of the multiple dry years (RC2aa) indicator in the County, with darker shades indicating higher indicator scores. As can be seen in Figure 3-11, over the past 5 years, small regions in the northwestern part of the County have experienced 3 dry years, while the rest of the

County has experienced 2 dry years. More dry years within a 5-year period increases vulnerability to water supply shortages due to drought.



Source: DWR 2024

Figure 3-11. Multiple Dry Years in Solano County

Table 3-4 summarizes all physical vulnerability indicators considered in the risk assessment and describes how they impact water shortage vulnerability for domestic wells and SSWs in the County.

Table 3-4. Summary of Observed Conditions for Physical Vulnerability Indicators in Solano County

Physical Vulnerability Indicator		Observed Conditions¹
Climate Change		
Temperature Shift (RC1a)		Maximum average temperature by mid- century is projected to increase by 2.4°F (in the southern portion of the County, close to water bodies) to 2.9°F (northern portion of the County) throughout the County. Increased temperatures could increase water supply demands from users, evapotranspiration, and other sources, thereby increasing vulnerability to drought and/or water shortage impacts.
Saline Intrusion Projected (RC1b)		The Bayshore and Delta areas of the County (southern portion) are tidally influenced. The potential for higher salinity water intrusion from the San Francisco bay to the Delta poses a significant threat to groundwater quality, making Bayshore areas highly vulnerable to saltwater contamination. Current and future saltwater intrusion into groundwater increases vulnerability of domestic wells and SSWs.
Wildfire Risk (RC1c)		County projections show less than 27 percent increase in wildfire risk through the County by 2064. Despite negligible fire susceptibility in most areas, the projected increase in burning, even in small areas, warrants inclusion in the vulnerability assessment due to inherent high risks involved. Increasing wildfire frequency and severity can increase vulnerability of water sources.
Current Environmental Conditions and Events		
2024 Precipitation (RC2a)		Most recent water year's status based on precipitation data in the beginning of the current water year (2024) remains above the historic precipitation in all areas. Due to the observed historical pattern and the uncertainty associated with defining the water year until after winter precipitation season is over, this indicator is included in the vulnerability assessment.
Multiple Dry Years (RC2aa)		Data show that almost all areas of the County have experienced 2 dry years in the last 5 water years (2020–2024), except for a small area in the northwestern part of the County that has experienced 3 dry years in this period. A higher number of recent dry years may increase physical vulnerability of water supply conditions and indicate long-term periods of low water supply.
USFS Wildfire Risk (RC2b)		The western and northwestern parts of the County are within moderate to high and very high USFS risk. Wildfire poses a risk to water supply and infrastructure of water systems.
Geology (RC2c)		Fractured rock is present across the western border of the County along the Vaca Mountains. 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 unreliable due to high susceptibility to drought impacts.

Physical Vulnerability Indicator	Observed Conditions ¹
Water Quality Aquifer Risk (RC2i)	This index shows that groundwater likely accessed by domestic wells may contain concentrations of constituents above regulatory levels. Some regulated constituents may appear at elevated concentrations in the wells scattered throughout the County that could increase physical vulnerability for different communities. These areas of high risk where domestic wells and SSWs are present are primarily within the Solano Subbasin and the Suisun and Green Valleys in the western corner of the County.
Subsidence (RC2d)	Minor subsidence in the County has been reported with no documentation of inelastic (irreversible) land subsidence related to groundwater pumping. Higher subsidence creates more vulnerable conditions.
Basin Salt (RC2e)	All portions of the County adjacent to the San Francisco Bay Area are currently experiencing saltwater intrusion. Intrusion extends farther inland in the southwestern portion of the County. The increased salinity not only affects the potability of water but also threatens agricultural activities that depend on the availability of fresh water. In times of drought or reduced rainfall, the situation exacerbates as the demand for water rises, amplifying the stress on these compromised aquifers.
Overdrafted Basin (RC2f)	Overdrafted basins increase physical vulnerability to water shortage and drought. Groundwater basins in the County are not identified by DWR as being critically overdrafted. However, prior to construction of the Monticello Dam, Solano County experienced overdrafting and groundwater shortages (SID 1988).
Chronic Declining Water Levels (RC2g)	There are a small numbers of wells in Solano Subbasin in the northern portion of the County including the Northwest Focus Area that have experienced significant groundwater declines. Declining groundwater levels increase water shortage vulnerability and may put wells at higher risk of shortage.
Surrounding Land Use (RC2j)	The northern and eastern parts of the County as well as small areas in the west are heavily farmed. The presence of agricultural activities could indicate competing demands on groundwater suppliers as well as water quality concerns, both of which could create higher vulnerability for domestic wells and SSWs, especially during a drought or water shortage event.
Infrastructure Susceptibility	
Dry Domestic Well Susceptibility in Basins (RC3a) – Alluvial Basin	This factor estimates the susceptibility of wells going dry and identifies the locations where multiple wells may fail, if the current groundwater trends in the County continue. Data show an overall low likelihood of dry well susceptibility in the County even in the medium/high-priority groundwater basin in the northern portion of the County.
Domestic Well Density in Fractured Rock Areas (RC3c)	Due to the complex geology of fractured rock areas, the density of wells was calculated to represent competing demand in these areas. The 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. In Solano County, areas with higher numbers of domestic wells in fractured rock areas are Pleasants and Vaca valleys.

Physical Vulnerability Indicator		Observed Conditions ¹
Record of Shortage		
Reported Household Outage on Domestic Well (RC5a)		Areas that have already experienced outages are more likely to experience it during future dry years, due to combinations of aquifer sensitivity/fluctuations and shallow wells. A total of seven dry well reports have been submitted to the State, occurring throughout the County but primarily within alluvial groundwater basins. The dry wells were reported between 2014-2022, with four reported dry well incidents occurring during the spring/summer of 2021-2022, both drought periods, indicating that these areas may be vulnerable to water supply shortages during future drought conditions. Four of the wells had a reported depth less than 80 feet.

Notes:

¹ Abbreviations are included next to the indicator name (i.e., "RC1a") for clarity.

Key:

°F = degrees Fahrenheit

Delta = Sacramento-San Joaquin Delta

DWR = California Department of Water Resources

SSWS = state small water system

USFS = U.S. Forest Service

3.5 Risk Assessment Findings

The areas within the County with domestic wells and/or SSWs that are vulnerable to water supply shortages, the drivers of those physical vulnerabilities, and the corresponding total social vulnerability scores are presented in Table 3-5 and shown in Figure 3-12. These areas and vulnerabilities were used by the County and Task Force to develop short-term actions and long-term strategies for addressing water shortages among domestic wells and SSWs across the County.

Table 3-5. Summary of Risk Assessment Findings in Solano County

Area with Water Shortage Vulnerability and Domestic Wells/SSWs	Physical Vulnerability Indicators	Social Vulnerability Score	Location in Figure
Suisun and Green Valleys	• Dry well susceptibility in fractured rock area • Multiple dry years within the past 5 years • Water quality index	Low	A
Pleasants and Vaca Valleys	• Dry well susceptibility in fractured rock area • Multiple dry years within the past 5 years • Wildfire hazard	Mix of low and medium	B
South Side of Winters	• Declining groundwater levels • Percent land as irrigated agriculture • Water quality index	Medium	C*
Dixon	• Declining groundwater levels • Percent land as irrigated agriculture • Water quality index	Mix of medium and high	D
Solano Subbasin between Dixon and Vacaville	• Percent land as irrigated agriculture • Water quality index	Medium	E

*Note:

C is within the Northwest Focus Area.

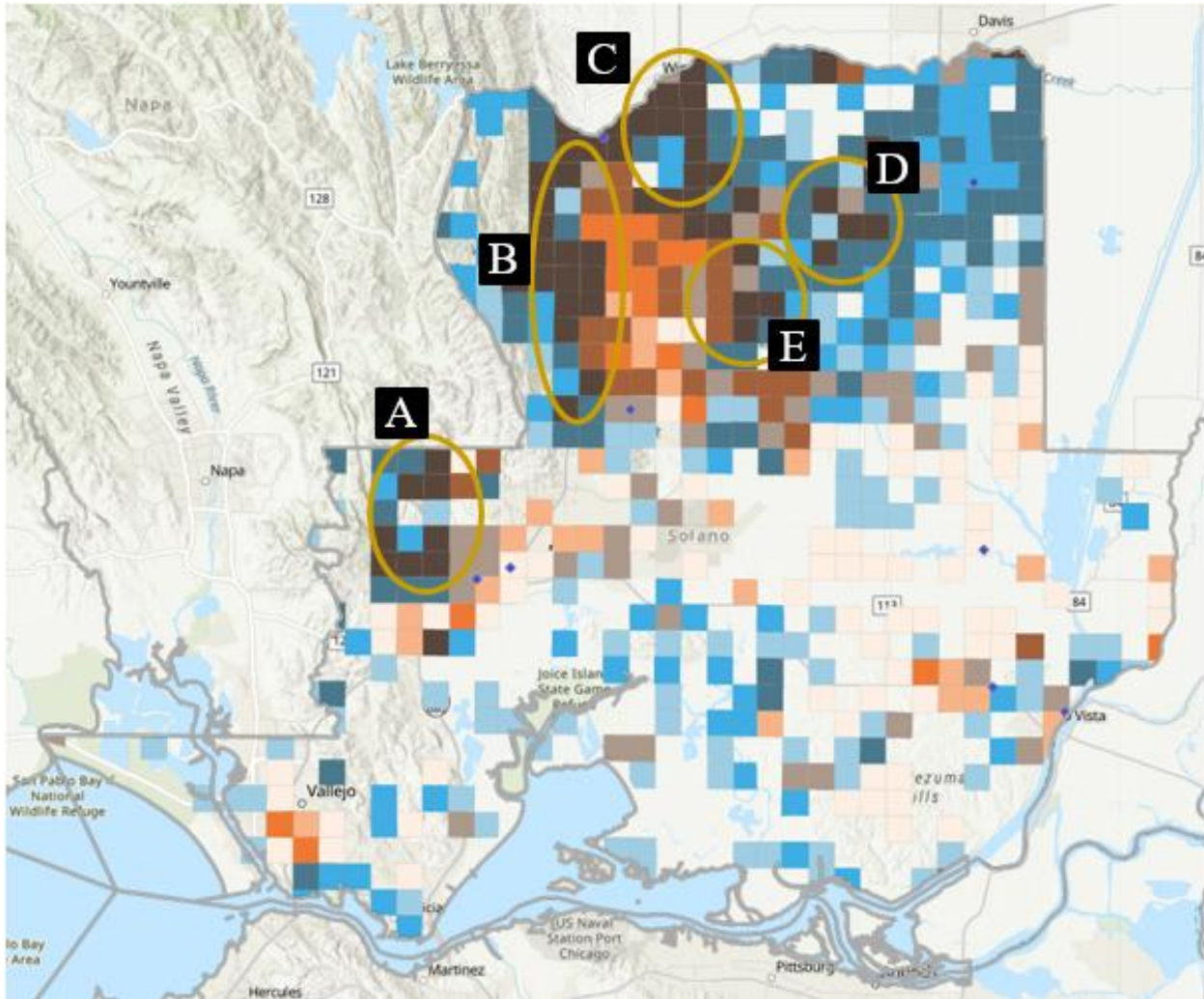


Figure 3-12. Summary of Risk Assessment Findings Showing Areas with Water Shortage Vulnerability and Domestic Wells in Solano County

3.6 Risk Assessment Gaps

Understanding gaps in the risk assessment (1) helps identify physical and social vulnerabilities that may exist but are not effectively captured using the methodology applied and data available, (2) focuses future efforts to improve future risk assessments, and (3) 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, Task Force, and other stakeholders during the development of the Plan.

- The County does not yet have an accurate inventory of all the wells, including agricultural and domestic, county-wide. As of August 2024, the GSAs are developing well inventories for Solano Subbasin that includes well construction information, water depths, capacities, coordinate locations, uses, areas serving by the wells, and other details, but the County will also need to consider all wells outside of the Solano Subbasin. The DWR well dataset used for the vulnerability analysis is limited in accuracy and reliability.

- The WSVE Tool filters out abandoned wells. The well driller/company must submit documentation to DWR that a particular well was abandoned. This could potentially contribute to discrepancies with the number reported on the WSVE Tool.
- Sufficient data does not yet exist to estimate numbers and locations of households on private surface water intakes, serving one to four households, and this is recognized as a major data gap for future consideration. It should be noted that SID has data and information on several SID-owned public water systems including surface and groundwater supplies throughout incorporated areas within the County. The City of Vallejo also has the Lake Water System, which serves a portion of the County's incorporated areas (Green and Suisun valleys), as well as a few additional water districts serving potable water in incorporated areas.
- There is no hydrology modeling accounted for in the analysis. Future hydrology impacted by climate change will affect the current analysis. Accounting for changing conditions would result in better prediction of risks related to water shortage and ultimately better preparation for the future.
- There are no transparent and accurate data on source water of SSWs. The County Environmental Health Division has well construction information on 10 SSWs throughout the County; however, the WSVE Tool only shows eight SSWs. SSWS data comes from the State Water Board, which has started conducting outreach to counties to update the data. In 2025, two SSWs were removed, which were connected to city municipal systems.
- Although the County has information on most of surface water systems in the County, the systems have not been comprehensively characterized, identified, and located in a centralized database. Compiling and collecting the data including infrastructure information into one centralized database would help in integrating water systems during drought. This is also one of the data gaps identified in the County's One Water Framework as it seeks out opportunities to improve system integration and efficiency.
- There are no publicly available data on existing mutual aid agreements between water suppliers or between water suppliers and the County to support domestic well outages.
- There are no publicly available data on the locations or existence of storage tanks, fill stations, and other infrastructure or arrangements to support interim drinking water solutions.
- The mapping of reported dry wells is based on reported shortages in DWR's database up until 2024. As of January 2026, the County does not have any additional information.

Overall, the data gaps mentioned above would not significantly hinder the County in the development of its STRAs or LTMSAs.

4.0 Short-Term Response Actions

The risk assessment presented in Section 3 provided insight into County areas supplied by domestic wells and SSWs that may be susceptible to drought and water shortages, particularly during extended droughts. Based on the outcomes of that assessment, the Task Force identified STRAs for water shortage emergencies in vulnerable regions in the County. The identified STRAs are not exhaustive and may be modified in the future. In the context of this Plan, STRAs 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 needs.

This section describes the STRAs included in the Plan and the Drought and Water Shortage Emergency Response Process.

4.1 Legislative Direction

SB 552 requires that each county develop a drought and water shortage plan that includes proposed interim solutions for domestic wells and SSWs, per CWC Section 10609.70 (**boldface** added for emphasis as related to STRAs and this section of the Plan):

(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 Short-Term Response Actions Included in the Solano County Drought Resilience Plan

STRAs included in the Plan are summarized in Table 4-1 and described in this section. Most of these STRAs provide emergency and interim drinking water supplies via bulk water delivery or with packaged or bottled water. Other STRAs include mutual aid agreements required to (1) provide these emergency and interim drinking water supplies efficiently and (2) expedite the well permitting approval process. A process for STRA implementation is presented in Section 4.4, while future efforts to address STRA implementation challenges and develop new STRAs are described in Section 6.2.2.

Table 4-1. List of Short-Term Response Actions Included in Solano County Drought Resilience Plan

ID	Short-Term Response Action Type	Short-Term Response Action Name	Short-Term Response Action Description	Potential Responsible Entity	Potential Supporting Entities
STRA 01	Emergency And Interim Drinking Water Supplies	Dedicated Water Filling Stations During a Water Shortage	County staff to identify and establish a network of emergency potable water supply stations/suppliers in the event of a water shortage emergency.	County OES	County Department of Resource Management, Cities, SID
STRA 02	Emergency And Interim Drinking Water Supplies	Water Hauling or Bulk Water Delivery	County staff to ensure policies and mutual aid agreements are in place for coordination with public water systems to allow for water hauling and bulk water delivery to domestic well and SSWS users with bulk water supply storage tanks that are accessible.	County OES	County Department of Resource Management, SID, Conservation Districts
STRA 03	Emergency And Interim Drinking Water Supplies	Packaged and Bottled Water Supplies	County staff to identify and establish a program to acquire and distribute packaged or bottled water to domestic well and SSWS users during a water shortage emergency.	County OES	American Red Cross
STRA 04	Emergency And Interim Drinking Water Supplies	Voluntary Water Conservation Program	County staff, in coordination with non-government organizations, GSAs, and other entities to establish a communication and engagement program to support voluntary water conservation measures among domestic well and SSWS users in the event of a water shortage event.	County Department of Resource Management	SCWA
STRA 05	Permit Streamlining and Coordination	Expedited New or Replacement Well Permitting During Water Shortage	County to, within its jurisdiction, prepare and expedite permit authorization for construction of replacement wells in the event of a water shortage emergency.	County EHD	

Key:

County = Solano County

County OES = Solano County Office of Emergency Services

SCWA = Solano County Water Agency

SSWS = state small water systems

County EHD = Solano County Environmental Health Division

GSA = Groundwater Sustainability Agency

SID = Solano Irrigation District

STRA = short-term response action

4.2.1 Emergency and Interim Drinking Water Supplies

Emergency and interim drinking water supplies involve providing temporary water supplies until longer term water supplies are secured or the water shortage emergency ends. Emergency and interim drinking water supplies are used during water shortage emergencies to meet basic health and safety needs.

4.2.1.1 Dedicated Water Filling Stations (STRA 01)

During a water shortage emergency, domestic well or SSWS users could take water from dedicated water filling stations owned and operated by large water purveyors. These water filling stations are at established locations that would provide potable water to affected users. Domestic well or SSWS users would need to provide their own water storage containers. Establishment of dedicated water filling stations is included in the Plan as STRA 01.

- SID is a key water agency in the County and a potential option to establish dedicated water filling stations. The County can establish agreements with SID to provide water filling stations for domestic well and SSWS communities impacted by drought or water shortage events.
- County OES is the lead entity for this STRA, with support from the County Environmental Health Division. Mutual aid agreements are required for this STRA, which are described in Section 4.3. Facilities would be activated for emergency water supplies using the process described in Section 4.4.

4.2.1.2 Water Hauling or Bulk Water Delivery (STRA 02)

Water hauling or bulk water delivery involves using licensed water haulers or tankers to deliver emergency water supplies to those in need at either (1) a central distribution point for residents to bring a container to be filled, or (2) a hospital or other critical infrastructure where the water hauler or tanker can be connected. Water hauling or bulk water delivery is included as STRA 02 in the Plan.

Within the County, water hauling or bulk water delivery would primarily be used to provide emergency water supplies at temporary distribution points for domestic well and SSWS users. In previous droughts, County staff have received reports of private residents who trucked in water. Main water purveyors such as SID were identified as options for providing water hauling or bulk water delivery during emergencies. County staff would coordinate water hauling and bulk water delivery and maintain a list of water hauling vendors that is posted on the County website.

The California Department of Public Health (CDPH) oversees the statewide licensing and regulation of potable water haulers and may assist with the identification of licensed water hauling contractors during emergency response activities. As of January 2026, only one CDPH licensed potable water hauler is registered within the County: Cal Aqua/Environmental Aqua Inc.

County OES is the lead entity for this STRA, with support from the County Department of Resource Management. Mutual aid agreements are required for this STRA, which are described in Section 4.3. Water hauling and bulk water delivery to affected domestic well or SSWS users would follow the process described in Section 4.4.2.

4.2.1.3 Packaged or Bottled Water (STRA 03)

The County intends to provide packaged or bottled water (i.e., 1- to 5-gallon jugs and individual bottled waters) to affected domestic well and SSWS users during drought or water shortage events. Packaged or bottled water delivery is included in the Plan as STRA 03.

Packaged or bottled water would be sourced from local vendors, as available. CDPH maintains a list of approved commercial bottled water vendors within the State. In the event of a State or Federal disaster declaration, the County may coordinate with State and Federal agencies to support the acquisition of packaged or bottled water supplies and to pursue cost-sharing or reimbursement, as applicable (CDPH 2025). The locations of packaged or bottled water distribution sites would be established based on the nature, duration, and geographic extent of the water shortage event.

The County partners with the American Red Cross, a national organization that provides disaster relief, for water distribution services during emergencies.

Anheuser-Busch's Fort Collins, Colorado, and Cartersville, Georgia, breweries are known for producing emergency drinking water to aid in disaster relief efforts. These breweries periodically pause beer production to focus on canning and distributing safe, clean drinking water to communities in need. Since 1988, they have produced over 100 million cans of water for disaster relief, according to Anheuser-Busch. While the Anheuser-Busch facility in Fairfield has recently closed, the facility remains intact and operational, and a future operator may be able to produce and provide drinking water to domestic well and SSWS users during drought or water shortage events.

County OES is the lead entity for this STRA, with support from other County departments. Packaged or bottled water would be distributed to affected domestic well or SSWS users following the process described in Section 4.3. Locations, operating hours, and other information regarding packaged or bottled water would be communicated using the process described in Section 4.4.2.

4.2.1.4 Voluntary Water Conservation Program (STRA 04)

The County, in coordination with other entities, supports voluntary water conservation programs among domestic well and SSWS users in the event of a water shortage event. Voluntary water conservation program is included in the Plan as STRA 04.

SCWA collaborates with local agencies to implement water conservation programs such as rebates for high-efficiency clothes washers, water-efficient landscaping, and smart irrigation timers to reduce water usage and promote cost effectiveness (SCWA 2021). County staff would work with SCWA to communicate its water conservation information to communities with domestic wells and SSWSs. More discussion is provided in Section 1.4.3.3.

4.2.2 Permit Streamlining and Coordination

Effective permit streamlining and interdepartmental coordination are critical tools that enable the County to respond more efficiently when water production or quality declines at domestic wells or SSWSs. Efficient permitting not only accelerates relief during water supply shortages but also ensures that public health and groundwater sustainability considerations remain fully upheld.

4.2.2.1 Expedited New or Replacement Well Permitting During Water Shortage (STRA 05)

As drought or water shortage conditions worsen and the production or quality of water at domestic wells or SSWSs declines, owners of compromised wells will seek support to rehabilitate, deepen, or replace existing wells. Within the County's authority, streamlining the permitting process for well rehabilitation, deepening, and replacement can expedite relief during an ongoing water shortage. This streamlining could be achieved, in part, with enhanced coordination between the County entities involved in permitting. Expedited new or replacement well permitting during water shortage is included in the Plan as STRA 05. The County Environmental Health Division is the lead for this STRA.

In the last drought, the County fast-tracked the process for reporting dry wells. Permit streamlining would be achieved through improved coordination among County entities and/or redirecting staff time during water shortage conditions to review and approve these permits. This streamlining process would not relax permitting criteria related to water supply, such as proximity to other wells or water quality. Not appropriately considering water supply criteria could worsen a water supply shortage for other groundwater users or exacerbate an ongoing water shortage.

4.3 Pre-Negotiated Contracts and Mutual Aid Agreements

Efficient implementation of STRAs requires coordination and cooperation with other entities beyond those within the County government. These can include pre-negotiated contracts and mutual aid agreements.

The acquisition of materials to implement this Plan may be subject to local and state policies and regulations that govern their purchase. In the event of an emergency, counties can acquire materials necessary for the protection of public health, welfare, or safety via existing emergency procurement policies that are faster than traditional procurement. Exercise of this authority requires declaration of a local emergency and is time-limited, obligating counties to follow traditional procurement practices at the earliest practicable opportunity.

The County may seek to establish pre-negotiated contracts and other related agreements for STRA 01, STRA 02, and STRA 03 that can be exercised during a recognized water shortage event. This would allow the County to act quickly and maintain consistent resources during emergencies and interim water shortage events. Such pre-negotiated contracts may involve private companies or other local public agencies, such as public water systems, to secure needed resources. The establishment, renewal, and ongoing management of these pre-negotiated contracts will comply with traditional procurement practices as required by local and state policies, except when emergency procurement authorities are temporarily invoked during a declared emergency.

A mutual aid agreement is an arrangement established before an emergency through which another entity (or entities) provides personnel, equipment, materials, and/or associated services during an emergency. A mutual aid agreement clearly describes how the involved entities would engage with the County and each other during a water shortage emergency, along with their roles and responsibilities.

Mutual aid agreements recommended for efficient activation of STRAs are outlined in Table 4-2, including the entities that should have a mutual aid agreement, the nature of the mutual aid, and the status of any agreement as of November 2025.

The County Department of Resource Management is the lead entity for developing mutual aid agreements, with support from County OES for activating mutual aid agreements when needed.

Table 4-2. Pre-Negotiated Contracts and Mutual Aid Agreements Recommended for Activation of Short-Term Response Actions Included in Solano County Drought Resilience Plan (as of November 2025)

STRA	Contract or Mutual Aid Agreement Need	Lead	Status
STRA 01: Dedicated Water Filling Stations	County needs to develop mutual aid agreements with water providers to use dedicated water filling stations.	County Department of Resource Management	Proposed
STRA 02: Water Hauling or Bulk Water Delivery	County needs to establish mutual aid agreements or contracts with water hauling providers for bulk water delivery.	County Department of Resource Management	Proposed
STRA 03: Packaged and Bottled Water Supplies	County needs to procure pre-negotiated contracts for packaged and bottled water vendors.	County Department of Resource Management	Proposed

Key:

STRA = short-term response action

4.4 Drought and Water Shortage Emergency Response Process

The Drought and Water Shortage Emergency Response Process describes (1) how County staff would evaluate drought and water shortage conditions in the County and declare a water shortage, and (2) its Emergency and Interim Drinking Water Distribution (EIDWD) Plan to activate emergency and interim drinking water supplies and communicate with affected domestic well and SSWS communities.

4.4.1 Drought or Water Shortage Triggers

Declaring a drought or water shortage is important as it communicates a potential or ongoing emergency, activates mutual aid agreements, and is the first step in accessing State and federal resources that may be available to assist the County in implementing STRAs.

This Plan outlines a process for classifying water shortage stages, as detailed in Appendix A. This process uses indicators of water supply with defined criteria that categorize the County into one of three water shortage stages—information, alert, and response—as described below.

- In the **Water Shortage Information Stage**, there is no major drought or potential for water shortage. In this stage, County staff completes the Plan's adaptive management planning described in Section 6.4.
- In the **Water Shortage Alert Stage**, drought or the potential for water shortage exists, but there is no active water shortage emergency. In this stage, County staff increases communication and outreach activities and initiates coordination with other entities. County staff may consider recommending to the Task Force and/or the County Board of Supervisors the activation of the County's water conservation policy (SCWA 2025c).
- If a water shortage emergency is imminent or actively occurring, the County is in the **Water Shortage Emergency Response 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 EIDWD Plan described in Section 4.4.2.

Additionally, if a State drought or water shortage emergency declaration includes areas within the County, the County would go into the Water Shortage Emergency Response Stage and activate the EIDWD Plan described in Section 4.4.2. In the event of a federal disaster declaration, County staff would evaluate if the disaster could require emergency and interim drinking water supplies and would activate the EIDWD Plan if needed. State and/or federal disaster declarations may make additional resources available to provide emergency and interim drinking water supplies. County staff would evaluate how these declarations may influence the implementation of the STRAs identified in this Plan and the activation of the EIDWD Plan.

4.4.2 Emergency and Interim Drinking Water Distribution Plan

The EIDWD Plan outlines the process for County staff to follow when distributing emergency and interim drinking water supplies to affected domestic well and SSWS communities. Table 4-3 shows the process County staff would follow if distribution of emergency or interim drinking water supplies is required due to a short-term water shortage. These activities are anticipated for events lasting for the duration of the emergency. Unless otherwise noted, implementation of these activities is subject to declaration of an emergency consistent with the Plan or by direction of the County Board of Supervisors.

The information in Table 4-4 can assist in selecting emergency and interim drinking water supplies for distribution and in identifying organizations to coordinate with for distribution. This table aligns the emergency and interim drinking water supply STRAs described in Section 4.2 with the vulnerable domestic well and SSWS users identified in Section 3.5, as well as the mutual aid agreements described in Section 4.3. The information in this table is not exhaustive and should be periodically reviewed and updated by County staff. This table may also help identify the types and locations of emergency water supplies in the event of a water shortage emergency outside the currently identified vulnerable domestic well and SSWS communities.

Table 4-3. Emergency and Interim Drinking Water Distribution Plan Summary

EIDWD Plan Component	Description
Lead Agency	County OES leads the EIDWD Plan in coordination with County EHD.
Activation	Activation of the EIDWD Plan is subject to recommendation by County EHD to County OES. Activation is informed by an assessment conducted by County EHD that includes: • Trigger or cause of water shortage emergency. See Section 4.4.1 for drought and water shortage triggers to be considered in the assessment. • Affected geographic area and demographics of the affected population. • Emergency and interim water supply type(s). See Table 4-1 for options. • Estimated duration of need. County OES, following review of the assessment, may authorize activation administratively, through the County Board of Supervisors, or through other applicable authorities.

EIDWD Plan Component	Description
Notification	County OES will serve as the lead agency managing notification to the affected community on how and where to get emergency water supplies. The notification method may vary depending on the cause of the water shortage emergency (climate influenced, wildfire, power interruption, etc.) Anticipated notification methods include: • Agency website (https://www.solanocounty.gov/government/office-emergency-services) • Email • U.S. Mail • Broadcast media (radio/television) • Door hangers, fliers, information kiosks • Public outreach meetings and other existing meetings • Hotline (311 or other) Notifications may include coordination/collaboration with other partner agencies and organizations, such as: • Neighborhood associations • Non-profit organizations • Schools, churches, and community groups Depending on the demographics of the affected community, information, materials, and other notifications may be required for non-English-speaking communities. County OES will determine whether bilingual services are needed in support of water distribution activities.
Information Collection	County OES in coordination with Solano County Resource Management and other partner agencies will collect specific information to support applicable cost recovery and inform future emergency and interim drinking water distribution efforts. Such data collection would not include personal information. It would generally include: • Number of people served by emergency supply, including age and household income • General geographic location of household • Occupancy status (homeowner or tenant) • The duration for which emergency supplies would be needed to meet water needs • Distance traveled to receive emergency supplies and mode of transportation • Known condition of well and prior experiences with water supply shortages • Others as identified as needed

Key:

County EHD = Solano County Environmental Health Division

County OES = Solano County Office of Emergency Services

EIDWD Plan = Emergency and Interim Drinking Water Distribution Plan

Table 4-4. Summary of Short-Term Response Action Activation for Physically Vulnerable Domestic Wells and State Small Water Systems

Areas with Water Shortage Vulnerabilities	Short-Term Response Actions	Short-Term Response Action Activation
Areas in Suisun and Green Valleys	• Dedicated Water Filling Stations (STRA 01) • Water Hauling or Bulk Water Delivery (STRA 02) • Packaged or Bottled Water (STRA 03)	• Bulk water delivery and packed water distribution in Suisun and Green valleys • Dedicated water filling stations in Suisun and Green valleys (if supplies are available)
Areas in Pleasants and Vaca Valleys	• Dedicated Water Filling Stations (STRA 01) • Water Hauling or Bulk Water Delivery (STRA 02) • Packaged or Bottled Water (STRA 03)	• Bulk water delivery and packed water distribution in Pleasants and Vaca valleys • Dedicated water filling stations in Pleasants and Vaca valleys (if supplies are available)
Communities in South Side of Winters	• Dedicated Water Filling Stations (STRA 01) • Water Hauling or Bulk Water Delivery (STRA 02) • Packaged or Bottled Water (STRA 03)	• Bulk water delivery and packed water distribution in the south side of Winters • Dedicated water filling stations in the south side of Winters (if supplies are available)
Communities in Dixon	• Dedicated Water Filling Stations (STRA 01) • Water Hauling or Bulk Water Delivery (STRA 02) • Packaged or Bottled Water (STRA 03)	• Bulk water delivery and packed water distribution in Dixon • Dedicated water filling stations in Dixon (if supplies are available)
Areas in Solano Subbasin between Dixon and Vacaville	• Dedicated Water Filling Stations (STRA 01) • Water Hauling or Bulk Water Delivery (STRA 02) • Packaged or Bottled Water (STRA 03)	• Bulk water delivery and packed water distribution • Dedicated water filling stations (if supplies are available)

Key:

STRA = short-term response action

5.0 Long-Term Mitigation Strategies and Actions

The risk assessment presented in Section 3 identified localized and regional water supply concerns, including the density of domestic wells in fractured rock areas, water quality risks, wildfire, and multi-year droughts. While risks that impact the basic public health and safety of residents can be addressed through STRAs, LTMSAs mitigate and potentially prevent the conditions that lead to water shortage emergencies. This Plan identified 11 LTMSAs, organized into four categories: Drinking Water Well Mitigation Programs, system consolidation, regional water infrastructure investment, and data gaps. These LTMSAs are not exhaustive and may be modified in the future.

In the context of this Plan, LTMSAs serve to reduce drought and water shortage vulnerabilities for domestic well and SWS communities. When implemented, LTMSAs can reduce the extent and cost of emergency response actions, but they 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 domestic wells and SWSs, per CWC Section 10609.70 (**boldface** added for emphasis as related to LTMSAs 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 Long-Term Mitigation Strategies and Actions Included in the Solano County Drought Resilience Plan

LTMSAs included in the Plan are summarized in Table 5-1. LTMSAs included in the Drinking Water Well Mitigation Program are described in Section 5.2.1. System consolidation opportunities within the County are described in Section 5.2.2. The ability of regional water infrastructure investments to help address domestic well and SWS vulnerabilities is detailed in Section 5.2.3. LTMSAs that address data gaps are discussed in Section 0. Future efforts related to LTMSA implementation and challenges are

described in Section 6.2. The LTMSAs shown in Table 5-1 may be updated or replaced as part of future Plan updates.

Table 5-1. List of Long-Term Mitigation Strategies and Actions Included in Solano County Drought Resilience Plan for Domestic Wells and State Small Water Systems

ID	Long-Term Mitigation Strategy or Action Category and Type	Long-Term Mitigation Strategy and Action Name	Long-Term Mitigation Strategy or Action Description	Potential Responsible Entity	Potential Supporting Entities
LTMSA 01	Drinking Water Well Mitigation Programs: Drought and Water Shortage Risk Assessment	Drought and Water Shortage Risk Assessment	County staff to update the risk assessment completed for the Plan to incorporate updated information, revisions to the Water Shortage Vulnerability Explorer Tool, and evaluate in more detail non-drought hazards.	County Department of Resource Management	GSAs, SCWA
LTMSA 02	Drinking Water Well Mitigation Programs: Water Shortage Prevention	Regional Groundwater Level Monitoring and Communication	County staff to assist domestic wells and SSWSs in collecting depth-to-water information from their wells. For those within a GSA, County staff to proactively reach out to domestic wells and SSWS owners and connect them to GSA resources. County staff to work with the GSA to expand domestic wells and SSWS resources. For those outside of a GSA, County staff to coordinate with the Quail Canyon Water System and SID. County staff and the GSA would use information from this to improve overall groundwater conditions monitoring.	County EHD	Solano Subbasin GSAs
LTMSA 03	Drinking Water Well Mitigation Programs: Water Shortage Prevention	Water Quality Outreach for Domestic Wells and SSWS	Domestic Wells: County staff to raise awareness among domestic well communities of water quality levels at a site-specific or regional level through communication and engagement of County-maintained data. To include providing data maintained by State Water Board. SSWS: County staff to prepare and implement a communication and engagement action that provides SSWS communities with water quality information and data on their supply consistent with the California Safe Drinking Water Act (AB 664 [Alex Lee]).	County EHD	Solano Subbasin GSAs, Dixon RCD

5.0 Long-Term Mitigation Strategies and Actions

ID	Long-Term Mitigation Strategy or Action Category and Type	Long-Term Mitigation Strategy and Action Name	Long-Term Mitigation Strategy or Action Description	Potential Responsible Entity	Potential Supporting Entities
LTMSA 04	System Consolidation	Existing System Consolidation Efforts	County staff will continue supporting SSWS communities and development and implementation of the Plan for physical consolidation of SSWSs with municipal water systems. As of 2025, two SSWS were connected to municipal water.	County Department of Resource Management	Municipal water systems (cities)
LTMSA 05	System Consolidation	Potential System Consolidation Opportunities	County staff will support domestic well and SSWS communities and community water systems with more detailed system consolidation planning. County staff would further evaluate the opportunity for system consolidation and, if appropriate, develop a plan for system consolidation. This evaluation would include outreach to domestic well and SSWS communities as well as community water systems.	County Department of Resource Management	Municipal water systems (cities), SID
LTMSA 06	Regional Water Infrastructure Investment	Regional Planning Integration	County staff will participate in related regional planning efforts to provide the perspective of domestic well and SSWS communities.	County Department of Resource Management	SCWA, SID, Solano Subbasin GSAs
LTMSA 07	Regional Water Infrastructure Investment	Regional Water Project Integration	County staff to coordinate with community water systems and/or GSAs to evaluate whether planned projects have opportunities to improve water supply resilience for domestic wells and SSWSs through low-cost enhancements of these planned projects.	County Department of Resource Management	SCWA, SID, Solano Subbasin GSAs
LTMSA 08	Data Gaps	Evaluate and Update Well Completion Report Administrative Record	County staff to review the well completion report dataset and coordinate with DWR and domestic well owners (if necessary) to update and correct well completion data.	County Department of Resource Management	Solano Subbasin GSAs

ID	Long-Term Mitigation Strategy or Action Category and Type	Long-Term Mitigation Strategy and Action Name	Long-Term Mitigation Strategy or Action Description	Potential Responsible Entity	Potential Supporting Entities
LTMSA 09	Data Gaps	Dry Well Reporting	County staff to coordinate with DWR, GSAs, and other relevant entities to improve the accuracy of dry well reporting, including evaluation of County well completion reports to identify wells installed to supplement or replace low-performing wells and noting abandoned wells.	County EHD	RCDs, SCWA, Solano Subbasin GSAs

Key:

AB = Assembly Bill

County = Solano County

Dixon RCD = Dixon Resource Conservation District

DRP = Solano County Drought Resilience Plan

DWR = California Department of Water Resources

EHD = Solano County Environmental Health Division

GSA = Groundwater Sustainability Agency

LTMSA = long-term mitigation strategy and action

RCD = Resource Conservation District

SCWA = Solano County Water Agency

SID = Solano Irrigation District

SSWS = state small water system

State Water Board = State Water Resources Control Board

5.2.1 Drinking Water Well Mitigation Programs

This Plan considered the utility of Drinking Water Well Mitigation Programs (DWWMP) as directed under CWC Section 10609.70 (b)(2). DWWMPs describe actions that assist domestic well and SSWS communities with groundwater wells that are relatively shallower than those in the area or are located in specific areas where wells are at a higher risk of running dry more frequently. This section first identifies the DWWMPs within the County organized by Bulletin 118 groundwater basins and fractured rock areas. This section then details the LTMSA components that are included in the DWWMPs. The DWWMPs and LTMSA components described herein are not exhaustive and may be modified in the future.

When identifying and defining DWWMPs, the Plan considered the following factors:

- Domestic wells and SSWSs vulnerable to water supply shortages (see Section 3.0)
- Whether a DWWMP had already been defined as part of a GSP
- The SGMA priority for Bulletin 118 basins
- The occurrence of potentially shallow wells that could be at enhanced risk of drying up
- History of dry well reports and/or new well permits for replacement or deepened wells

Table 5-2 details the identified DWWMPs within the County. Only Solano Subbasin is included in this table. The other three subbasins were excluded—Yolo Subbasin covers just a small area of the County and Suisun-Fairfield Valley Basin and Napa-Sonoma Lowlands do not have GSPs.

Table 5-2. Drinking Water Well Mitigation Programs within the Solano County

Location	Vulnerable Domestic Wells and State Small Water Systems Included	Drinking Water Well Mitigation Program Description
Solano Subbasin	Areas within the Solano Subbasin in the south side of Winters, Dixon, and areas between Dixon and Vacaville (vulnerable areas C, D, and E in Section 3.5)	The Solano Subbasin GSP does not include a DWWMP (Solano Subbasin GSP 2021b). ⁵ Wells in this area were generally found not to be at risk of drying up or water quality impacts. There is a low occurrence of shallow wells relative to others in the area. The Plan DWWMP for this location will focus on communication and outreach, as well as water shortage prevention.
Communities in Fractured Rock Basins	Domestic wells in Suisun and Green valleys, Pleasants and Vaca valleys, and other isolated domestic wells (vulnerable areas A and B in Section 3.5)	SSWS: Solano County had adopted the SSWS program, which is established to prevent waterborne disease in water wells and surface water through permitting, inspection, and regulation of SSWSs and to ensure that only potable water is provided to water system users. The County regulates SSWSs and includes the required water sampling associated with SSWSs as a measure of compliance with the Local Agency Management Program (LAMP) and Onsite Wastewater Treatment Systems (OWTS) policies. The 10 regulated SSWSs are typically in compliance with bacteriological standards for drinking water. Private Domestic Wells: The County tracks the results of domestic drinking water well testing for coliform and <i>E. coli</i> through the Private Domestic Well Monitoring Program. The Plan DWWMP for this location will focus on communication and outreach, as well as water shortage prevention.

Key:

County = Solano County

DRP = drought resilience plan

DWWMP = Drinking Water Well Mitigation Program

GSP = Groundwater Sustainability Plan

LAMP = Local Agency Management Program

OWTS = Onsite Wastewater Treatment System

SSWS = state small water system

⁵ The Solano Subbasin GSP includes an evaluation of dry supply wells during drought, concluding that from the domestic wells constructed since 1970, only two (or 0.17 percent) in the Solano Subbasin have the potential to go dry—that is, the wells had less than 10 feet of saturated screen. For wells constructed since 1980, the evaluation suggested that one well (or 0.13 percent) has the potential to go dry.

5.2.1.1 Drought and Water Shortage Risk Assessment (LTMSA 01)

The risk assessment documented in Section 3 is a key component of a drinking water mitigation program. It helps identify the areas and populations with domestic wells and SSWs that have higher vulnerabilities to water shortage and characterize the conditions driving this vulnerability.

The risk assessment described in Section 3 was used to help select the components of the DWWMP documented in this Plan. However, this risk assessment could be enhanced by including a more detailed assessment within currently identified vulnerable areas, customizing the analytical process used to determine physical and social vulnerability, and/or more thoroughly assessing non-drought hazards. Addressing the gaps discussed in Section 3.6 could improve the results of the risk assessment. County staff will consider revisions to the risk assessment as part of future Plan updates (described in Section 6.4).

5.2.1.2 Regional Groundwater Level Monitoring and Communication (LTMSA 02)

The vulnerable domestic wells within the County are in both the Solano Subbasin and fractured rock areas, as discussed in Section 3.5. During past droughts, few wells in the Solano Subbasin in the northern portion of the County, including the Northwest Focus Area, reported significant groundwater declines. The Quail Canyon Water System monitors groundwater levels in fractured rock areas, while the Solano Subbasin GSA monitors groundwater levels. The Solano Subbasin GSA publishes annual reports on groundwater conditions in the County and Solano Subbasin (Solano County and Subbasin GSP 2025).

The County Environmental Health Division will assist domestic wells and SSWs in monitoring groundwater levels. For those within a GSA, County staff will proactively reach out to domestic wells and SSWs to provide information and resources available through the GSA. For domestic wells and SSWs in areas not covered by a GSA, County staff will partner with SID on the Quail Canyon Water System to assist domestic wells and SSWs communities in fractured rock areas.

5.2.1.3 Water Quality Outreach for Domestic Wells and SSWs (LTMSA 03)

Per the California Safe Drinking Water Act, every resident of California has the right to pure and safe drinking water. To ensure compliance with the California Safe Drinking Water Act, the County administers several key initiatives focused on monitoring, regulation, and protection of local drinking water supplies:

- **Domestic Wells:** The County tracks the results of domestic drinking water well testing for coliform and *E. coli* bacterial standards for drinking water. The Public Health laboratory is a partnership between Napa County, Solano County, Yolo County, Marin County, and Mendocino County, with the laboratory located within Solano County, in Fairfield. Laboratory data are correlated to the specific property by parcel number, and all water sampling results are digitally maintained by parcel number (Solano County 2026).
- **SSWs:** The SSWS program was established to prevent waterborne disease in water wells and surface water through permitting, inspection, and regulation of SSWs and to ensure that only potable water is provided to water system users. The County regulates SSWs and includes the required water sampling associated with the SSWs as a measure of compliance with the Local Agency Management Program and Onsite Wastewater Treatment Systems policies. The 10 regulated SSWs are typically in compliance with bacteriological standards for drinking water (Solano County 2025b).

County staff will share water quality data with domestic well and SSWS communities on the County website and update brochures addressing known water quality issues. Communications with SSWS communities will focus on water quality data related to their water supplies. Communications with domestic well communities will focus on known water quality issues within their area and provide updates as new water quality data are collected. For domestic wells and SSWSs within groundwater basins, County staff will coordinate with their respective GSAs on collecting water quality data for presentation on the County website. The County Environmental Health Division will lead this LTMSA.

5.2.2 System Consolidation

System consolidation is the physical or managerial joining of two or more water systems. In the context of domestic wells and SSWSs, 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 single system, operating and maintaining that system can be cost effective compared to smaller or individual systems. This section identifies potential consolidation opportunities for domestic wells and SSWSs. The Plan separates system consolidation opportunities into two categories: (1) existing (those that have already been identified and undergone at least an initial assessment), and (2) potential (those identified during development of this Plan) based on proximity to community water system service area boundaries.

Additional information on implementation of the system consolidation LTMSAs is included in Section 6.2, including County roles, partner agencies, and details on next steps for County staff.

5.2.2.1 Existing System Consolidation Efforts (LTMSA 04)

Existing Efforts:

- **Domestic Wells:** There are currently no known consolidation efforts—past or ongoing—involving domestic wells.
- **SSWSs:** Within the County, two SSWSs were connected to municipal services in 2025, as funded through the American Rescue Plan Act. These SSWSs included U-K Limited in the City of Rio Vista and Gogri in the City of Vacaville. The Department of Resource Management coordinated with the City of Rio Vista for municipal service connection to eight existing residential units located on two adjacent parcels in the City of Rio Vista. The second SSWS located on Alamo Drive in the City of Vacaville, included providing public water system connections for six residential units on a single parcel within the City of Vacaville that were served by a single water supply well that has historical groundwater contamination (Solano County Recovery Plan 2022).

This LTMSA involves physical consolidation of the SSWSs (listed above) with municipal water connections. County staff will continue supporting SSWS communities and municipal water providers in the pursuit of funding and additional resources for further development and implementation of the plan for physical consolidation.

5.2.2.2 Potential System Consolidation Opportunities (LTMSA 05)

There are system consolidation opportunities for domestic wells and SSWSs that are within the existing service area boundaries of a community water system.⁶ While a community water system is not

⁶ As defined in HSC Section 116275(i), a community water system means a public water system with at least 15 service connections used by yearlong residents or that regularly serves at least 25 yearlong residents of the area served by the system.

required to provide water service to domestic well and SWS communities, their proximity may increase the feasibility of system consolidation. There may be nearby water supply infrastructure from a community water system that could connect to domestic wells and SWSs. Policy or institutional hurdles may be less onerous if domestic wells and SWSs are in an existing service area.

Domestic Wells and SWSs in Community Water System service areas.

Table 5-3 presents community water systems that likely have domestic wells and/or SWSs in their service areas. Due to the uncertainty of the domestic well location data, this table may not reflect all community water systems with domestic wells or SWSs in their service areas. The information in this table highlights where outreach and additional analysis by County staff with these community water systems may be most effective.

Table 5-3. Community Water Systems with Domestic Wells and/or State Small Water Systems Likely within their Service Area

Community Water Systems with Domestic Wells Likely in Their Service Areas^{1,2,3}	Number of Domestic Wells Likely in Their Service Areas³	Number of State Small Water Systems Likely in Their Service Areas³
California State Prison - Solano	1	0
California Water Service Company - Travis Airforce Base	13	0
City of Benicia	7	0
City of Dixon & California Water Service Company - Dixon	35	0
City of Fairfield	104	2
City of Rio Vista	19	2
City of Vacaville	394	1
City of Vallejo & Lakes Water System (owned and operated by the City of Vallejo)	71	0
Collinsville Water Works	1	0
Cresta Mesa Parque	16	0
Delta Conservation Camp	1	0
Hidden Acres Trailer Villa	11	0
Rural North Vacaville Water District	709	0
SID - Blue Ridge Oaks	8	0
SID - Gibson Canyon	44	0
SID - Peabody	3	0
SID - Pleasant Hills Ranch	26	0
SID - Quail Canyon	22	0
Snug Harbor RV LP	2	0
Suisun City's Suisun Solano Water Authority (operated by SID)	14	0
University of California - Davis (Yolo County)	8	0
Total	1,509	5

Notes:

¹ Water Service Area boundary layer is retrieved from State Water Board 2019.

² The number of domestic wells within a community water system's service area is not shown as the numbers may be inaccurate due to uncertainty in the locations of some domestic wells.

³ Domestic wells and SSWSs within a community water system's service area are based on the established service area boundary and do not reflect proximity to existing water delivery infrastructure. Additional analysis would be needed to determine the proximity of domestic wells and SSWSs to existing water delivery infrastructure.

Key:

SID = Solano Irrigation District

Groupings of Domestic Wells and SSWSs near Community Water Systems. The proximity of domestic wells and SSWSs to service areas of community water systems was also evaluated to identify system consolidation opportunities. Concentrations of SSWSs and domestic wells and their proximity to a community water system are presented in Figure 5-1. Areas with a higher concentration of domestic wells and SSWSs within 1 mile of a community water system are highlighted in this figure as areas of system consolidation opportunity.

Table 5-4 summarizes those areas of consolidation opportunity, including the numbers of domestic wells and SSWSs in each area and the nearby community water systems. Note that some of the areas of system consolidation opportunity highlighted in Figure 5-1 may also overlap with domestic wells and SSWSs within a community water system's boundary as described above.

There may also be system consolidation opportunities outside the areas shown and described below. County staff would stay apprised of all potential opportunities as they arise.

Evaluating Consolidation Opportunities in the County: In this LTMSA, County staff will support domestic well and SSWS communities and community water systems by helping pursue funding and additional resources for exploration, development, and implementation of a plan for physical consolidation.

With additional resources, County staff would work with domestic well and SSWS communities and community water systems to further evaluate the opportunity for system consolidation and, if appropriate, develop a plan for system consolidation. This evaluation would include outreach to the domestic well and SSWS communities and community water systems within these areas 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, other considerations). County staff would lead the outreach effort or those entities engaged in it.

Table 5-4. Areas with Opportunity for Domestic Wells and State Small Water Systems Consolidation

Area of System Consolidation Opportunity	Approximate Number of Domestic Wells	Number of State Small Water Systems	Community Water Systems that Could be Consolidated with Domestic Wells or State Small Water Systems
Area A: Communities in Dixon	35	0	City of Dixon California Water Service Company – Dixon District
B: Communities North of Vacaville	815	0	Rural North Vacaville Water District
C: Communities in Vacaville	118	1	City of Vacaville
D: Communities in Fairfield	20	2	City of Fairfield City of Vallejo & Lakes Water System (owned and operated by the City of Vallejo) Suisun Solano Water Authority (operated by SID)

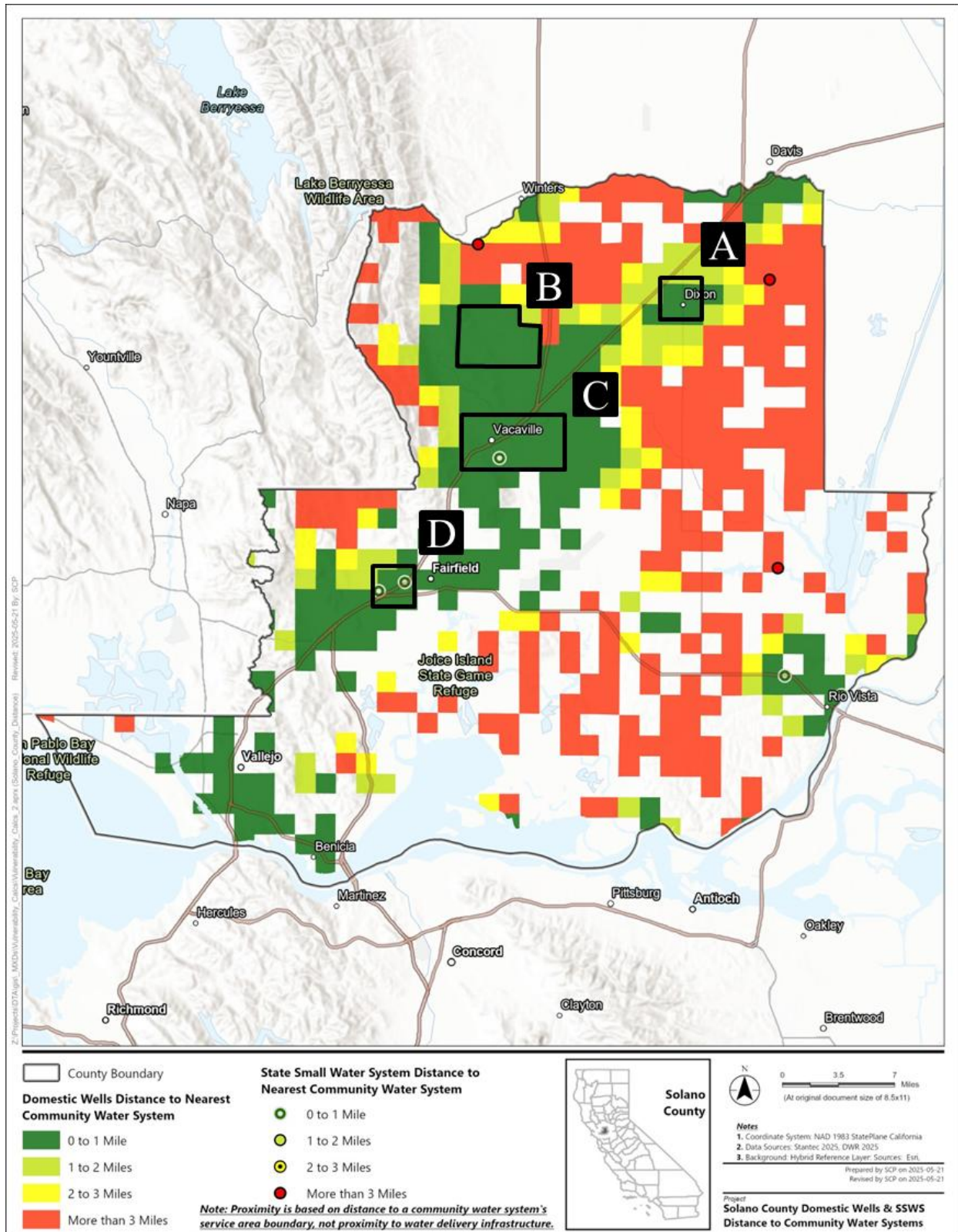


Figure 5-1. Areas with Opportunity for Domestic Wells and State Small Water Systems Consolidation

5.2.3 Regional Water Infrastructure Investment

Regional water infrastructure projects can enhance the water supply reliability of many communities, including domestic wells and SSWs. This section describes how County staff could integrate LTMSAs into regional planning and water infrastructure to enhance the water supply reliability of domestic well and SSW communities. Additional information on near-term integration into regional planning or water infrastructure is included in Section 6.3.

5.2.3.1 Regional Planning Integration (LTMSA 06)

Many regional and County planning efforts intersect with the Plan. Coordination by County staff within these other regional and County planning efforts will help ensure these plans consider domestic wells and SSWs. Table 5-5 details the relevant regional planning efforts, their current status, and their intersection with domestic wells and SSWs. For this LTMSA, County staff will participate when the planning effort is occurring and provide the perspective of domestic well and SSW communities. Additional information on the timing and County roles/responsibilities for these efforts is presented in Section 6.3.

Table 5-5. Summary of Relevant Regional Planning Efforts

Planning Effort	Current Status	Intersection with Domestic Wells and State Small Water Systems
San Francisco Bay Area Integrated Regional Water Management Plan (Bay Area IRWMP)	Adopted December 2024	Evaluated water supply reliability within an area that includes domestic wells and state small water systems (Bay Area IRWMP 2019)
Solano Subbasin Groundwater Sustainability Plan (GSP)	Approved January 2024	The Solano Subbasin covered in this plan has domestic wells and state small water systems (Solano Subbasin GSP 2021b).
Urban Water Management Plan(s)	Adopted 2021	Well owners residing in the cities of Benicia, Dixon, Fairfield, Vacaville, Vallejo, Rio Vista, and California Water Service Company – Dixon District’ service area (DWR 2020)
	Approved 2023	Well owners residing in the Suisun-Solano Water Authority service area (DWR 2020)
	Adopted 2016	Well owners residing in Solano County Water Agency service area (SCWA 2016)
Solano County General Plan	Adopted 2008, with updates	Areas with domestic wells and state small water systems (Solano County General Plan 2008)
Multi-Jurisdictional Hazard Mitigation Plan (MJHMP)	Approved March 2022	Evaluates conditions such as drought, wildfire, etc., that would impact the water supply reliability of domestic wells and state small water systems (Solano County Multi-Jurisdictional Hazard Mitigation Plan 2022)
Solano County Recovery Plan	Approved July 2022, with updates	Evaluates integrated water planning, drought resilience initiatives, and the implementation of the Sustainable Groundwater Management Act that would impact the water supply reliability of domestic wells and state small water systems (Solano County Recovery Plan 2022)

Planning Effort	Current Status	Intersection with Domestic Wells and State Small Water Systems
Solano County Emergency Operations Plan (EOP)	Adopted May 2024	Covers preparedness, prevention, triggers, response, recovery, and mitigation for emergencies including water supply shortage due to drought in communities with domestic wells and state small water systems (Solano County EOP 2024)
One Water Management Framework	Under preparation	Focuses on water supply reliability in unincorporated County areas with domestic wells and state small water systems (Solano County 2023)

5.2.3.2 Regional Water Project Integration (LTMSA 07)

The County DRP collected information on potential regional water infrastructure projects and assessed their potential to enhance domestic well and SSWS water supply reliability as well as County staff's role in developing and implementing such projects (Table 5-6). This list of projects is not exhaustive. In this LTMSA, County staff will monitor the status of these projects and, as appropriate, engage with the lead entities to evaluate the opportunity for enhancing the reliability of domestic well and SSWS water supplies. County staff will also continue to monitor regional planning efforts for other regional water infrastructure opportunities.

Table 5-6. Regional Water Projects with Applicability to Domestic Wells and/or State Small Water Systems

Regional Water Infrastructure Opportunity	Applicability to Domestic Wells and State Small Water Systems	Involved Entities for Coordination
Solano Project (Bay Area IRWMP 2019)	High: imported water reduces reliance on groundwater	SCWA and U.S. Department of the Interior, Bureau of Reclamation
Groundwater Recharge Program (Bay Area IRWMP 2019)	High: increases groundwater storage	Various entities including SCWA
North Bay Aqueduct (Bay Area IRWMP 2019)	High: reduces groundwater pumping	SCWA and the State of California
Conjunctive Use Program (Solano Local Agency Formation Commission 2009)	High: reduces reliance on groundwater	Various entities including SID
Water Transfer Opportunities (Bay Area IRWMP 2019)	High: provides alternative water sources	Various entities including SCWA
Northern California Salinity Coalition (Bay Area IRWMP 2019)	Low-moderate: indirectly offsets groundwater demand	Various entities including SCWA
Bay Area Regional Desalination Project (Bay Area IRWMP 2019)	Low-moderate: indirectly offsets groundwater demand	Various entities including SCWA
Non-Potable Recycled Water Program (City of Vacaville 2020)	Moderate: indirectly offsets groundwater demand	Various cities including City of Vacaville and Fairfield

Key:

SCWA = Solano County Water Agency

SID = Solano Irrigation District

5.2.4 Data Gaps

This Plan used available data to (1) evaluate the vulnerability of domestic wells and SSWSs to water shortages, and (2) develop and align effective STRAs and LTMSAs. Access to new or more accurate/complete data would help improve this planning process in the future. This section details the LTMSAs identified by the Plan that would provide new or improved data for use in future planning efforts.

5.2.4.1 Well Completion Reports (LTMSA 08)

DWR maintains an online public database of well completion reports submitted to the State by well drillers (DWR 2026). This database includes type, location, well depth, year of installation, and address, among other information. The WSVE Tool uses this information to determine the locations of domestic wells, and this database was an important data source used to develop the Plan. However, there are both gaps and limitations in these data. Some well locations may be incorrect—for example, they may display outside County boundaries or not be shown (because they are in the database as not being in the County). Domestic wells that have been replaced or abandoned may still appear in the database. County staff will review the well completion report dataset and coordinate with DWR and domestic well owners (if necessary) to update and correct well completion data.

5.2.4.2 Dry Well Reporting (LTMSA 09)

DWR established an online dry well reporting system, or Online System for Well Completion Reports (OSWCR), for domestic well communities to report problems with their wells that impact water supplies. The County has a repository of well completion reports; however, there was no tracking method for wells prior to 2015, and data on older wells are stored as paper records. A new permit was issued in 2015, where all well information was to be provided in geographic information system, so only data on wells drilled after this year have been digitized. The County has well logs associated with parcels developed after 1987, so the team relied on DWR's reports for wells built prior to 1987 in developing this Plan. The County will monitor OSWCR to assist in identifying areas with current or past water shortages, which can help inform potential future water shortages.

County staff will review dry well reporting data (from OSWCR and the well permit applications it receives) with well completion report data (LTMSA 08) to identify wells to be removed from the well completion report dataset that have been abandoned due to replacement or retirement. County staff will coordinate with DWR to update information in OSWCR. This coordinated review and update of well-related information will help develop a more comprehensive understanding of dry wells and water shortage issues in the County.

6.0 Implementation Considerations

The STRAs and LTMSAs identified and described in Sections 4 and 5 represent the range of in-progress and proposed activities. Implementation of these STRAs and LTMSAs often (1) falls under the authorities and jurisdictional responsibilities of separate County departments and other local and State public agencies, and (2) requires the involvement of other interested parties. To implement these STRAs and LTMSAs and contribute to continued improvement of water supply reliability for domestic well and SSWS communities, this section describes the implementation steps designed to assist the County with:

- Ongoing water supply monitoring and inter-agency collaboration in support of implementation
- Outlining STRA and LTMSA implementation responsibility, status, and resource needs
- Identifying opportunities to align the Plan with other County policy and County and regional planning documents
- 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 (**boldface** added for emphasis as related to plan implementation and this section of the Plan):

*(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 Plan describes existing and proposed STRAs and LTMSAs that, when executed, will help the County meet its objectives under CWC Section 10609.70 (b) (1), (b) (2), and (b) (3). Implementing these STRAs and LTMSAs will require resources and clear roles and responsibilities. The identified

STRAs and LTMSAs include existing or new activities to be implemented under existing authorities and funding of County departments and those activities that are dependent on appropriation of funds from local, State, or federal resources. This section presents the implementation roadmap for this Plan; identification of ongoing monitoring and collaboration with County staff; and conduct of management oversight, prioritization, and resource identification needs.

6.2.1 Monitoring and Collaboration

Supply monitoring and inter-agency collaboration support Plan implementation by evaluating water supply reliability and maintaining ongoing coordination and collaboration among County departments, related organizations, and the Task Force. County staff will conduct a range of activities as described in Table 6-1. These activities may be superseded by the activities described in Section 4.4 if a drought or water shortage emergency has occurred.

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

Activity	Description	Activity Lead	Timing
Task Force Meeting	County staff to schedule and facilitate quarterly Task Force meetings. The meeting will follow the County Environmental Health Division's update of its annual Water Supply Condition Assessment (see Section 4.4.1). Results of this assessment shall support County staff, in collaboration with its Task Force, to identify potential activation of water shortage response measures as described in this plan.	County Environmental Health Division	The second month of calendar quarters (February, May, August, November)
Water Supply Monitoring and Coordination	County Environmental Health Division to regularly engage with agencies/organizations that monitor physical risk factors and water supply conditions as associated with domestic well and SSWS communities (see Section 4.4.1). Coordinating agencies include SCWA, SID, Solano Subbasin GSAs, Dixon/Solano RCD, DWR, and others.	County Environmental Health Division	The first month of calendar quarters (January, April, July, October)
GSA Solano Subbasin Coordination	County staff to meet with GSA manager/staff prior to the GSA's release of the basin/subbasin GSP annual report (California Water Code Section 10728). May include additional coordination based on water supply conditions.	County Environmental Health Division	February/March ⁷

⁷ Annual report for Solano County and the Solano Subbasin GSP is released in March (Solano County and Subbasin GSP 2025).

Activity	Description	Activity Lead	Timing
Internal Coordination	Biannual meeting to inform development of Water Supply Condition Assessment. This meeting prepares a final draft assessment for presentation at the quarterly Task Force meeting.	County Environmental Health Division	Biannually (first month of first and third quarters)
Drought Resilience Plan Website Update	County staff to update the website content and resource materials as described in the Water Supply Condition Assessment. This includes any contact info, list of resources (vendors, links to external websites, etc.), and other website content.	County Environmental Health Division	The first month of calendar quarters (January, April, July, October) prior to quarterly Task Force meetings and as water supply conditions merit

Key:

County = Solano County

DWR = California Department of Water Resources

GSA = Groundwater Sustainability Agency

GSP = Groundwater Sustainability Plan

RCD = Resource Conservation District

SCWA = Solano County Water Agency

SID = Solano Irrigation District

SSWS = state small water system

Task Force = Drought and Water Shortage Task Force

6.2.2 Oversight, Responsibilities, Priorities, and Resource Needs

Individual STRAs and LTMSAs identified in this Plan have been assigned to individual County departments and agencies pursuant to each agency's regulatory and policy authorities. The County Environmental Health Division, as lead agency for the Plan, shall provide administrative oversight/collaboration for all implementation actions that fall outside of its regulatory and policy authorities.

Table 6-2 details the type, status, and lead for the Plan's STRAs and LTMSAs. Activities described in this table are subject to modification based on climate conditions, engagement with the Task Force, and other relevant factors. While activities have been assigned a near-, mid-, and long-term priority status, the pace of an activity's implementation schedule can be changed depending on various drivers such as new regulations, climate conditions, and funding. "Priority" is classified as:

- Near-term (in the next 2 years)
- Mid-term (within 2 to 5 years)
- Long-term (5 or more years in the future)

"Status" is classified as:

- Available
- In progress (for those currently being implemented)
- Proposed (for those that require additional resources)

The “Resource Requirement” column specifies if the STRA/LTMSA would require additional staff time, additional County budget, and external funds beyond what the County currently has available. These external funds could include grants, financing, federal funding, and future State funding to support Plan implementation.

Beyond these implementation activities, the County Environmental Health Division will coordinate with the entities listed in Table 6-2 on mid-term and long-term priorities. The status of these mid- and long-term priorities, as well as the information in this table, will be reviewed at least annually in coordination with the Task Force meeting.

Table 6-2. Solano County Drought Resilience Plan Short-Term Response Action and Long-Term Mitigation Strategy and Action Implementation Summary

Action/Strategy ID and Name	Potential Lead Agency	Potential Coordinating Agency	Priority	Status	Resource Requirement		
					Additional Staff Time	County Budget	External Funds
STRA 01: Dedicated Water Filling Stations	County OES	County Department of Resource Management, Cities, SID	Mid-Term	Proposed	Yes	Yes	Yes
STRA 02: Water Hauling or Bulk Water Delivery	County OES	County Department of Resource Management, SID, Conservation Districts	Mid-Term	Proposed	Yes	Yes	Yes
STRA 03: Packaged and Bottled Water Supplies	County OES	American Red Cross	Near-Term	In-Progress	Yes	Yes	Yes
STRA 04: Voluntary Water Conservation Program	County Department of Resource Management	SCWA	Near-Term	Available	Yes	No	No
STRA 05: Expedited New or Replacement Well Permitting During Water Shortage	County EHD		Near-Term	Available	Yes	No	No
LTMSA 01: Drought and Water Shortage Risk Assessment	County Department of Resource Management	GSAs, SCWA	Long-Term	Proposed	Yes	No	No
LTMSA 02: Regional Groundwater Level Monitoring and Communication	County EHD	Solano Subbasin GSAs	Near-Term	Available	Yes	No	Yes
LTMSA 03: Water Quality Outreach for Domestic Wells and SSWS	County EHD	Solano Subbasin	Near-Term	Available	Yes	No	No

Action/Strategy ID and Name	Potential Lead Agency	Potential Coordinating Agency	Priority	Status	Resource Requirement		
					Additional Staff Time	County Budget	External Funds
		GSAs, Dixon RCD					
LTMSA 04: Existing System Consolidation Efforts	County Department of Resource Management	Municipal water systems (cities)	Near-Term	Available	No	No	Yes
LTMSA 05: Potential System Consolidation Opportunities	County Department of Resource Management	Municipal water systems (cities), SID	Mid-Term	Proposed	Yes	No	Yes
LTMSA 06: Regional Planning Integration	County Department of Resource Management	SCWA, SID, Solano Subbasin GSAs	Long-Term	Proposed	Yes	Yes	Yes
LTMSA 07: Regional Water Project Integration	County Department of Resource Management	SCWA, SID, Solano Subbasin GSAs	Near-Term	Available	Yes	Yes	Yes
LTMSA 08: Evaluate and Update Well Completion Report Administrative Record	County Department of Resource Management	Solano Subbasin GSAs	Near-Term	In-Progress	Yes	No	No
LTMSA 09: Dry Well Reporting	County EHD	RCDs, SCWA, Solano Subbasin GSAs	Near-Term	In-Progress	Yes	No	No

Key:

County = Solano County

County OES = Office of Emergency Services

LTMSA = long-term mitigation strategy and actions

SID = Solano Irrigation District

STRA = short-term response action

County EHD = Solano County Environmental Health Division

GSA = Groundwater Sustainability Agency

SCWA = Solano County Water Agency

SSWS = state small water system

6.3 Policy Alignment and Integration

While this Plan is a stand-alone document, the information and actions contained in it provide mutual benefits toward realizing the goals and objectives of other County and regional planning efforts associated with domestic well and SSWS communities.

Table 6-3 describes recommended policy alignment and/or integration actions that promote delivery of STRAs and LTMSAs identified in this Plan through coordinated efforts with other related County and regional planning efforts.

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

Related Planning Effort	Release Date	Lead Agency	Integration Activity
San Francisco Bay Area Integrated Regional Water Management Plan (Bay Area IRWMP 2019)	October 2019	DWR and various regional agencies	County staff will remain situationally aware and participate, as needed, when the regional plan is updated. County staff can incorporate the perspective of domestic well and SSWS owners into the planning process.
Solano Subbasin Groundwater Sustainability Plan (GSP) (Solano Subbasin GSP 2021b)	November 2021	Solano Subbasin GSA	County staff will coordinate with Solano Subbasin GSA during GSP updates to consider incorporation of actions and strategies beneficial to the Plan.
Urban Water Management Plans (UWMPs) (DWR 2020)	2020	Cities and water districts	County staff will remain situationally aware and participate, as needed, when elements of the UWMPs are updated, with consideration of drought resilience actions and their relation to domestic wells and SSWSs.
Solano County General Plan (Solano County General Plan 2008)	November 2008	County Department of Resource Management	County staff to participate as needed when elements of the County general plan are updated, with consideration of drought resilience actions and their relation to domestic wells and SSWSs.
Multi-Jurisdictional Hazard Mitigation Plan (MJHMP) (Solano County Multi-Jurisdictional Hazard Mitigation Plan 2022)	March 2022	County Office of Emergency Services	County staff to participate as needed when elements of the County MJHMP are updated, with consideration of drought resilience actions and their relation to domestic wells and SSWSs.
Solano County Recovery Plan (Solano County Recovery Plan 2022)	July 2022	County Office of Emergency Services	County staff to participate as needed when elements of the County recovery plan are updated, with consideration of drought resilience actions and their relation to domestic wells and SSWSs.
Solano County Emergency Operations Plan (EOP) (Solano County EOP 2024)	May 2024	County Office of Emergency Services	County staff to participate as needed when elements of the County EOP are updated, with consideration of drought resilience

Related Planning Effort	Release Date	Lead Agency	Integration Activity
			actions and their relation to domestic wells and SSWs.
One Water Management Framework (Solano County 2023)	N/A	County Department of Resource Management	County staff to participate as needed in the completion and adoption of the One Water Management Framework and utilities master plan, with consideration of drought resilience actions and their relation to domestic wells and SSWs.

Key:

County = Solano County

DRP = Drought Resilience Plan

DWR = California Department of Water Resources

EOP = Emergency Operations Plan

GSA = Groundwater Sustainability Agency

GSP = Groundwater Sustainability Plan

IRWMP = Integrated Regional Water Management Plan

MJHMP = multi-jurisdictional hazard mitigation plan

N/A = not applicable

UWMP = urban water management plan

6.4 Adaptive Management

This Plan will be reviewed and updated periodically or in response to new information or changing conditions to ensure findings, STRAs, and LTMSAs are appropriate and relevant. At a minimum, this Plan will be reviewed and updated by County staff every 5 years. The Plan may also be revisited after major droughts, water shortage events, changes in GSA status, and when new data, strategies, policies, or requests from the Task Force arise. The County Environmental Health Division is responsible for initiating and coordinating Plan updates.

Updates to the Plan will include: (1) reviewing the risk assessment findings in light of new and improved information that characterizes water supply vulnerability, (2) evaluating progress on STRA LTMSA implementation, (3) updating any communications and outreach materials and information, (4) updating Task Force details, and (5) revising the Plan content to incorporate any changes. During this update, the County Environmental Health Division will report on these updates to the Task Force to ensure transparent communication and coordination.

6.5 Funding Opportunities and Assistance Programs

As described in Table 6-2, this Plan includes a variety of proposed activities that require appropriation of additional funds as approved by the County Board of Supervisors or through other state or federal sources. Receipt of these additional funds could involve a variety of activities both for County staff and domestic well and SWS owners/operators, 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, maintenance, repair, rehabilitation, and eventual replacement; and other efforts. Those activities require funding—both short-term for projects with a finite schedule (e.g., design and construction of a new domestic well) and long-term for ongoing activities (e.g., use and upkeep of that new well). As SB 552 does not provide

funding for implementation activities, this tþΩ analyzed local, State, and federal funding sources available to implement the plan.

A combination of funding sources could be used to support tþΩ implementation—such as generated revenue (e.g., rates and assessments), grants, loans, agency staff time, services provided by others (e.g., in-kind work, technical or training assistance through a state or federal agency)—with various agencies and entities involved in securing and administering each source. The availability of these internal and external funding sources will impact the success and timeliness of tþΩ implementation.

Although access to reliable funding is a hurdle faced by agencies and entities when implementing any program or project, domestic well and SSWS owners/operators are the most acutely impacted due to limited staff, reserves, and requirements of the implementing agencies. Agencies and entities may find (1) it is cost- and resource-prohibitive to implement STRAs and LTMSAs by themselves; (2) solutions frequently require participation or involvement of other entities; and (3) 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 will need assistance and support from the County and other agencies and entities.

Using the STRAs and LTMSAs developed for the County (listed in Sections 4.2 and 5.2, respectively), this Plan investigated and analyzed potential funding sources for implementation, as shown in Table 6-4. This analysis presented in this table will be used as basis for developing future funding strategies, and it is not a complete/exhaustive list. Note that available funding sources are constantly changing, and funding needs, timing, and potential opportunities should be periodically reassessed. In analyzing potential funding sources, the Task Force also identified the need for grant funding and regional stakeholder engagement and collaboration, particularly in relation to developing future solutions for the Northwest Focus Area.

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

Resource	Funding Agency	Description
General Fund	County	The County General Fund includes revenues such as sales and property tax. Use of these funds is discretionary and subject to approval by the County Board of Supervisors.
Proposition 4: Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024	Multiple State agencies	Major categories with potential support for domestic and SSWS communities include: • Safe Drinking Water, Drought, Flood, and Water Resilience • Wildfire and Forest Resilience • Coastal Resilience
Sustainable Groundwater Management Grant Program (DWR 2025d)	DWR	Provides GSAs with assistance and engagement support for preparation and implementation of GSPs.

Resource	Funding Agency	Description
Countywide and Regional Funding Program (State Water Board 2025a)	State Water Board	Direct funding to support SSWs and domestic wells serving disadvantaged communities and low-income households. Community outreach, domestic well testing, and interim and long-term solutions are eligible to receive funds.
Drinking Water State Revolving Fund (State Water Board 2025b)	State Water Board	Provides low-cost loans for planning, design, and construction of drinking water improvements to water systems and can be used to support system consolidation.
Technical Assistance Funding Program (State Water Board 2025c)	State Water Board	Provides technical assistance for small, disadvantaged communities to develop, fund, and implement eligible drinking water needs, including system consolidation support.
Water and Environmental Program (USDA 2025)	USDA	Through the Rural Utilities Service WEP, communities with populations of 10,000 or less can apply for funding support to construct water and wastewater facilities. Such programs could support annexation of SWS and domestic well communities as part of a multi-benefit project led by a WEP-eligible public water system.
Hazard Mitigation and Building Resilient Infrastructure and Communities Program (FEMA 2025)	FEMA	This program provides funding to states, local governments, and tribal nations for long-term hazard mitigation projects that are implemented after a presidential disaster declaration.

Key:

County = Solano County

DWR = California Department of Water Resources

FEMA = Federal Emergency Management Agency

GSA = Groundwater Sustainability Agency

GSP = Groundwater Sustainability Plan

State = State of California

SSWS = state small water system

State Water Board = State Water Resources Control Board

USDA = U.S. Department of Agriculture

WEP = Water and Environment Program

7.0 References

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Solano County Drought Resilience Plan for Domestic Wells and State Small Water Systems

Appendix A. Water Shortage Emergency Response Process Administrative Final

March 2026

A.1 Introduction

This Water Shortage Emergency Response Process (Water Shortage ERP) documents how Solano County (County) will monitor water supply conditions to set an appropriate water shortage stage with corresponding short-term response actions to mitigate the impacts or potential impacts of a water shortage to domestic wells and state small water systems (SSWS).

A.2 Water Shortage Stages—Indicators and Triggers

The Water Shortage ERP is organized around three water shortage stages: Information, Alert, and Response. The water shortage stage is informed using Table 1, which shows the indicators (water supply-related features) and associated triggers (conditions of indicators associated with a water supply status) to determine the current water shortage shown. These indicators and triggers can be used to support a water shortage stage recommendation and actions to the County Drought and Water Shortage Task Force (Task Force) and public as well as an emergency declaration for State and Federal resources. The information provided in this table is not exhaustive and is intended to show how the indicators and triggers could be considered. Other indicators and triggers (not shown) may also be developed by the County. The County will evaluate its triggers in October and make a corresponding water shortage stage recommendation to the Task Force at its monthly meeting held in November. The stage determination should be re-assessed after winter snowfall and precipitation have occurred (often April). However, if conditions change considerably during the winter or at any time, the County can re-assess as necessary.

A.3 Responding to a Water Shortage Stage

The County has aligned specific short-term response actions (STRA) to each water shortage stage, as shown in Table 2. Additional information about these STRAs is in Section 4. New STRA that are not listed in Table 2 may be identified and implemented, based on the actual shortage conditions. In addition, not all STRA listed may be implemented during a shortage event. The County should consider the nature of the shortage when determining what STRAs are most appropriate.

In the “Information Stage,” the County will complete an annual review of the County Drought Resilience Plan Implementation Plan, evaluate the water supply system health, organize a meeting with the Task Force, update County resources (i.e. website, vendor lists, etc.), and continue proactive outreach to domestic well and SSWS. In the “Alert Stage,” the County will focus on raising awareness of potential water shortage issues, providing the steps to follow if a water shortage occurs, encouraging temporary mitigation measures that may avoid a shortage, and coordinating with other organizations that may be involved in the event a shortage occurs (such as Groundwater Sustainability Agencies or GSAs, public water systems, and other County departments). In the “Response Stage,” the County will activate its process to distribute water supplies, coordinate with other organizations, and update the Task Force.

A.4 Responsibility and Coordination

Table 2 lists the responsible entity(ies) for STRA that could be implemented in each water shortage stage and indicates other entities that may be involved or with which coordination will be needed.

Table 1. Indicators and Trigger Considerations for Determining Active Water Shortage Stages for Domestic Wells and State Small Water Systems in Solano County

Indicator Name	Indicator Description	Trigger Consideration When Going into the Alert Stage	Trigger Consideration When Going into the Response Stage
US Drought Monitor	The US Drought Monitor classifies drought conditions across the United States as Abnormally Dry, Moderate, Severe, Extreme, and Exceptional, and is updated every Thursday. This classification can be used to understand the prevalence and severity of drought within the County and surrounding areas.	The County will enter the Alert Stage if the US Drought Monitor reaches Moderate status within the County or in neighboring counties as groundwater in the County is reliant on conditions outside the County, primarily through recharge from watershed areas upstream in Napa, Lake, and Yolo counties.	An Extreme or Exceptional drought classification may not solely indicate that a water shortage emergency is occurring or imminent. The County should heighten its monitoring of other indicators if Extreme or Exceptional droughts exist in the County. For example, if the County shows a 30 percent production loss of at least one crop.
Sacramento Valley Water Year Hydrologic Classification Index	This index, originally specified in the 1995 State Water Board Water Quality Control Plan, is a weighted average of current Apr-Jul runoff forecast, current Oct-Mar runoff, and previous water year’s index. The SVI determines the water year type, ranging from Wet to Critical.	The county would consider going into the warming stage if the water year classification is below Normal, Dry, or Critical.	The response stage is activated when the water year classification reaches Dry or Critical.
Public Water System Water Shortage Stage	A Public Water System is 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 may be a proxy for overall drought conditions within the County.	If a Public Water System is in a Drought Stage, the County may consider going into the Alert State for consistent messaging and reductions in water use.	A Water Shortage Contingency Plan must 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, the County may need to consider going into an emergency stage, especially if these systems use the same groundwater supplies.
Water Quality	Areas with known water quality issues are likely monitored. 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.	Water quality observations that are noted as being of concern (for unregulated chemicals or those without an established water quality level) or the measured water quality is outside of established standards (maximum contaminant levels, primary or secondary standards, etc.). However, a boil water notice or other intervention limiting use is not in place.	Observed water quality 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.
Applications for New Well Permits	County has observed an increase in new well permit applications (both domestic and others) to replace existing wells that are not providing sufficient water supply even if there are not associated Dry Well Reports. The County can evaluate if these new applications are to replace an existing as a proxy for water shortage.	If the County is in a drought condition (US Drought Monitor, SVI, or others) and there is an increase in new well permit applications, then the county should consider going into the warming stage while evaluating if the new applications are due to water shortages for domestic well or SSWS.	If the County determines that an increase in new well permits is because of water shortages at domestic wells or SSWS, then it may indicate water shortages at other domestic wells or SSWS. This may require going into the emergency stage.
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 identify where a water shortage is occurring.	Any dry well reports submitted within the County should trigger evaluating the cause of the water shortage. If the cause is due to an isolated issue (i.e. very shallow well, aging infrastructure, etc.) that was exacerbated by drought, the County could go into the warning stage and monitor for other dry well reports.	If after evaluating the dry well reports, it is found the features of the dry well (i.e., depth, age, etc.) are consistent with other wells in the area, that may indicate the potential for widespread water shortages. This may require going into the emergency stage.
GSA Monitoring	GSAs in SGMA priority basins are required to do regular monitoring (typically in October and April) of groundwater conditions as part of their reporting. The County can use these monitoring programs 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 Minimum Threshold or Measurable Objective as defined in the GSP) that could cause water supply issues, the County could consider going into the Warning Stage.	If a monitoring or analysis by a GSA results in the GSA implementing response actions to avoid water shortages and SSWS or domestic well supplies could be impacted in that area, the County could consider going into the Emergency Stage.
Non-Drought Hazards	Other hazards such as wildfires, earthquakes, floods, and power outages (either planned or unplanned) can lead to water shortages and impact water quality, both of which can be amplified by drought conditions.	Hazards that temporarily interrupt domestic well or SSWS supplies for up to two days could trigger the Warning Stage.	Hazards that interrupt domestic well or SSWS supplies for an extended period (3 or more days), including public safety power shutoffs, could trigger the Emergency Stage.

Key:
County = Solano County
GSP = Groundwater Sustainability Plan
SSWS = State Small Water Systems

GSA = Groundwater Sustainability Agency
SGMA = Sustainable Groundwater Management Act
State Water Board = State Water Resources Control Board

Table 2. Short-Term Response Actions Aligned to Water Shortage Stage with Responsible Organization(s) for Solano County

Water Shortage Stage	Description	Activity Description	Responsible Organization	Comment
Information	No major drought or potential for water shortage	QuarterlyPlan Implementation Check In	County EHD	County EHD will review the status of the Plan's Implementation Plan, determine if any modifications are required, and assign responsibilities for making Plan modifications.
		Quarterly Water Supply Assessment	County EHD	County EHD, in partnership with SCWA, will evaluate the water supply system health in the first month of calendar quarters to support a water shortage stage recommendation for the Task Force in the second month of calendar quarters.
		Quarterly Task Force meeting	County EHD	Solano County has a standing Task Force that will meet in the second month of calendar quarters (February, May, August, November) once the Plan is completed.
		Quarterly website update	County EHD	Website will be updated in the first month of calendar quarters prior to quarterly Task Force meeting, and as water supply conditions merit.
		Proactive long-term mitigation strategy communications and outreach	County EHD	County EHD will coordinate communications and outreach as defined in the Plan. GSAs will conduct communications within the Solano basin and County EHD will perform outreach to domestic wells and SSWS outside the groundwater basins.
Alert	Drought or other hazard occurring that could cause a water shortage	As-Needed Task Force Meetings	County EHD	County EHD will schedule additional Task Force meetings.
		Implement communication to domestic well and SSWS communities on what to do if they experience a water shortage	County EHD	County EHD will implement the Plan communications and outreach plan, but other organizations will conduct certain communications. GSAs will conduct all outreach within the Solano basin.
		Outreach on voluntary water conservation strategies	County EHD	County EHD, in partnership with SCWA, will coordinate communications and outreach on voluntary water conservation strategies as defined in the Plan.
		Outreach on available resources for pro-active water shortage mitigation	County EHD	County EHD, in partnership with SCWA, coordinate and share information on available resources, such as conservation programs, financial incentives, and water-saving technologies to domestic wells and SSWS communities.
		As-needed coordination with relevant organizations - GSAs, power companies, NGOs, other county departments	County EHD	County EHD will initiate coordination, but other organizations may be required to lead or participate, depending on conditions.
Response	Water shortage is occurring or is imminent	Regular Task Force meetings	County EHD	County EHD will schedule additional Task Force meetings.
		Activate emergency and interim drinking water distribution process for area(s) experiencing shortage	County OES	County OES will activate the checklist, but other organizations will implement specific activities.
		Standing coordination with relevant organization	County EHD	County EHD will organize regular coordination meetings and will delegate to other organizations as required.

Key:
County = Solano County
DRP = Drought Resilience Plan
EHD = Environmental Health Division
GSA = Groundwater Sustainability Agency
NGO = Non-Governmental Organization
OES = Office of Emergency Services
RCD = County Resource Conservation District
SCWA = Solano County Water Agency
SSWS = State Small Water System
Task Force = County Drought and Water Shortage Task Force



Solano County Drought Resilience Plan
Administrative Final

Prepared for:
Solano County

Prepared by:
Stantec Consulting Services Inc.

March 2026