

Nevada County Drought Resilience Plan

Administrative Final



Prepared with funding from the:
California Department of Water Resources

Prepared for:
Nevada County

Prepared by:
Stantec Consulting Services Inc.



**NEVADA
COUNTY**
CALIFORNIA



Stantec

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Abbreviations and Acronyms

°F	degrees Fahrenheit
2018 Legislation	legislation on Water Conservation and Drought Planning (SB 606 [Hertzberg] and Assembly Bill 1668 [Friedman], as amended)
CDAG	County Drought Advisory Group
County	Nevada County
CWC	California Water Code
CWPP	Community Wildfire Protection Plan
DRP	Drought Resilience Plan
DWR	California Department of Water Resources
FEMA	Federal Emergency Management Agency
Guidebook	County Drought Resilience Plan Guidebook
HMP	Hazard Mitigation Plan
HSC	California Health and Safety Code
LTMSA	long-term mitigation strategies and action
NID	Nevada Irrigation District
PLSS	Public Land Survey Section
Roadmap	Resource Resiliency Roadmap
RRR	Resource Resiliency Roadmap
SAFER	Safe and Affordable Funding for Equity and Resilience
SB	Senate Bill
SGMA	<i>Sustainable Groundwater Management Act</i>
SSWS	state small water system
State	State of California
State Water Board	State Water Resources Control Board
STRA	short-term response action
WSVE	Water Shortage Vulnerability Explorer

1.0 Introduction

The Nevada County (County) Drought Resilience Plan (DRP) documents how the County, with support of Advisory Group 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 (SSWS), as defined in HSC Section 116275(n) and CWC Section 10609.51(l). The County DRP was prepared pursuant to Senate Bill (SB) 552: Drought Planning for Small Water Suppliers, SSWSs, and Domestic Well Communities (Hertzberg; see Section 1.2 for additional detail). This County DRP was developed by the County with funding and technical support provided by the California Department of Water Resources (DWR) Drought Resilience Planning Assistance Program.

1.1 Document Organization

Organization of this document draws from DWR's *County Drought Resilience Plan Guidebook* (Guidebook) (DWR 2023). The Guidebook is a resource for counties to use to develop a County DRP specifically for SSWSs and domestic wells. Consistent with the Guidebook, the County DRP is organized into six chapters, as follows:

- **Chapter 1: Introduction** provides an overview of the legislation relating to SB 552 and the development of the County DRP. This chapter also includes background on County demographics, geography, and an overview of domestic wells and SSWSs within the County's jurisdiction.
- **Chapter 2: Engagement and Consultation for Drought and Water Shortage Preparedness** provides an overview of engagement activities to inform the development and implementation of the County DRP.
- **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 (STRA) 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 (LTMSA) 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 the 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’s development.

1.2 Legislative Requirements

Signed into law September 2021 by Governor Gavin Newsom, SB 552 (Hertzberg)¹ obligated the State of California (State) and local governments to share responsibility in 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 the 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 better prepare 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 “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:

- **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 yearlong residents or regularly serves at least 25 yearlong residents of the area served by the system, as defined in HSC Section 116275(i) and Section 10609.51(a).
- **State Small Water System:** 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 Section 10609.51(m).
- **Domestic Well:** A groundwater well used to supply water for the domestic needs of an individual residence or a water system that is not a public water system and that has no more than four service connections, as defined in HSC Section 116275(n) and 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: [Drought Resilience Interagency & Partners Collaborative](#).

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

In accordance with SB 552 requirements, this County DRP addresses water shortage vulnerabilities for domestic wells and SSWSs. Other water users protected under SB 552 not included in this County DRP have separate requirements to address water shortage vulnerabilities.

1.2.1 County Agency Requirements

This plan fulfills County requirements for preparation of a plan that includes potential drought and water shortage risk and proposed interim and long-term solutions for domestic wells and SSWS stems within the 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 document, this plan considers integration opportunities 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 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 Nevada County Drought Resilience Plan

The County DRP documents how the County, Advisory Group members, and other entities with water supply and drought management responsibilities intend to address water supply vulnerabilities of water users protected under SB 552. It is a single document for ease of reference and 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 County DRP. Implementation of the County DRP is led by the County Department of Environmental Health in close coordination with the County Office of Emergency Management and other departments as identified in the plan.

The County DRP was developed by the County with funding and technical support provided by DWR's Drought Resilience Planning Assistance Program and conforms to the legislative requirements of SB 552.

1.4 Nevada County Overview

The County is situated in East-Central California, to the western slope of Sierra Nevada Mountains, adjacent to the Nevada state border, approximately 60 miles northeast of Sacramento. Known as the

heart of “Gold Country,” the County encompasses three incorporated cities: Grass Valley, Nevada City (the County seat), and Truckee (the County’s largest community).

1.4.1 Demographics

Selected demographics of the County are summarized below per the 2020 Census and 2022 American Community Survey (USCB 2020) and 2021 Nevada County report (Nevada County 2021).

- **Population:** The County has a population of 102,241. The incorporated areas account for 33 percent of this population, distributed as follows: 17 percent in Truckee, 13 percent in Grass Valley, and 3 percent in Nevada City. The remaining 67 percent of residents live in the outlying unincorporated areas.
- **Age:** The County has a median age of 49.9. Around 14 percent of the population is under 14 years old, 9 percent between 15 to 24, 21 percent between 25 to 44, 20 percent between 45 to 59, 26 percent between 60 to 74, and 10 percent 75 years and over. Compared to surrounding counties, Nevada County has the highest percentage of residents over 65 years of age. There are fewer residents under the age of 30 in the County (29 percent) than statewide (41 percent).
- **Ethnicity:** As of 2019, the ethnic groups in Nevada County are White (93 percent), Hispanic or Latino (10 percent), Asian (2 percent), African American (1 percent), and Other (4 percent).
- **Education:** The County's well-educated population is supported by a range of high-quality schools and several higher education options available either within the County or within a reasonable commuting distance. Approximately 75 percent of residents attended college, 2 percent have less than a 9th-grade education, and 6 percent do not have high school diplomas.
- **Household Income:** The County’s median household income is \$87,998. This median income experienced a 4.16 percent increase between 2020 and 2021.
- **Poverty Level:** About 11.2 percent of the population for whom poverty status is determined in the County live below the poverty line, a number lower than the national average of 12.6 percent. The largest demographic living in poverty are males ages 55 to 64, followed by females ages 65 to 74, and then females ages 55 to 64. The most common racial or ethnic group living below the poverty line in Nevada County is White, followed by Hispanic and two or more races.

1.4.2 Geography

The County is part of the Sierra Nevada Range, a geologic block approximately 400 miles long and 80 miles wide, which extends in a north-south band along the eastern portion of California. It is the ancestral land of the Nisenan people. The County is bordered by several neighboring counties as illustrated in Figure 1-1. To the north lies Sierra County, while Washoe County, Nevada, is situated to east. Yuba County borders Nevada County to the west, and Placer County lies to the south.

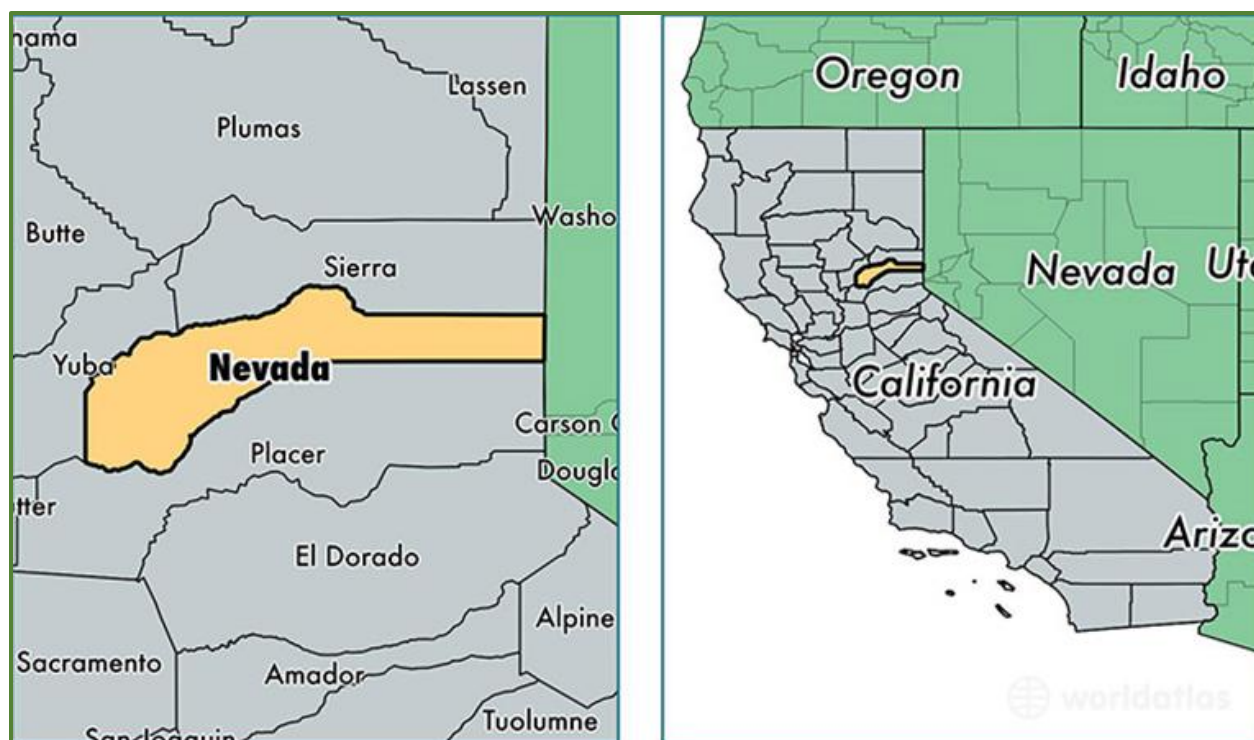
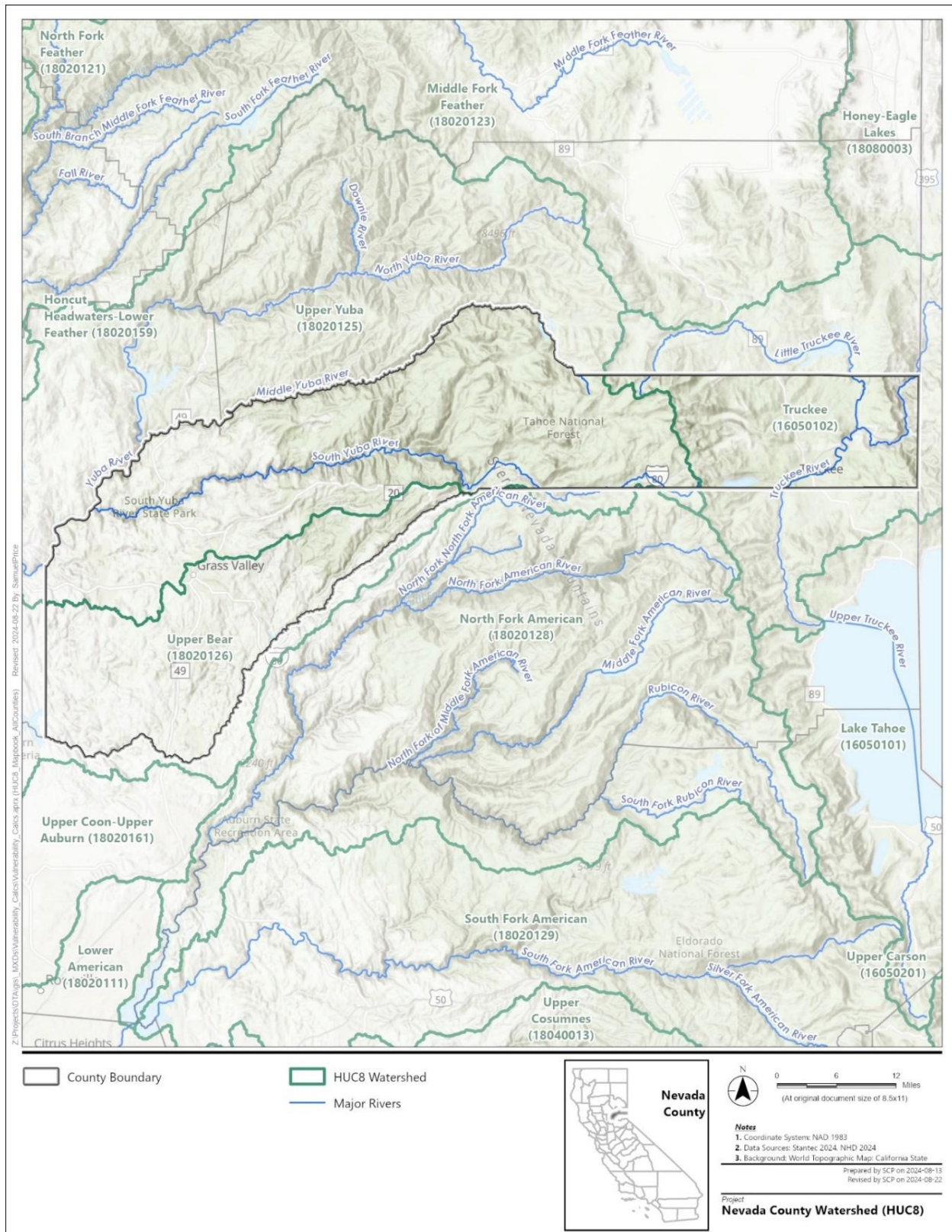


Figure 1-1. Location of Nevada County and its Neighboring Counties

1.4.3 Hydrology

The County features a large and diverse hydrologic system, comprising three primary Hydrologic Unit Code 8 watersheds: the Truckee River basin in the eastern part of the County, and the Upper Yuba River and Upper Bear River basins in the western part, as shown in



. These watersheds supply water to regions in both northern California and western Nevada, and many of the creeks and rivers within them generate hydroelectricity. The hydrologic features of the County

are primarily dependent on winter rain and snowfall, with the Sierra snowpack serving as the main water source for all three watersheds. Water flows exhibit significant seasonal and annual variability, with rainfall peaks typically occurring between November and February and snowmelt-related peaks occurring between April and June. There is an extensive network of perennial (year-round) and intermittent (seasonal) creeks, streams, and rivers throughout the County, ranging in size from the South Yuba River to small, unnamed seasonal drainages.

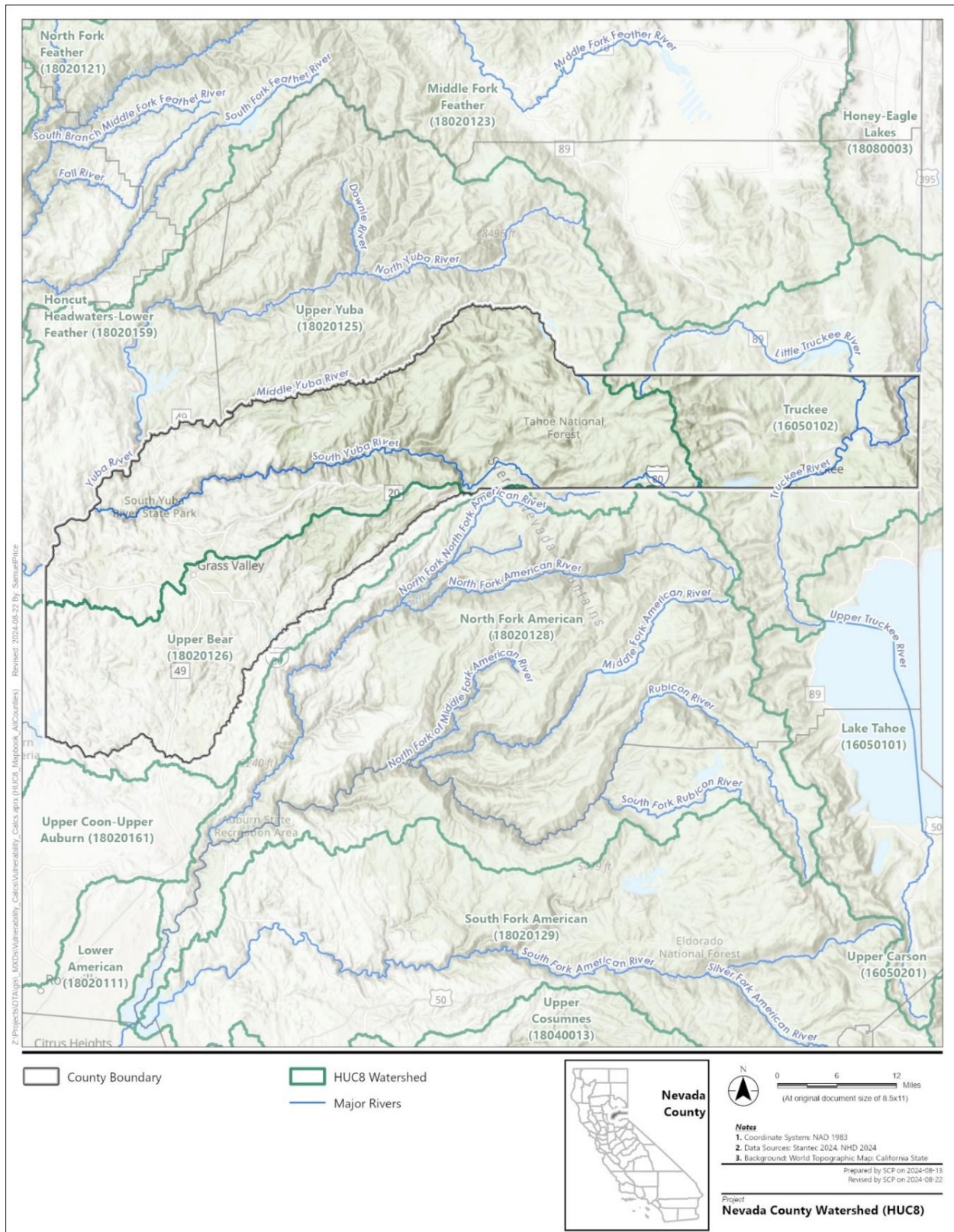
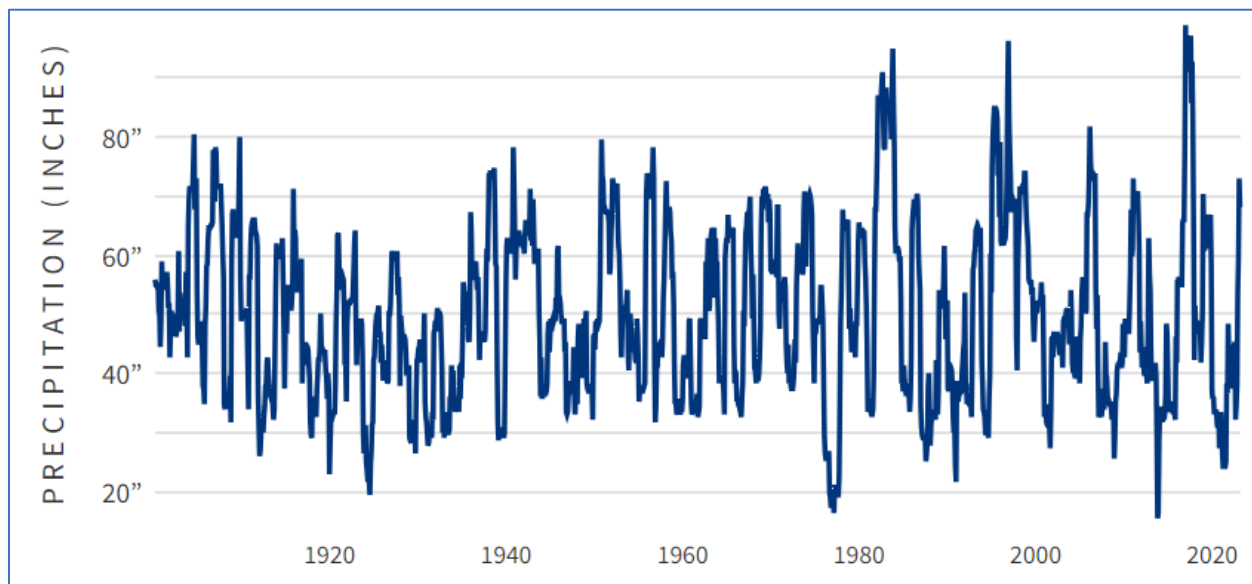


Figure 1-2. Hydrologic Subregions Within Nevada County

1.4.4 Precipitation

The County experiences dry and mild to hot summers and relatively wet winters. The average annual rainfall and snow across the county, recorded from May 1900 to April 2023, are 46 inches and 76 inches, respectively (BestPlaces n.d.), with the majority of precipitation occurring between November and March, predominantly as snow (Source: Nevada-County-Demographic-and-Statistical-Profile

Figure 1-3). The wettest 12-month period on record was from March 2016 to February 2017, with 98.8 inches of precipitation, while the driest period was from January 2013 to December 2013, with only 15.6 inches. In the upper elevations around Nevada City and Grass Valley, snow levels typically exceed 5,000 feet. Average minimum and maximum monthly temperatures in the area range from approximately 26 degrees Fahrenheit (°F) to 93°F. Summer temperatures are generally mild, with average highs near 85°F in July. January rainfall typically averages 10 inches per year, and the highest elevations receive an annual average of 206 inches of snow, with an overall county average of 193 inches of snowfall per year.



Source: [Nevada-County-Demographic-and-Statistical-Profile](#)

Figure 1-3. Annual Precipitation of Nevada County

1.4.5 Topography

The County's topography features high peaks and ridges, deep canyons, mountain meadows, and numerous streams and lakes. The average elevation is approximately 4,101 feet, with elevations ranging from a minimum of 278 feet to a maximum of 10,776 feet, as illustrated in Figure 1-4. County terrain is distinctly characterized by two features of the Sierra Nevada Range. The western third of the County is comprised of rolling foothills, which form a transition between the low-lying Sacramento Valley and the mountains to the east. The eastern two-thirds of the County are comprised of the steep terrain and exposed granite of the Sierra Nevada range itself (County of Nevada 1995).

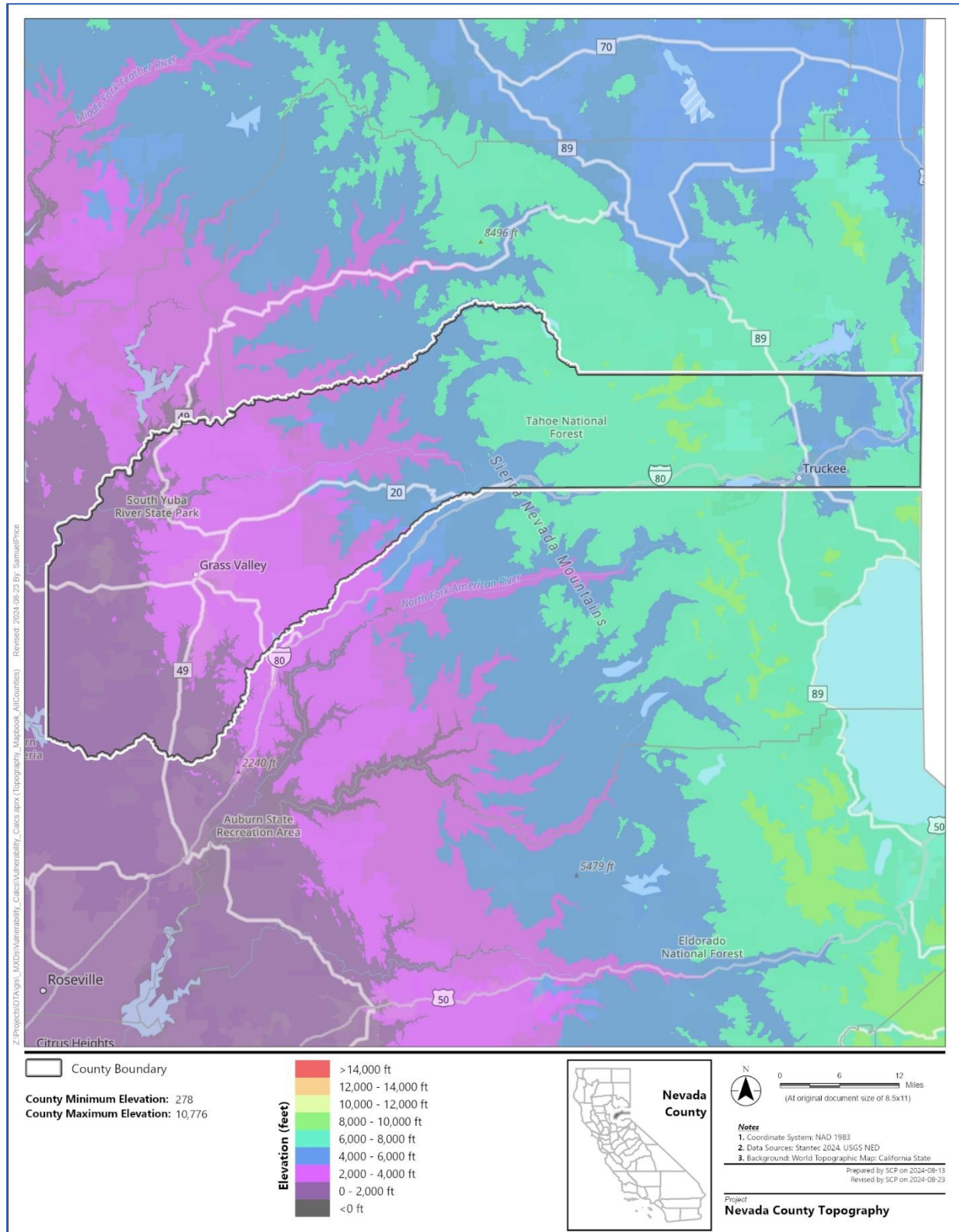


Figure 1-4. Topography of Nevada County

1.4.6 Land-Use

The County comprises of residential, commercial, industrial, agricultural, and public land use patterns, as detailed in Table 1-1. While Grass Valley, Nevada City, and the Town of Truckee serve as focal points for diverse land use development, there has also been significant growth in the County's unincorporated areas since the 1970s.

Nevada County has a total area of 974 square miles (2,520 square kilometers), of which 16 square miles (41 square kilometers) (1.6 percent) are covered by water. Of the total land area, 70 percent is privately owned, and 30 percent is public land, as shown in Table 1-1 (County of Nevada (a) 1995).

Table 1-1. Acreage of Existing Land Use (2013)

Land Use Designations	Acreage %
Forest	55.54%
Rural	29.27%
Open Space	4.27%
Estate	2.79%
Planned Development	1.69%
Residential	1.60%
Special Development Area	1.44%
Planned Residential Community	1.04%
Water	0.90%
Public	0.60%
Recreation	0.27%
Urban Single-Family Density Residential	0.25%
Business Park	0.12%
Industrial	0.11%
Urban Medium Density Residential	0.10%
Community Commercial	0.03%
Neighborhood Commercial	0.03%
Office and Professional	0.01%
Rural Commercial	0.01%
Highway Commercial	0.01%
Urban High Density Residential	0.01%

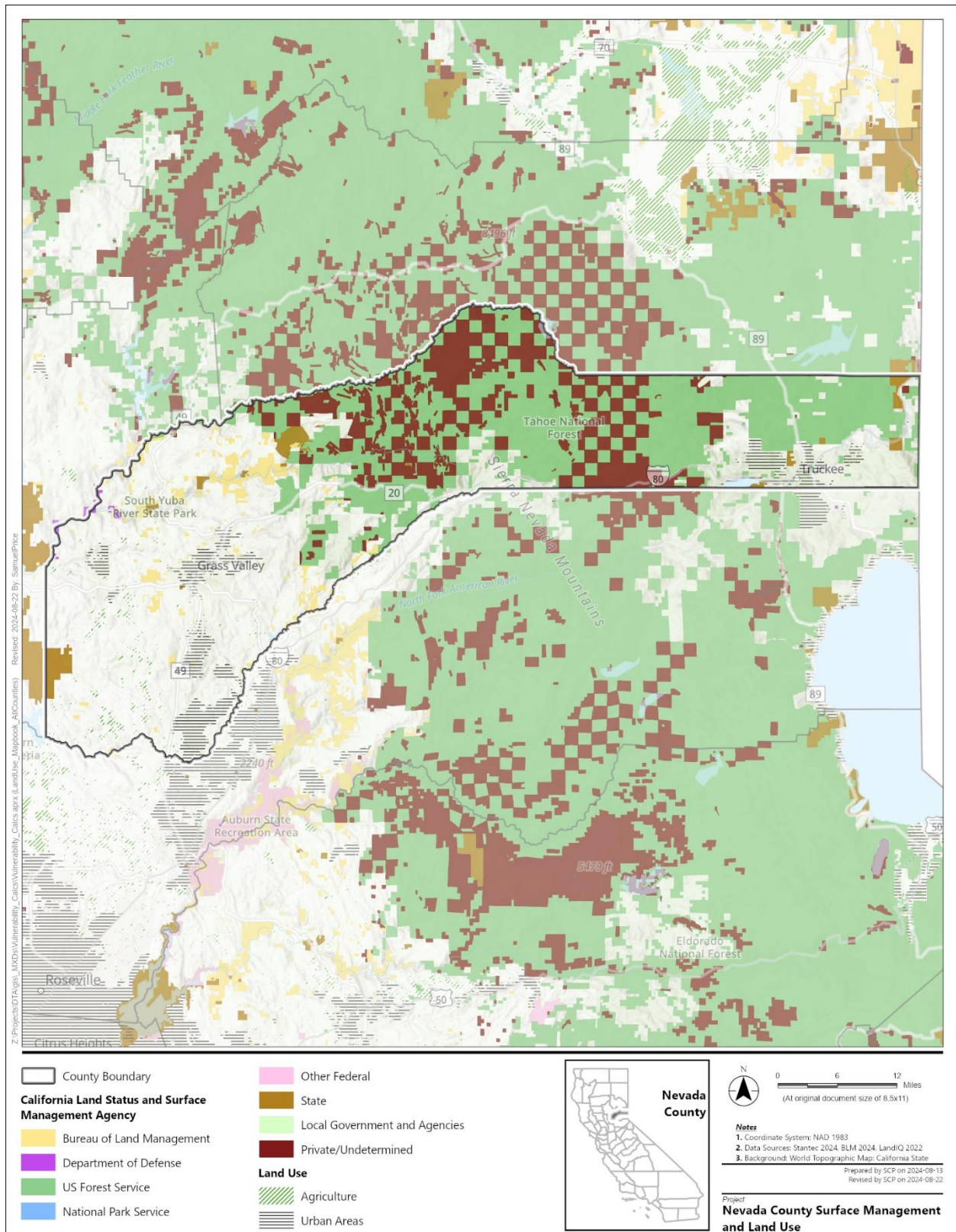


Figure 1-5. Land Use Within Nevada County

1.4.7 Geology

The County's geologic substructure can be categorized into three broad groups, each corresponding to distinct surface soil characteristics (County of Nevada 1995):

- Western Foothills: Extending from the Yuba County border to just northeast of the Grass Valley/Nevada City area, this region is primarily composed of metavolcanic and granitic formations.
- Central Portion: Stretching from northeast of the Grass Valley/Nevada City area to the upper mountainous region near Bowman Lake Road, this area is mainly comprised of sedimentary, metasedimentary, and volcanic formations.
- Eastern Portion: This area, spanning from the high Sierra to the Nevada state line, is predominantly made up of volcanic and granitic formations.

1.4.8 Water Landscape: Supply, Use, and Management

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

Water Supplies:

- Groundwater: Groundwater represents the primary water supply resource for beneficial use in the County (NID 2021). Nearly 90 percent of County citizens rely on groundwater for domestic use (Soltero 2013). County groundwater resources are of two distinct types: fractured rock basins and alluvial basins.
 - Fractured rock aquifers, which cover much of the County (all areas of Western Foothills and Central Portion), store water in bedrock cracks. These aquifers are typically shallow, with limited storage and variable yields influenced by local geology, and supply is dependent on atmospheric conditions. Due to potentially low recharge rates and vulnerability to drought, relying on fractured rock aquifers may pose challenges for sustainable water supply, particularly in rural areas.
 - The alluvial basin offers more reliable groundwater than fractured rock aquifers, with larger pore spaces and greater recharge capacity. However, alluvial basins are limited in size and can face depletion from overuse or drought. The County contains one Bulletin 118 Subbasin: the northern half of the Martis Valley Groundwater Basin (DWR Basin Number 6-067). Analysis completed by DWR to support implementation of the *Sustainable Groundwater Management Act* (SGMA) classified the Martis Valley Basin as a very low priority subbasin (DWR 2024b).
- Surface Water: Surface water is a vital component of the County's water supply, primarily sourced from the Sierra Nevada snowpack, rivers, and reservoirs. The Nevada Irrigation District (NID), established in 1921, manages surface water through an extensive network of reservoirs, canals, and pipelines to serve municipal water users in parts of Nevada, Yuba, and Placer Counties (Soltero 2013). NID supplies water for agricultural, municipal, and environmental use throughout its service area. A map of the district's boundaries and watershed, as shown in Figure 1-6, illustrates the interconnected system of canals, reservoirs, and natural waterways

that support water availability within the NID service area. During drought periods, reduced runoff can significantly impact surface water availability, leading to increased reliance on groundwater and conservation measures to ensure sufficient water for both urban and rural users.

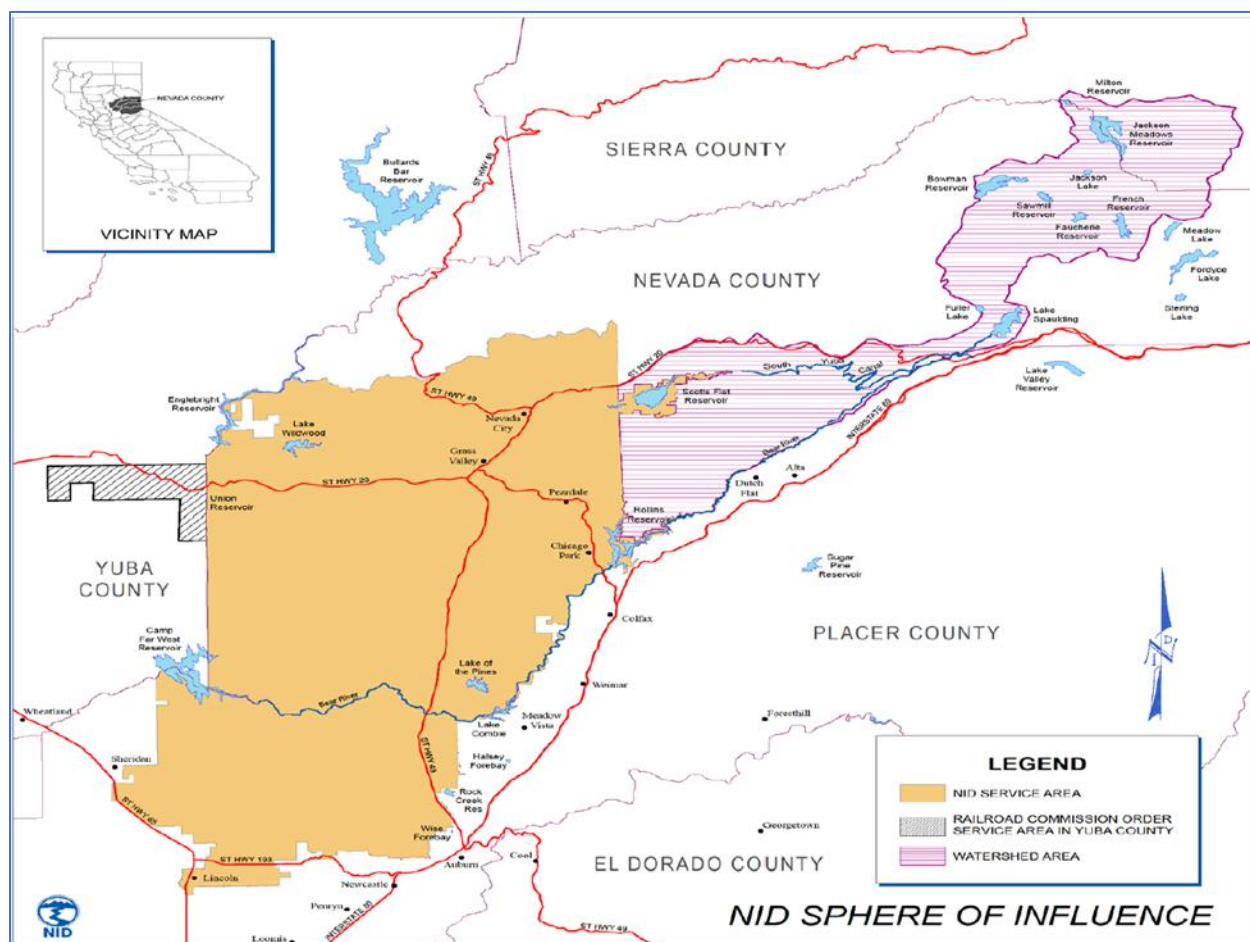


Figure 1-6. NID’S Boundary and Watershed in Nevada County

NID enhances regional water supply reliability, including the potential to supplement surface water resources during drought conditions. Analyzing NID's systems provides valuable insights into effective strategies for managing surface water distribution in Nevada County, specifically during drought and water shortage events.

Water Uses:

- **Municipal and Domestic:** Municipal and domestic water use in the County is driven primarily by residential communities, particularly in towns such as Grass Valley and Nevada City, as well as in rural areas with dispersed households. Household needs—including drinking water, sanitation, and landscaping—are met through a combination of public water systems and private domestic wells. In rural areas, domestic water use often relies on groundwater, while municipal systems typically draw from surface water sources managed by local water districts. The County has 84

public water systems, most of which primarily serve non-community populations (State Water Board 2020).

- Agriculture (County of Nevada (b) 1995): Agricultural lands are predominantly located in the southwestern region of the County, within Western Foothills. Agricultural water use in the County is primarily associated with irrigated crops, including orchards, vineyards, and pastures. The County's diverse topography and seasonal precipitation patterns necessitate the use of both surface water (from reservoirs and diversions) and groundwater wells to ensure sufficient irrigation during dry periods. Historically, the region's favorable climate and fertile soils have supported a wide range of crops, including various fruits, small grains, hay, potatoes, and wine grapes. Managing agricultural water demand is critical to balancing the County's overall water resources and ensuring long-term availability. Agricultural water uses account for approximately 92 percent of NID's total water use.

Water Management Plans and Related Actions:

- Recycled Water Initiatives: NID is supplied recycled water blended with surface water from four municipal wastewater treatment plans; however, this water is used exclusively for agricultural irrigation (Nevada County 2016).
- Agriculture and Urban Water Management Plans: Both plans were prepared for NID in cooperation with district staff ([Ag & Urban Water Management Plans - Nevada Irrigation District](#)).
- Community Wildfire Protection Plan (CWPP): A CWPP is a document collaboratively developed to identify local solutions to wildland fire management. The plan identifies and prioritizes areas for hazardous fuels reduction treatments, addresses community preparedness, and recommends actions homeowners and communities can take to reduce structure ignitability. ([Community Wildfire Protection Plan | Nevada County, CA](#))
- Resource Resiliency Roadmap (RRR): The Resource Resiliency Roadmap ("Roadmap") is a strategic plan, currently under development, that will provide a framework for the County to increase local resources and community resilience in response to a changing climate. The Roadmap will set greenhouse gas emissions reduction goals, based on current and projected emissions data collected as part of the RRR development process ([Resource Resiliency Roadmap \(RRR\) | Nevada County, CA](#)).

1.4.9 Domestic Wells and State Small Water Systems in Nevada County

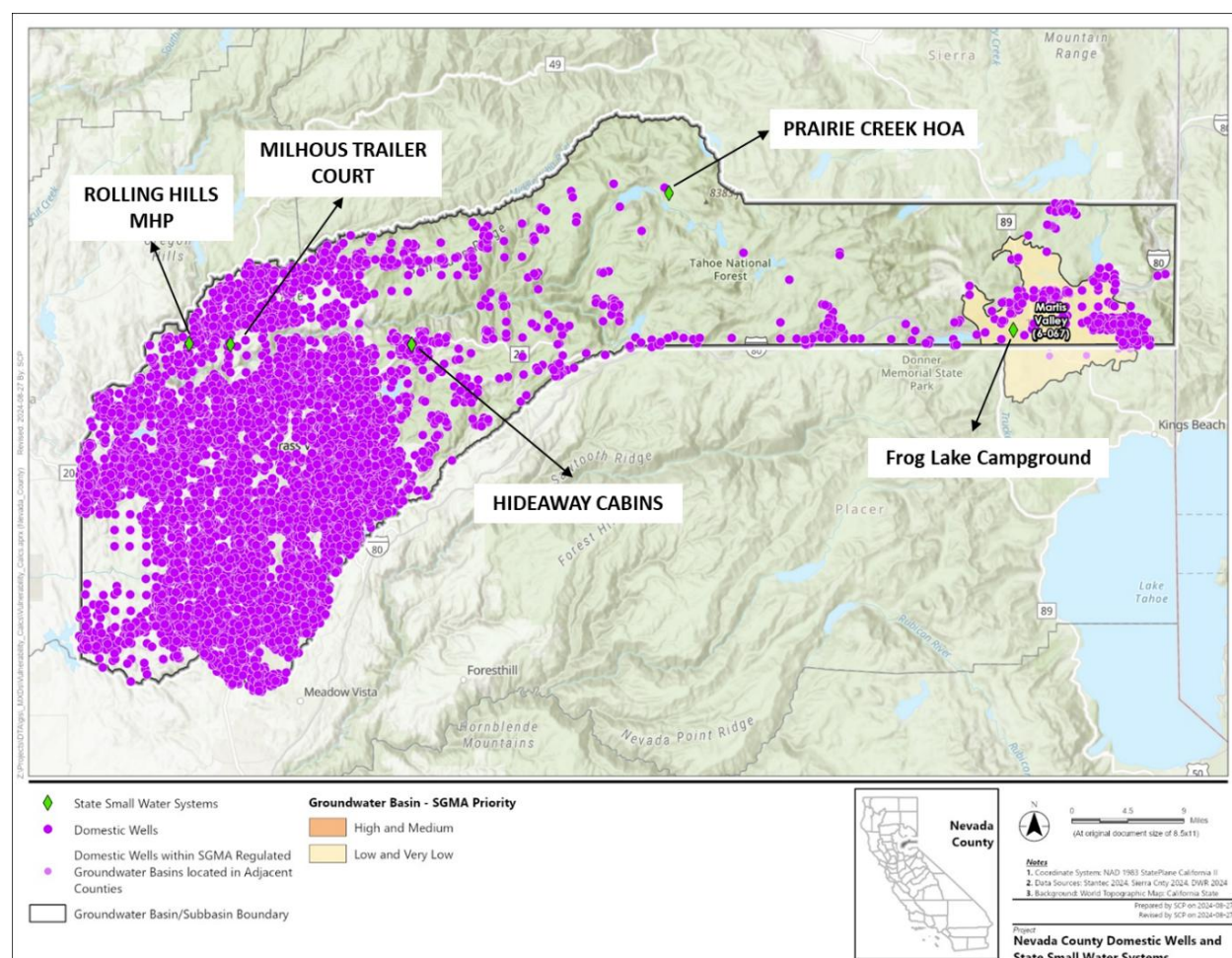
Figure 1-7 shows the location of domestic wells and SSWs within the County. Table 1-2 provides a summary of the number of domestic wells and SSWs located in Bulletin 118 groundwater basins and in fractured rock areas. Both Figure 1-7 and Table 1-2 identify domestic wells situated outside County boundaries but within groundwater basins that extend into the County.

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

Bulletin 118 Basin ID	Groundwater Basin Name	SGMA Priority	Domestic Wells Drilled After 19771	Domestic Wells Drilled Before 19771	State Small Water Systems	Domestic Wells in Basin but Outside County
6-067	Martis Valley	Very Low	229	24	1 (Frog Lake Campground)	8
N/A	Fractured Rock Aquifer	N/A	19,745	1,338	4 (Rolling Hills MHP, Milhous Trailer Court, Hideaway Cabins Prairie Creek HOA)	N/A
Total			19,974	1,362	5	

Note:

¹ Information presented in this table and Figure 1-7 are based on well completion reports. Geographic information on well completion reports may be inaccurate and/or place the well not at the actual well location. As a result, the number of domestic wells may be overestimated, and the placement of wells may not reflect actual locations

**Figure 1-7. Locations of Domestic Wells and State Small Water Systems in Nevada County**

2.0 Engagement and Consultation for Drought and Water Shortage Preparedness

SB 552 requires counties to establish a standing county drought and water shortage task force or an alternative process to support drought and water shortage preparedness for SSWs and domestic wells within their jurisdiction. The County elected to conduct extensive outreach to inform and engage residents and convened an Advisory Group to inform the development of the County DRP, pursuant to CWC Section 10609.70(a)(2) (bolded below):

(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.

2.1 Advisory Group Engagement Process

The Advisory Group was convened to inform and support the drought and water shortage preparedness process for SSWs and domestic wells within the County. The Advisory Group also coordinates government and community agencies and organizations in their respective role(s) in drought preparedness and response, including hazard assessment, planning, operations, and community outreach, as described in this County DRP.

The Advisory Group is not intended to infringe upon the authorities or obligations of its member organizations. The intent is to serve as a platform for a coordinated effort amongst County interests in response to drought and water shortages.

2.1.1 Advisory Group Membership

The County Environmental Health Department develops the County DRP and serves as the convener of the Advisory Group. Advisory Group members represent diverse perspectives and include representation from local governments, community-based organizations, and local water suppliers.

The following organizations and agencies were invited to participate in the Advisory Group:

- Nevada County
 - Environmental Health Department (Convener)
 - Board of Supervisors Office

- CEO Office
- Office of Emergency Services
- Department of Agriculture
- Resources Conservative District
- Nevada County Farm Bureau
- Water Suppliers
 - Tahoe Donner Public Utility District
 - Donner Summit Public Utility District
 - Nevada Irrigation District
 - City of Grass Valley Water District
 - City of Nevada City Water District
 - Washington Water District
- Cranmer Engineering (State Small Water System/Domestic well perspective)
- Nevada County Cannabis Alliance

2.1.2 Meeting Schedule

The Advisory Group met three times to review and inform County DRP development:

- November 18, 2024: Kickoff meeting to introduce the County DRP purpose and development process and solicit feedback on risk assessment results
- September 18, 2025: Discussed proposed STRAs and LTMSAs
- February 27, 2026: Reviewed draft County DRP and implementation consideration

Following development of the County DRP, the Advisory Group will meet as needed based on water shortage conditions, which are summarized in Chapter 4.

2.2 Community Outreach and Engagement

The County is characterized by a high concentration of privately owned domestic wells throughout the region. To ensure the County DRP reflects the diverse needs of residents, County Staff created multiple opportunities to gather input on residents' experiences with water shortages and gain a deeper understanding of potential risks, needs, and strategies to support those who rely on domestic wells.

County webpage: The County webpage, accessible through the County Environmental Health Department's website, serves as a central hub for information related to the County DRP. The webpage provides updates on the development process, progress milestones, and opportunities for community engagement. It also includes links to DWR materials and other resources intended to support residents who rely on domestic wells, thereby promoting transparency and ensuring affected communities have access to timely and relevant information.

2.0 Engagement and Consultation for Drought and Water Shortage Preparedness

Community survey: A survey was conducted between May 28 and August 11, 2025, to gather public input on water use, conservation practices, drought preparedness, and community needs. All responses were collected anonymously (110 total participants) and the information provided is being used exclusively to inform the development of the County DRP.

Community Events: County Staff participated in fairs and other community events to share information about County DRP development and to engage residents in dialogue about their concerns related to water shortages and drought. These events provided an accessible and informal setting for staff to raise awareness about drought resilience planning, answer questions, and gather input directly from community members. By meeting residents where they are, the County was able to build trust, better understand local experiences, and ensure the perspectives of diverse and potentially underserved populations were incorporated into the planning process.

Specific outreach activities included a Town Hall meeting held on June 23, 2025, with a video posted on the Environmental Health website, as well as distribution of DRP information and survey invitations through the County's Ready-Set-Go Office of Emergency Services mailer in August 2025. In addition, the County purchased 1,000 water bottles on July 1, 2025, for distribution at the Nevada County Fair (August 6 to 10, 2025); the bottles included a QR code linking to the survey, and flyers were placed at guest services locations. The survey was also incorporated into the main Nevada County Fair advertising poster.

Presentations: County Staff provide periodic updates to the Board of Supervisors and other relevant organizations to ensure ongoing communication and coordination regarding this effort.

3.0 Drought and Water Shortage Risk Assessment

A drought and water shortage risk assessment (risk assessment) was prepared to inform the development of the County DRP as directed in CWC Section 10609.70(b). This risk assessment evaluated how potential hazards intersect with the County's domestic well and SSWS assets, and other community assets, to characterize the vulnerability of domestic wells and SSWSs to water supply shortage. The outcomes from the risk assessment inform the development of response plans with short-term actions to employ when a water supply shortage occurs and LTMSAs that reduce the vulnerability to water shortages. This chapter presents the risk assessment results for the County.

The risk assessment presented in this County DRP does not replace the regulatory requirements of the Federal Emergency Management Agency (FEMA). The County DRP 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 County DRP 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 include domestic wells, SSWSs, and populations relying on those water supplies.
- **Hazard:** A source of harm or difficulty created by meteorological, environmental, geological, hydrological, or other event conditions. 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 populations that make them susceptible to damage from a given hazard. It includes both physical vulnerability and social vulnerability.

3.2 Risk Assessment Methodology

The nature and severity of hazards that can cause water shortages vary at regional and local scales due to differences in conditions, such as precipitation patterns, groundwater levels, topography, geology, infrastructure, regulatory frameworks, and other conditions. Communities lacking access to reliable

water sources are most vulnerable to water shortage caused by such hazards. To address this, a thorough risk assessment was completed that considered many physical and social indicators.

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 Advisory Group members reviewed the draft risk assessment, provided feedback, and identified data gaps. Additional details on the WSVE Tool and how it was applied in the risk assessment are included below.
3. **Revise the Draft Risk Assessment:** County and Advisory Group feedback on the draft risk assessment was used to revise the risk assessment.
4. **Incorporate Results of Updated Risk Assessment into County DRP:** Information from the updated risk assessment was included in the County DRP (Section 3.4). Findings from the updated risk assessment were used by the County and Advisory Group members to identify STRAs and LTMSAs to improve water supply reliability (Chapters 4 and 5).

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

The WSVE Tool calculates both a total physical vulnerability score and a total social vulnerability score, each combining the associated individual indicators. The process used by the WSVE Tool to calculate those total scores is summarized below.

- The total physical vulnerability score was calculated at the Public Land Survey Section² (PLSS) scale by normalizing the indicator value between 0 and 1, with 1 representing the highest possible vulnerability. Normalized scores were multiplied by a weighting factor from 1 to 5 assigned by DWR and CDAG to capture how some indicators contribute more to water shortage vulnerability than others.
- The total social vulnerability score was calculated at the Census Block Group³ scale by normalizing the indicator value between 0 and 1 and summing the values together without additional weighting.

DWR periodically revises the WSVE Tool to incorporate improved data and/or updated methodology. The July 2024 version was used to complete the risk assessment for this County DRP. The detailed

² A Public Land Survey Section is a geographic delineation of an area equivalent to one square mile.

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

methodology that describes WSVE indicators and corresponding values, data sources, and weighting factors is available on the WSVE Tool website ([Water Shortage Vulnerability](#)).

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

Indicator Name ¹	Indicator Description
Climate Change	
Temperature Shift (RC1a)	Projected change in max temperatures by mid-century
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 five years (2020–2024)
Wildfire Risk (RC2b)	USFS Hazard Score
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
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 2004–2024)
Surrounding Land Use (RC2j)	Proportion of irrigated agriculture in PLSS
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	Presence of one or more households with reported outages in PLSS

Notes:

¹ Abbreviations are included next to Indicator Name (i.e., “RC1a”) for clarity to underlying methodology

Key:

PLSS = Public Land Survey Section

SAFER = Safe and Affordable Funding for Equity and Resilience Program

SGMA = Sustainable Groundwater Management Act

USFS = U.S. Forest Service

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

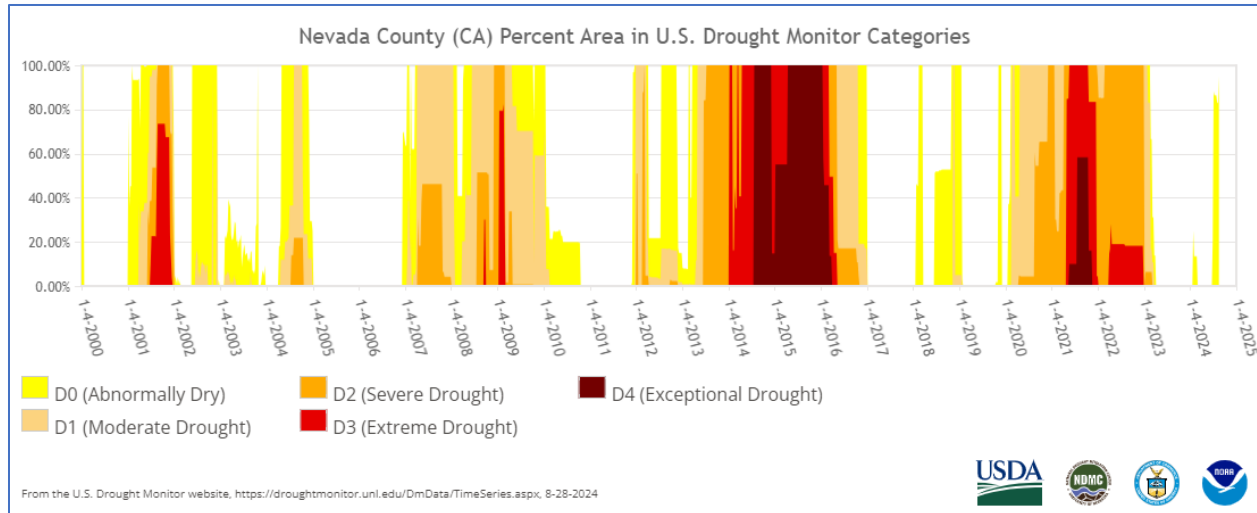
Indicator Name	Indicator Description
Socioeconomic Status	
Poverty Level	Percent of persons below poverty level
Unemployment	Percent of persons aged 16 years of age or older that are unemployed
Per Capita Income	Per capita income
Language and Education	
Education Attainment	Percent of persons without 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 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 Nevada County

This section summarizes recent droughts, 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

Since 2000, the County has experienced periods classified by the U.S. Drought Monitor as “Exceptional Drought,” as shown in Figure 3-1. The figure illustrates the cyclical nature of drought in the County, with severe drought conditions followed by intervals of little or no drought. It also highlights that drought can develop rapidly, sometimes within a single year. These patterns underscore the importance of considering drought as a significant hazard in the risk assessment.



Source: [Time Series | U.S. Drought Monitor](#), Accessed: 08/2024

Figure 3-1. Occurrence of Drought in Nevada 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°F to 3.6°F, local observed increases that affect neighborhoods and ecosystems are more variable and often of greater magnitude. The Sierra Nevada Region Report subsection predicted changes over this century to include higher average temperatures, with an approximate increase of 3°F to 4°F under leveling greenhouse gas concentrations, or 9°F under increasing greenhouse gas concentrations (California Energy Commission 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 deteriorating air and water quality (Greene 2018; Barreau et al. 2017).

Historical data show 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 6 percent to 7 percent more water for each degree Celsius of warming. Climate model simulations that consider such effects suggest 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 a range of water quality concerns affecting both surface water and groundwater resources. Because most residences rely on septic systems, there is an ongoing risk of contamination to these water supplies (USEPA 2023).

3.3.3.1 Surface Water

Surface water quality in Nevada County exhibits considerable variability, generally characterized by very good water quality in the more mountainous and less-developed regions, with more frequent water quality impacts observed as elevation decreases and development intensifies. In the upper elevations, recreational activities and logging are primary contributors to water quality degradation. In contrast, the lower elevations experience more significant impacts from land development, past mining, grazing, and urban runoff. Soil erosion and sedimentation are major contributors to surface water quality issues, particularly when fine soil particles are transported by water or air and deposited in streams and reservoirs, leading to siltation. Sedimentation, the accumulation of larger particles on the beds of creeks, rivers, or streams, can further affect water quality. Additionally, naturally occurring elements, such as heavy metals, have led to water quality degradation in several areas of Western Foothills. DWR is currently conducting tests for radon in the Eastern Portion of the County (County of Nevada (c) 1995).

In addition, the County's forested regions are highly susceptible to wildfire. Following a wildfire, surface water resources can be contaminated by ash, debris, and other pollutants mobilized and absorbed during runoff.

3.3.3.2 Groundwater

Arsenic is the key groundwater quality constituent of interest identified in the Martis Valley Groundwater Basin (DWR Basin Number 6-067). Constituents identified in localized concentrations throughout the County include low detection levels of nitrate, hexavalent chromium (chromium-6), 1,2,3-trichloropropane, and uranium (State Water Board 2024), as well as elevated bacteriological levels. Some of the elevated concentrations for select constituents are a result of naturally occurring conditions, although some areas exhibit degraded groundwater quality as a result of groundwater contamination. The key water quality constituents are summarized below.

- *Nitrate (and nitrite)*: These constituents occur naturally in the environment and can also be introduced via fertilizers, mining, septic and landfill leaks, and animal and industrial waste (among other pathways). Ingestion of nitrates is known to cause methemoglobinemia in infants and may lead to some types of cancer (ATSDR 2017).
- *1,2,3-trichloropropane*: This constituent is an industrial chemical that may enter the hydrologic environment through spills or manufactured products, such as paint removers. Limited data are available on toxicology for humans; the chemical is listed as a likely carcinogen by the U.S. Environmental Protection Agency (ATSDR 2021).
- *Arsenic*: This constituent is a metalloid that occurs naturally in the environment, including soils and rock, and is also introduced by anthropogenic activities, such as pesticide application and mining of metals. Ingestion of arsenic via drinking water has led to documented human deaths (ATSDR 2007).
- *Boron*: This constituent occurs naturally in the environment and can also be introduced via sewage, fertilizers, and herbicides. Acute exposure to high doses via ingestion (approximately 66

percent or higher than the average daily intake) has been documented to contribute to death (ATSDR 2010).

- *Chromium-6*: Chromium occurs naturally in the environment and has several forms, including chromium-6. Chromium-6 is listed as a carcinogen by the International Agency for Research on Cancer (ATSDR 2012).
- *MTBE*: This constituent is a compound historically added to gasoline. Leaks from storage tanks introduce the chemical into soils and groundwater. No known human studies are available for possibility of death and cancer following exposure (ATSDR 2023).
- *Uranium*: This constituent is a heavy metal that occurs naturally in the environment as a radioactive element. It may also be introduced via mining and fertilizer production. No evidence or reports have linked exposure to death or cancer (ASTDR 2013).
- *Elevated bacteriological levels*: Such levels can be caused by seepage of sewage into well water and can lead to gastrointestinal disease (USEPA 2024).

Mining Impacts: Gold mining has left a lasting impact on water quality in the County, especially in areas close to historic mining sites. According to the Mining's Toxic Legacy Report by The Sierra Fund (2008), the Bear and Yuba rivers watersheds are among the most impacted. During the Gold Rush, hydraulic mining at sites like Malakoff Diggins caused massive erosion, dumping sediment and mercury into rivers and streams. Mercury, which was used to separate gold from ore, has remained in the environment for over a century. Places like Grass Valley, Nevada City, Deer Creek, and Wolf Creek are particularly affected due to their proximity to abandoned mines. This ongoing pollution elevates the urgent need to remediate abandoned mines and protect water quality in the County.

3.4 Risk Assessment Results

The risk assessment results, developed using the DWR WSVE Tool, are provided for three County regions, each characterized by unique topography, land use, geology, water supply infrastructure, and potential vulnerabilities. These areas include Eastern Portion, Central Portion, and Western Foothills, as shown in Figure 3-2.

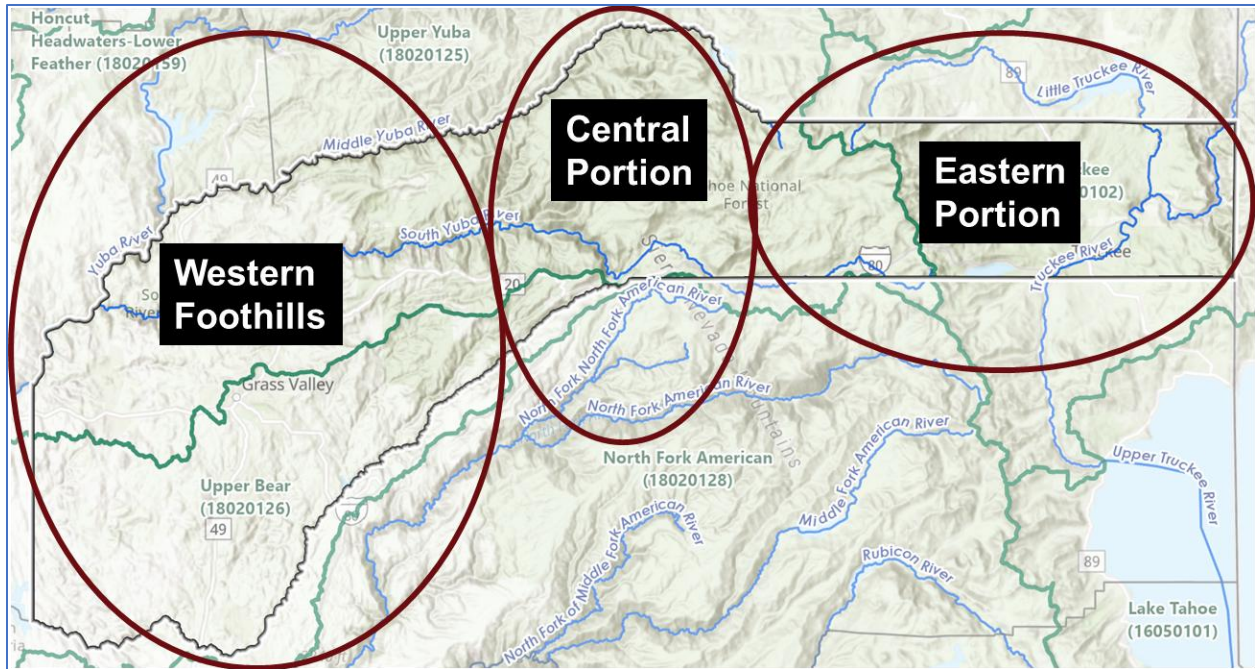
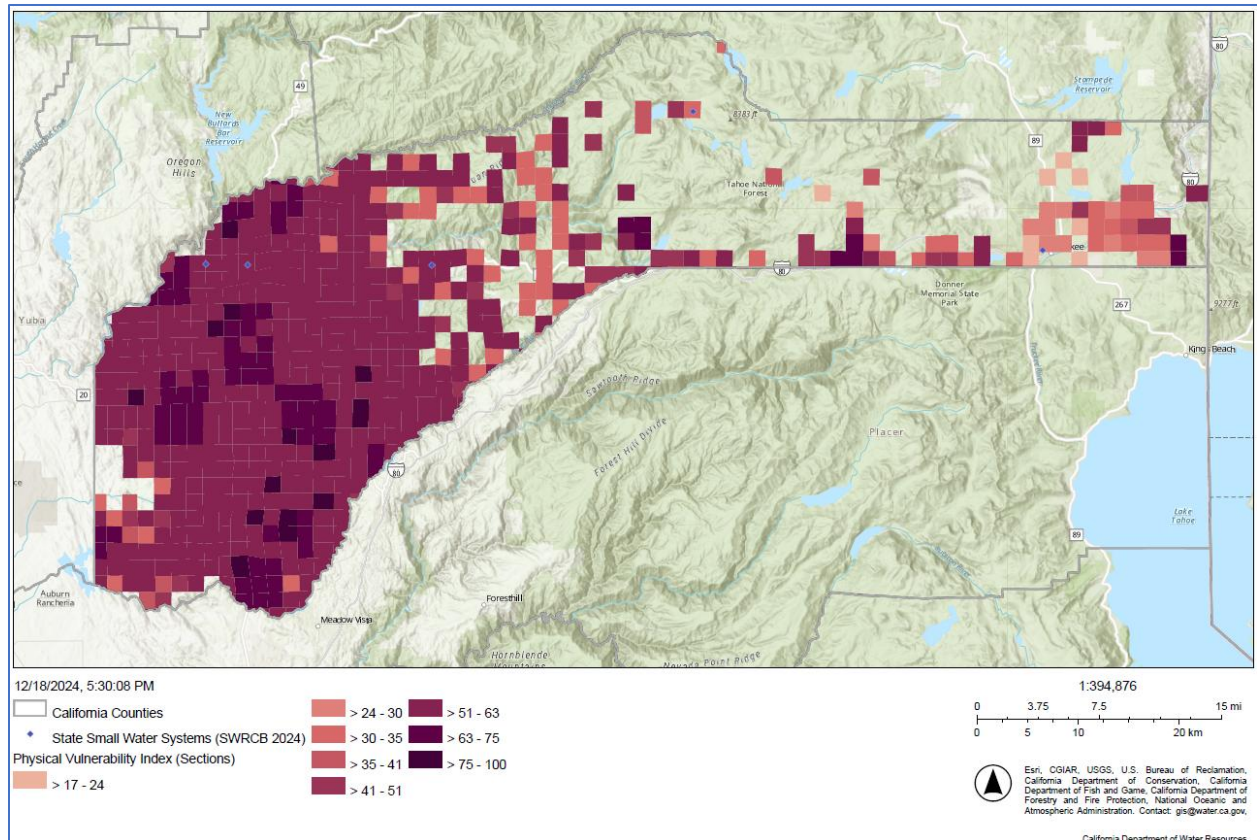


Figure 3-2. Delineated Risk Assessment Areas with the County

This section summarizes the risk assessment results, including the County's total physical and social vulnerability scores, followed by discussions of the individual indicators driving physical and social vulnerability. This information was used to identify regions vulnerable to water supply shortages and to determine where shortages are most likely to impact domestic wells and SSWs, as described in Section 3.5.

3.4.1 Total Physical Vulnerability Score

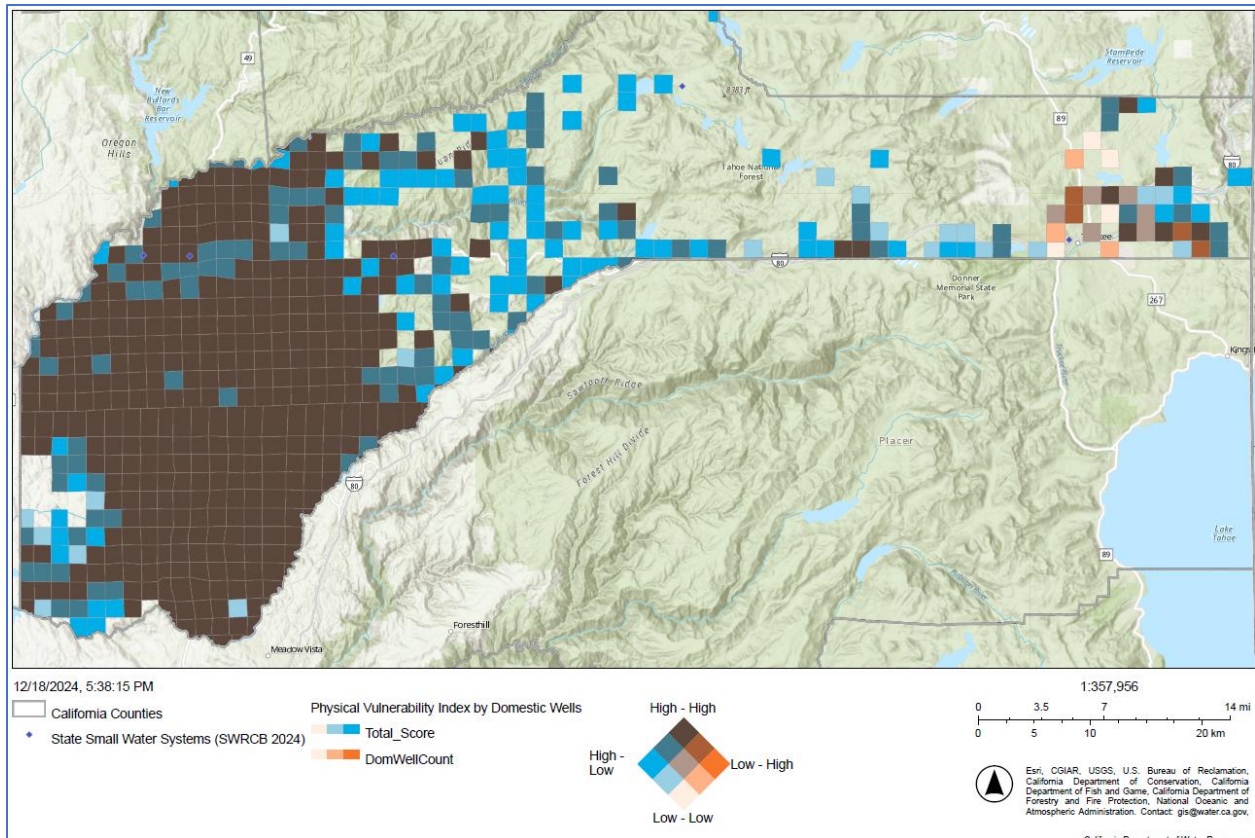
The total physical vulnerability score accounts for climate change, environmental conditions and events, infrastructure susceptibility, and record of shortage. Total physical vulnerability scores within the County are shown in Figure 3-3, with darker shaded areas (PLSS) indicating higher physical vulnerability scores. Maps in this section display PLSSs containing domestic wells. Results indicate that in the Western Foothills, communities in Grass Valley, Nevada City, Rough and Ready, Sierra Knoll Estates, Higgins Corner, Alta Sierra, and those along the San Juan Ridge, which rely on groundwater from fractured rock aquifers, have high physical vulnerability. Similarly, in the Central Portion, areas with high vulnerability are scattered among communities that also depend on fractured rock basins, including Washington, Omega, Clyde Mountain, the regions along Yuba Pass from Crystal Lake to Camp Spaulding, Graniteville, areas around Bowman Lake, Murphy Flat, Hartley Butte, and Rattlesnake Mountain. In the Eastern Portion, vulnerable communities include Kingvale, Soda Springs, a small section northwest of Buzzard Roost along Magonigal Road, Burnt Flat, and Billy Mack Canyon. Communities in the eastern portion of the County show variable scores based on the location of domestic wells and SSWs and whether their groundwater supply comes from fractured rock areas or the alluvial basin.



Source: Water Shortage Vulnerability Explorer Tool, [Water Shortage Vulnerability](#), Accessed: 12/2024

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

Figure 3-4 displays the physical vulnerability scores in areas with domestic wells within the County. A darker shaded area indicates a higher density of domestic wells within an area with high physical vulnerability. A blue area represents a higher physical vulnerability but low density of domestic wells, and an orange area represents a high density of domestic wells in areas with low physical vulnerability. In the County, areas with high physical vulnerability and a higher density of domestic wells are primarily concentrated in the Western Foothills, including Grass Valley, Nevada City, Rough and Ready, Sierra Knoll Estates, Higgins Corner, and along San Juan Ridge. Additionally, there are numerous isolated domestic wells in this region that also exhibit high physical vulnerability. In the Central Portion, regions with both high physical vulnerability and a dense concentration of domestic wells are found near Clyde Mountain and Lowell Hill Ridge. In the Eastern Portion, areas with elevated physical vulnerability and a high density of domestic wells are located within Buck Meadows, south of Boca Reservoir, and Kingvale. However, while the density of domestic wells is higher in areas such as Truckee, Buck Ridge, and Russel Valley within the Eastern Portion, the physical vulnerability to water supply shortages is lower compared to other parts of the County.



Source: Water Shortage Vulnerability Explorer Tool, [Water Shortage Vulnerability](#), Accessed: 12/2024

Figure 3-4. Intersection of Physical Vulnerability and Density of Domestic Wells and State Small Water Systems in Nevada County

3.4.2 Physical Vulnerability Indicators

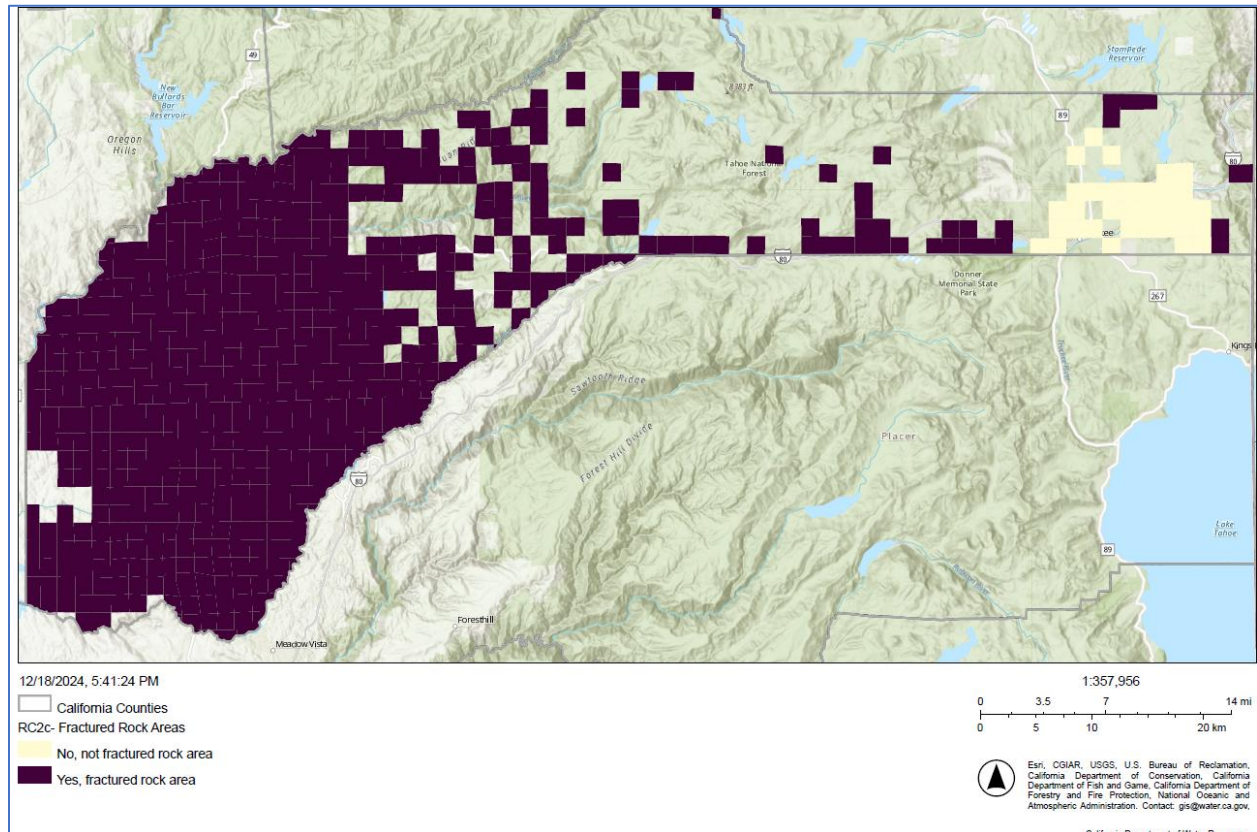
Risk assessment results are used to identify areas where water shortages may be more likely to occur and affect those relying on domestic wells and SSWs. This section describes the key indicators driving water shortage risk. Identifying and characterizing these physical vulnerability drivers can help the County, in consultation with the Advisory Group, develop effective STRAs and LTMSAs to reduce vulnerabilities and increase community resilience.

Based on the risk assessment results, the primary indicators driving physical vulnerability are geology, domestic well density in a fractured rock basin, and wildfire risk. Details on these indicators are included below, and information on all physical vulnerability indicators considered as part of this assessment is summarized in Table 3-3. In addition to geology and wildfire risk, water quality was identified as another primary indicator contributing to high physical vulnerability. Detailed information regarding this indicator is provided in Chapter 3, Section 3.3.3.

Geology/Fractured Rock: The most significant driver of water shortage vulnerability in the County is the large fractured rock basin with a high density of domestic wells (Figure 3-6). Water availability in fractured rock areas is more difficult to monitor and manage. Areas with a high density of domestic wells in a fractured rock basin (Figure 3-5) are predominantly located in the Western Foothills, including Grass Valley, Nevada City, Haggins Corner, Sierra Knoll Estates, and Rough and Ready.

3.0 Drought and Water Shortage Risk Assessment

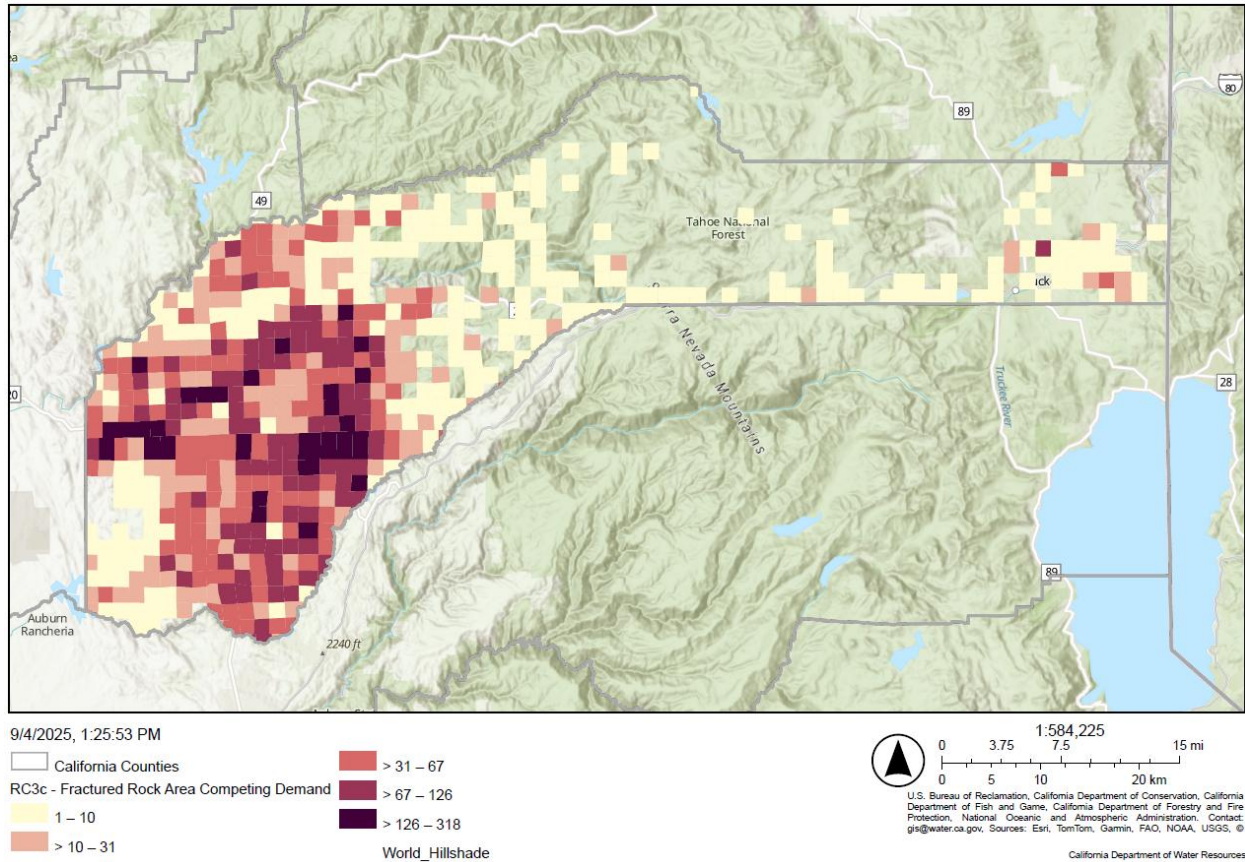
Wildfire Risk: The County faces a significant challenge due to persistent risk of wildfires. Approximately 92 percent of Nevada County residents reside in zones classified as high to very high fire severity (Figure 3-7). Wildfires increase vulnerability for domestic wells and SWSs by damaging electrical infrastructure needed to operate pumps, destroying above-ground well components and storage tanks, and disrupting access to treatment or distribution facilities. Post-fire conditions can also degrade source water quality due to increased sediment, ash, and contaminant loading, which may impair well performance or require additional treatment. In addition, power outages and road closures during wildfire events can delay system repairs and limit emergency response, further reducing water supply reliability for these users.



Source: Water Shortage Vulnerability Explorer Tool, [Water Shortage Vulnerability](#), Accessed: 12/2024

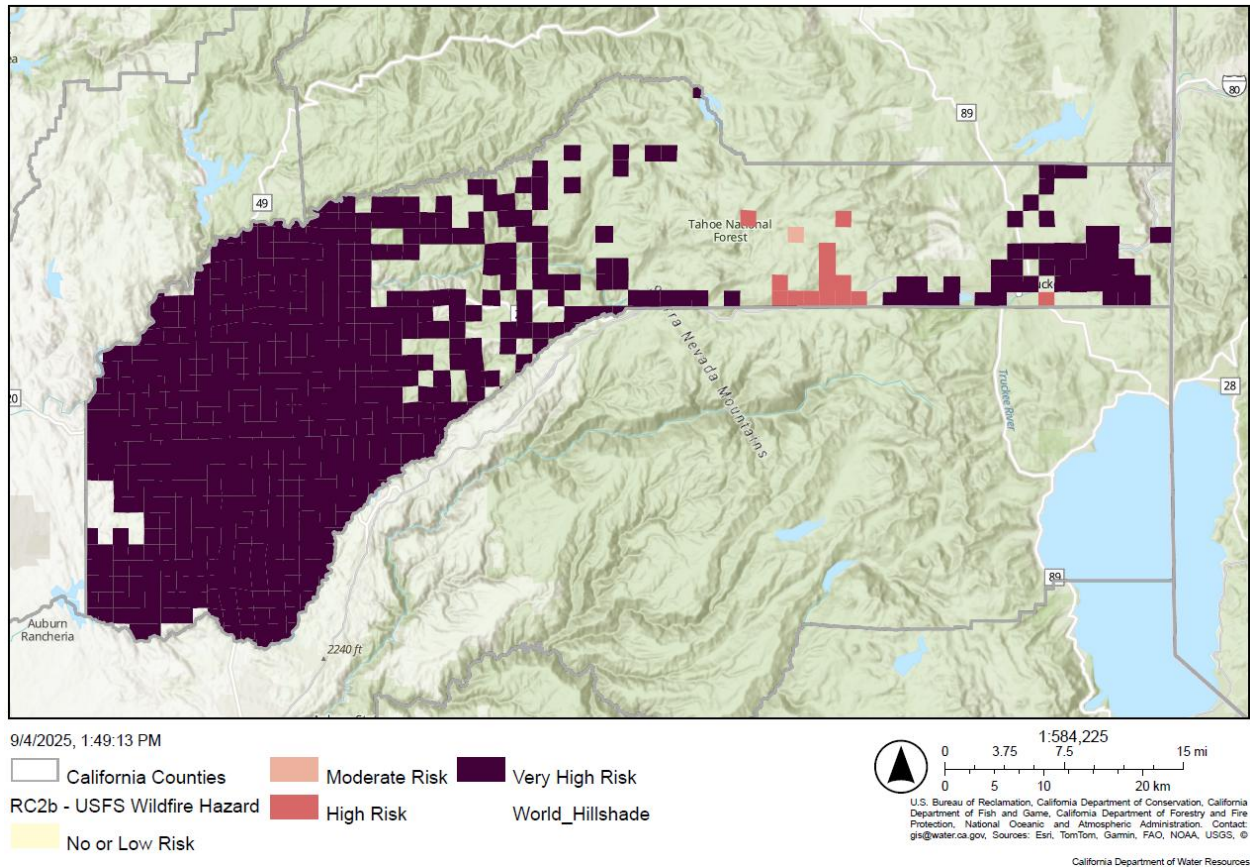
Figure 3-5. Geology Indicator Showing Fractured Rock Area in Nevada County

3.0 Drought and Water Shortage Risk Assessment



Source: Water Shortage Vulnerability Explorer Tool, [Water Shortage Vulnerability](#), Accessed: 09/2025

Figure 3-6. Domestic Well Density in Fractured Rock Areas Indicator in Nevada County



Source: Water Shortage Vulnerability Explorer Tool, [Water Shortage Vulnerability](#), Accessed: 09/2025

Figure 3-7. Wildfire Risk Based on USFS Wildfire Hazard

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

Physical Vulnerability Indicator	Observed Conditions ¹
Climate Change	
Temperature Shift (RC1a)	The projected change in the maximum temperature by mid-century shows a 4.9°F (Central Portion of the County near Bowman Mountain, Pinoli Ridge, and Poorman Valley) to 5.9°F (Eastern Portion) increase in average temperature throughout the County. The greatest temperature shifts in the County are within the Eastern Portion, as well as Lowell Hill Ridge in the Central Portion. Increased temperatures could increase water supply demands from users, evapotranspiration, and others, thereby increasing vulnerability to drought and/or water shortage impacts.
Wildfire Risk (RC1c)	Projections indicate moderate to severe increases in wildfire risk throughout the County by 2035–2064. The largest increase is projected for the Central Portion in San Juan Ridge and Chalk Bluff Ridge, as well as north of East Portion in Russel Valley, while the Western Foothills and areas near Truckee in Eastern Portion are anticipated to be the least affected. The projected increase in wildfire frequency and severity includes inherent high risks that increase the vulnerability of water sources.

Physical Vulnerability Indicator	Observed Conditions ¹
Current Environmental Conditions and Events	
2024 Precipitation (RC2a)	Precipitation in Water Year 2024 was above the historic average in all areas, except for a small region of Western Foothills in Long Point Rd (northwestern side of the County). Data from California Water Watch indicates precipitation for Water Year 2023–2024 as of July 2024 is within 60 percent to 100 percent of the historical average (DWR 2024a).
Multiple Dry Years (RC2aa)	Data show almost all areas of the County have been experiencing two dry years over the last five years, with a smaller region within Western Foothills in Long Point Rd (northwestern side of the County) experiencing three dry years in this period. A higher number of recent dry years may increase the physical vulnerability of water supply conditions due to resource depletion and prolonged periods without sufficient water.
Wildfire Risk (RC2b)	The County is assigned primarily high and very high USFS Wildfire hazard severity zones. The USFS hazard severity zones show the current risk of wildfire, which contributes to higher physical vulnerability for water sources.
Geology (RC2c)	Fractured rock is present across the entire County, except for the Martis Valley Groundwater Basin in the Eastern Portion. 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 due to high susceptibility to drought impacts.
Water Quality Aquifer Risk (RC2i)	This index shows groundwater likely accessed by domestic wells may contain concentrations of constituents above regulatory levels. In a significant portion of the County, there is either no available data or no apparent potential risk for water quality issues. However, in specific regions, notably in the Central Portion (around Bowman Mountain and Clyde Mountain), Eastern Portion (Hobart Mills, Alder Hill, Truckee, Juniper Flat, Kingvale, and Boca), and Western Foothills (Higgins Corner, Pen Valley, Leduc Acres, Osceola Ridge, Randolph Flat, Bridgeport, San Juan Ridge), there is potentially higher water quality risk.
Subsidence (RC2d)	With the exception of a small area in the Eastern Portion near Truckee, which shows little risk of subsidence, there is no evidence of subsidence across the rest of the County. Higher subsidence creates higher vulnerable conditions.
Overdrafted Basin (RC2f)	Overdrafted basins increase physical vulnerability to water shortage and drought. The Martis Valley Groundwater Basin, the only groundwater basin in the County, is not considered critically overdrafted.
Chronic Declining Water Levels (RC2g)	No decline in groundwater levels has been observed in the County. Consistently declining groundwater levels cause several interconnected challenges and consequences, exacerbating the vulnerability of the groundwater system.
Surrounding Land Use (RC2j)	There is minimal farming in the southwestern areas of the County. Presence of agricultural activities could indicate competing demand for groundwater suppliers and water quality concerns, both of which could create higher vulnerability for domestic wells and state small water systems, especially during a drought or water shortage event.

Physical Vulnerability Indicator	Observed Conditions ¹
Infrastructure Susceptibility	
Dry Domestic Well Susceptibility in basins (RC3a) – Alluvial Basin	This factor analyzes locations where there are many susceptible wells that may go dry if the current groundwater trends in the County continue. Data show an overall low likelihood of dry well susceptibility in Martis Valley Groundwater Basin in the Eastern Portion. A small area in the northeastern side of Truckee (south of Prosser Creek Reservoir) and the areas around Buck Ridge show higher likelihood of dry well susceptibility.
Domestic Well Density in Fractured Rock Areas (RC3c)	Higher density of domestic wells in a single square mile within a fractured rock area tends to create a higher susceptibility for outages and increase competing demands, especially in a dry period. The data in the County indicate high competing demand in fractured rock areas, particularly in the Western Foothills.
Record of Shortage	
Reported Household Outage on Domestic Well	Areas that have already experienced outages are more likely to experience similar conditions during future dry years, due to combinations of aquifer sensitivity/fluctuations and shallow wells. With the exception of some areas in the Western Foothills (near Higgins Corner, Trailer Hill, Alta Sierra Ranches, Coleman, Kentucky Ravine, and Sweetland), the likelihood of areas experiencing well outages is minimal throughout the rest of the region.

Notes:

¹ Abbreviations are included next to Indicator Name (i.e., “RC1a”) for clarity to underlying methodology.

Key:

°F = degrees Fahrenheit

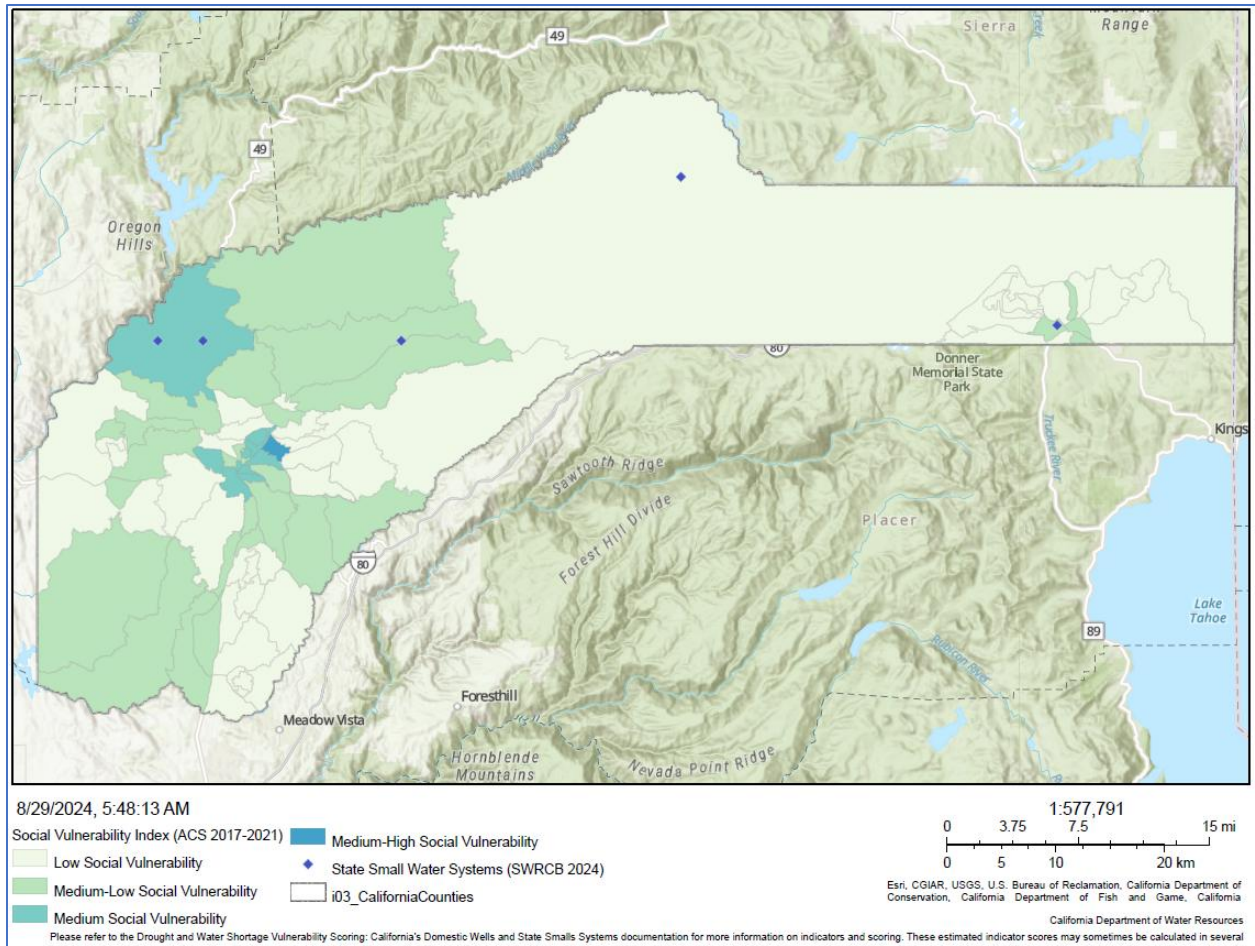
County = Nevada County

USFS = U.S. Forest Service

3.4.3 Social Vulnerability

Social vulnerability is an important factor in assessing the risk of water supply shortage and need for mitigation through STRAs and long-term strategies. The total social vulnerability score accounts for socioeconomic status, language and education, demographics, and housing and transportation indicators. Total social vulnerability scores in Nevada County are depicted in Figure 3-8, with darker shaded areas indicating higher total score of social vulnerabilities. Most of the County exhibit low to medium-low social vulnerability scores. A small area located northeast of Grass Valley has medium-high social vulnerability. Areas with medium social vulnerability are primarily located in the Western Foothills near Grass Valley and around San Juan Ridge, including regions near French Corral, Sweetland, Montezuma Hill, and Bunker Hill. In the Central Portion of the County, social vulnerability is uniformly low. In the Eastern Portion, social vulnerability remains low overall, except for areas around Truckee, which display medium-low social vulnerability.

The key indicators contributing to social vulnerability in areas classified as medium to medium-high vulnerability include socioeconomic, language, and demographic factors. Specifically, factors related to the percentage of the population living below the poverty level, the percentage of the population with limited English proficiency, and the percentage of the population with disabilities.



Source: Water Shortage Vulnerability Explorer Tool, [Water Shortage Vulnerability](#), Accessed: 08/2024

Figure 3-8. Social Vulnerability Scores by Census Block Group in Nevada County.

3.5 Risk Assessment Findings

The Risk Assessment findings are based on the distinct make up and conditions of three key regions: the Western Foothills, Central Portion, and Eastern Portion. A summary of the driving physical and social vulnerabilities that contribute to potential water shortages for domestic wells and/or SWSs is shown in Figure 3-9 and presented in Table 3-4. Identified vulnerabilities in the County's three key regions are used, in consultation with the Advisory Group, to guide the development of both short-term actions and long-term strategies to address potential water shortages in domestic wells and SWSs.

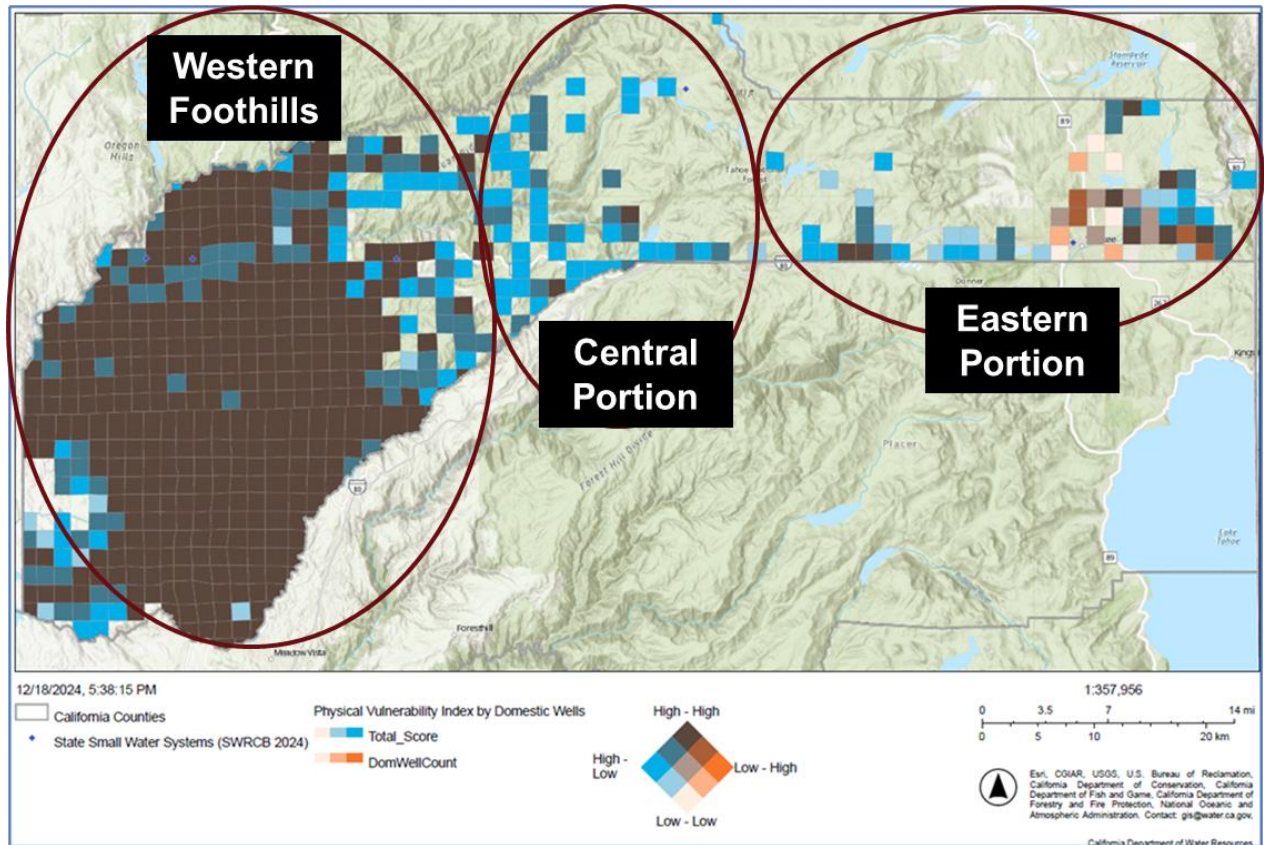


Figure 3-9. Summary of Risk Assessment Findings Showing Areas with Water Shortage Vulnerability and Domestic Wells/State Small Water Systems in Nevada County

Table 3-4. Summary of Risk Assessment Findings: Domestic wells and SSWs

Communities/ Incorporated Towns	SSWS-Name and Description	Groundwater Basin (DW)	Physical Vulnerabilities-Driving Indicators	Social Vulnerabilities-Driving Indicators
WESTERN FOOTHILLS				
Grass Valley Nevada City Penn Valley Smartville Rough and Ready North San Juan North Bloomfield Chicago Park Cedar Ridge Lake of the Pines Lake Wildwood Alta Sierra Cascade Shores	Name: Rolling Hills MHP Population served:12 Connections: 7 Water source: Groundwater Name: Milhous Trailer Court Population served:20 Connections: 9 Water source: Groundwater Name: Hideaway Cabins Population served:8 Connections: 5 Water source: Groundwater	Fractured Rock Aquifer	High Physical Vulnerability in all areas. <u>Driving Indicators:</u> • Geology and domestic well density in a fractured rock basin • Wildfire risk • Consecutive dry years • Water quality	Medium-high Social Vulnerability in Northeast of Grass Valley Medium Social Vulnerability near Grass Valley and around San Juan Ridge, including regions near French Corral, Sweetland, Montezuma Hill, and Bunker Hill Low to Medium Low Social Vulnerability in the rest of the Western Foothills <u>Driving Indicators:</u> • Poverty Level, per capita income • Education Attainment • Elderly Population, Non-Adult Population • Disability • Single Parent Households, Multi-Unit-Housed Population, mobile homes, crowded housing • No Vehicle Access
CENTRAL PORTION				
Washington Omega Graniteville Gaston Baltimore Town Bowman Lake area Lake Spaulding area	Name: Prairie Creek HOA Population served:24 Connections: 13 Water source: Groundwater	Fractured Rock Aquifer	• High Physical Vulnerability in Washington, Omega, Clyde Mountain, the regions along Yuba Pass from Crystal Lake to Camp Spaulding, Graniteville, areas around Bowman Lake, Murphy Flat, Hartley Butte, and Rattlesnake Mountain. • <u>Driving Indicators:</u> • Geology, domestic well density in a fractured rock basin	Low Social Vulnerability

Communities/ Incorporated Towns	SSWS-Name and Description	Groundwater Basin (DW)	Physical Vulnerabilities-Driving Indicators	Social Vulnerabilities-Driving Indicators
			Wildfire risk	
EASTERN PORTION				
Truckee Soda Springs Kingvale Norden area Serene Lake Donner Lake Hirschdale	Name: Frog Lake Campground Population served:20 Connections: 6 Water source: Groundwater	Martis Valley Groundwater Basin/ Fractured Rock Aquifer	High Physical Vulnerability in Kingvale, Soda Springs, Mount Stephens, southwest of Fordyce Lake in Magonigal Rd, Burnt Flat, southwest of Truckee around Donner Lake, Union Valley, Hinton, Iceland, Hobart Mills, Alder Hill Low to Medium Physical Vulnerability in northwestern of Truckee around Tahoe Donner Golf Course, Prosser, Buck Ridge, and Truckee <u>Driving Indicators:</u> - Geology, domestic well density in a fractured rock basin - Wildfire risk - Water quality	Low to Medium Low Social Vulnerability <u>Driving Indicators:</u> - Poverty Level, per capita income, unemployed population - Education Attainment - Elderly Population, Non-Adult Population - Disability - Single Parent Households, Multi-Unit-Housed Population, mobile homes, crowded housing - No Vehicle Access

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 County staff, Advisory Group members, and other stakeholders during development of the County DRP.

- Domestic Well and SSWS Data: Total SSWSs in the County as reported by County staff differ from the information available from the State. County Staff also noted that the domestic wells reported online are incomplete. Online databases could be updated using digitized County forms and local knowledge. County Staff have indicated the need for physical forms to be digitized.
- Other Water Systems: Advisory Group members noted that a more comprehensive risk assessment would include spring source systems, which are thought to be vulnerable to water supply shortages.

4.0 Drought and Water Shortage Risk Assessment

4.1 Introduction

STRAs are intended to mitigate the impacts of drought and water shortages during the initial and ongoing phases of an event. These actions address immediate vulnerabilities, while long-term strategies focus on reducing future risks. The County's risk assessment identifies areas with heightened susceptibility to shortages, including locations historically impacted by drought, deficiencies in water delivery infrastructure, and water quality concerns. This chapter defines water shortage stages and their associated triggers, as well as the STRAs the County may implement to address identified needs at each stage.

4.2 Water Shortage Stages

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.

The process is organized into three water shortage stages, each representing increasing levels of concern and severity:

- **Stage 1 - Information:** No significant drought or water shortage issues are present. The focus is on proactive communication and awareness-building.
- **Stage 2 - Alert:** Drought conditions are developing, or a wildfire or other natural disaster is occurring near communities served by domestic wells or SWSs. This stage emphasizes encouraging proactive responses.
- **Stage 3 - Response:** A water shortage is occurring or is likely imminent. Immediate response actions may be necessary to mitigate impacts.

4.2.1 Water Shortage Stage Determination

Indicators and trigger levels can support the recommendation of a water shortage stage and guide related response actions. They also help inform the public and can support the advancement of an emergency declaration to secure State and Federal resources. The following indicators may be used to assess current conditions and determine the appropriate water shortage stage, which will, in turn, guide the short-term actions outlined in this chapter. Indicators for consideration may include:

- [US Drought Monitor](#): The US Drought Monitor is a map updated every Thursday that classifies drought conditions across the United States into none, Abnormally Dry, Moderate, Severe, Extreme, and Exceptional.
- **Water Quality:** 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. Areas with known water quality issues that are monitored will be evaluated as part of this indicator.

- Applications for New Well Permits: Some counties have 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 no associated Dry Well Reports. The County can evaluate if these new applications are to replace an existing well as a proxy for water shortage.
- [California Dry Well Reporting System](#): 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.
- NID drought / water shortage declaration: NID maintains a Drought Plan as part of its Urban Water Management Plan to identify and respond to potential and actual water shortage conditions. The Drought Plan establishes six water shortage levels in accordance with CWC Section 10632(a)(3). The County may consider these declared shortage levels as part of its evaluation.

Table 4-1 summarizes key indicators and their associated triggers for each of the three water shortage stages. This table is not exhaustive; rather, it is intended to illustrate how indicators and triggers can be used to inform stage recommendations. Additional indicators and triggers may be developed by the County as needed to reflect evolving conditions and local priorities.

The County will evaluate the indicators listed in Table 4-1 in October and make a corresponding water shortage stage recommendation. 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.

Table 4-1. Indicators and Triggers for Water Shortage Stage Determination

Indicator	Stage 1 – INFORMATION No significant drought or water shortage issues	Stage 2 – ALERT Drought or other hazard occurring that could cause a water shortage	Stage 3 – RESPONSE Water shortage is either occurring or imminent
U.S. Drought Monitor	None/ Abnormally Dry	Moderate	Severe/Extreme/Exceptional
Application for New Well Permits	Any dry well reports submitted within the County should trigger evaluation of the cause of the water shortage.	If a dry well report, related to factors such as a very shallow well or aging infrastructure, shows that the situation is further exacerbated by drought, the County could consider moving to Stage 2 and continue monitoring for additional dry well reports.	If, after evaluating the dry well reports, it is found the features of the dry well (i.e., depth, age) are consistent with other wells in the area, that may indicate the potential for widespread water shortages and require a more comprehensive response.
California Dry Well Reporting System			
Water Quality		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.).	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.
Non-Drought Hazards		Hazards that temporarily interrupt domestic well or SSWS supplies for up to two days.	Hazards that interrupt domestic well or SSWS supplies for an extended period (3 or more days), including public safety power shutoffs.
NID drought / water shortage declaration	NID is operating under Stage 1 of its Water Shortage Contingency Plan and/or issues drought messaging requesting voluntary conservation (e.g., asking customers to reduce use by about 10%).	NID declares or escalates to a higher drought/water shortage stage (e.g., Stage 2), indicating worsening supply conditions and the potential need for broader actions (e.g., drought hardship process/committee when Stage 2 is declared).	NID Board adopts an emergency water shortage/drought emergency resolution requiring mandatory conservation measures (e.g., 20% reduction).

Key:

NID = Nevada Irrigation District

SSWS = state small water system

4.2.2 Process for Declaring a Shortage Stage

The County will make a corresponding water shortage stage declaration and notify the Advisory Group members. Initial stage determination should be assessed after winter precipitation has occurred (often April/May) and align with State and US Geological Survey Water Year declarations of drought. Water Years run from October 1 through September 30. Determination of drought stages should be made sometime after the end of a Water Year, when data on precipitation and reservoir levels are fully analyzed. However, if conditions change considerably during dry periods of the year, the County will re-assess as necessary.

4.3 Responding to a Water Shortage Stage

The County is responsible for developing a list of STRAs, which may include public communications and outreach efforts (as outlined in Chapter 2); coordination with local, regional, State, and Federal agencies; tracking and monitoring; and the distribution of emergency and interim potable water supply. A suite of STRAs was developed with input from Advisory Group members. Incorporating local conditions, lessons learned from past efforts to address water shortages, and the perspectives of the Advisory Group, this section presents the County's approach for responding to each of the three water shortage stages outlined in Section 4.2.

Communications and Public Engagement refer to disseminating State or local water conservation or water shortage messaging to the public. Activities related to this category will be enacted by Office of Emergency Services in coordination with County Department of Environmental Health

Conservation and Demand Management Programs: Develop water conservation incentive programs and work with domestic well and SSWS users to implement conservation measures. Activities related to this category will be enacted by the County Department of Environmental Health in coordination with Office of Emergency Services.

Interim drinking water supplies distribution refers to temporary water supplies provided for an extended period until a more permanent water source can be secured. Activities related to this category will be enacted by Office of Emergency Services.

Tracking and Monitoring programs are designed to improve water supply and water quality monitoring and testing for proactive mitigation. Activities related to this category will be enacted by the County Department of Environmental Health.

The County has aligned specific STRAs to each water shortage stage, as shown in Table 4-2. Additional STRAs not listed in the table may be identified and implemented based on the actual shortage conditions. Conversely, not all STRAs listed may be necessary or appropriate during every shortage event. The County should consider the nature and severity of the shortage when determining which STRAs to implement. Lead agencies and supporting organizations, as well as detailed description of actions, are included in Table 4-2.

Table 4-2. Short Term Response Action by Category

Category	STRA ID	Description/ Activities	Water Shortage Stage (S1, S2, S3)	Responsible Agencies
Communications and Public Engagement	STRA_01	Review communications protocol and coordinate on any public announcements (specific to domestic well owners and SSWSs).	S1	County Office of Emergency Services, County Environmental Health Department
	STRA_02	Update website to include resources on water shortage preparedness and well testing. Promote a Well Owner's Guide. Provide local and State links to drought information.	S1	County Office of Emergency Services, County Environmental Health Department
	STRA_03	Offer workshops on efficient irrigation methods and educate well users about alternative water sources, storage, and well water testing. Share water conservation messages through platforms such as YubaNet, press releases, County websites, newsletters, flyers, local events like fairs and farmers markets, roadway signs, and frequent local alerts. Engage local Firewise communities and leverage direct communication channels to effectively reach homeowners.	S1, S2, S3	County Environmental Health Department
	STRA_04	Share data and information on water shortage conditions in the County on a dedicated website.	S2, S3	County Office of Emergency Services, County Environmental Health Department, NID, Advisory Group
	STRA_05	Supply Interruption Notification of Proactive Power Outage: PG&E will provide notification through its system (Alert Center) to notify groundwater users of power interruptions that impact operation of domestic wells.	S2, S3	NID, Advisory Group, PG&E
	STRA_06	Maintain regular communications flow between local emergency services and other County departments.	S1, S2, S3	County Office of Emergency Services
Conservation and Demand Management	STRA_07	Promote water conservation best practices: Add County conservation resources information to public communication venues (website, bulletin board, public places, etc.).	S1, S2, S3	County Office of Emergency Services, County Environmental Health Department
	STRA_08	Streamline permit review and approval to expedite new or replacement wells during extended water shortage events.	S3	County Environmental Health Department

Category	STRA ID	Description/ Activities	Water Shortage Stage (S1, S2, S3)	Responsible Agencies
Interim drinking water supplies distribution	STRA_09	Use of licensed water haulers. Reference and utilize California State-approved potable water supply resources, including licensed water haulers as listed in this website: ep_dw_licensed_water_haulers.pdf . In California, water haulers must obtain a Water Hauler's License issued by the FDB. The license must be renewed annually, and water hauling vehicles must comply with all applicable State and Federal laws and regulations.	S1	County Office of Emergency Services, County Environmental Health Department
	STRA_10	Develop thresholds for communitywide procurement and delivery of packaged water during drought and water shortage emergencies	S1	County Office of Emergency Services
	STRA_11	Provide emergency potable water supplies , including dedicated water filling stations and bottled water, based on thresholds identified in STRA-10	S2, S3	County Office of Emergency Services
Tracking & Monitoring programs	STRA_12	Provide guidance on DW monitoring (website)	S1	County Environmental Health Department
	STRA_13	Monitor water conditions and assess geographic extent of dry conditions , aligned with wildfire mitigation planning efforts in the county, to determine potential impacted areas.	S1, S2, S3	County Environmental Health, in coordination with the County Office of Emergency Services

Key:

FDB = Department of Public Health, Food and Drug Branch

NID = Nevada Irrigation District

PG&E = Pacific Gas and Electric Company

SSWS = state small water system

STRA= short term response action

4.4 Mutual Aid Agreements and Pre-Negotiated Contracts

Mutual aid is an arrangement established prior to an emergency that provides personnel, equipment, materials, and/or associated services from other agencies to restore critical operations impacted during any type of emergency. The County does not directly hold mutual aid agreements related to water supply or drought; these agreements are typically established between agencies to facilitate the sharing of resources during emergencies. Once all local resources have been used, Nevada OES provides support and will facilitate the establishment of mutual aid agreements in the declaration of an emergency. Nevada OES maintains a collaborative agreement with the State and OES regions to ensure reciprocal assistance when local resources are exhausted.

5.0 Long-Term Mitigation Strategies and Actions

This chapter outlines a list of potential LTMSAs. LTMSAs are actions taken to reduce drought and water shortage impacts, improve water supply resilience, and reduce reliance on the STRAs described in Chapter 4.

5.1 Legislative Requirements

SB 552 requires each county develop a drought and water shortage plan that considers opportunities for implementing LTMSAs for domestic well owners and SSWs, per CWC Section 10609.70:

*(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 Methodology

The STRAs and LTMSAs identified were developed in parallel. The County and its Advisory Group members considered a variety of LTMSAs that could potentially assist vulnerable domestic wells and SSWs. Examples of strategies considered for the County include addressing data gaps, drinking water well mitigation programs, regional water infrastructure investment, and system consolidation.

5.3 Long-Term Mitigation Strategies and Actions Categories

LTMSAs were considered under six broad categories for better organization, communication, and comparison. These six categories align with the legislation set by the State and are described below.

- **Data Gaps.** This category aims to further develop and use accurate, complete, and accessible data related to domestic well and SSW conditions to support effective drought response and resource management and improve water resource sustainability.
- **Countywide Planning.** This category includes the development and adoption of countywide plans and coordinated strategies that promote sustainable water use, safeguard resources, and support drought responses.

- **Communication and Outreach.** This category seeks to create platforms and procedures to improve communication and information sharing with communities that rely on domestic wells and SSWs.
- **Drinking Water Well Mitigation.** This category includes technical, financial, and informational support actions to mitigate the impacts of water scarcity and enhance the resilience of domestic wells and SSWs.
- **Regional Water Infrastructure Investment.** This category encompasses actions focused on improving infrastructure, facilitating system consolidation when applicable, and promoting efficient water use to strengthen overall water management.
- **System Consolidation.** This category focuses on integrating smaller, independent water systems to improve reliability, efficiency, and resource management. The efforts laid out in the LTMSA aim to strengthen water system reliance and foster collaboration for long-term sustainability.

5.4 Proposed Long-Term Mitigation Strategies and Actions for Nevada County

The County, in consultation with the Advisory Group members and public survey, developed the list of LTMSAs provided in Table 5-1. The LTMSAs were identified with a specific aim to address the vulnerabilities identified through the risk assessment (Chapter 3). The LTMSA table includes descriptions for strategies under each of the six categories, potential lead agencies who may be responsible for implementation and coordination, and implementation status.

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

Category	LTMS ID	Description	Lead Agency	Status
Data Gaps (DG)	LTMS_DG_01	Domestic Well Monitoring (wells in use): Identify and document all domestic wells in use in the county.	County Environmental Health Department	Ongoing
	LTMS_DG_02	Domestic Well Monitoring (wells condition): Integrate countywide GIS viewers or alike with an Environmental Health database to provide a real time picture of domestic well data, including well location, well depth, and most recent water quality results.	County Environmental Health Department	Ongoing
	LTMS_DG_03	Evaluate and update Well Completion Report administrative record: County to complete a review of well completion reports maintained by DWR and update for geographic location, operation, and other factors. Update the record with paper records maintained by the County to the State registry.	County Environmental Health Department	Ongoing
	LTMS_DG_04	Dry Well Reporting: County to coordinate with DWR and other entities to improve the accuracy of dry well reporting. • Evaluation of County well completion reports to identify wells installed to supplement low-performing wells. • Prepare annual reporting to SWB based on site evaluations.	County Environmental Health Department	Ongoing
	LTMS_DG_05	Dry Well Abandonment: County to review well completion reports to identify wells installed to replace dry wells and determine compliance with County policy for formal abandonment. • Conduct comprehensive field investigation to identify abandoned wells and ensure those abandoned wells are properly destroyed under the Environmental Health permit. • Update appropriate County and other databases as needed.	County Environmental Health Department	Ongoing
Countywide Planning (CP)	LTMS_CP_01	Regional Planning Integration: County to update its Multi-Jurisdictional Hazard Mitigation Plan, its Emergency Operations Plan, Community Wildfire Protection Plan, Resources Resiliency Roadmap and/or related documents to confirm interagency roles, responsibilities, and actions related to the DRP implementation.	County Office of Emergency Services	Ongoing
Communication and Outreach (CO)	LTMS_CO_01	Website presence: Establish a county dedicated webpage for the DRP and related information.	County Environmental Health Department	Completed

Category	LTMS ID	Description	Lead Agency	Status
	LTMS_CO_02	Identify state resources and links for well drillers, laboratories, and other entities that could help domestic wells and SSWSs evaluate well condition, rehabilitation efforts, and replacements (as needed).	County Environmental Health Department and County Office of Emergency Services	Ongoing
	LTMS_CO_03	Drought-Resilient Landscaping and Wildfire Mitigation: Encourage the use of drought-tolerant and fire-resistant landscaping to reduce outdoor water use and promote wildfire risk reduction.	County Environmental Health Department as lead in coordination with NID	Ongoing
Drinking Water Well Mitigation (DWWM)	LTMS_DWWM_01	Grant application assistance Opportunities: As available, identify and apply for grants to provide assistance to domestic well and SSWS operators in their applications for available Federal, State, local, and other funding sources that assist in replacement or remediation of existing wells.	County Environmental Health Department in coordination with Community development and County Office of Emergency Services as collaborator	Ongoing
	LTMS_DWWM_02	Non-Drought Hazard Assessment: Assess the potential risk for non-drought hazards (e.g. wildfires, earthquakes, landslide[s]) that could interrupt domestic well or SSWS supplies and provide findings to appropriate planning efforts.	County Environmental Health Department and County Office of Emergency Services	Ongoing
	LTMS_DWWM_03	Storage Water Tank Installation Program: Coordinate and collaborate with DWR and other entities to assist domestic well and SSWS operators with sizing and installing water storage tanks at existing wells.	County Environmental Health Department and County Office of Emergency Services	Ongoing
Regional Water Infrastructure Investment (RWII)	LTMS_RWII_01	Promote Rainwater Catchment and Storage: - Develop a countywide plan to encourage rainwater collection. - Promote the implementation of greywater systems, micro pond storage, and rainwater catchment systems installation.	County Environmental Health Department	Not Started

5.0 Long-Term Mitigation Strategies and Actions

Category	LTMS ID	Description	Lead Agency	Status
		• Collaborate with vendors to offer discounts on water storage and rainwater systems. • Provide workshops on building rainwater catchment for garden and plant irrigation.		
System Consolidation (SC)	LTMS_SC_01	System Consolidation Planning and Implementation: Coordinate with regional water suppliers to identify opportunities for consolidating domestic wells and SSWSs to nearby water systems to improve overall reliability.	County in coordination with water agencies NID, TDPUD	Not Started

Key:

NID = Nevada Irrigation District

SWB = State Water Board

SSWS = state small water system

TDPUD = Truckee Donner Public Utility District

5.4.1 Regional Water Infrastructure Investment Opportunity Detail

Regional water infrastructure projects are intended to improve water supply reliability. There is substantial ongoing planning focused on identifying and prioritizing investments, and the County will continue to participate in and coordinate with these efforts to advance domestic well and SSWS interests where applicable. In addition to the LTMSAs listed in Table 5-1, Table 5-2 expands on LTMS_CPP_02 (Regional Planning Integration) and LTMS_RWII_03 (System Expansion Opportunities) by summarizing proposed projects in the County, as well as suggestions from advisory group members that align with County DRP goals to support vulnerable water users. This list is not exhaustive, and the County should continue to participate in regional planning efforts to identify additional infrastructure opportunities. Ongoing coordination will help ensure both regional and County plans incorporate the needs of domestic wells and SSWS.

Table 5-2. Regional Water Infrastructure Investment Opportunity for LTMS_RWII_02 (County Planning Integration/Regional Planning)

Regional Water Infrastructure Opportunity	Applicability to Domestic Wells and State Small Water Systems	Lead Agency
CABY Integrated Regional Water Management Plan – 2021 Update	IRWM program framework + Prop 1 access for projects like interties, small-system consolidations, drought resilience, storage, and conservation that can benefit SSWs and nearby domestic-well users.	CABY RWMG; locally includes NID
Tahoe-Sierra IRWM Plan (2014) & 2019 Update (draft)	Regional project pipeline for the Truckee/Martis side (eastern Nevada County): funding/coordination for supply reliability, interties, conservation, and drought mitigation for small systems.	Tahoe-Sierra IRWM Group; fiscal lead STPUD.
Martis Valley Groundwater Management Plan (2013) & Five-Year Update (2025)	Groundwater monitoring/management objectives that help protect domestic wells in the Martis Basin; supports well-level protections, sustainable yield, and coordinated actions across agencies.	TDPUD, PCWA, Northstar CSD
Truckee Donner PUD – 2020 UWMP & WSCP (links on Water page)	Shortage staging and response, supply reliability, and capital upgrades; can inform and support interties/backup supply options for neighboring small systems. Documents: 2020 UWMP, 2020 WSCP, Water Facilities Replacement Plan, Master Plan.	TDPUD
Nevada Irrigation District – 2020 UWMP (with WSCP)	Shortage stages, demand reduction, and supply augmentation for western Nevada County; provides basis for wholesale support/interties that can benefit small systems; coordinates with Grass Valley/Nevada City supplies.	NID
NID “Plan for Water” (long-range resource planning)	Long-range scenario planning (demand, supply, climate) that can shape regional reliability projects and redundancy/intertie concepts relevant to small systems.	NID
City of Nevada City – Drought Action Plan (WSCP)	City-level shortage triggers/actions; coordination point with NID wholesale and neighboring systems; useful precedent for localized emergency measures that SSWs can mirror.	City of Nevada City.
Nevada County Hazard Mitigation Plan (2024 draft)	Countywide mitigation strategy and project list (including drought/water shortage). Can elevate well/SSWS infrastructure (back-up power, storage, interties) for grant eligibility (FEMA BRIC/HMGP).	Nevada County OES
Nevada County – Small Water Systems (Local Primacy Agency)	Regulatory/program coordination for SSWs; important partner for regionalization and consolidation efforts identified in plans above.	Nevada CDA
Drought Contingency Plan (DSPUD Water Shortage Contingency plan)	Although this plan applies specifically to DSPUD’s public water system, it provides a drought response framework that can inform SSWs drought planning, including defined shortage stages, demand-reduction measures, and public communication protocols. The plan addresses supply reliability concerns associated with Lake Angela, DSPUD’s primary surface-water source, and outlines response actions	Donnor Summit Public Utility District

Regional Water Infrastructure Opportunity	Applicability to Domestic Wells and State Small Water Systems	Lead Agency
	during periods of reduced lake storage or inflow. These approaches can support County-level drought response planning for SSWs and domestic well users by illustrating how surface-water shortages may translate into broader community impacts and the need for interim water supplies, emergency coordination, and public outreach during drought conditions.	
Water Supply Resiliency Study	This study evaluates the vulnerability of DSPUD's water supply, including Lake Angela, to drought, climate variability, wildfire, and long-term water supply reliability risks. While focused on a public water system, the study provides a useful analytical framework that can be applied to SSWs, such as assessment of source-water reliability, identification of climate-driven risks, and evaluation of potential resilience measures. The findings related to Lake Angela's drought sensitivity and operational constraints can also inform County understanding of regional drought impacts, helping to guide planning for domestic well users who may experience similar water availability challenges during prolonged dry periods.	Donnor Summit Public Utility District

Key:

CABY = Cosumnes, American, Bear and Yuba River

CDA = Community Development Agency

CSD = Community Service District

DSPUD = Donner Summit Public Utility District

FEMA BRIC = Federal Emergency Management Agency Building Resilient Infrastructure and Communities

HMGP = Hazard Mitigation Grant Program

IRWM = Integrated Regional Water Management

NID = Nevada Irrigation District

OES = Office of Emergency Services

PCWA = Placer County Water Agency

RWMG = Regional Water Management Group

SSWS = State Small Water System

STPUD = South Tahoe Public Utility District

TDPUD = Truckee Donner Public Utility District

5.4.2 System Consolidation

SB 552 requires counties, as part of the County DRP development process, to consider consolidation opportunities with the potential to improve water supply reliability for domestic wells and SSWs. These opportunities may involve the administrative or physical consolidation of domestic wells and SSWs into existing public water systems within their current service area boundaries. As an initial step, a high-level preliminary evaluation was done to help identify potential consolidation opportunities.

5.4.2.1 *Methodology for Assessing System Consolidation Opportunities*

Proximity to public water systems is a key factor in evaluating consolidation opportunities for domestic wells and SSWs. To assess this potential, the spatial relationships between domestic wells, SSWs, and public water systems were analyzed. Areas where domestic wells or SSWs were located within 1 mile of a public water system were considered to have higher feasibility for consolidation. This proximity-based screening approach helped identify potential feasible interconnection scenarios for further consideration and analysis.

In addition to proximity, other factors need to be considered, including infrastructure feasibility, water supply capacity, financial implications, political will, regulatory drivers, operational capacity, and community acceptance.

As appropriate, the County may coordinate with domestic well users, SSW users, and public water systems in the identified areas to further assess the feasibility of consolidation.

5.4.2.2 *Results*

The spatial analysis considered 10 potential consolidation areas where domestic wells or SSWs are located within 1 mile of a public water system. Figure 5-1 illustrates the spatial relationship between domestic wells within PLSSs and SSWs in relation to nearby public water systems. Among the SSWs evaluated, Frog Lake Campground is located within Truckee-Donner PUD public water system service area, making it a potential candidate for a consolidation feasibility study. In contrast, other SSWs are located at distances greater than the 1-mile criteria, reducing the feasibility of interconnection. Prairie Creek HOA is located 17 miles from the Washington Water District's public water system, Hideaway Cabins is approximately 3 miles from the Washington Ridge C.C. public water system, and Rolling Hills MHP and Milhous Trailer Court are 4.8 and 4.3 miles (respectively) from the Shady Lake Water Association water system.

Table 5-3 summarizes key information for each focus area included in the risk assessment, including areas with identified consolidation opportunities (as shown in Figure 5-1), their physical vulnerability scores, the number of domestic wells and SSWs, associated public water systems, and data on service connections, population served, and SAFER (Safe and Affordable Funding for Equity and Resilience) status. The SAFER status, developed by the State Water Board, indicates a water system's risk level in providing safe, affordable, and reliable drinking water.

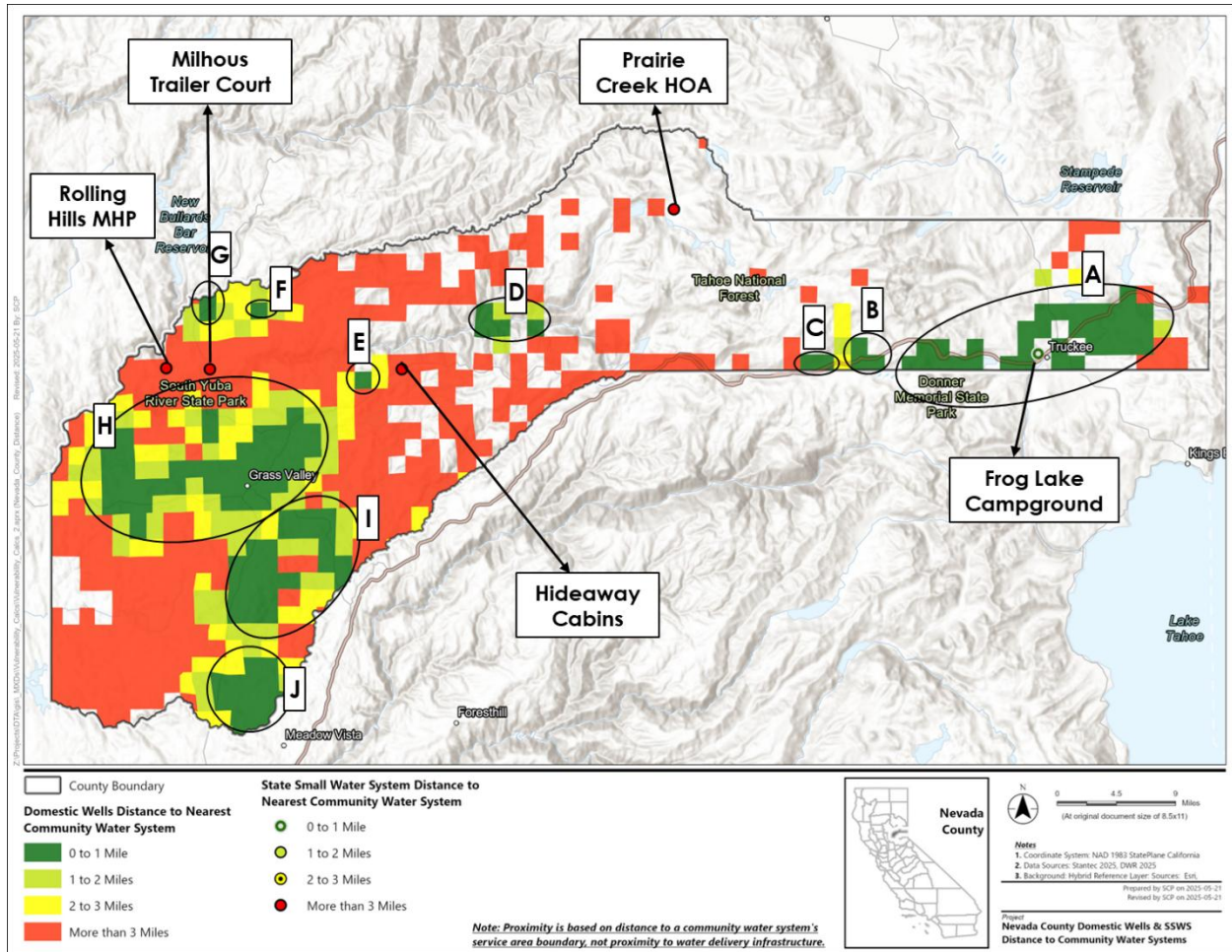


Figure 5-1. The Proximity of Domestic Wells with a Public Land Survey Section and State Small Water Systems to Public Water Systems

Table 5-3. Areas of System Consolidation Opportunities

Subbasin	Area of System Consolidation Opportunity	Physical Vulnerability Score	Approx. Number of Domestic Wells	State Small Water Systems in the Area			Potential Public Water Systems for Consolidation			
				Name	Service Connection	Population Served	Name	Service Connection	Population Served	SAFER status
Eastern Portion	A	Moderate	271	Frog Lake Campground	6	20	TRUCKEE-DONNER PUD, MAIN	13,657	36,730	Not At-Risk
							TRUCKEE-DONNER PUD - HIRSCHDALE	25	85	Potentially At-Risk
	B	High	11	-	-	-	DONNER SUMMIT PUBLIC UTILITY DISTRICT	362	310	At-Risk
	C	High	20	-	-	-	PLAVADA COMMUNITY ASSOCIATION	269	376	Not At-Risk
Central Portion	D	High	12	-	-	-	WASHINGTON WATER DISTRICT	115	330	Potentially At-Risk
Western Foothills	E	High	37	-	-	-	WASHINGTON RIDGE C.C.	3	62	Not At-Risk
	F	High	21	-	-	-	ANANDA VILLAGE	98	233	Potentially At-Risk
	G	High	108	-	-	-	SHADY LAKE WATER ASSOCIATION	28	90	Not At-Risk
	H	High	2,736	-	-	-	CITY OF GRASS VALLEY	2,486	4,947	Not At-Risk
							NEVADA ID - E. GEORGE, BANNER MOUNTAIN	6,154	17,154	Not At-Risk

Subbasin	Area of System Consolidation Opportunity	Physical Vulnerability Score	Approx. Number of Domestic Wells	State Small Water Systems in the Area			Potential Public Water Systems for Consolidation			
				Name	Service Connection	Population Served	Name	Service Connection	Population Served	SAFER status
							YULICA	13	25	Not At-Risk
Western Foothills continued	H	High	2,736	-	-	-	NEVADA ID - LAKE WILDWOOD	3,229	9,108	At-Risk
							SIERRA ESTATES MUTUAL WATER COMPANY	32	100	Potentially At-Risk
							CREEKSIDE VILLAGE	131	300	At-Risk
	I	High	2,375	-	-	-	NEVADA ID - LOMA RICA	4,994	14,072	At-Risk
	J	High	899	-	-	-	NEVADA ID - LAKE OF PINES	2,470	6,870	At-Risk
							MIDWAY HEIGHTS C. W. D.	452	1,491	Not At-Risk
							MEADOW VISTA CWD	1,539	5,787	Not At-Risk

Key:

SAFER = Safe and Affordable Funding for Equity and Resilience

5.4.2.3 *County follow up on Consolidation Opportunities*

Given the analysis presented in the previous section, the County will remain engaged in regional and local planning discussions to better understand potential consolidation opportunities with public water systems where appropriate. Consolidation requires coordination, technical evaluation, and stakeholder engagement; however, the County does not currently have dedicated funding to support participation in these efforts. Future involvement in consolidation planning will depend on the availability of State funding and targeted allocations to support these activities. The County will continue to monitor opportunities and support coordination where feasible.

6.0 Implementation Considerations

The STRAs and LTMSAs identified and described in Chapters 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 SWS 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 County DRP with other County policy and County and regional planning documents
- Adaptive management
- Identifying funding opportunities

6.1 Legislative Direction

SB 552 requires each county include an analysis of steps and funding needs for implementation of actions and strategies to support domestic wells and SWSs, per CWC Section 10609.70:

*(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 Challenges and Barriers

Implementing the actions and strategies identified in the County DRP will require deliberate planning and proactive management of several key challenges.

Community Buy-In and Public Education: Gaining community support is essential to successful implementation, particularly in areas where there is limited trust in government-led programs. In the absence of broad public acceptance, initiatives related to water system improvements or drought response measures may face opposition or delays. Targeted public outreach and education efforts that clearly communicate drought risks, preparedness needs, and the long-term benefits of proposed actions can help improve understanding, build trust, and encourage meaningful community participation.

Infrastructure and Consolidation Costs: Financial constraints present a significant barrier to system consolidation efforts. The costs associated with extending or upgrading infrastructure to serve smaller or geographically isolated water systems can be substantial. Overcoming this challenge will require identifying reliable funding mechanisms and designing financial incentives that reduce cost burdens and improve the feasibility of consolidation.

Emergency Infrastructure Costs: The County and local water providers may need to implement emergency response actions during drought or system outages. These actions can include the use of temporary interconnections, backup water supplies, mobile treatment units, hauled water, or short-term conveyance improvements. Such measures are often required on short notice and may involve higher unit costs than planned projects. Proactively identifying funding sources, pre-approved response strategies, and potential emergency infrastructure options can help reduce response time and financial strain during emergency conditions.

County Budget and Staffing Capacity: Limited County budget resources and staffing capacity may constrain implementation of DRP actions. Many strategies require ongoing coordination, grant administration, technical review, community outreach, and monitoring, all of which depend on available personnel and funding. Competing priorities across County departments may further limit the ability to dedicate staff time to drought resilience initiatives. Securing sustainable funding sources and ensuring adequate staffing support will be critical to advancing and maintaining DRP implementation over the long term.

6.3 Implementation Roadmap

The County DRP identifies existing and proposed STRAs and LTMSAs that support compliance with CWC Section 10609.70(b)(1)– (3). To support implementation of the County DRP and help address identified constraints, a range of supporting activities may be pursued. These activities are intended to improve coordination, enhance preparedness, and increase the effectiveness of proposed actions and strategies.

Interagency Coordination: Strengthening collaboration and coordination among County departments, water providers, and other regional and State partners can improve efficiency and reduce overlapping efforts. Clearly defining responsibilities, maintaining consistent communication, and utilizing formal mechanisms, such as memoranda of understanding or cooperative agreements, may facilitate a coordinated implementation approach.

Public Engagement and Communications: Effective outreach is essential for building public trust and encouraging participation in drought-related initiatives. Planning efforts may include producing multilingual outreach materials, convening stakeholder workshops, and implementing education and engagement strategies that address the needs of disadvantaged and vulnerable communities.

Technical Assistance and Capacity Support: Collaboration with technical assistance providers, nonprofit organizations, and academic partners can help address resource and capacity gaps faced by small

systems and domestic well users. These partnerships may provide assistance with grant development, technical evaluations, and regulatory compliance, thereby improving overall implementation capacity.

Several supporting activities may be undertaken to facilitate DRP implementation, address identified challenges, and improve coordination, readiness, and implementation outcomes.

6.4 Drought Resilience Plan Updates

The final County DRP will be added as an annex to the Nevada County Hazard Mitigation Plan (HMP) and will be updated as part of the HMP updates in the future.

6.4.1 Regional Planning Alignment

The County will ensure updates to the County DRP align with and support existing planning efforts to promote consistency and maximize the effectiveness of initiatives across County departments. This includes identifying opportunities where information from other plans can be integrated into the County DRP, fostering a cohesive and coordinated approach to drought resilience.

6.5 Funding Opportunities and Assistance Programs

Implementation of the actions and strategies in Chapters 4 and 5 will require sufficient financial resources. The County may consider the funding opportunities identified in Table 6-1 to support execution of the DRP.

6.5.1 State Funding Programs

Resources available at the State level typically come in the form of technical assistance, grants, and loans. Given the continually evolving conditions surrounding grant availability, eligibility criteria, and application requirements, the County may continue to use the California Grants Portal to investigate available funding. State assistance programs include those listed in Table 6-1.

Table 6-1. State Funding and Resources

Resource	Agency	Description
California Grants Portal	California State Library	Searchable webpage with information on State grants and loan opportunities
Countywide and Regional Funding Programs (SAFER)	SWB	Grant funding to implement regional programs that address urgent drinking water needs and drought-related and/or contamination issues for SSWs and domestic wells serving DACs and low-income households
SCFP	SWB-DFA, Office of Sustainable Water Solutions	Support for small DACs—those providing drinking water service to fewer than 10,000 people or wastewater service to fewer than 20,000 people, and with an MHI below 80% of the statewide MHI—may include technical assistance, interim water supplies, and implementation of eligible drinking water or wastewater capital improvement projects.
DWSRF	SWB-DFA	Loans for consolidation and regionalization projects
FAF—Grants and Loans website	SWB-DFA	Information on and links to grant and loan programs (SWB and other agencies). Covers more than SSWs and domestic wells.
Domestic Water Wells and State Smalls Program	SWB	Assistance to disadvantaged individuals or households served by an SSW or domestic well with a water quality issue
Expedited Drinking Water Grant Funding Program	SWB	Grants for drinking water infrastructure projects, including Proposition 1, Proposition 68, the Safe and Affordable Drinking Water Fund, and the <i>Budget Act</i> of 2021
Technical Assistance	DWR	Resources to local and regional organizations through four regional offices
Grants and Loans	DWR	Grant and loan programs that support integrated watershed management activities addressing environmental stewardship, water supply reliability, flood risk, groundwater sustainability, drought, and more
CFCC Funding Information	CFCC	Information on and links to grants, loans, and bond financing for infrastructure projects from State agencies (SWB, DWR, California Department of Housing and Community Development, California Infrastructure and Economic Development Bank) and two federal agencies (USBR, USDA Rural Development); also information on and links to California Rural Water Association and Rural Community Assistance Corporation; tabs for funding fairs, infrastructure funding programs, and additional funding programs
Integrated Climate Adaptation and Resiliency Program	California Governor's Office of Land Use and Climate Innovation	Information and links to planning and implementation grant programs, technical assistance, and other resources to support planning for and adapting to climate change.

Key: CFCC = California Financing Coordinating Committee
DWR = California Department of Water Resources
MHI = median household income
SCFP = Small Community Funding Program
USDA = U.S. Department of Agriculture

DAC = Disadvantaged Community
DWSRF = Drinking Water State Revolving Fund
SAFER = Safe and Affordable Funding for Equity and Resilience
SSWS = State Small Water Systems
USBR = U.S. Bureau of Reclamation

DFA = Division of Financial Assistance
FAF = Financial Assistance Funding
SWB = State Water Board

6.5.2 Federal Assistance Programs

The majority of resources available at the Federal level typically come in the form of grants and loans. Given the continually evolving conditions surrounding grant availability, eligibility criteria, and application requirements, the County may register with GRANTS.GOV to receive timely updates on active grants and their specifications. Federal assistance programs include those listed in Table 6-2.

Table 6-3 lists potential funding sources that may support the implementation of identified short-term actions and long-term strategies. It outlines relevant local, State, and Federal funding programs that align with various needs, including emergency water supply provisions, infrastructure improvements, water conservation efforts, community outreach, administrative coordination, and system consolidation.

Table 6-2. Federal Funding and Resources

Resource	Agency	Description
Grants.gov		Searchable webpage for Federal funding opportunities (information, links, application forms, application submittals)
Drought in Action	NOAA, NIDIS	Information and links to funding offered by NIDIS and its partners related to drought early warning research across many sectors and fields
HMAG	FEMA	Funding for eligible long-term solutions that reduce the impact of disasters in the future. Information on many funding/assistance opportunities.
Building Resilient Infrastructure and Communities	FEMA	Pre-disaster funding and technical assistance for hazard mitigation projects to reduce risks from disasters and natural hazards.
Hazard Mitigation Grant Program	FEMA	Post-disaster funding to develop HMPs and rebuild in a way that reduces, or mitigates, future disaster losses in a community.
WaterSMART Program	U.S. Department of the Interior, USBR	Funding to support water management improvements, planning and design activities, water reclamation and reuse projects, collaborative watershed groups, watershed management projects, habitat restoration and improved fish passage, drought planning, implementation actions to proactively address water shortages, and other similar projects that contribute to sustainability.
Drought Response Program	USBR	Funding for drought contingency planning, drought resiliency projects, and emergency response actions.
SSWEG	USBR	Funding for small water efficiency improvements that have been identified through previous planning efforts.
Rural Utilities Service Water and Environmental Programs—Water and Environmental Grant and Loan funding	USDA, Rural Development	Technical assistance, training, and financing to develop drinking water and waste disposal systems in rural communities (populations of 10,000 or less).
ECWAG	USDA, Rural Development	Funding to prepare, or recover from, an emergency that threatens the availability of safe, reliable drinking water in rural areas and towns with populations of 10,000 or less. Check eligible addresses for funding. Applications for this program are accepted year-round, online through RD APPLY

Notes:

ECWAG = Emergency Community Water Assistance Grants
 HMAG = Hazard Mitigation Assistance Grants
 NIDIS = National Integrated Drought Information System
 SSWEG = Small-Scale Water Efficiency Grants
 USDA = U.S. Department of Agriculture

FEMA = Federal Emergency Management Agency
 HMP = Hazard Mitigation Plan
 NOAA = National Oceanic and Atmospheric Administration
 USBR = U.S. Bureau of Reclamation

Table 6-3. Potential Resources to Consider for Short-Term and Long-Term Actions Implementation

Short-Term Actions/Long-Term Strategies	Local Funding	State Funding	Federal Funding
Emergency water supplies (bottled water, tanks and hauled water, kiosk filling stations)		SAFER, SCFP	Drought Response Program
Emergency response—backup generators (funds backup generators to support continuous operations during power failures)		SCFP, FAF	Drought Response Program ECWAG
Conservation—water use efficiency measures (leak detection, dataloggers, flowmeters, conservation incentive rebates/audits, well testing)	Local technical assistance	SAFER	SSWEG
Community outreach (information sharing and education)	Local technical assistance	SAFER	
Infrastructure installation, maintenance, repair, or rehab (well repairs and/or replacement) Drinking water infrastructure projects including schools and tribes Water quality issues		SAFER, SCFP, FAF	ECWAG
Administration—grant and loan application and administration assistance, coordination (with other SSWs, domestic wells, self-supplied; GSAs; State agencies; Federal agencies, develop reserve funds to support SSWs)	Local technical assistance	SCFP, FAF	
Consolidation or regionalization efforts Regional programs to assist SSWs and domestic wells Consolidation planning and construction		SAFER, SCFP, DWSRF	HMAG WaterSMART ECWAG

Notes:

DWSRF = Drinking Water State Revolving Fund

FAF = Financial Assistance Funding

HMAG = Hazard Mitigation Assistance Grants

SCFP = Small Community Funding Program

SSWS = State Small Water System

ECWAG = Emergency Community Water Assistance Grants

GSA = Groundwater Sustainability Agency

SAFER = Safe and Affordable Funding for Equity and Resilience

SSWEG = small-Scale Water Efficiency Grants

7.0 References

- ATSDR (Agency for Toxic Substances and Disease Registry), 2007. Toxicological Profile for Arsenic. <https://www.atsdr.cdc.gov/toxprofiles/tp2.pdf>
- ATSDR, 2010. Toxicological Profile for Boron. <https://www.atsdr.cdc.gov/toxprofiles/tp26.pdf>
- ATSDR, 2012. Toxicological Profile for Chromium. <https://www.atsdr.cdc.gov/toxprofiles/tp7.pdf>
- ATSDR, 2013. Toxicological Profile for Uranium. <https://www.atsdr.cdc.gov/toxprofiles/tp150.pdf>
- ATSDR, 2017. Toxicological Profile for Nitrate and Nitrite. <https://www.atsdr.cdc.gov/toxprofiles/tp204.pdf>
- ATSDR, 2021. Toxicological Profile for 1,2,3-trichloropropane. <https://www.atsdr.cdc.gov/toxprofiles/tp57.pdf>
- ATSDR, 2023. Toxicological Profile for Methyl *tert*-Butyl Ether (MTBE). <https://www.atsdr.cdc.gov/ToxProfiles/tp91.pdf>
- Barreau et al. "Physical, Mental, and Financial Impacts From Drought in Two California Counties, 2015," American Journal of Public Health 107, no. 5 (May 1, 2017): pp. 783-790.
- BestPlaces. (n.d.). Nevada County, California climate. BestPlaces. Retrieved February 23, 2026, from <https://www.bestplaces.net/climate/county/california/nevada>
- California Energy Commission. 2018. Sierra Nevada Region Report: California's Fourth Climate Change Assessment. SUM-CCCA4-2018-004. Sacramento, CA. https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-004_SierraNevada_ADA.pdf
- County of Nevada. (1995). Chapter 12: Soils (Nevada County General Plan). Nevada County Planning Department. <https://www.nevadacountyca.gov/DocumentCenter/View/12584/Chapter-12-Soils-1995-PDF>
- County of Nevada (a). (1995). Chapter 1: Land Use (Nevada County General Plan). Nevada County Planning Department. <https://www.nevadacountyca.gov/DocumentCenter/View/12573/Chapter-1-Land-Use-2020-PDF>
- County of Nevada (b). (1995). Chapter 16: Agriculture (Nevada County General Plan). Nevada County Planning Department. <https://www.nevadacountyca.gov/DocumentCenter/View/12588/Chapter-16-Agriculture-1995-PDF>
- County of Nevada (c). (1995). Chapter 11: Water (Nevada County General Plan). Nevada County Planning Department. <https://www.nevadacountyca.gov/DocumentCenter/View/12583/Chapter-11-Water-1995-PDF>

- DWR (California Department of Water Resources). 2023. County Drought Resilience Plan Guidebook. https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/SB-552/DWR_Final_Guidebook_20230313_ADA_508_v5.pdf.
- DWR, 2024a. California Water Watch. <https://cww.water.ca.gov/info?address=Sierra%20County,%20CA,%20USA>
- DWR, 2024b. Water Shortage Vulnerability. <https://water.ca.gov/Programs/Water-Use-And-Efficiency/SB-552/SB-552-Tool>
- FEMA (Federal Emergency Management Agency), 2013. https://www.fema.gov/sites/default/files/2020-06/fema-local-mitigation-planning-handbook_03-2013.pdf
- Greene, Christina. Broadening understandings of drought: the climate vulnerability of farmworkers and rural communities in California (USA). Revised and Resubmitted 2018. Environmental Science & Policy.
- NID (Nevada Irrigation District). (2021). 2020 Urban Water Management Plan: Public Draft – June 14 (Nevada Irrigation District). <https://www.nidwater.com/files/781fc90c3/NID+2020+UWMP+Public+Draft+June+14.pdf>
- Nevada County. (2016). 14.0 Public Services and Utilities (Draft Environmental Impact Report – Dollar General Stores, Nevada County). Nevada County, CA. <https://www.nevadacountyca.gov/DocumentCenter/View/11220/140-Public-Services-and-Utilities-PDF>
- Nevada County, 2021. Demographic & Statistical Profile. <https://www.nevadacountyca.gov/DocumentCenter/View/38786/Nevada-County-Demographic-and-Statistical-Profile?bidId=>
- Soltero, E.M. (2013). Geochemical relations between surface water and groundwater in Nevada County, California (Master's thesis, California State University, Chico). ScholarWorks – California State University. <https://scholarworks.calstate.edu/downloads/qf85nb87b>
- State Water Board (State Water Resources Control Board), 2020. Public Drinking Water Watch. <https://sdwis.waterboards.ca.gov/PDWW/JSP/SearchDispatch?number=&name=&county=SIERRA&WaterSystemType=All&WaterSystemStatus=A&SourceWaterType=All&action=Search+For+Water+Systems>
- State Water Board, 2024. 2024 Aquifer Risk Map. <https://gispublic.waterboards.ca.gov/portal/apps/experiencebuilder/experience/?id=18c7d253f0a44fd2a5c7bcfb42cc158d>
- The Sierra Fund, 2008. Mining's Toxic Legacy: An Initiative to Address Mining Toxins in the Sierra Nevada. https://www.sierrafund.org/wp-content/uploads/MININGS_TOXIC_LEGACY_2010printing_4web.pdf

USCB (United States Census Bureau), 2020. Race. California. [Nevada County, California - Census Bureau Profile](#)

USEPA (United States Environmental Protection Agency), 2023. Septic Systems and Surface Water. <https://www.epa.gov/septic/septic-systems-and-surface-water>

USEPA, 2024. Potential Well Water Contaminants and Their Impacts. <https://www.epa.gov/privatewells/potential-well-water-contaminants-and-their-impacts>



Nevada County Drought Resilience Plan
Administrative Final

Prepared for:
Nevada County

Prepared by:
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