Humboldt County
Drought Resilience Plan

November 2025

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Table of Contents

List of Figures

List of Tables

Acronyms and Abbreviations

°C	degrees Celsius
°F	degrees Fahrenheit
ACS	American Community Survey
CBG	Census Block Group
CDAG	County Drought Advisory Group
CDPH	California Department of Public Health
CHA	Community Health Assessment
County	Humboldt County
CSD	Community Services District

CWC	California Water Code
DEH	Division of Environmental Health
DHHS	Humboldt County Department of Health and Human Services
DRP	Drought Resilience Plan
DWR	California Department of Water Resources
EOC	Emergency Operations Center
FDB	Department of Public Health, Food and Drug Branch
FEMA	Federal Emergency Management Agency
GSA	Groundwater Sustainability Agency
GSP	Groundwater Sustainability Plan
Guidebook	County Drought Resilience Guidebook
H&SC	California Health and Safety Code
HBMWD	Humboldt Bay Municipal Water District
HPI	California Healthy Places Index
HSC	California Health and Safety Code
HUC	Hydrologic Unit Code
LAFCo	Local Agency Formation Commission
Legislature	State Legislature
LHMP	Local Hazard Mitigation Plan
LTMSA	long-term mitigation strategy and action
MHOAC	Medical Health Operational Area Coordinators
NGO	Non-Governmental Organization
OES	Office of Emergency Services
Planning Department	Humboldt County Planning and Building Department
PLSS	Public Land Survey Section
Public Works	Humbolt County Public Works Department
RV	recreational vehicle
SB	Senate Bill
SMGA	Sustainable Groundwater Management Act

SSWS	state small water system
State Water Board	California State Water Resources Control Board
State	State of California
STRA	short-term response action
Task Force	Humboldt County Drought and Water Shortage Task Force
TMDL	Total Maximum Daily Load
UC	University of California
Water Shortage ERP	Drought and Water Shortage Emergency Response Process
WSVE	DWR Water Shortage Vulnerability Explorer

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1.0 Introduction

The Humboldt County (County) Drought Resilience Plan (DRP) documents how County, its Drought and Water Shortage Task Force (Task Force) members, and other entities with water supply and drought management responsibilities will address water supply vulnerabilities for three types of systems in the County: domestic wells, as defined in California Health and Safety Code (HSC) Section 116275(n) and Section 10609.51(d); state small water systems (SSWS), as defined in HSC Section 116275(n) and Section 10609.51(m); and domestic surface water users. For the purposes of this plan, the term "domestic surface water users" refers to private users who divert water from surface water sources, such as springs, creeks, or rivers, for domestic purposes. This County DRP was prepared pursuant to Senate Bill (SB) 552: Drought Planning for Small Water Suppliers, State Small Water Systems, and Domestic Well Communities (Hertzberg; see Section 1.2 for additional detail). This County DRP was developed by the County with funding and technical support provided by the California Department of Water Resources (DWR) Drought Resilience Planning Assistance Program.

1.1 Document Organization

Organization of this document draws from the California DWR's 2023 *County Drought Resilience Guidebook* (2023) (Guidebook). The Guidebook is a resource for counties to use to develop a County DRP specifically for domestic wells and SSWSs. 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, SSWSs, and domestic surface water users within the County's jurisdiction.
- **Chapter 2: County Drought and Water Shortage Task Force** provides an overview of the Task Force, including its development process and charter, membership, roles, and purpose.
- **Chapter 3: Drought and Water Shortage Risk Assessment** characterizes the vulnerability of domestic wells, SSWSs, and domestic surface water users 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, SSWSs, and domestic surface water users are present. Additionally, data gaps are identified.
- **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, SSWSs, and domestic surface water users.
- **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: Communication and Engagement** provides an overview of how the County may communicate during the development and implementation of the County DRP.
- **Chapter 8: References** provides a list of references used in this plan.

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 the 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 be better prepared for future water shortage events or dry years.

SB 552 also implements legislation on Water Conservation and Drought Planning (SB 606 [Hertzberg] and Assembly Bill 1668 [Friedman], as amended; collectively referred to as the "2018 Legislation") passed by the State Legislature (Legislature). The 2018 Legislation provides a new framework for urban water use efficiency; directives for eliminating water waste; additional requirements for strengthening local drought resilience for urban areas, vulnerable small water suppliers and rural communities; and recommendations for improving agricultural water use efficiency and drought planning.

Water users protected under SB 552 include the following:

- **Small Water Supplier:** A community water system serving 15 to 2,999 service connections, inclusive, and that provides less than 3,000 acre-feet of water annually (California Water Code (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 five, but not more than 14, service connections and does not

[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 Legislature in March 2021 and served as the basis for SB 552. DWR has also established a standing drought and water shortage interagency task force, in coordination with the State Water Board and other relevant state agencies, to facilitate proactive state planning and coordination for pre-drought planning, emergency response, and post-drought management, consistent with SB 552. The interagency task force, called the Drought Resilience Interagency and Partners Collaborative, serves as a public forum with state and non-state agency members to advance drought strategies and continue building resilience to the increasingly arid conditions California faces. More information is available at: https://water.ca.gov/drip.

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

For the water users protected under SB 552, this County DRP addresses water shortage vulnerabilities for domestic wells and SSWSs. It's important to note that three SSWSs in the County use surface water and springs as a supply source, while other SSWSs are reliant on groundwater. All SSWSs are evaluated in this County DRP, regardless of water supply source. This County DRP also addresses water shortage vulnerabilities for domestic surface water users, as these users may face similar vulnerabilities and risks as domestic well and SSWS communities. 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 SSWSs 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) An analysis of the steps necessary to implement the plan
    5) An analysis of local, state, and federal funding sources available to implement the plan

1.2.2 State Agency Involvement and Implementation

SB 552 defined a series of requirements for the State Water Board and DWR. These include the following:

State Water Resources Control Board (CWC Section10609.70(c)):

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

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

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

California Department of Water Resources (CWC Section 10609.80(a)):

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

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

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

(B) State small water systems and rural communities.

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

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

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

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

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

(b) (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.

(3) 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 Humboldt County Drought Resilience Plan

The County DRP documents how the County, Task Force members, and other entities with water supply and drought management responsibilities, has identified risks associated with potential water shortage

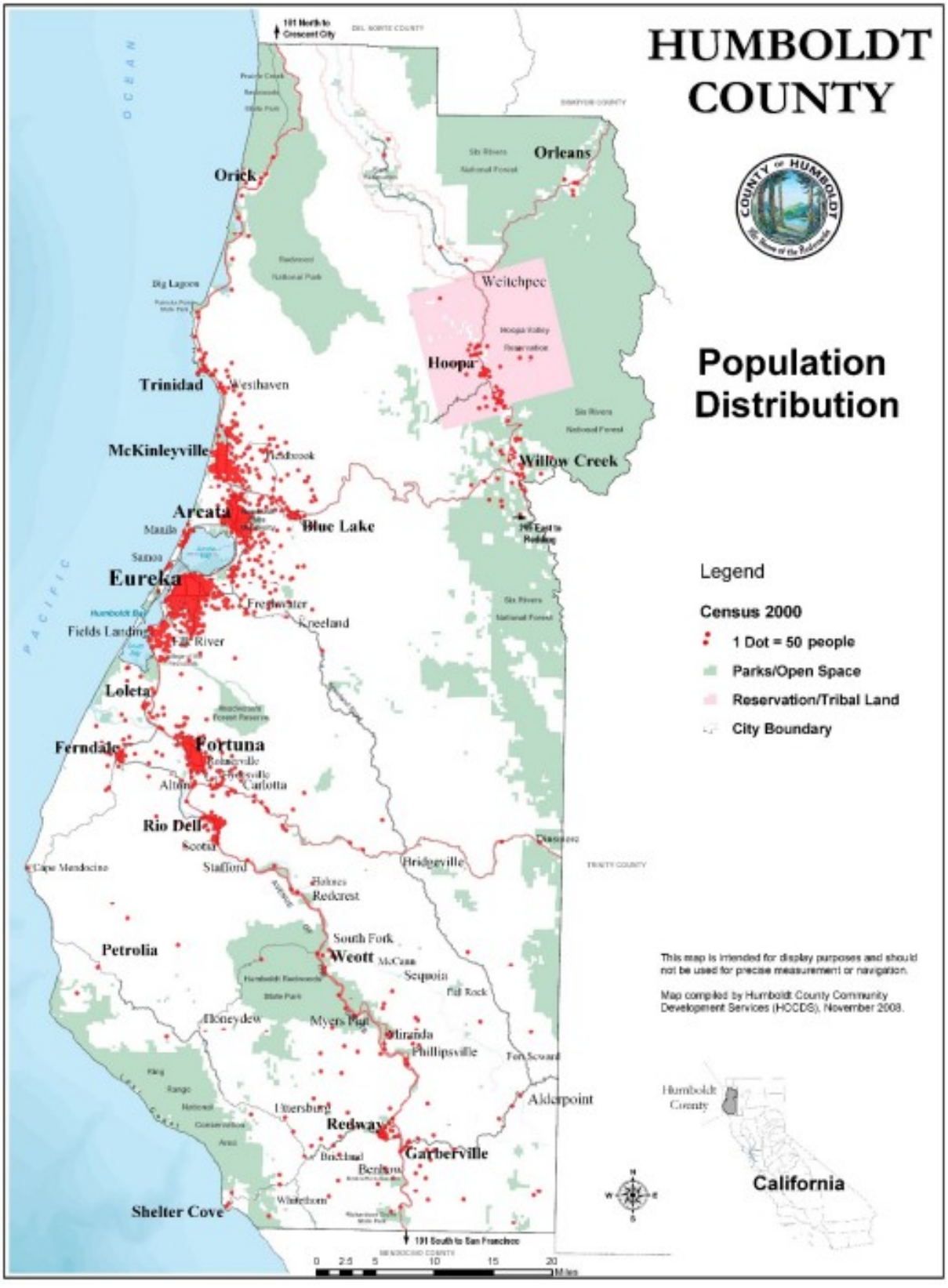
events, and what strategies might lessen the impacts from water supply vulnerabilities of water users protected under SB 552 in the County. The County DRP is a single document for ease of reference and future updates. It describes the water shortage vulnerabilities present in the County, the responses to identified vulnerabilities, and the policy, financial, and regulatory considerations necessary for the implementation of the County DRP. Development of the County DRP is led by the County Drought Task Force, in coordination with other departments and agencies including the University of California (UC) Cooperative Extension, and the County Groundwater Sustainability Agency (GSA), and with funding and technical support provided by DWR's Drought Resilience Planning Assistance Program. The DRP conforms to the legislative requirements of SB 552 and will require state and local support for successful implementation.

1.4 Humboldt County Overview

Humboldt County is a large county in northwestern California. The County is largely rural with a concentrated urban center. Most of the County's population (59 percent) is concentrated in the area surrounding Humboldt Bay and Arcata Bay, while the rest of the County is sparsely populated. The geographic distribution of the County's population is shown in Figure 1-1 below, made available via the County General Plan (2017a).

Native American tribal lands encompass approximately 95,000 acres. There are eight federally recognized tribes, including the largest by population (Yurok) and largest geographically (Hoopa Valley) in California. Additionally, members and affiliates of non-federally recognized tribes reside in Humboldt County (Humboldt County 2022).

The 2017 Humboldt County General Plan supports development in designated "community planning areas." These Community Planning Areas include most of the County's population and urban infrastructure and provide higher development potential due to access to water and wastewater systems, which promotes efficient use of public infrastructure. The General Plan emphasizes evaluating the condition of existing public water and wastewater systems and the cost and feasibility of expanding these services to accommodate growth. As part of this plan, three types of community planning areas were defined: 1) urban service study areas (areas where sewer and water exist or may be feasible to be provided, and urban level densities of greater than one unit per acre may be appropriate); 2) water study areas (areas where water services exist or may be feasible to provide, and residential agriculture planned densities of less than one unit per acre may be appropriate. Sewer service to these areas is not anticipated within the time frame of the plan or is unlikely because of existing buildout patterns and/or terrain); and 3) potential water study areas are areas where water service or the authority to provide it does not exist but that may be desirable to consider for planned water service (Humboldt County 2017b).



Source: Humboldt County. (2017a).

Figure 1-1. Humboldt County Geographic Distribution of Population

1.4.1 Demographics

Selected demographics of the County are summarized below per the 2020 United States Census (2020) and American Community Survey (ACS) (2022).

- **Population:** The County has a population of 136,463 people. The County is largely rural, with a concentrated urban center near and around Eureka and Arcata.
- **Age:** The County has a median age of 39.5. Around 20.6 percent of the population is 65 years and over.
- **Ethnicity:** The three largest ethnic groups in the County are White (Non-Hispanic), Hispanic or Latino, and American Indian and Alaska Native.
- **Household Income:** The median household income of the County, per the 2022 ACS Five-Year Estimates is $61,621, compared to the statewide average of $95,521.
- **Education:** The percentage of residents 25 years or older with a bachelor's degree or higher is 36.1. The local State university, Cal Poly Humboldt, is an important economic and cultural driver of the region.
- **Poverty Level:** About 16.2 percent of the population in the County live below the poverty line, a number that is higher than the state average of 12 percent.

1.4.2 Geography

Humboldt County is located in the North Coast region of California. It is an extremely mountainous and forested region, bordered by the Pacific Ocean on the west, Mendocino County to the south, Del Norte County to the north, and Trinity County and Siskiyou County to the east.

1.4.2.1 *Hydrology*

Humboldt County is located within the North Coast hydrologic region. Within the County, there are seven Hydrologic Unit Code 8 (HUC 8) hydrologic subregions, as shown in Figure 1-2. Within these subbasins are tributaries to rivers such as the Mattole, the Eel, the Van Duzen, the Mad, the Trinity, and the Klamath. Water in these streams originates in the County and in neighboring counties to the north, east, and south. Humboldt has no out-of-basin imported water, but water from these watersheds is exported to other counties in California. There are no major reservoirs in The County. Ruth Lake, located in Trinity County and within the Mad River basin, is Humboldt Bay Municipal Water District's (HBMWD) source of drinking water, serving almost 100,000 customers (Humboldt Bay Municipal Water District 2024).

Source: epa.gov/waterdata/nhdplus-california-data-vector-processing-unit-18. Accessed: 08/2024.

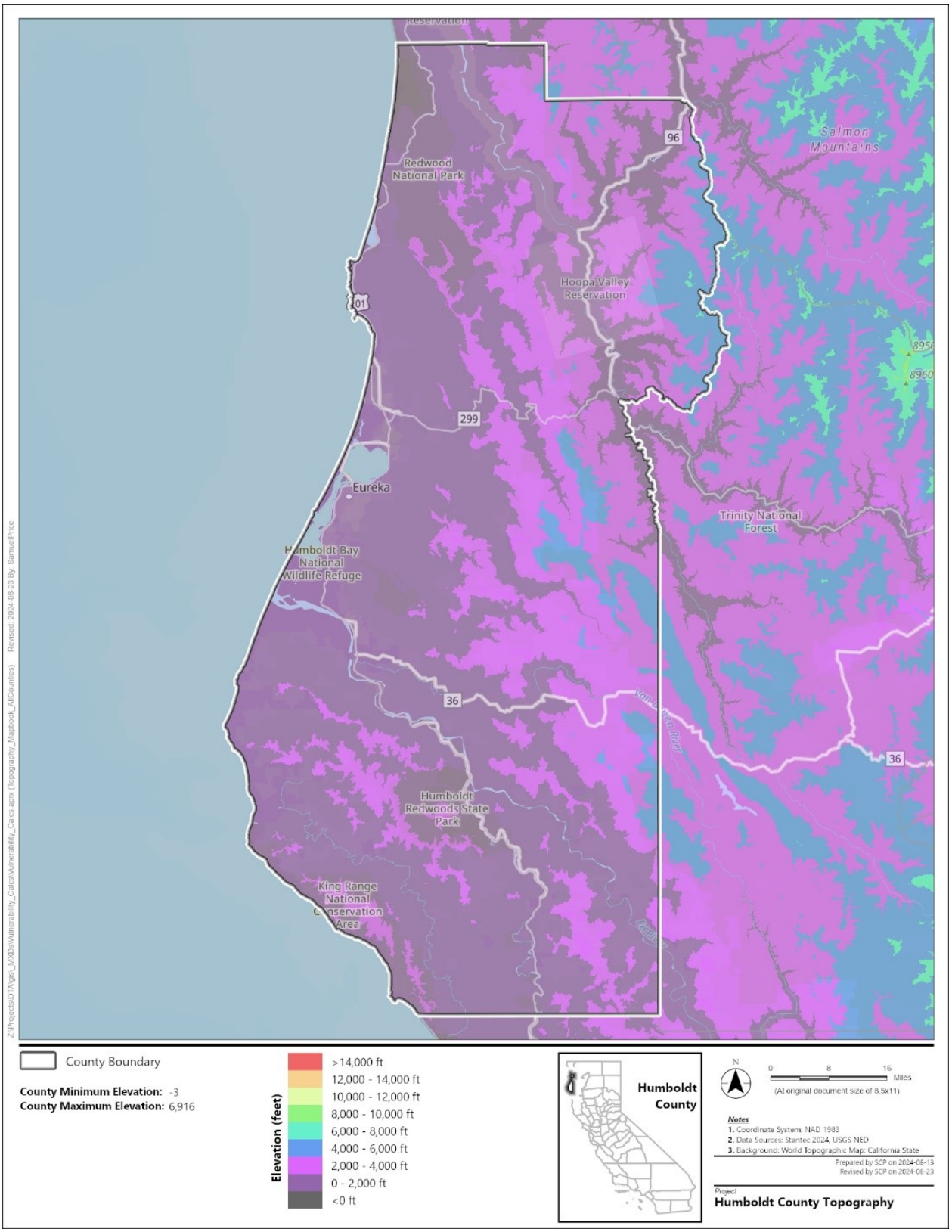
Figure 1-2. Hydrologic Subregions within Humboldt County

1.4.2.2 *Precipitation*

Humboldt County receives a county-wide average of 47.2 inches of rain per year, compared to the California average of 15.95 inches (National Oceanic and Atmospheric Administration 2024). Precipitation patterns vary over the County; it is typically wettest along the coast, particularly in the southern King Range. The eastern Klamath mountains tend to be drier, though they still are wetter than other California counties. Higher elevation areas of the County can receive precipitation in the form of snow during the colder winter months. There is extreme variation in seasonal river flows, and most water usage in the County is needed during the lowest flow regimes. Over 80 percent of the rainfall in the County falls between November and March (Humboldt County 2020).

1.4.2.3 *Topography*

Topography within the County is shown in Figure 1-3. The majority of the County's landmass falls at elevations between 0 and 4,000 feet. There are areas in the eastern part of the County in the Trinity Alps that reach close to 7,000 feet. The County is mountainous, with some flatlands near the coastal areas. This topography can influence precipitation, with more precipitation typically falling in higher terrain than in the valleys.



Source: epa.gov/waterdata/nhdplus-california-data-vector-processing-unit-18. Accessed: 08/2024.

Figure 1-3. Topography of Humboldt County

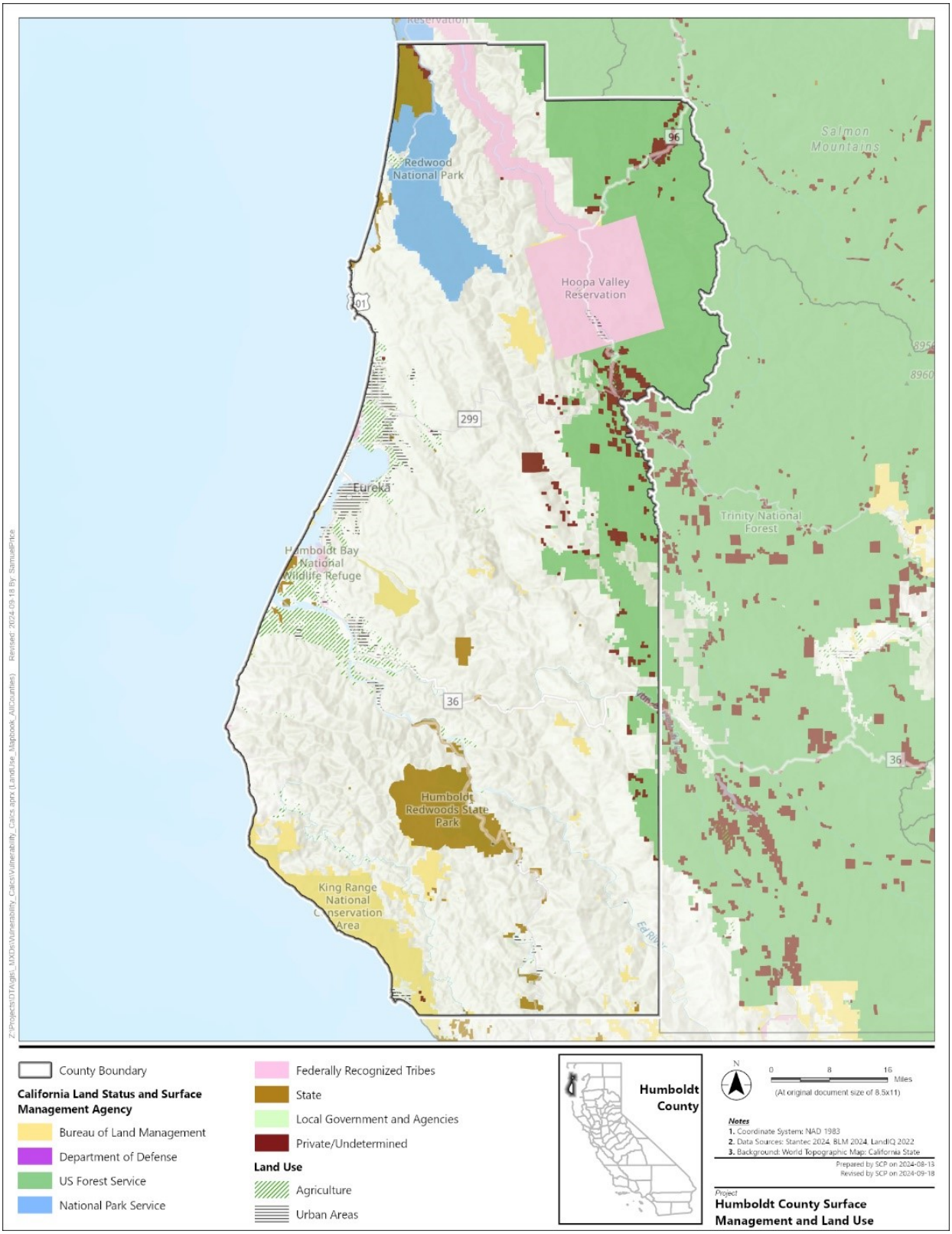
1.4.2.4 *Geology*

The County General Plan (2017c) notes that the County is geologically dynamic because of its location at the Mendocino Trible Junction, where three tectonic plates meet offshore near Cape Mendocino. The Cascadia Subduction Zone, which is formed by the Gorda and Juan de Fuca plates subducting under the North American plate, is a major source of seismic activity. This area has the highest concentration of earthquakes in the continental United States.

There are two distinct geologic provinces separated by the South Fork Mountain Ridge: the Klamath Mountains in the northeast and the Coast Ranges in the southwest. The Klamath Mountains province feature older sedimentary rocks like sandstone, chert, and schist, along with occasional granite intrusions, and is known for high alpine peaks drained by the Klamath and Trinity Rivers. The Coast Range province is characterized by the Franciscan and Yager complexes, as well as alluvial deposits in low-lying river basins and near Humboldt Bay. The Coast Range province is drained by the Mad, Eel, and Mattole rivers (Humboldt County 2017c).

1.4.2.5 *Land Use*

The County is largely undeveloped forest land with small sections of farmland and rural towns, as shown in Figure 1-4. There are major urban centers in and around Eureka. Agriculture occurs primarily in the Eel River Valley and around Arcata. There is a national park in the County, as well as numerous State and local parks, and other open space areas managed by the Bureau of Land Management and the U.S. Forest Service.



Source: gbp-blm-egis.hub.arcgis.com/datasets/blm-national-sma-surface-management-agency-area-polygons/about; landiq.com/land-use-mapping. Accessed: 08/2024.

Figure 1-4. Land Use Within Humboldt County

1.4.3 Water Landscape: Supply, Use, and Management

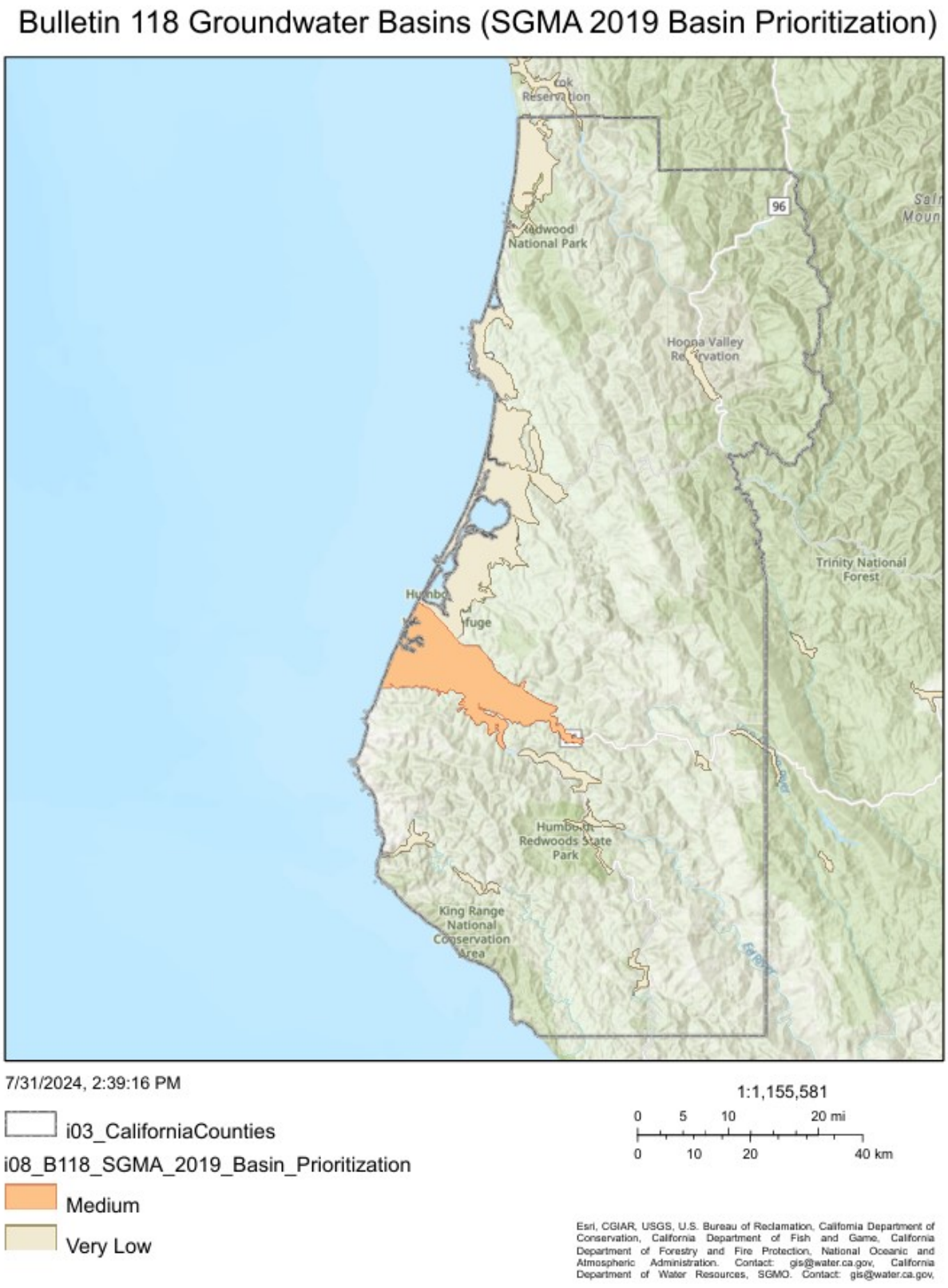
Water supplies for domestic, industrial, agricultural, and environmental use within the County are described below.

1.4.3.1 *Water Supplies:*

Water supplies in the County include groundwater and surface water. Some water is exported to other areas outside of the County.

- **Groundwater**: The primary source of drinking water in the County is groundwater. The largest water district in the County, the HBMWD, supplies approximately 65 percent of the County's residents. HBMWD's water is pumped from Ranney Wells, which are 60 to 90 feet below the bed of the Mad River. The Ranney Wells are dependent on the Mad River as a managed reservoir system. Ruth Lake serves as a reservoir to support this water supply (HBMWD 2020). Other major community water systems, including the Humboldt Community Services District, the Loleta Community Services District, and the City of Loleta, serve residents with groundwater. Finally, in rural parts of the County, domestic well and SSWS communities also rely on groundwater resources.

  There are four principal groundwater basins in The County: Hoopa Valley, Mad River Valley, Eureka Plain, and Eel River Valley, with additional isolated basins (Figure 1-5). The Eel River Valley Basin has been assigned an initial priority of "medium" under the Sustainable Groundwater Management Act (SGMA) and has accordingly developed a Groundwater Sustainability Plan (GSP) (Humboldt County GSA 2022). Other groundwater basins in the County have been given a "very low" priority, although the groundwater basin boundaries and prioritization could change in the future. A comprehensive evaluation of groundwater basins and groundwater resources outside of the Eel River Valley Basin has not been completed, so the capacity and resilience, at the watershed scale, remains undefined. An important aspect of the County's vulnerability to drought is that much of its subsurface formations are fractured rock rather than alluvial groundwater basins. Fractured rock areas increase the water supply vulnerability. Water supplies in these areas are complex to monitor and thus introduce uncertainty for those depending on them as a primary water source. Much of the annual precipitation that the County receives runs into rivers and streams, and then into the ocean, rather than percolating into the ground to become groundwater. Over 75 percent of the County's land is characterized as fractured rock in rugged mountains. Areas not designated as groundwater basins in Figure 1-5 are fractured rock areas.



Source: arcgis.com/home/item.html?id=1ac0668e9cd240c0add3669072edd0db. Accessed: 07/2024.

Figure 1-5. Groundwater Basins in Humboldt County

- **Surface Water:** The County has 12 planning watersheds, defined as an area of land within which all rain and snowfall drains or seeps into a particular stream, water body, or aquifer. These planning watersheds are described in the County General Plan (2017b) and in Figure 1-6. The hydrologic basins in the County, like most of coastal Northern California, provide large surface water volumes, and account for 30 percent of the runoff in the entire State of California (Humboldt County 2017b). The mean annual runoff in the County from major rivers and streams is approximately 23 million acre-feet. Rivers in the County are important for the public water supply, recreation, habitat, and culture. Sections of the Eel, the Trinity, the Klamath, and the Van Duzen Rivers are designated as "wild, scenic, or recreational" under California's Wild and Scenic River System; these are also some of the last viable salmon and steelhead populations in the state. They are also culturally important to tribes in the area (Humboldt County 2017b).

  It is important to note that some rural residents of The County pull domestic water directly from rivers and streams. While these users are not explicitly considered under the scope of SB 552, they are referred to in this plan because they share some similar vulnerabilities and risks as domestic well and SSWS communities. Additionally, it is important to note that some SSWSs use surface water and springs for their water source, while others use groundwater. All SSWSs are considered under the scope of SB 552 regardless of water supply source.

Source: humboldtgov.org/DocumentCenter/View/2071/Chapter-11-Water-Resources-Element-PDF. Accessed: 07/2024.

Figure 1-6. Twelve Planning Watersheds in Humboldt County

- **Exported Water:** The amount of water exported from North Coast watersheds is perhaps the County's most significant water resource policy issue. The County General Plan includes policies that actively pursue reductions in water exports from the Klamath, Trinity and Eel Rivers, all of which currently have major diversion projects outside the County. The plan also provides standards for the protection of water quality, fisheries, and habitat for any proposed new water export projects. Over 70 percent of the Trinity River is dammed and diverted for Central Valley agricultural projects. Flows from the Klamath River are also diverted for agricultural uses. Significant percentages of the Eel River are diverted to other North Coast counties (Humboldt County 2020).

The HBMWD is evaluating the feasibility of transferring a portion of its available water from the Mad River to another local municipal agency using HBMWD's existing water rights and infrastructure to preserve local water rights. It is important to note that such a transfer would not constitute an export like that of other water diversions. There would be no out-of-basin transfer from one watershed to another, and no out-of-county transfers. As per the HBMWD Water Resource Planning Advisory Committee Recommendations for Water Use Options, HBMWD confirmed that a water rights transfer would only be done in a way that protects local community interests and considers priorities outlined by the public during their outreach process. Other options being considered by HBMWD include dedicating some portion of the available water (which, for much of the year, would otherwise be in storage at Ruth reservoir) for in-stream flows, dependent on defined environmental benefits and financial support for conducting necessary studies (HBMWD 2010).

1.4.3.2 *Water Uses:*

A summary of the main water uses in the County are described below.

- **Porter-Cologne Water Quality Control Act:** Section 13050(f) of California's Porter-Cologne Water Quality Control Act (1969) states: "Beneficial uses of the waters of the state that may be protected against water quality degradation include, but are not necessarily limited to, domestic, municipal, agricultural, and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves."
    - In the County, primary beneficial uses include municipal and domestic supply, environmental uses and wildlife habitat, agricultural supply, recreation, Native American Culture, and some industrial uses (North Coast Regional Water Quality Control Board 2018).
- **Municipal and Domestic:** There are 25 municipal water system providers in the County. In addition, many residences rely on domestic wells, SSWSs, or domestic surface water (Humboldt County General Plan 2017b).
- **Industrial:** Historically, industrial use of water for timber mill operations was an important component of the County's economic landscape. However, logging operations and timber mills in the County exist at a fraction of historical levels, though their legacy—including water contamination—remains an important consideration. Future industrial uses, including potentially an aquaculture facility, have been proposed.
- **Agricultural:** Cannabis cultivation has historically been an important agricultural activity in the County, with impacts on local water supply related to water diversions as well as pollution from

cultivation operations. The legalization of medical and recreational cannabis has and will continue to evolve the industry, and the impact of this legalization on water resources is yet to be determined.

1.4.3.3 *Water Management Actions*

Relevant water management actions within the County are described below.

- **Public Trust Doctrine:** The Public Trust Doctrine places a duty on the government to protect trust resources for uses that include commerce, navigation, and fisheries, as well as uses like recreation, open space, and environmental preservation. The hallmark of the Public Trust Doctrine is to promote publicly beneficial uses that connect the public to the water, and as such it is an important consideration for water resource planning in the County and statewide (California State Lands Commission).
- **Groundwater Sustainability Plans:** The County GSA has developed a plan to manage groundwater extraction and recharge in the lower Eel River Valley Basin, aiming for long-term sustainability (Humboldt County GSA 2022).
- **County Planning:** General plans and other documents mandate the consideration of water impacts for development decisions.
- The **County General Plan**, which includes elements related to water planning such as:
  - Water resources
  - Community infrastructure and services
  - Land use
  - Conservation and open space
- **Community Health Assessment:** A comprehensive report developed by the County Public Health Branch that explores data about the health of the County examines trends over time and differences in health outcomes for different groups of people in the County, as well as differences between the County and the rest of California. The Community Health Assessment (CHA) guides strategies and planning, helps prioritize efforts and informs policy decisions (Humboldt County 2018).
- **Local Hazard Mitigation Plan:** The Disaster Mitigation Act requires State and local governments to develop hazard mitigation plans as a condition for federal disaster grant assistance. The County Local Hazard Mitigation Plan (LHMP) (2020) includes a section on drought.

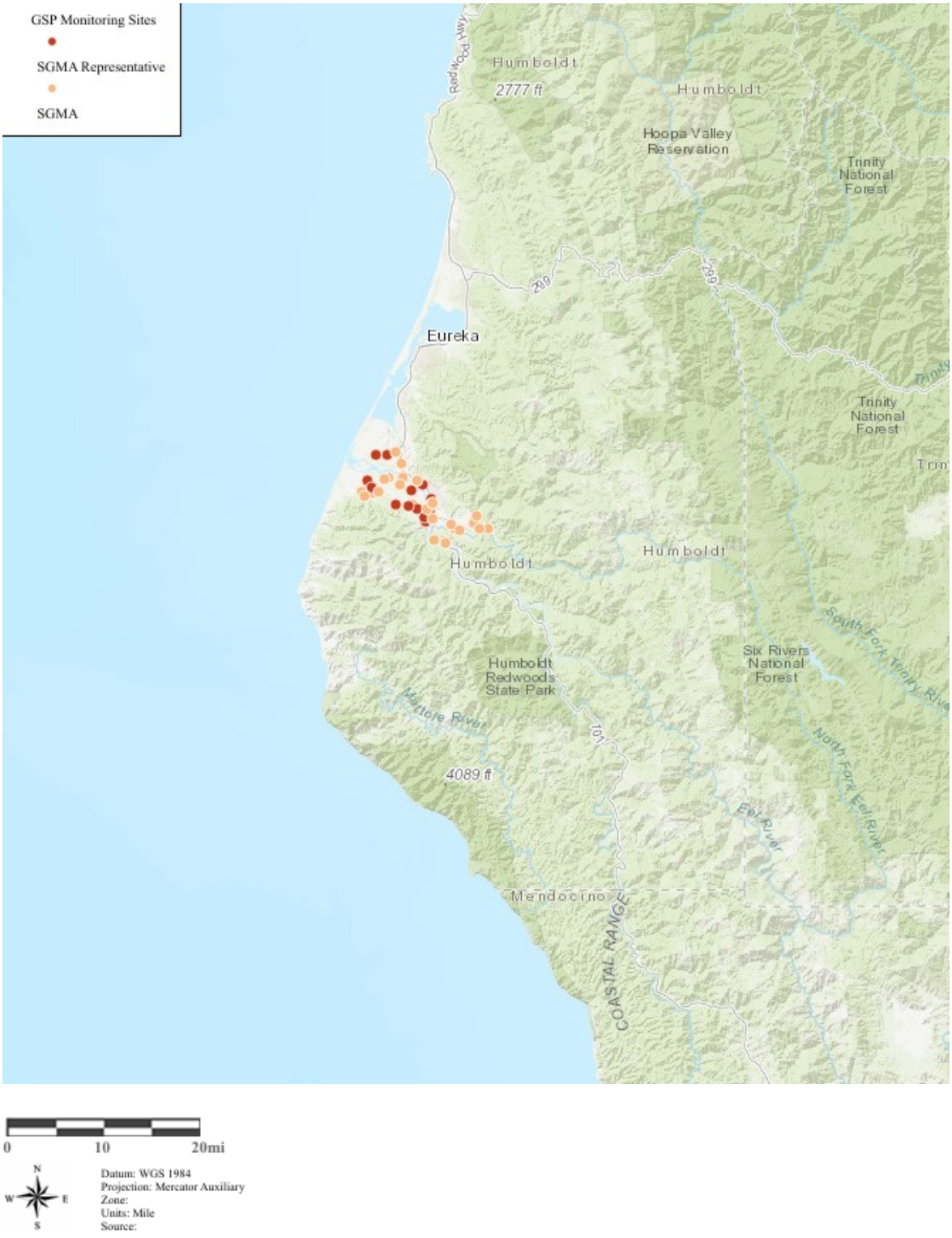
1.4.3.4 *Groundwater Detail*

Domestic wells are reliant on groundwater, and many SSWSs in the County are also reliant on groundwater. Additional information regarding groundwater in the County is included below.

- **Sustainable Groundwater Management Act:** The County contains 16 Bulletin 118 Subbasins. All except the Eel River Valley Basin (DWR Basin Number 1-010) are considered low-priority basins. Analysis completed by DWR to support implementation of the SGMA classified the Eel River Valley Basin (DWR Basin Number 1-010) as a medium-priority subbasin. The remainder of County groundwater supplies are in fractured rock regions (DWR 2024).

Passed in 2014, SGMA represents a statewide framework to protect groundwater resources over the long term. SGMA led local public agencies, pursuant to CWC Section 10721(n), to form GSAs in high- and medium-priority basins, and to develop GSPs to avoid undesirable results and mitigate overdraft within 20 years. DWR has approved the Eel River Valley Basin GSP, and the basin is determined to be sustainably managed. No undesirable results, as defined by SGMA, are currently occurring or projected to occur in the basin. Key activities associated with implementing each basin's GSP include regular monitoring and reporting on conditions in the subbasin and performing management actions outlined in their GSPs. The highest priority projects include those that increase streamflow entering the basin, especially during the dry season, and for in-stream restoration projects to improve geomorphic conditions within the Eel River, Van Duzen River, and other surface waters within the basin. As GSP implementation proceeds, the County GSA will identify additional funding avenues needed to support groundwater management activities in the subbasin, including all monitoring and reporting required to comply with SGMA (Humboldt County GSA 2022).

- **Groundwater Data and Gaps**: The County GSA has implemented monitoring wells throughout the Eel River watershed as part of the GSP. Figure 1-7 shows the location of groundwater monitoring wells within the Eel River Valley Basin. As demonstrated in Figure 1-7, most groundwater data in the County comes from the alluvial Eel River Valley Basin. Beyond the basin, however, there is a lack of quantitative information. Few monitoring wells exist, and a comprehensive evaluation of existing data related to geology, well completion reports or pump test results has not been completed. The total capacity of groundwater within watersheds outside of the Eel River Valley Basin is unquantified. This risk assessment, in the absence of a quantitative review, can provide only a relative assessment compared to non-drought conditions through evaluation of observable conditions and data.



Source: sgma.water.ca.gov/webgis/?appid=SGMADataViewer#gwlevels. Accessed: 09/2024.

Figure 1-7. Groundwater Sustainability Agency Monitoring Wells in Humboldt County

- Fractured Rock Areas: Fractured rock areas increase the water supply vulnerability. Water supplies in these areas are complex to monitor, and therefore introduce uncertainty for those depending on them as a primary water source. The intricate network of fractures makes it difficult to accurately gauge water quantity and sustainability. This necessitates sophisticated monitoring approaches and comprehensive water management strategies to address uncertainties and enhance resilience in fractured rock environments. Anecdotally, the County Division of Environmental Health reports that many domestic wells in fractured rock areas of the County are low production, averaging 0.5 gallon to 5 gallons per minute. In these cases, the operators must use pump timers and storage tanks to meet their water consumption demands. Further data regarding the location and needs of these residents are a key data gap identified in Chapter 5 of the County DRP.

1.4.4 Water Systems Within Humboldt County's Jurisdiction

California Water Code Section 10609.70 requires the County to develop a County DRP that includes domestic wells and SSWSs. Figure 1-8 shows the location of domestic wells and SSWSs within the County, and Table 1-1- summarizes how many domestic wells and SSWSs are in the Bulletin 118 basins and fractured rock areas, as captured by the DWR Water Shortage Vulnerability Explorer Tool (note that the Tool relies on State databases and there may be discrepancies with locations and data available -see Section 3.2). In addition, Figure 1-8 and Table 1-1 show domestic wells that are outside the County but still within groundwater basins that are within the County.

At the time of development of this County DRP, County staff identified 16 SWSSs within the County serving approximately 250 individuals. Ten of these systems serve residential subdivisions with a mutual, deeded, or incorporated ownership, while six of them serve a trailer park or multiple-family housing strategies with a single owner/operator such as a landlord or park operator. Three of the SSWSs have surface water sources including a spring, creek, and riverbar well. Of the 13 SSWSs relying on groundwater well sources, seven have well logs, and four have a second well source. It is worth noting that there are three newer SSWSs within the County (Central Water System, Elk Meadow Cabins, and Splinter Lane Water Association). These systems are not included in the DWR Water Shortage Vulnerability Explorer (WSVE) tool but are discussed where appropriate. Additionally, one system, the Swain's Flat Trailer Park Water System, has been transferred to the State Water Board Division of Drinking Water for regulatory oversight as a public water system and is no longer considered an SSWS. One system included in the WSVE, the Humboldt County Alchemy Group, is a business and is not an SSWS or a public water system. Refer to Appendix A: Humboldt County SSWS Inventory for a full inventory of the County's SSWSs conducted by County staff as of July 2025. Further information regarding the WSVE Tool is available in Section 3.2.

Table 1-1. Summary of Groundwater Basins, Domestic Wells, and State Small Water Systems in Humboldt County as identified by the DWR Water Shortage Vulnerability Explorer Tool

Bulletin 118 Basin ID	Groundwater Basin Name	SGMA Priority	Domestic Wells Drilled Pre-1977[1]	Domestic Wells Drilled After 1977[1]	State Small Water Systems	Domestic Wells in Basin but Outside County
1-007	Hoopa Valley	Very Low	18	5	0	N/A
1-008.01	Mad River Valley - Mad River Lowland	Very Low	209	82	3	N/A
1-008.02	Mad River Valley - Dows Prairie School Area	Very Low	306	48	0	N/A
1-009	Eureka Plain	Very Low	106	147	4	N/A
1-010	Eel River Valley	Medium	125	262	2	N/A
1-014	Lower Klamath River Valley	Very Low	0	0	0	38
1-025	Prairie Creek Area	Very Low	1	0	0	N/A
1-026	Redwood Creek Area	Very Low	2	2	1	N/A
1-027	Big Lagoon Area	Very Low	23	74	2	N/A
1-028	Mattole River Valley	Very Low	2	14	0	N/A
1-029	Honeydew Town Area	Very Low	0	9	0	N/A
1-030	Pepperwood Town Area	Very Low	10	18	1	N/A
1-031	Weott Town Area	Very Low	0	2	0	N/A
1-032	Garberville Town Area	Very Low	0	1	1	N/A
1-033	Larabee Valley	Very Low	0	7	0	N/A
1-034	Dinsmore Town Area	Very Low	0	15	0	4
N/A	Fractured Rock Aquifer Wells	N/A	157	780	2	N/A
		TOTAL	959	1466	16	42

Note:

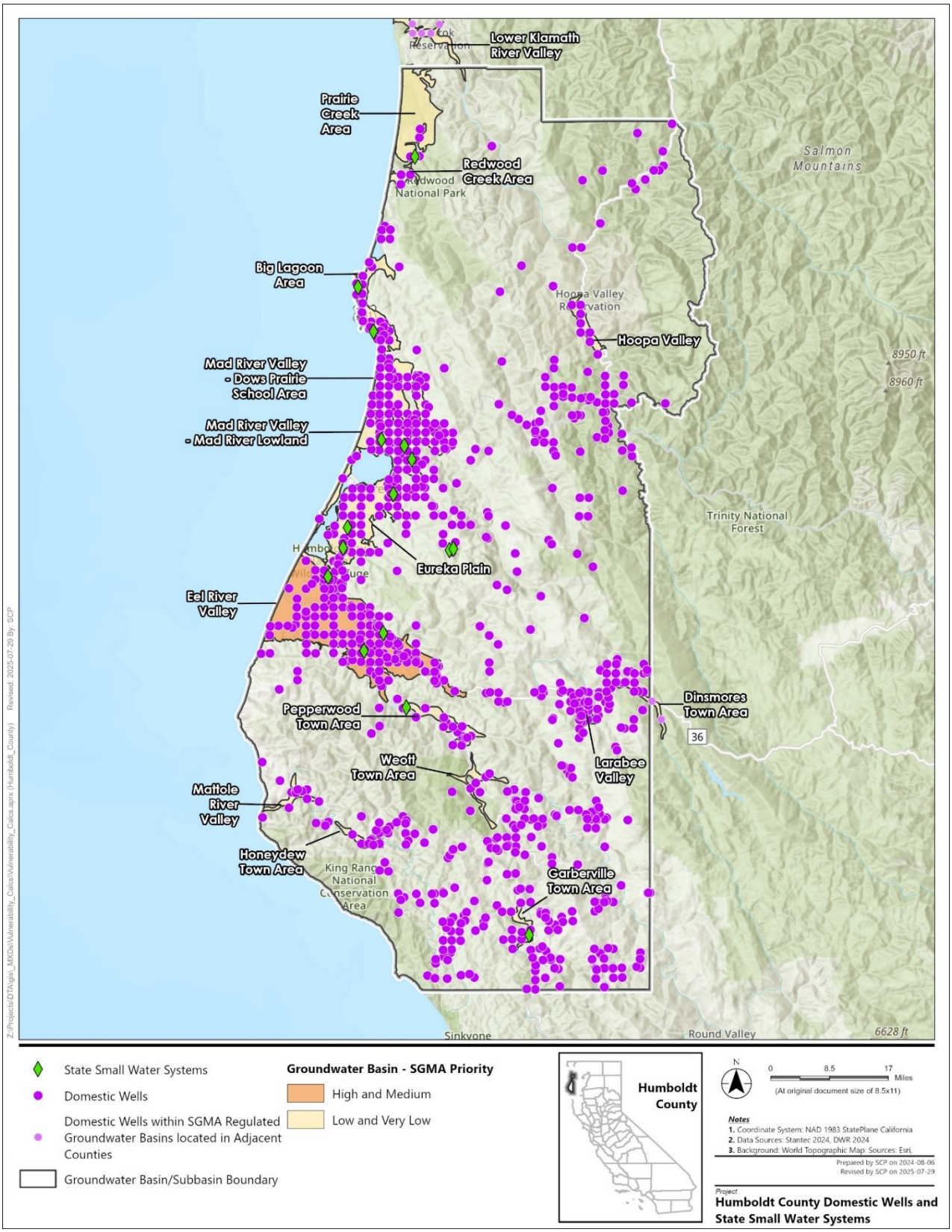
[1] Information presented in this table and figure are based on well completion reports. Geographic information on well completion reports may be inaccurate and/or may place the well not at the actual well location. As a result, the number of domestic wells may be overestimated, and the placement of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

Key:

DWR = California Department of Water Resources

N/A = Not applicable

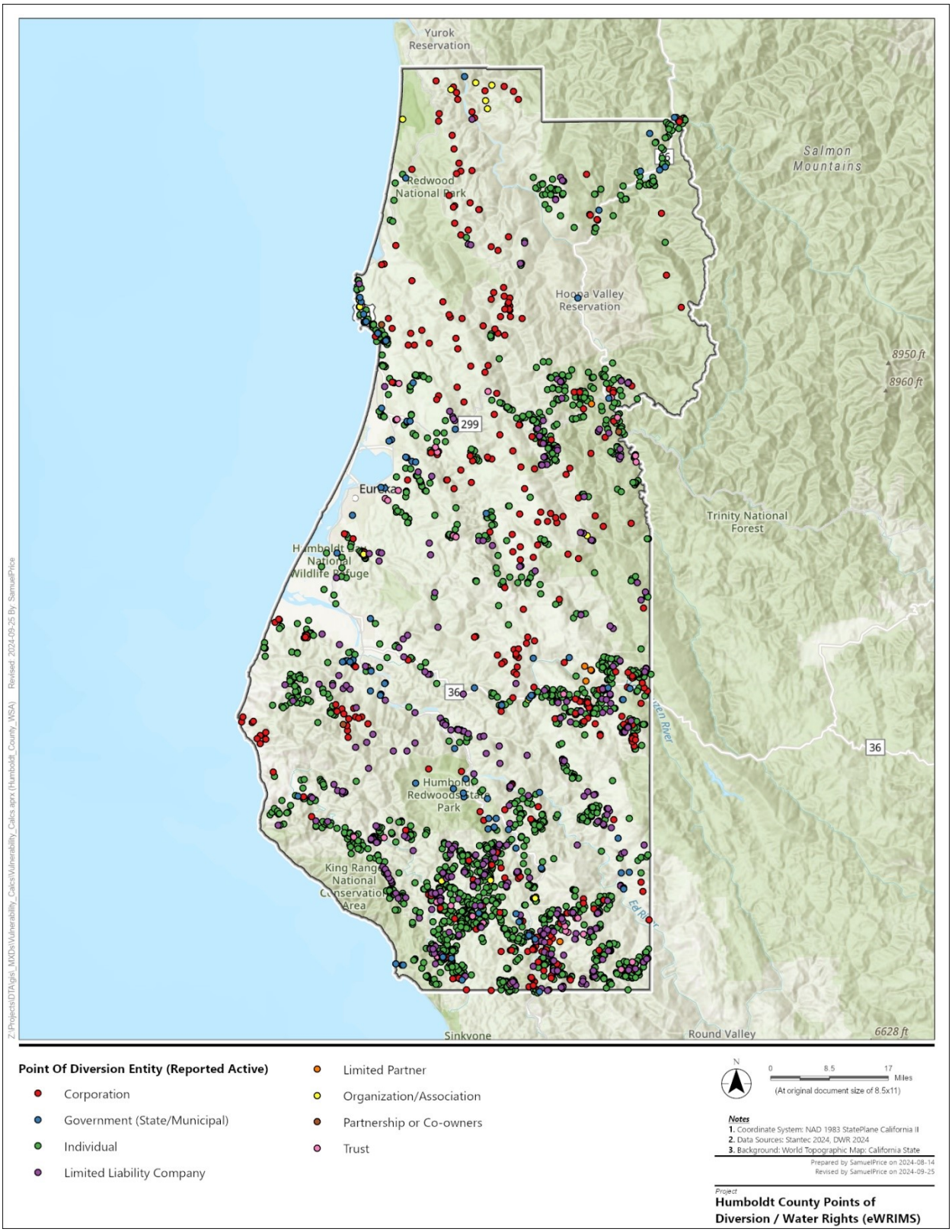
SGMA = Sustainable Groundwater Management Act



Source: WSVE Tool, arcg.is/1LCKGO. Accessed: 08/2024.

Figure 1-8. Locations of Domestic Wells and State Small Water Systems in Humboldt County

In addition to the domestic wells and SSWSs required under SB 552, the County elected to include domestic surface water users. The general locations of areas with high numbers of domestic surface water systems are shown in Figure 1-9. Please note that Figure 1-9 shows only general locations of systems, and may represent some uses in addition to domestic uses, as a comprehensive and detailed dataset was not available. Further discussion regarding data gaps, including those related to the location and needs of domestic surface water users, is presented in Section 3.6.



Source: gispublic.waterboards.ca.gov/arcgis/rest/services/Water_Rights/Points_of_Diversion/MapServer. Accessed: 08/2024.

Figure 1-9. Locations of Domestic Surface Water Users in Humboldt County

2.0 County Drought and Water Shortage Task Force Charter

2.1 Charter Background

This County Drought and Water Shortage Task Force Charter was developed by staff comprising the Steering Committee, prior to organizing the County DRP strategy, to establish clear roles, responsibilities, guidelines, and goals for the Task Force during the development of the County DRP. After completion of the County DRP, the Task Force may consider rechartering the group to reflect DRP implementation, and/or to address other drought-related needs that the County specifies as under the purview of the Task Force.

2.2 Purpose

The purpose of the Task Force is to:

- Facilitate drought and water shortage preparedness for domestic wells, SSWSs, and domestic surface water users within the County's jurisdiction.
- Coordinate and communicate with the State and other local governments, community-based organizations, local water suppliers, and local residents on a regular basis as well as during drought or water shortage emergencies.

In addition to an ongoing role leading drought-related activities in the County, the Task Force intends to satisfy the requirements of SB 552 in the development of a DRP. This Charter supports the Task Force in achieving that goal.

2.3 Task Force Background and SB552 Context

The County Task Force was officially recognized by the County Board of Supervisors on May 25, 2021.

In September 2021, Governor Gavin Newsom signed into law SB 552 (Hertzberg) which assigned new responsibilities and requirements at the State and local levels to help small water suppliers and rural communities reduce their risks of inadequate water supply amid a water shortage event. A water shortage event could be caused by droughts or other emergencies such as wildfires, earthquakes, floods, and other local emergencies. Through SB 552, the California State Legislature identified counties as the best-suited government entity to provide the needed leadership to improve water resilience for domestic wells and SSWSs.

In accordance with SB 552, counties are required to prepare a County DRP to achieve meaningful and long-term improvements in water resilience for their residents. In addition to the development of a County DRP, SB 552 also directed each county to establish a standing County Drought and Water Shortage Task Force or establish an alternative process that "facilitates drought and water shortage preparedness for SSWSs and domestic wells within the county's jurisdiction" by providing "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" (Cal. Water Code §10609.70(a)(2)).

2.4 Organization

The Task Force consists of representatives from local government agencies and community organizations that have roles in drought condition monitoring, emergency services, hazard assessment, planning, operations, information coordination, water resource management, or permitting. The 2021

membership of the Task Force includes the following entities: the County Office of Emergency Services (OES), the County Division of Environmental Health (DEH), the County Planning and Building Department (Planning Department), the County Public Works Department (Public Works), the UC Cooperative Extension, and the County agricultural commissioner.

In 2024 and 2025, the Task Force is co-chaired by the County OES and County DEH, operating as the Task Force contact lead. In the future, Task Force leadership structure may change. During 2024-2025, the Task Force will be guided by a steering committee. The Steering Committee will provide coordination and receive input and feedback from the Task Force during regularly scheduled Task Force meetings. The Task Force greater membership includes representatives from County agencies with a role in drought-related efforts, as well as local subject-matter experts who can provide additional input on drought and water shortage in the region.

The organization and membership of the Task Force and the Steering Committee during DRP development 2024–2025 are provided in Figure 2-1.

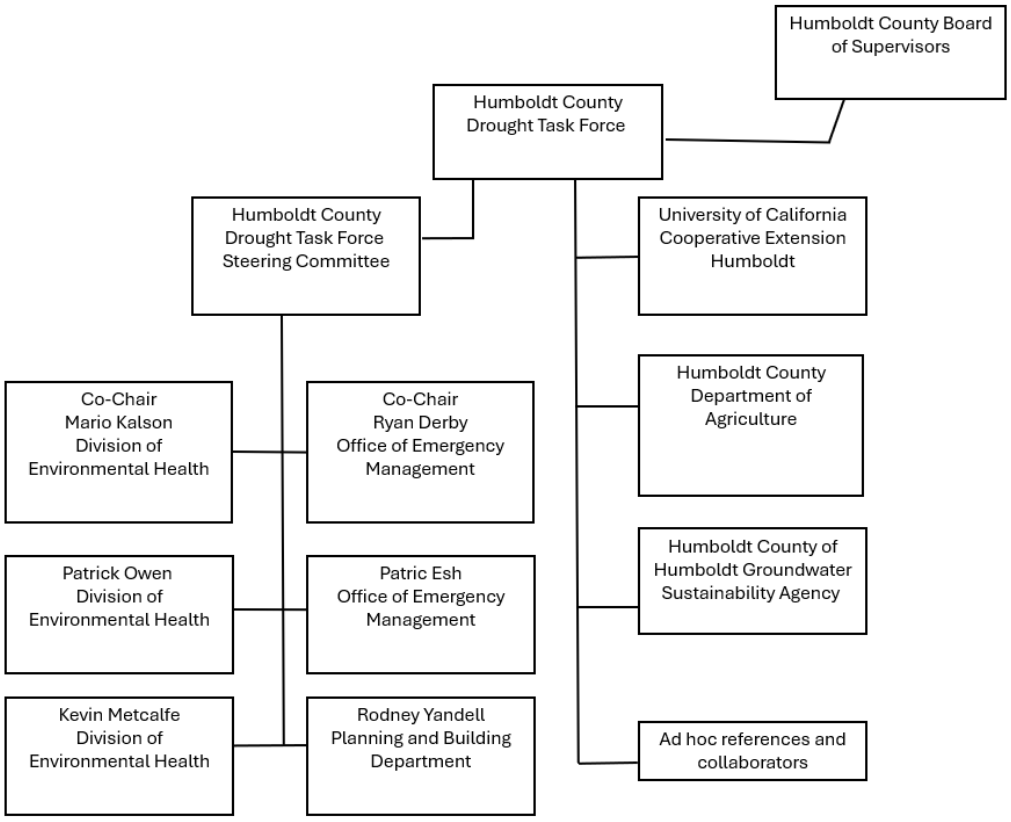


Figure 2-1. Organization of the Humboldt County Drought and Water Shortage Task Force

2.5 Responsibilities

The Task Force is not a decision-making body. Its members are responsible for reviewing and providing input on information related to DRP development and implementation. The County Board of Supervisors has authority in adopting the developed County DRP and oversight of County DRP implementation.

Task Force members are expected to:

- Attend calendared Task Force meetings to review progress on the development of the County DRP and its subsequent implementation
- Review current drought conditions and potential risk factors using tools provided by State agencies, identify drought-related issues that will impact county residents, and help develop solutions in the form of short- and long-term actions to address identified issues
- Disseminate Task Force findings and recommendations to their respective agencies, seeking feedback that can be shared during Task Force meetings and working sessions
- Provide support during SB 552 implementation

The level of member participation in the Task Force will be scheduled as needed, as the County DRP is being developed. Ongoing participation in the Task Force and any associated working groups for County DRP implementation will be dependent on current conditions, needs identified in the DRP, resource availability and balance of mandated priorities within participating agencies. The Task Force, assisted by the Steering Committee, is a guiding body, with the responsibility to develop the County DRP and advise on its long-term implementation.

2.6 Reporting and Communication

The Steering Committee will provide periodic updates and recommendations to the County Board of Supervisors, highlighting project milestones and providing an opportunity for public engagement. The Board of Supervisors, as the decision-making body for the County, may adopt the County DRP.

Consistent with CWC 10609.70(a)(2), the County will provide opportunities for coordinating and communicating with the State and other local governments, community-based organizations, local water suppliers, and local residents on a regular basis and during drought or water shortage emergencies.

The Task Force will also provide regular updates on County DRP development and drought planning via a website landing page (https://humboldtgov.org/2072/Drought-Information-Senate-Bill-552) dedicated to drought or water shortage related issues. Additional Task Force information may be shared with the public via messages included in County communications materials or notices, press releases, email updates, or social media. See Chapter 7 for additional information.

2.7 Meetings

During development of the County DRP, the Task Force will meet regularly to discuss the technical information under review for inclusion in the County DRP. The standing meetings will be scheduled with advance notification to Task Force members and will include distribution of agendas and related materials for review in advance of each meeting.

During County DRP development, Task Force meetings will include:

- Meeting 1: A County DRP kickoff meeting to review the Task Force charter and to outline the process for developing the County DRP
- Meeting 2: Review the initial County risk assessment
- Meeting 3: Discuss short-term actions and LTMSAs and actions to be included in the County DRP

- Necessary ad-hoc meetings to provide input on DRP development and provide feedback on DRP component sections.
- Engagements with other interested parties or collaborators to support inclusion of community input in DRP development.

These County DRP development meetings will be facilitated by County staff designated on the Steering Committee, with support from facilitators provided through the California Department of Water Resources' Direct Technical Assistance services.

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

After the development of the DRP, the Task Force will meet periodically, unless drought conditions necessitate more frequent meetings for action planning, coordination, collaboration, or problem-solving needs.

2.8 Future Considerations

The Task Force may recommend future additions and updates to this charter by presenting those changes to the membership for consideration, discussion, and acceptance. All changes to the charter will be made in the form of amendments to the original charter document. After completion of the County DRP, the Task Force may consider rechartering the group to reflect DRP implementation, and/or to address other drought-related needs that the County specifies as under the purview of the Task Force.

3.0 Drought and Water Shortage Risk Assessment

A drought and water shortage risk assessment (referred to as a "risk assessment") was prepared during 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 shortages. The outcomes from the risk assessment helped inform response plans with short-term actions that may be employed when a water supply shortage occurs and LTMSAs and actions that may reduce 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.

3.1 Terminology

The County DRP adopted 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 a 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 factors. Communities lacking access to reliable water sources are most vulnerable to water shortages caused by such hazards. To address this, a thorough risk assessment was completed that considered many physical and social hazard indicators. The results and findings of that risk assessment were then used by the Task Force to develop actions and strategies to address water shortages (see Chapters 4 and 5).

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 WSVE Tool was used to (a) identify areas within the County where domestic wells and SSWSs are vulnerable to water supply shortages, and (b) characterize the hazards driving vulnerability. This information was included in a draft risk assessment. County staff and the Task Force reviewed the draft risk assessment, provided feedback, and identified data gaps. Additional detail on the WSVE Tool and its application in the risk assessment is included below.
3. **Revise the Draft Risk Assessment:** Task Force feedback on the draft risk assessment was used to develop a revised risk assessment.
4. **Incorporate Results of Revised Risk Assessment into County DRP:** Information from the revised risk assessment was included in the County DRP (Section 3.4). Findings from the revised risk assessment were used by the Task Force to develop short-term actions and long-term strategies to improve water supply sustainability (see Chapters 4 and 5).

Developed by DWR in collaboration with the County Drought Advisory Group (CDAG), the WSVE Tool is an online geospatial application that quantifies hazards using spatially visualized 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 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 to calculate those total scores is summarized below:

- The total physical vulnerability score was calculated at the Public Land Survey Section[2] (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, as assigned by DWR and CDAG, to reflect how some indicators contribute more to water shortage vulnerability than others.
- The total social vulnerability score was calculated at the Census Block Group[3] (CBG) 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 November 2024 version was used to complete the risk assessment for this County DRP. The detailed methodology that describes the WSVE Tool indicators and corresponding values, data sources, and weighting factors is available on the WSVE Tool website (arcg.is/1LCKGO).

Additional hazards identified by the Task Force that could impact physical vulnerability that are not included in the WSVE Tool include well characteristics, such as well age, location, depth, construction

[2] A Public Land Survey Section is a geographic delineation of an area equivalent to 1 square mile.
[3] A Census Block Group is a geographic unit with a population between 600 and 3,000 people that is the smallest geographical unit for which the U.S. Census Bureau publishes data collected from a fraction of households.

method (hand dug vs. bored), the rurality of a location, including distance from major roads, and availability of certified potable hauled water suppliers.

In other planning efforts, the County has used the data found in the California Healthy Places Index (HPI) to analyze social vulnerability. Key indicators in the HPI such as income, employment, education, housing, and demographics, are reflected and included in the Centers for Disease Control and Prevention's Social Vulnerability Index; these are incorporated into WSVE Tool methodology. This alignment ensures consistency with other County planning efforts.

Additional hazards identified by the Task Force not included in the WSVE Tool that could impact social vulnerability include distance from and awareness of social services, home ownership vs. rental status, and medical or health conditions.

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
Saline Intrusion Projected (RC1b)	Spatial extent of projected 1-meter sea level rise by 2040 into coastal aquifers
Wildfire Risk (RC1c)	Projected risk of wildfire as influenced by climate change, representing acreage burned in 2035-2064
Current Environmental Conditions and Events	
2024 Precipitation (RC2a)	If 2024 WY precipitation was less than 70% of normal
Consecutive Dry Years (RC2aa)	Count of dry years within the last 5 years
Wildfire Risk (RC2b)	CalFire Hazard Score
Geology (RC2c)	Fractured rock basin within the PLSS
Water Quality Aquifer Risk (RC2i)	SAFER Needs Assessment 2022 water quality composite score
Subsidence (RC2d)	Amount of subsidence as measured by remote sensing
Basin Salt (RC2e)	Presence of saltwater intrusion into coastal aquifer
Overdrafted Basin (RC2f)	SGMA critically overdrafted groundwater basin
Chronic Declining Water Levels (RC2g)	Amount of declining groundwater levels between 2019 to 2022
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 System
SAFER = Safe and Affordable Fund for Equity and Resilience
SGMA = Sustainable Groundwater Management Act

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 that are in a minority population
Disability	Percent of persons 5 years of age or older with a disability
Single-Parent Households	Percent of single-parent households
Housing and Transportation	
Multi-Unit-Housed Population	Percent of persons living in a multi-unit structure
Mobile Home–Housed Population	Percent of persons living in a mobile home
Crowded Conditions	Percent of persons living in conditions with more than one person per room
No Vehicle Access	Percent of households with no vehicle available
Race and Ethnicity	
Persons of Color	Percent of persons that identify with a race other than White or identify ethnically as Hispanic or Latino.

3.3 Hazards in Humboldt County

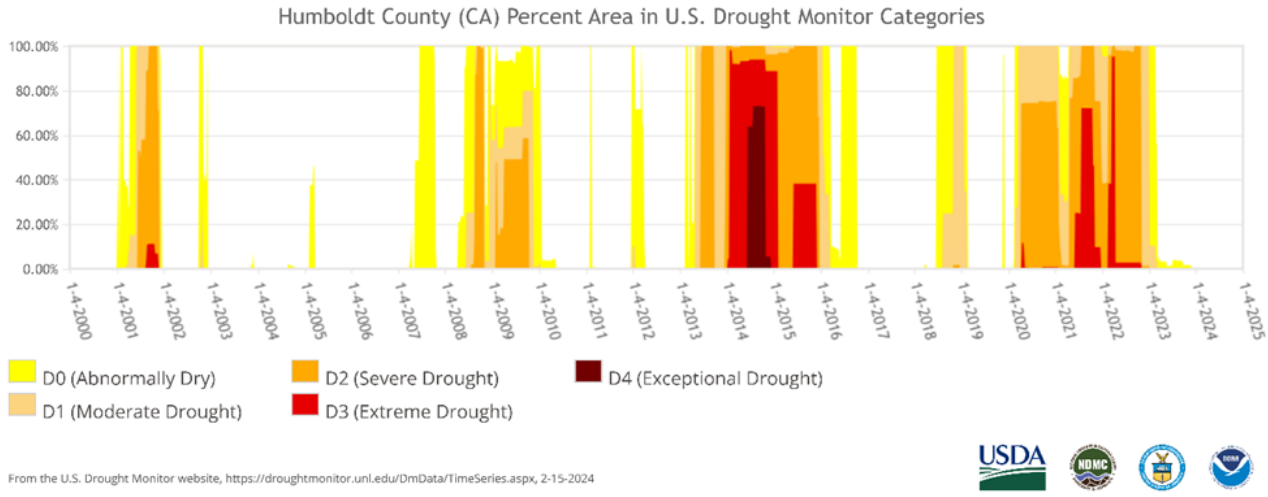
This section summarizes the recent droughts, projected climate change, current water quality, and groundwater hazards in the County. Section 3.4 provides more detail on the vulnerabilities related to these hazards.

3.3.1 Drought

The County has significantly higher annual precipitation and lower human water demands than other areas of California, but the County is still susceptible to drought impacts. Drought data for the County in the twenty-first century, shown in Figure 3-1, include multiple occurrences of the U.S. Drought Monitors highest drought designation “Exceptional drought” (D4). Exceptional drought (D4) is defined by the U.S. Drought Monitor as drought that may cause shortages of water in reservoirs, streams, and wells creating water emergencies. An Extreme drought (D3) may cause widespread water shortages or restrictions, and a severe drought (D2) is one where water shortages are common and water restrictions are imposed. In a Moderate drought (D1), some voluntary water use restrictions are requested, and in an

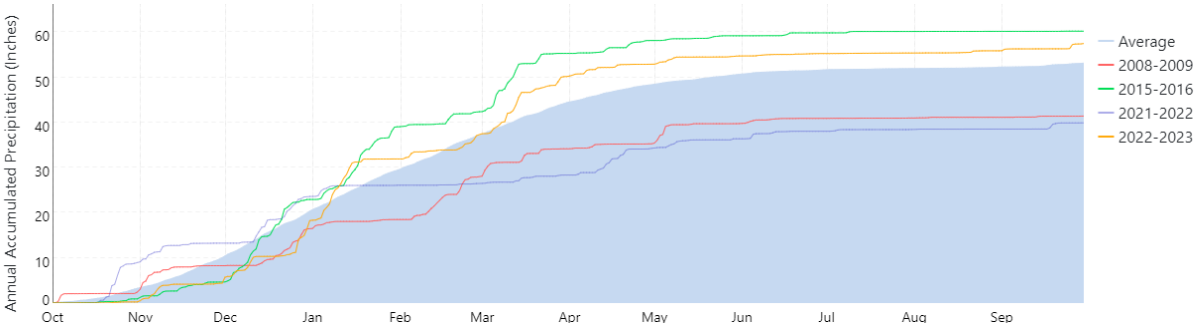
abnormally dry year (D0) an area may be coming out of or entering a drought. Wet years are categorized on a similar scale, from abnormally dry (W0) to exceptionally wet (W4) (National Oceanic and Atmospheric Association 2024).

Figure 3-2 shows average rainfall in the North Coast hydrologic region, where the County is located, with two representative "wet" years (2015–2016 and 2021–2023) and two representative "dry" years (2008–2009 and 2021–2022) to illustrate these precipitation patterns. As demonstrated in Figure 3-1, the County has fluctuated between severe or Exceptional drought and drought-free conditions, sometimes within a two-year period, since 2013. The 2012–2016 drought culminated in an Exceptional drought (D4) classification for over 70 percent of the County during much of 2014. There were additional periods of Extreme drought (D3) in the early 2000s and in 2021–2022, while the extremely wet winter in 2022–23 resulted in drought-free conditions in the County and throughout much of California. The historical pattern of drought serves as a reminder of the region's climate and recurring dry spells, which may become more frequent due to the impacts of climate change. These patterns and the potential severity of drought periods highlight the County's vulnerability to drought. The lessons learned from past droughts, including the importance of community preparedness, remain crucial for ensuring a resilient future for the County.



Source: droughtmonitor.unl.edu/DmData/TimeSeries.aspx. Accessed: 09/2024.

Figure 3-1. Occurrence of Drought in Humboldt County



Source: cww.water.ca.gov/regionscale. Accessed: 07/2024

Figure 3-2. Annual Precipitation Accumulation in the North Coast Hydrologic Region

3.3.2 Climate Change

According to the California Fourth Climate Change Assessment (2018), climate change has increased both average temperatures and the frequency and intensity of heat waves or extreme heat events. While global temperature increases are projected to be between 1.8 and 3.6 degrees Fahrenheit (°F), local observed increases that affect neighborhoods and ecosystems are far more variable and often of greater magnitude. Region-wide, average annual maximum temperatures in the North Coast region are projected to increase by 5 to 9°F by the end of the century under moderate and high emissions scenarios, with the greatest temperature increases in inland areas. Projected changes in temperature show similar spatial patterns for the hottest day of the year, with most of the region outside of the coastal areas exceeding 105°F. These expected changes translate to an annual average daily maximum temperature increase in the County of more than 7°F.

Droughts in California are triggered by a lack of large winter storms. Water shortages are further exacerbated by high temperatures, which increase the evaporative loss of water from soils, rivers, and reservoirs. Drought conditions, particularly when persisting for several years, can cause mental and physical stress on people, reduce the number of workable farm-labor days, and lead to deteriorating air and water quality. Historical data show that daily precipitation extremes have intensified in most areas of the country, including California. As the atmosphere warms, extreme precipitation events could become more frequent, since storms can hold about 6 to 7 percent more water for each degree Celsius (°C) of warming (1°C equals approximately 1.8°F of warming). Climate model simulations that consider such effects suggest that this trend will continue, and these models indicate only modest changes in annual precipitation accumulation, with shifts in the seasonality of precipitation that may be relevant for water management, i.e., less precipitation during November through January, and possibly more during February through May (California Energy Commission 2018).

There is also strong evidence that anthropogenic climate change, especially rising temperatures and periodic droughts, has made substantial contributions to the increase in area burned by wildfires in the American West. Wildfires can have a significant impact on water supplies, both in terms of water quality and quantity. Burned watersheds are prone to increased flooding and erosion, which can negatively affect water supply reservoirs, water quality, and drinking water treatment processes (U.S. Geological Survey 2023). Additionally, firefighters depend on water supplies for firefighting activities. Wildfire is a major concern in the County and has implications for water resources management. The County Community Wildfire Protection Plan (2017d) states that the County can expect an approximately 40% increase in the probability of fire across the region by the end of this century.

3.3.3 Water Quality

The County faces various water quality concerns regarding its surface and groundwater resources. Some of these concerns include historical and present land use, such as lumber mills, ship building, and cannabis cultivation (cite). Additionally, many residents in the County use septic systems which, without adequate oversight, introduces the risk of contaminating surface and groundwater (U.S. Environmental Protection Agency 2023).

3.3.4 Surface Water

Surface water in the County generally produces high-quality water resources. The Humboldt County General Plan (2017b) notes that “protection of water quality in watersheds that are sources for municipal water is important to maintaining these supplies. Threats include discharge from sewage

treatment plants, failing septic systems, non-point source urban pollution, and turbidity from sediment discharge." There are some coastal streams that are identified as "impaired" under Clean Water Act Section 303(d). These streams may violate Total Maximum Daily Loads (TMDL) for impaired waterways (North Coast Regional Water Quality Control Board 2024). Microbial Source Tracking data identified fecal matter from dogs, ruminants, and birds as local contributors to Clean Water Act Section 303(d) impairments (Corrigan et al 2021).

Other major issues related to surface water quality in the County include sediment runoff, salinity intrusion, and nutrient pollution (Humboldt County 2017e). Sedimentation occurs when erosion and land development lead to increased sediment entering waterways. This hinders fish spawning, clogs infrastructure, and reduces water clarity. Salinity intrusion occurs when seawater levels rise due to climate change and reduced freshwater flows. Saltwater can infiltrate rivers and bays, increasing salinity levels and impacting water quality for agriculture, wildlife, and recreation. Nutrient pollution occurs when excess agricultural runoff, urban wastewater, and other sources contribute to high levels of nutrients like nitrogen and phosphorus. This in turn leads to algal blooms, oxygen depletion, harm to aquatic ecosystems, and threatens public health and wellness. This is particularly important in areas with high levels of illegal cannabis cultivation. Unregulated runoff of pesticides, herbicides, and other chemicals from agricultural activities can contaminate surface water, potentially posing health risks and impacting aquatic life.

Additionally, as noted in the introduction to this chapter, some rural residents of the County pull domestic water directly from surface water sources and springs. These residents may not have the capacity or resources to appropriately treat their water, and so these users are very vulnerable to surface water quality impacts. While these users are not considered under the scope of SB 552, they are referred to in this County DRP because they share similar risks as domestic well and SSWS communities. Some SSWSs also pull water directly from surface water and spring sources, and these users are considered under the scope of SB 552.

3.3.5 Groundwater

Groundwater quality in the County is generally suitable for all beneficial uses, most notably for drinking water uses that typically have the most restrictive standards for water quality. The Humboldt County General Plan (2017b) notes that commercial and industrial discretionary uses may be evaluated for their potential to contaminate groundwater resources and mitigated as necessary. However, it is important to note that many domestic wells and SSWSs are located in rural areas and are not monitored as stringently as municipal water sources. As such, the water quality of these wells is less understood. Furthermore, there are very shallow or hand-dug wells in certain areas of the County, and wells that are inadequately sealed, particularly in coastal zones. There is anecdotal evidence of it being impossible to find water at depths over 20 feet in parts of the County, which can cause challenges in providing adequate sanitary seals and maintaining a connection to the production lens. In these areas, there is a high risk of surface contamination if minimum standard seals are not ensured. As such, these wells are extremely susceptible to water quality impacts; an effort to understand the number and location of these wells is discussed in Chapters 4 and 5 of this DRP.

The varied geology of the county (see Section 1.4.2.4 for additional detail) results in uneven groundwater availability during water shortages. High-yield alluvial aquifers located in river basins and around Humboldt Bay may serve as a drought buffer and, with prudent use, are anticipated to be more resilient to water shortage events. Conversely, areas dominated by fractured bedrock in the Klamath

Mountains and low-permeability formations like the Franciscan and Yager complexes in the Coast Ranges provide limited and unpredictable groundwater. This geological variability, along with incomplete bedrock mapping, leads to inconsistent and often unreliable access to groundwater during dry periods (Humboldt County 2017c).

3.4 Risk Assessment Results

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 vulnerability. This information was used to identify the regions of water supply shortage vulnerability described in Section 3.5.

3.4.1 Total Physical Vulnerability and Social Vulnerability Scores

This section summarizes the risk assessment outcomes related to the County's physical vulnerability scores and the indicators driving vulnerability.

The total physical vulnerability score within the County is shown in Figure 3-3, with darker shades indicating higher physical vulnerability scores. Figure 3-4 shows how the physical vulnerability within the County intersects with the location of the domestic wells and SSWSs identified in the WSVE tool. Dark brown shades indicate a higher presence of domestic wells within an area with high physical vulnerability. Blue areas have a higher physical vulnerability but minimal domestic wells, and orange areas have a high presence of domestic wells but low physical vulnerability. In the County, areas with both a high concentration of domestic wells and high physical vulnerability include the eastern Highway 36 corridor, Willow Creek and its surrounding areas, east of Arcata Bay, the Trinidad area, and Garberville and its surrounding areas in the southern part of the County.

Figure 3-4 shows some higher vulnerability areas in the Eel River Valley due to the large number of domestic wells in the region. The Eel River Valley GSP (Humboldt County GSA 2022) has evaluated wells in its area and established protective minimum thresholds to ensure that any future potential lowering of groundwater levels is protective of shallow wells. This area is managed by the Humboldt County GSA and is therefore not a focus area under this County DRP.

Social vulnerability is another crucial factor in assessing the risk of water supply shortage and what short-term actions and long-term strategies would effectively mitigate this risk. Figure 3-5 shows the social vulnerability scores within the County, with darker colors indicating higher vulnerability. The County's CHA (Humboldt County 2018) identified areas of high social vulnerability in the County that are aligned with the analysis completed using the WSVE Tool.

The CHA (Humboldt County 2018) also includes some important data regarding social equity considerations in the County more broadly. One in five people in the County live at or below the poverty line. Additionally, the median household income in the County is only two-thirds that of California. Southern and eastern Humboldt are among the lowest percentiles in terms of economic conditions.

Unemployment in the County is higher than the statewide average. Historically important industries in the County including logging, timber production, and cannabis cultivation have decreased, which limits employment opportunities, particularly in rural areas.

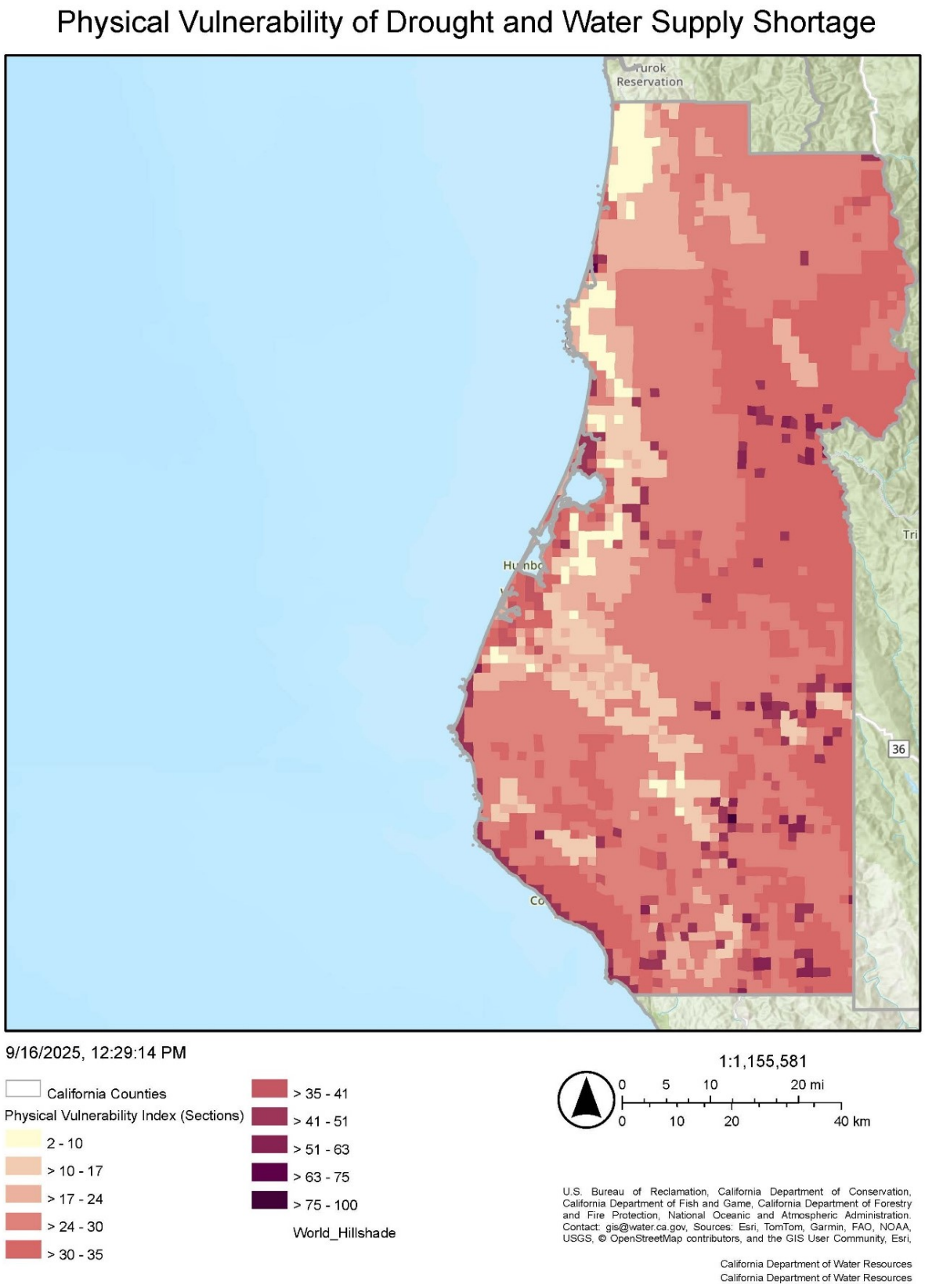
Healthy and stable housing is also a critical factor in social vulnerability. In the County, 60 percent of renters pay more than one-third of their monthly income for rent, and vacancy rates are only 4.2

percent. Houselessness in the County is higher than the statewide average. Additionally, the use of mobile homes is prevalent in both urban and rural areas.

Humboldt is a rural county (Figure 1-1), which can exacerbate social inequities given that rural residents may have more difficulty accessing services. Transportation is an important determinant of health affecting all spheres of community life. Being poor, non-white, or living in an area with low population density significantly increases the chance of transportation problems in the County (Humboldt County 2018).

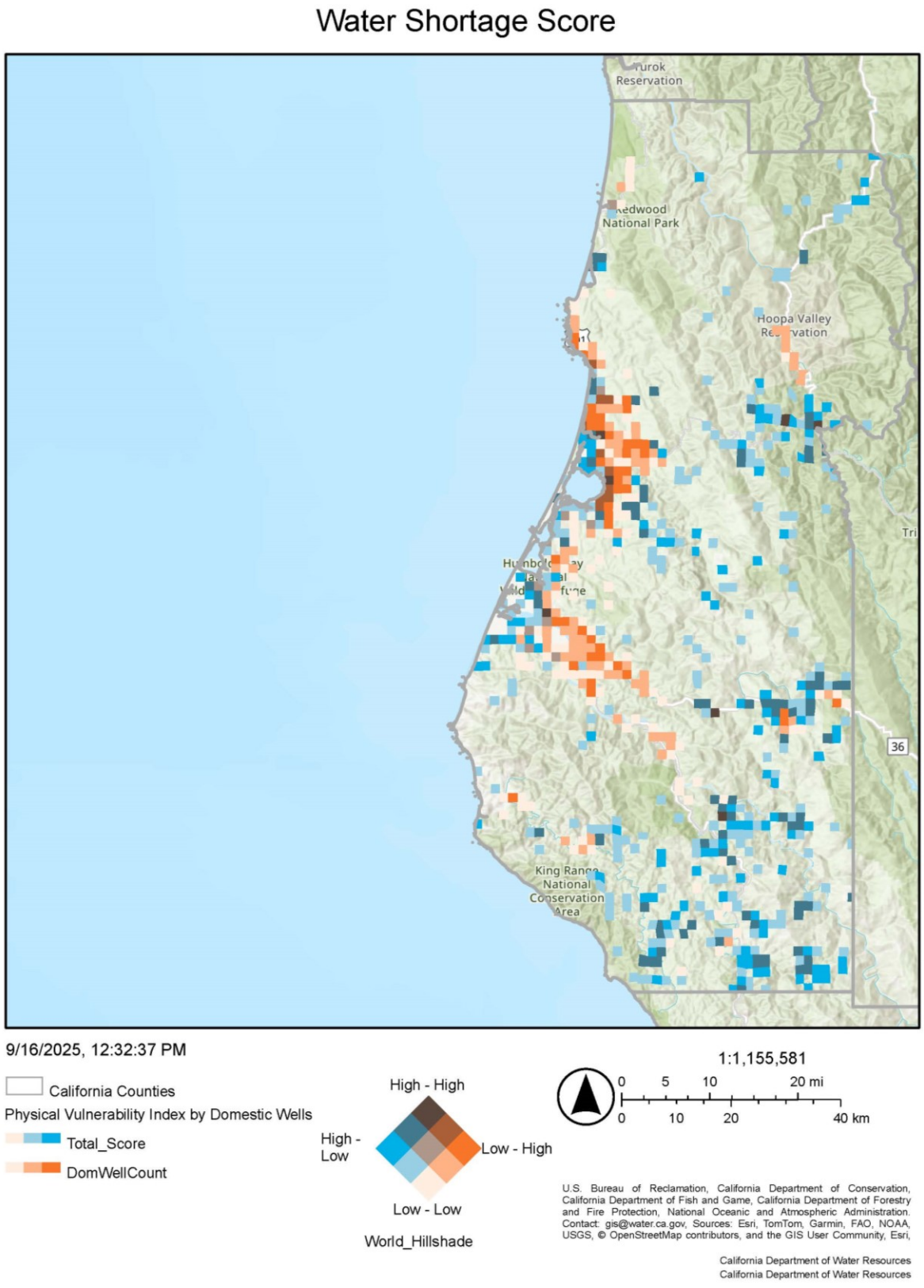
Additionally, the County has identified that structural racism and discrimination against people of minority races and ethnic groups can have a negative impact on health and well-being (Humboldt County 2018). These populations may be exposed to higher risk, and so equity considerations are incorporated into the implementation measures outlined in this plan.

Comparing the social vulnerability scores from Figure 3-5 with the physical vulnerability scores shown in Figures 3-3 and 3-4 characterizes how social vulnerability overlaps with the physical vulnerability of domestic wells and SSWSs. The eastern Highway 36 corridor has medium social vulnerability, and high physical vulnerability, though relatively few domestic wells. Similarly, Willow Creek and its surrounding areas show medium and high social and physical vulnerability, though a lower density of domestic wells. East of Arcata Bay has medium-low to high social vulnerability, as well some areas with high physical vulnerability and a high concentration of domestic wells. The Trinidad area has some physical vulnerability for domestic wells, and medium social vulnerability. The southern parts of the County, including Garberville, show medium to high social and physical vulnerability, though a lower density of domestic wells.



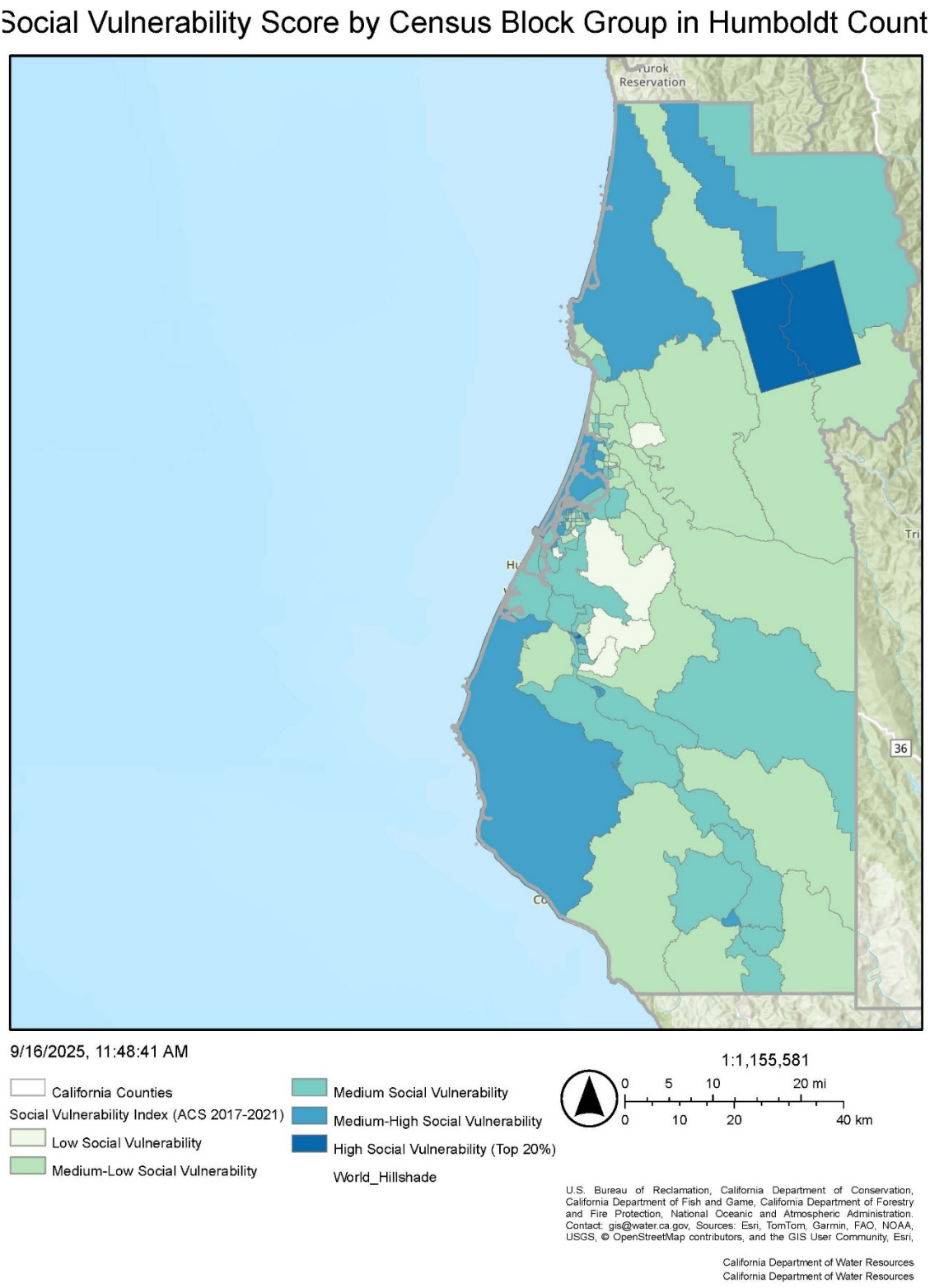
Source: WSVE Tool, arcg.is/1LCKGO. Accessed: 09/2025.

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



Source: WSVE Tool, arcg.is/1LCKGO. Accessed: 09/2025.

Figure 3-4. Intersection of Physical Vulnerability and Density of Domestic Wells in Humboldt County



Source: WSVE Tool, arcg.is/1LCKGO. Accessed: 09/2025.

Figure 3-5. Social Vulnerability Score by Census Block Group in Humboldt County

3.4.2 Physical Vulnerability Indicators

The risk assessment summarizes where water shortages associated with domestic wells and SSWSs may be more likely to occur. This section describes factors that drive water shortage risk in greater detail. Identifying and characterizing these drivers of physical vulnerability helps the County and the Task Force develop effective short-term actions and long-term strategies and their associated implementation.

Within the County, the indicators driving physical vulnerability are:

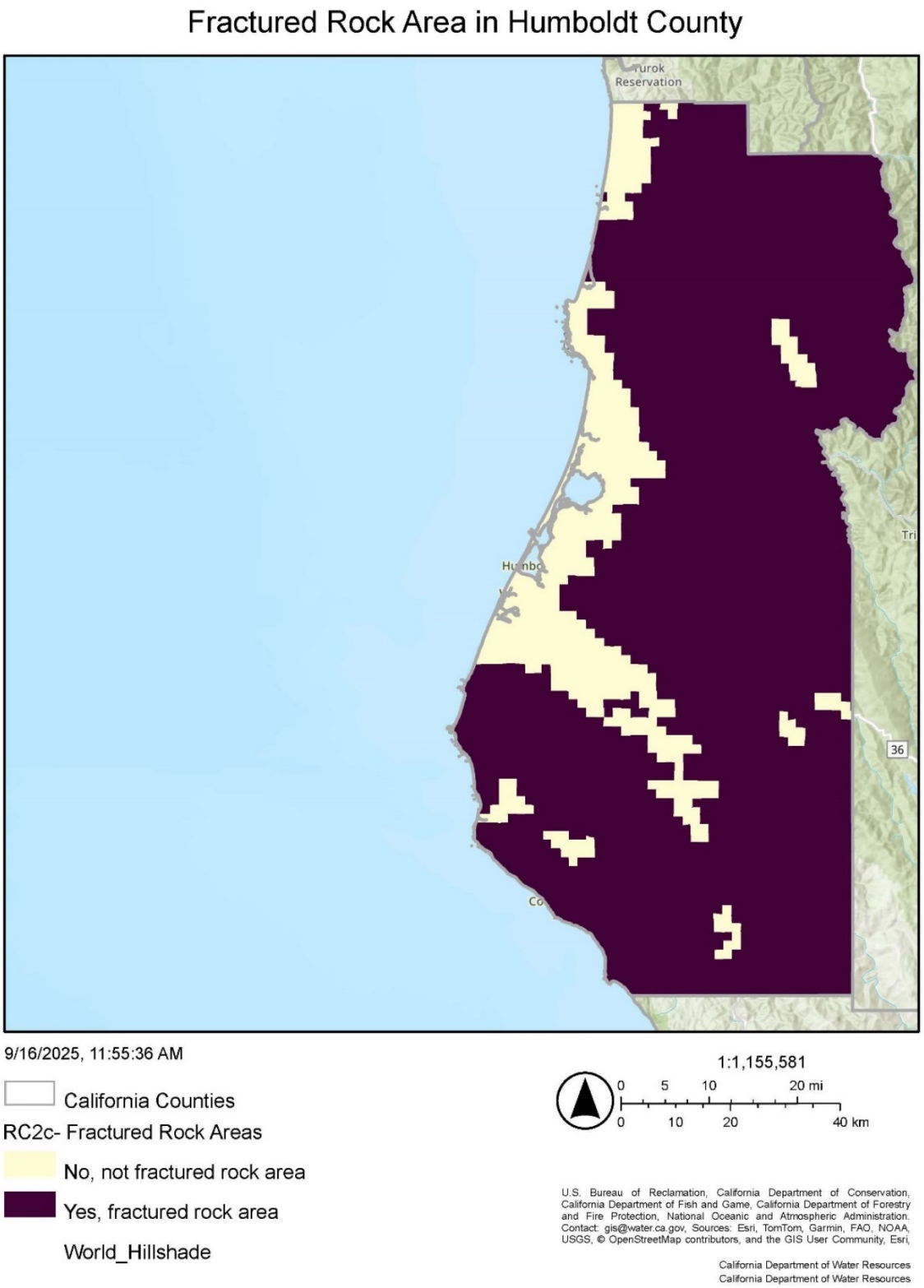
1) Fractured Rock Areas
2) Wildfire Hazard
3) Precipitation Patterns
4) Sea Level Rise

Details on these four indicators are included below; information on all physical vulnerability indicators is summarized in Table 3-3.

3.4.2.1 *Fractured Rock Areas*

Figure 3-6 shows the portions of the County within a fractured rock basin as a shaded area. Over 75 percent of the County's land is characterized as fractured rock. Fractured rock areas increase water supply vulnerability. Water supplies in these areas are complex to monitor; because of this, they introduce uncertainty for those depending on them as a primary water source. The intricate network of fractures makes it difficult to accurately gauge water quantity and sustainability. This necessitates sophisticated monitoring approaches and comprehensive water management strategies to address uncertainties and enhance resilience in fractured rock environments. Domestic wells and SSWSs may not have the resources to implement these measures effectively.

Most of the County's domestic wells are in a fractured rock basin, distributed throughout the County. A higher density of domestic wells in these fractured rock areas increases the vulnerability to well outages, particularly during dry periods. During dry periods, when precipitation is limited, groundwater recharge is reduced, and the demand for water remains constant or even increases, the susceptibility to dry wells is higher. The demand from multiple wells within proximity can expedite the depletion of available groundwater, potentially leading to wells running dry or experiencing reduced water levels.

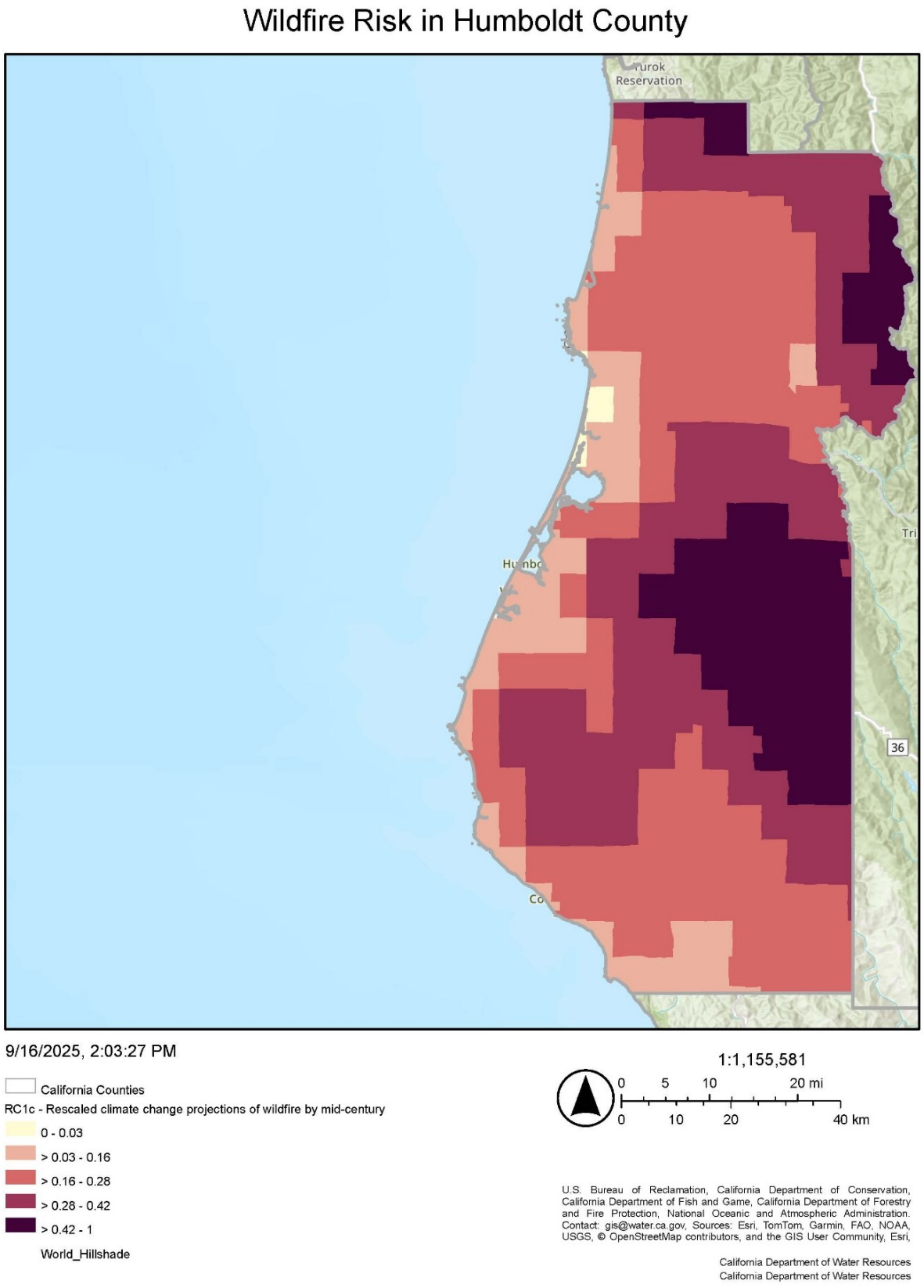


Source: WSVE Tool, arcg.is/1LCKGO. Accessed: 09/2025.

Figure 3-6. Fractured Rock Areas in Humboldt County

3.4.2.2 *Wildfire Risk*

The wildfire risk indicator was developed by averaging all global climate models at RCP 8.5 for 2035 to 2064. Figure 3-7 shows the projected risk of wildfire risk in the central and mountainous areas within the County, where darker shades indicate a higher wildfire severity hazard. Topographic and ecological features can characterize the risk of a wildfire occurring. Wildfires damage or destroy natural water related infrastructure such as headwater forests and natural reaches as well as built water related infrastructure such as pipelines and reservoirs. The destruction can be particularly challenging for rural water users. Furthermore, wildfire impacts can adversely affect watersheds, leading to increased sedimentation, altered water quality.

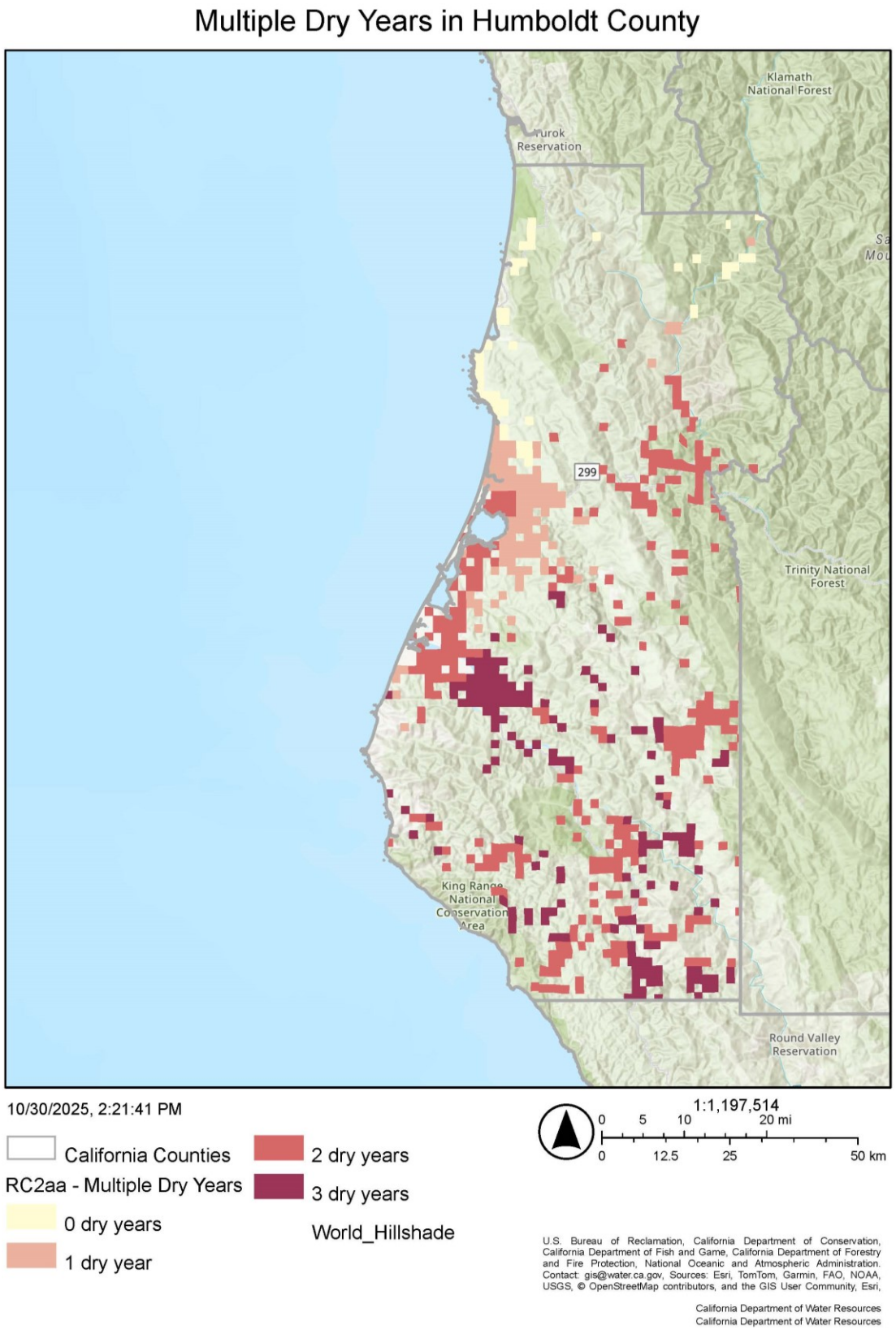


Source: WSVE Tool, arcg.is/1LCKGO. Accessed: 09/2025.

Figure 3-7. Wildfire Risk in Humboldt County

3.4.2.3 *Precipitation Patterns*

Figure 3-8 demonstrates the number of multiple dry years in the past 5 water years (2020 to 2024). The majority of the County has experienced at least one dry year in those five years, with most areas of the County experiencing two, three, or, in some cases in the southern and southeastern part of the County, four dry years. Only the northern portion of the County has not experienced multiple dry years recently. A higher number of recent dry years may increase the physical vulnerability of water supply conditions. Domestic wells and SSWSs can be especially sensitive to reduced precipitation.



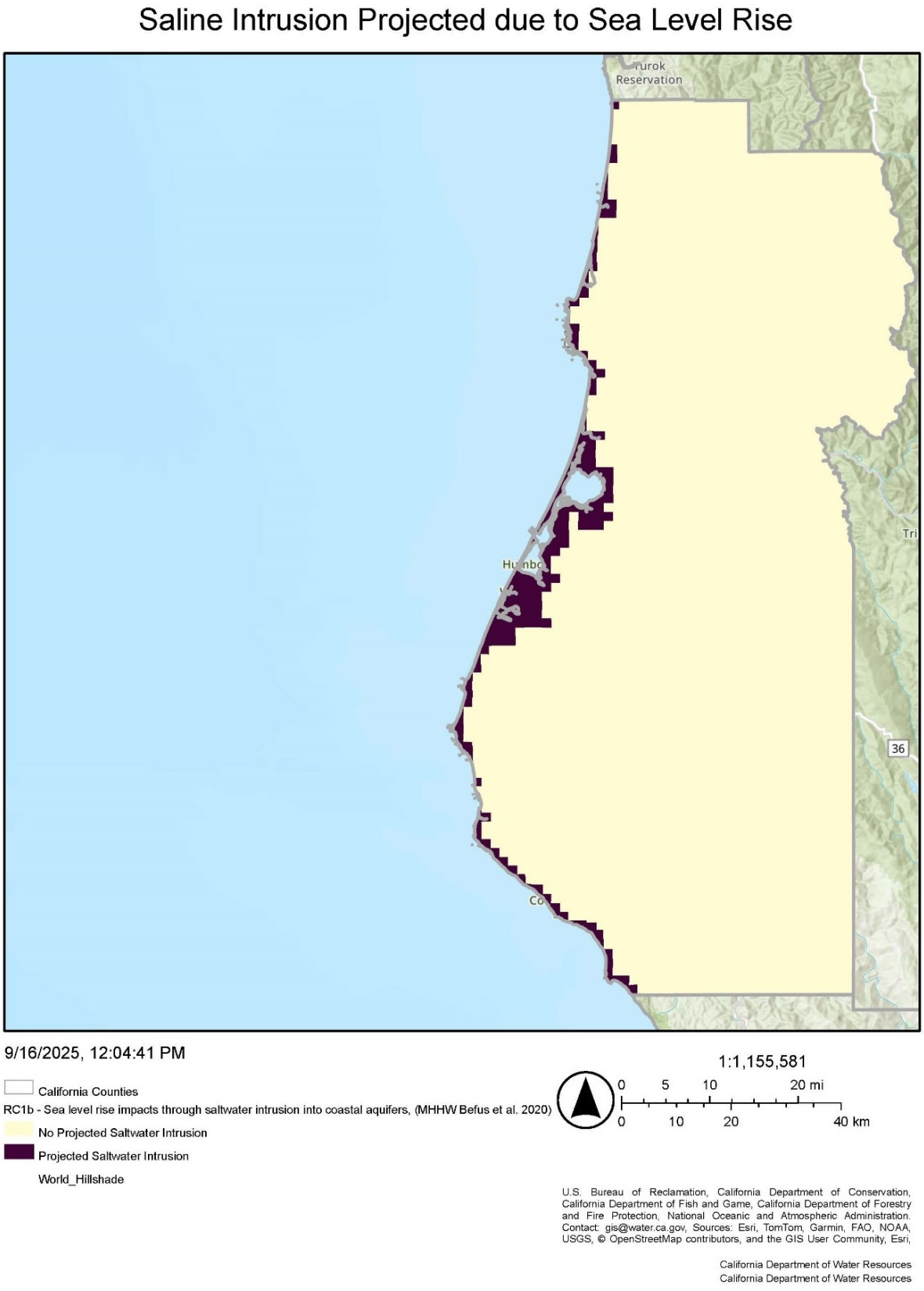
Source: WSVE Tool, arcg.is/1LCKGO. Accessed: 10/2025.

Figure 3-8. Multiple Dry Years in Humboldt County

3.4.2.4 *Saltwater Intrusion*

Saltwater intrusion into coastal groundwater already affects water supplies, but it could become more widespread due to climate change. This is the case for domestic wells and SSWSs relying on groundwater for drinking water. Projections indicate an exacerbation of saltwater intrusion due to climate change and sea level rise. The projected saltwater intrusion in coastal groundwater indicator quantifies where this risk could impact water supplies in the future.

Figure 3-9 shows the vulnerability to coastal saltwater intrusion into unconfined coastal aquifers under a 1-meter sea level rise, representing a mid-century projection. The coastal portions of the County, including around Humboldt Bay and Arcata Bay, are exposed to current or future saltwater intrusion in coastal groundwater aquifers. Additionally, Humboldt Bay has been found to have the fastest rate of sea level rise on the West Coast by California's Ocean Protection Council (2024), which is representative of the profound risks to this region. It is important to note that unlike other areas of the County, the Humboldt Bay and Arcata Bay areas lie in a location close to or within existing water system boundaries, which presents potential opportunities for mitigation strategies, as discussed in Chapter 5.



Source: WSVE Tool, arcg.is/1LCKGO. Accessed: 09/2025.

Figure 3-9. Saltwater Intrusion in Humboldt County

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

Physical Vulnerability Indicator[1]	Observed Conditions
Climate Change	
Temperature Shift (RC1a)	Projected change in the maximum temperature by mid-century shows an increase in average temperature throughout the County of 3.96°F (coastal areas) to 4.86 °F (northeastern areas). Increased temperatures could increase water supply demands from users and evapotranspiration, thereby increasing vulnerability to drought and/or water shortage impacts.
Saline Intrusion Projected (RC1b)	Coastal areas of the County are tidally influenced. Potential influence from higher salinity water intrusion and impacts on groundwater quality make the coastal areas, especially near Humboldt Bay and Arcata Bay, extremely vulnerable to saltwater intrusion. Current and future saltwater intrusion into groundwater increases vulnerability of domestic wells and SSWSs.
Wildfire Risk (RC1c)	Climate change increases the frequency and severity of wildfires, which are already a major risk to California's water supply. wildfires damage or destroy natural infrastructure as well as built infrastructure. This increases the vulnerability of access to water and the systems that provide it. As the County is a very mountainous and forested county, there is high wildfire risk throughout the County.
Current Environmental Conditions and Events	
Most recent water year's precipitation compared to historic average (RC2a)	Approximately half the County was in a dry year in 2022, with most of the southern portion and parts of the eastern portion of the County receiving less than 70% of average precipitation. The water year 2022 was the most recent dry year in California and provides a useful stress reference point on water. Domestic wells and SSWSs can be especially sensitive to reduced precipitation. Water data for 2024 show that none of the County is currently experiencing a dry year.
Multiple Dry Years (RC2aa)	Data show that most of the County has experienced at least 1 dry year in the past 5 water years (2020–2024), with most areas of the County experiencing 2, or 3 or, in some cases, 4 dry years. Only the northern portion of the County has not experienced multiple dry years recently. A higher number of recent dry years may increase physical vulnerability to diminished environmental water availability.
Wildfire Risk (RC2b)	A significant portion of the County's State Responsibility Areas has the highest wildfire hazard severity score, primarily in the mountainous areas in its central portion. Higher risk contributes to higher physical vulnerability for water sources and infrastructure.
Geology (RC2c)	Fractured rock is present across the majority of the County. 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 in this analysis to have high susceptibility to drought impacts.
Subsidence (RC2d)	Subsidence is a phenomenon, characterized by land sinking or settling, that contributes to water supply vulnerability as it can impact groundwater levels, reduce water storage capacity, and compromise the overall availability of water supply. Minor subsidence in the County has been reported along the Eel River Basin and around Arcata.

Physical Vulnerability Indicator[1]	Observed Conditions
Basin Salt (RC2e)	There may be saltwater intrusion into coastal aquifers as a result of sea level rise in coastal areas of the County.
Overdrafted Basin (RC2f)	If the basin is considered overdrafted, this would increase physical vulnerability for water shortage and drought. No basins in the County are currently considered to be overdrafted.
Chronic Declining Water Levels (RC2g)	There are few areas in the western portion of the County that have experienced a decline in groundwater. Declining levels in groundwater indicate increased vulnerability. This may put wells at higher risk of shortage.
Water Quality Aquifer Risk (RC2i)	Data from the State Water Board's 2022 Safe and Affordable Fund for Equity and Resilience Needs Assessment demonstrates future potential water quality concerns, and suggests some regulated constituents may potentially be present in the future. The water quality risk ranking developed using this methodology is not intended to depict actual groundwater quality conditions at any given domestic supply well or small water system location.
Surrounding Land Use (RC2j)	The County has agriculture in the Eel River Valley Basin and west of Arcata. Additionally, cannabis cultivation is a significant historical and current economic activity in the County and may not be accurately reflected in this dataset as cannabis cultivation was only recently legalized. The presence of agricultural activities could indicate competing demands on groundwater supplies as well as water quality concerns. Both could create higher vulnerability for domestic wells and SSWSs, especially during a drought or water shortage.
Infrastructure Susceptibility	
Dry Domestic Well Susceptibility in basins (RC3a): Alluvial Basin	This factor analyzes locations where there are many susceptible wells likely to go dry in the (limited) alluvial parts of a given groundwater basin. Data show an overall low likelihood of dry well susceptibility in the County even in the medium-priority groundwater basin. However, there is a small area north of Arcata with a high dry well susceptibility.
Domestic Well Density in Fractured Rock Areas (RC3c)	There are many fractured rock areas in the County. A 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. Given that the majority of the County is in a fractured rock area, there is a high percentage of domestic wells in fractured rock areas, particularly in the southern and eastern parts of the County.
Record of Shortage	
Reported Household Outage on Domestic Well	Areas that have already experienced outages are more likely to experience them again during future dry years due to combinations of aquifer sensitivity/fluctuations and potentially shallow wells. There are some reports in the County of dry wells. It is important to note that this dataset may be incomplete, as it relies on residents' self-reporting their dry wells to the State, which they may choose not to do for a variety of reasons.

Physical Vulnerability Indicator[1]	Observed Conditions

Note:
[1] Abbreviations are included next to Indicator Name (i.e., "RC1a") for clarity to underlying methodology.
Key:
SSWS = State Small Water System

Table 3-4. Summary of Additional Observed Conditions for Physical Vulnerability Indicators

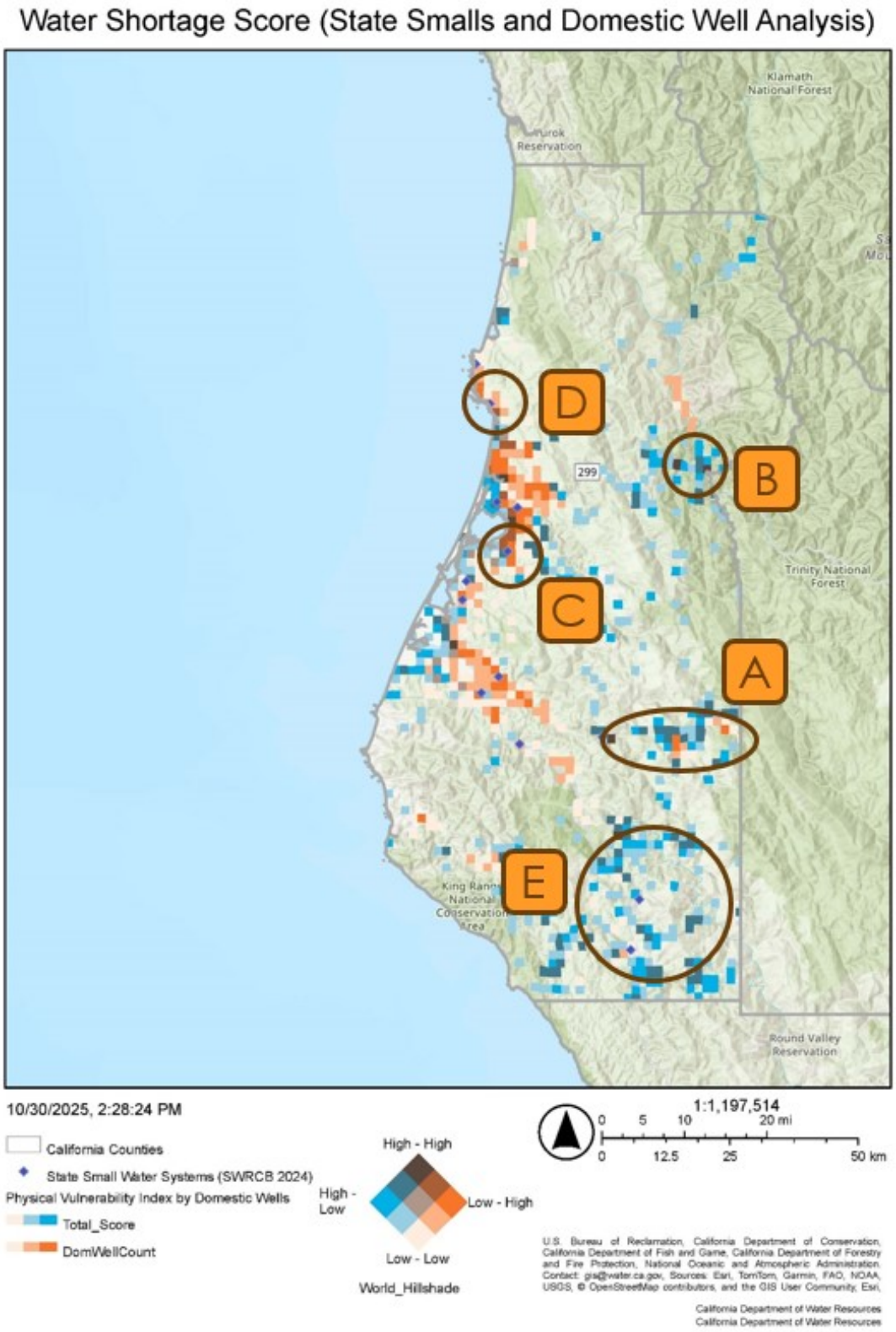
Physical Vulnerability Indicator	Observed Conditions
Well characteristics	Well characteristics such as well age, depth, and construction method may impact a well's ability to reliably pump water adequate for human consumption, both in terms of water quality and water quantity. Furthermore, shallow wells in perched groundwater may have limited or intermittent productivity and may be vulnerable to contamination. There is no comprehensive dataset that describes all these characteristics, as well completion reports may only have partial data. This is a data gap that the County would like to address, as described in Chapter 5 of this plan, dependent upon funding.
Rurality	Much of the County is rural, except for population centers near Eureka and Arcata. People located in rural areas may have more difficulty accessing services and may be further from existing infrastructure. This can be exacerbated if they do not live near a major road.
Availability of certified hauled water suppliers	There are currently six certified hauled water suppliers who operate in the County. Hauled water suppliers are certified by the California Department of Public Health, Food and Drug Branch. Certain areas of the County, including those that have connections to municipal water supplies, rely on hauled water for part of the year, particularly in the dry summer months. California does not require local oversight of state potable water haulers, and therefore there is limited data regarding the frequency of location of hauled water deliveries. This is a data gap that the County would like to address, as described in Chapter 5 of this plan, dependent upon funding.

3.5 Risk Assessment Findings

The areas within the County with domestic wells and/or SSWSs that are vulnerable to water supply shortages, the drivers of those physical vulnerabilities, and the corresponding total social vulnerability scores are presented in Table 3-5 and shown in Figure 3-10. These areas and vulnerabilities were used by the Task Force to develop short-term actions and long-term strategies for addressing water shortages of domestic wells, SSWSs, and domestic surface water users across the County.

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

Area with Water Shortage Vulnerability and Domestic Wells/State Small Water Systems	Physical Vulnerability Indicators	Social Vulnerability Score	Location in Figure
Eastern Highway 36 Corridor	• Current dry year and number of multiple dry years • Wildfire Hazard • Competing Demand in fractured rock areas and fractured rock areas • Projected temperature change	Medium-high	A
Willow Creek and Surrounding Areas	• Competing demand in fractured rock areas and fractured rock areas • Wildfire Hazard • Projected Temperature Change • Number of Multiple Dry Years	Mix of medium-low to high	B
East of Arcata Bay	• Projected sea level rise and saltwater intrusion • Current Dry Year and Multiple Dry Years • Wildfire Hazard	Mix of medium-low to high	C
Trinidad Area	• Projected Sea Level Rise • Saltwater Intrusion • Fractured Rock Area Competing Demand for Domestic Wells	Mix of medium-low to medium-high	D
Garberville and Surrounding Areas	• Wildfire hazard • Domestic well density in fractured rock areas and fractured rock area • Current dry year and multiple dry years • Projected temperature change	Mix of medium to high	E



Source: WSVE Tool, arcg.is/1LCKGO. Accessed: 09/2025.

Figure 3-10. Summary of Risk Assessment Findings Showing Areas with Water Shortage Physical Vulnerability and Domestic Wells and State Small Water Systems in Humboldt County

3.6 Risk Assessment Gaps

Understanding gaps in the risk assessment helps identify physical and social vulnerabilities that may exist but are not effectively captured using the methodology applied and data available. It also focuses future efforts to improve future risk assessments, and allows communities to develop long-term continuous monitoring and improvement plans. This proactive approach helps build resilience over time. The risk assessment gaps described below were identified by County staff, the Task Force, and other stakeholders during the development of the County DRP. Section 5.5 presents a full description of data gaps.

3.6.1 Well Data Characterization

Task Force members noted that domestic well and SSWS characterization data are not available. The Task Force has identified well data characterization as a key data gap to better understand risk and vulnerabilities. This includes information about well infrastructure such as well depth, screen interval, casing material, construction method (drilled vs dug wells), and information about well capacity such as low production or frequency of seasonal shortages and/or dependence on supplemental hauled water.

3.6.2 Hauled Water Deliveries

California does not require local oversight of state potable water haulers, and therefore there is limited data regarding the frequency of location of hauled water deliveries. There is also limited information about resources that hauled water purveyors may need now or in the future.

Domestic Well and State Small Water System Data

County staff has noted that the domestic wells documented by DWR in the WSVE Tool are incomplete. Additionally, total SSWSs in the County as reported by County staff differ from the information available from the State Water Board. An inventory of the County's SSWSs as of July 2025 is provided in Appendix A. Online databases could be updated using digitized County archives and local knowledge. Migration of data into a digital format would increase access to data available only in paper form.

3.6.3 Dry Well Reporting

DWR maintains a dry well reporting system that also provides support and resources to Californians experiencing dry wells. This system relies on residents self-reporting their dry wells, and County staff believe that dry wells in the County are under-reported in this statewide system. County staff speculate that residents may not be aware of the State system or may choose not to report their dry wells due to concerns about negative economic impacts during real estate transactions, development restrictions, or other regulatory or enforcement concerns.

3.6.4 Domestic Surface Water Users

Domestic surface water users may face similar vulnerabilities and risks as domestic well users and SSWSs. However, a comprehensive dataset regarding domestic surface water users is not available, so in-depth analysis for the risk assessment was not feasible. Further data collection regarding the location, prevalence, and risks that domestic surface water users face, including the frequency of seasonal shortages or the frequency of use of supplemental hauled water, would support better planning and management.

3.6.5 Comprehensive Groundwater Basin Analysis

A comprehensive evaluation of groundwater basins and groundwater resources outside of the Eel River Valley Basin has not been completed, and thus the capacity and resilience of these systems is undefined.

3.6.6 Non-Drought Hazards

Non-drought hazards may directly or indirectly cause water shortage events. These include, but are not limited to, wildfire, flood, earthquakes, landslides, vandalism, and other natural and human-caused non-drought hazards. While wildfire risk is considered in the County DRP, data were insufficient to identify relevant or actionable mitigation strategies. Additional data on the ways that wildfire may impact water quality and water distribution infrastructure are needed. Data regarding other non-drought hazards are not yet included in the risk assessment and may be incorporated based on availability of data or funding to analyze existing data that may be relevant to these hazards.

4.0 Short-Term Response Actions

The risk assessment presented in Chapter 3 provides insight into areas of the County where water is supplied by domestic wells, SSWSs, and domestic surface water users that may be susceptible to droughts and water shortages. Based on the outcomes of that risk assessment, the Task Force identified potential STRAs to include in the County DRP that may lessen the effects of water shortage emergencies that could occur in the vulnerable regions of the County. In the context of this County DRP, STRAs are defined as actions that may be taken during and after a water shortage emergency to reduce the impacts of existing and ongoing drought and water shortage events, often addressing immediate and basic needs. The identified STRAs are not exhaustive and may be modified in the future or based on specific drought or water shortage conditions and hazards the County may experience. Additionally, implementation of these STRAs is dependent upon funding availability.

This section describes the STRAs included in the County DRP, and it describes the Drought and Water Shortage Emergency Response Process (Water Shortage ERP) developed as part of the County DRP to assist with implementing STRAs.

4.1 Legislative Direction

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

> *(b) A **county shall develop a plan that includes potential drought and water shortage risk and proposed interim** and long-term **solutions for state small water systems and domestic wells within the county's jurisdiction**. The plan may be a stand-alone document or may be included as an element in an existing county plan, such as a local hazard mitigation plan, emergency operations plan, climate action plan, or general plan. A county shall consult with its drought task force or alternative coordinating process as established by this section in developing its plan. A county shall consider, **at a minimum**, all of the following in its plan:*
>
> *(1) Consolidations for existing water systems and domestic wells.*
>
> *(2) Domestic well drinking water mitigation programs.*
>
> ***(3) Provision of emergency and interim drinking water solutions.***
>
> *(4) An analysis of the steps necessary to implement the plan.*
>
> *(5) An analysis of local, state, and federal funding sources available to implement the plan.*

4.2 Short-Term Response Actions Included in the Humboldt County Drought Resilience Plan

STRAs included in the County DRP are summarized in Table 4-1 and described in this section. These potential STRAs may include enhanced outreach targeting domestic wells, SSWSs, or domestic surface water users, emergency and interim drinking water supplies, and/or developing the mutual aid

agreements required to provide emergency and interim drinking water supplies efficiently. The process for STRA implementation is presented in Section 4.3, while future efforts to address STRA implementation challenges are described in Section 6.2.2.

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

ID	STRA Name	STRA Description	Responsibilities
STRA 01	Enhanced communication and outreach *(may need additional funding or resources)*	During or before a water shortage emergency enhanced communications and outreach may become necessary. The specific communications and outreach contents and methods would depend on the nature of the event and resources available, and may include direct engagement with domestic well, SSWS, or domestic surface water user communities, public meetings, announcements in local media, educational materials, e-blasts, or other methods.	County OES (lead, through EOC) DHHS (support)
STRA 02	Dedicated water filling stations (*pending funding)*	The County may identify and establish emergency potable water supply stations and suppliers such as existing community water systems which may be able to operate dedicated water filling stations for communities impacted by drought or water shortage events.	County OES (co-lead) DHHS (co-lead)
STRA 03	Water hauling, bulk water for existing tanks (*pending funding)*	The County may coordinate with public water systems to support water hauling and bulk water delivery to existing accessible bulk water supply storage tank (i.e., existing tanks on SSWSs' properties, individual domestic well owners' properties, or surface water users' properties, or at community water systems near domestic well, SSWS, or domestic surface water user communities), upon request. This would include ensuring appropriate policies and mutual aid agreements are in place (see STRA 06 and 07).	County OES (co-lead) County DEH (co-lead)
STRA 04	Water hauling, bulk water for temporary tanks (*pending funding)*	The County may establish a program to provide temporary mobile bulk water storage tanks for use by domestic well, SSWS, and domestic surface water user communities. These tanks may be placed in central locations throughout the County for ease of access for residents in areas vulnerable to drought or water shortage events. This would include ensuring policies and mutual aid agreements are in place for coordination with public water systems to provide temporary water supplies (see STRA 06 and 07).	County OES (co-lead) County DEH (co-lead)
STRA 05	Packaged and bottled water supplies (*pending funding)*	The County may identify and establish a program to acquire and distribute packaged or bottled water to serve communities including domestic well, SSWS, and domestic surface water user communities during a water shortage emergency.	County OES (lead)

ID	STRA Name	STRA Description	Responsibilities
STRA 06	Agreements with partner agencies (*pending funding)*	The County may initiate development of mutual aid agreements with the entities listed in Section 4.2.3. Agreements would focus on assisting in sourcing and distributing the emergency and interim water supplies identified in STRA 02, 03, 04, and 05.	County OES (lead) DHHS (support)
STRA 07	Agreements with large water providers (*pending funding)*	The County may initiate development of mutual aid agreements with large water providers to provide water supplies for bulk water distribution and the water supplies and locations for dedicated water filling stations, per STRA 02, 03, and 04.	DHHS (lead) County OES (support)

Key:
County = Humboldt County
DEH = Division of Environmental Health
DHHS = Humboldt County Department of Health and Humans Services
EOC = Emergency Operations Center
OES = Office of Emergency Services
STRA = short-term response action

4.2.1 Enhanced Communication and Outreach (STRA 01)

Communication and outreach by the County to domestic well, SSWS, and domestic surface water user communities may be a vital component of the County DRP. In a water shortage emergency, enhanced communications and outreach to impacted residents may be necessary. STRA 01 details the communication and outreach process the County may implement to mitigate the impacts of water shortage events, coordinate emergency water supplies and distribution, and share other resources and information as applicable. The communication and outreach strategy for DRP development and implementation generally is described in Chapter 7.

During a drought or water shortage, centralized communication may be vetted through the Emergency Operations Center (EOC), if activated. Communications and outreach methods will depend on the specific nature of the event, but may include:

- Direct engagement with domestic well, SSWS, or domestic surface water user communities
- Public meetings and town halls, either located in Eureka or in communities that experience water shortage emergencies or are vulnerable to water shortage events
- Announcements and updates shared via social media and local media sources, which may include local newspapers, radio stations, or other print publications
- Announcements and updates shared at locations accessible to communities that may be impacted, such as community centers, grocery stores, markets, and churches
- Educational materials regarding County resources, emergency contacts, local, State, and/or regional assistance programs, water use efficiency best practices, or other related topics
    - These educational materials may be disseminated in partnership with the Board of Supervisors, other County departments, and partner organizations.
    - These educational materials may include mailers, flyers, or other methods to be determined.

- Coordination with public water systems in the County to disseminate relevant information to customers
- E-blasts to interested parties via the Task Force webpage
- Website updates on the Task Force webpage
- Board of Supervisors updates

County OES would be the co-lead agency for communications and outreach, through the EOC, if activated. The Department of Health and Human Services (DHHS) media, other departments in the Task Force, and other agencies and organizations may support these efforts as appropriate. Dependent upon the type of communication and outreach implemented, additional funding may need to be identified. Funding may be available if the federal or State government has declared an emergency. Other potential funding sources are included in Chapter 6 of the County DRP.

4.2.2 Emergency and Interim Drinking Water Supplies

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

4.2.2.1 Dedicated Water Filling Stations (STRA 02)

During a water shortage emergency, domestic well, SSWS, or domestic surface water user communities may use water from dedicated water filling stations owned and operated by larger water purveyors. These water filling stations would be located at established locations that could provide potable water to the affected users. Domestic well, SSWS, or domestic surface water user communities would need to provide their own water transportation and storage containers. Existing education and outreach for emergency preparedness may be able to be adapted to encourage homes reliant on domestic well and state small water systems to include food safe bulk water containers in their emergency home preparation supplies. Dedicated water filling stations are included as an STRA in the County DRP as STRA 02.

The most likely prospect for a dedicated water filling station during a water shortage emergency is HBMWD, as it is the largest water district in the County and is expected to have sufficient capacity (HBMWD 2020).

HBMWD provides wholesale water to the below receiving agencies, which may also be able to serve as dedicated water filling station sites: When available, information about bulk water sales from these receiving agencies is included for reference. Understanding the full capacity, capability, and interest of HBMWD and/or these receiving agencies to serve as dedicated water filling stations will be explored during DRP implementation. The process for developing mutual aid agreements that would be necessary to implement these activities is discussed in STRA 06 and 07. Although the benefits of pre-established agreements facilitate dispersal of vital water supplies in water shortage events, the organization of agreements requires resources not currently available.

An appropriate funding source would need to be identified. Funding may be available if the federal or state government has declared an emergency. Other potential funding sources are included in Chapter 6 of this document.

- City of Arcata

- City of Eureka
- City of Blue Lake
- Fieldbrook Glendale Community Services District
- Humboldt Community Services District
    - Humboldt Community Services District permits water haulers to obtain bulk water from their district yard on Walnut Drive in Cutten (Humboldt Community Services District 2021).
- Manila Community Services District
- McKinleyville Community Services District
    - McKinleyville Community Services District Rules and Regulations 14.09 and 14.10 (2024) include provisions for bulk water sales from hydrants with an added meter, and for emergency sales of one month for use inside and outside the district.

In addition to these systems, other water districts throughout the County may be able to serve as dedicated water filling stations, depending on their own source capacity, storage capacity, permit restrictions, and other potential limitations during a drought or water shortage event. These water districts may be more accessible to areas at risk of drought or water shortage events, particularly in more rural areas of the County identified in the risk assessment presented Chapter 3. The feasibility of these systems to serve as water filling stations may not be guaranteed, as emergency provisions of a water district may be essential for distribution of water beyond the "place of use" designation as identified in the permit from the State Water Board. This may impede these systems' ability to provide water in the event of a drought or water shortage event for rural areas. Additionally, support and funding may need to be identified for these water districts to provide dedicated water filling stations. Funding may be available if the federal or State government has declared an emergency. Other potential funding sources are included in Chapter 6 of the County DRP.

There is no existing agreement between the County and HBMWD or the retail purchasers of HBMWD DHHS has experience developing capacity and service agreements in preparation for emergency response. With appropriate resource allocation development of an emergency water supplies and filling station agreements are part of the anticipated mutual aid agreements described in Section 4.2.3, and will be led by DHHS to support domestic well and SSWS communities. Other mutual aid agreements may be developed with water systems in more rural areas of the County and are also listed in Section 4.2.3.

The Task Force can support discussions related to emergency water supplies but cannot ensure completion of agreements, as this is dependent upon those partner agencies. Agreements that are completed could be activated for emergency water supplies by County OES via the EOC, if activated. DHHS would support these activities, as appropriate. Locations, operating hours, and other information regarding these dedicated water filling stations would be communicated using the processes described in Section 4.2.1, or other processes as determined by the EOC, if activated.

4.2.2.2 Water Hauling, Bulk Water for Existing and Temporary Tanks (STRA 03 and STRA 04)

Potable water hauling or bulk water delivery involves using licensed water haulers or tankers to deliver emergency water supplies to existing storage tanks, such as any existing tanks located at community

water systems, SSWSs, domestic well owner properties, domestic surface water user properties, or temporary (mobile) storage tanks staged at a central distribution points. Water hauling or bulk water delivery are included as STRAs in the County DRP, with delivery to existing tanks being STRA 03 and temporary (mobile) tanks as STRA 04.

Distribution points where either existing or temporary (mobile) tanks may be staged include public water agencies, SSWSs, domestic well owner properties, domestic surface water user properties, community centers, granges, schools, fire stations, and/or sheriff's stations or substations, ideally located near areas with domestic well, SSWS, and/or domestic surface water user communities impacted by drought or water shortage events. Additionally, the bulk/hauled drinking water tankers themselves may be used as distribution points for residents who bring a container to be filled. Potential distribution sites throughout the County, including vulnerable areas identified in the risk assessment, are included in Table 4-2 for consideration. The distribution sites included in Table 4-2 were chosen based on input from the Drought Task Force, as well as considering ease of coordination with other County departments and programs (i.e. existing emergency shelter locations).The availability and suitability of existing water tanks, as well as the potential need for temporary tanks, may be evaluated during the DRP implementation process. This list is not exhaustive and may not include all potential sites, as site availability may be subject to the nature of the emergency. Additionally, the inclusion of a site on this list does not indicate that it will be used as a water hauling or bulk delivery site during an emergency. Actual water hauling or bulk delivery would be executed and coordinated through the EOC, if activated. Medical Health Operational Area Coordinators (MHOAC) would be available to support the identification of vulnerable people who may need direct water deliveries to their homes.

Health Considerations and Hauled Water

In water shortage events, including drought, limited supply of water can impact availability of water threatening disease preventing sanitation. Reductions in water availability in ground water and surface supplies, can decrease flows and increase water temperature and stagnation. Further dwindling of water levels concentrate disease causing pathogens, like bacteria, viruses, and protozoans, to increase risks for people reliant upon the private water wells and surface supplies (www.cdc.gov/drought-health/health-implications/index.html)

It is important to note that water from unknown sources is not safe to drink without treatment. Consumption of untreated water presents a risk from waterborne diseases that may amplify potential drought related impacts. California Health and Safety Code (H&SC) Section 111120 requires water haulers, transporting more than 250 gallons of potable water, to obtain a Water Hauler's License issued by the Department of Public Health, Food and Drug Branch (FDB). Consumers should assume that water from unlicensed haulers is untreated and have guidance on steps to reduce risks of exposure to waterborne pathogens. DEH will lead development and organization of necessary steps, with assistance from OES in distribution of the message.

The source of this hauled water will depend on the nature, and severity, of the emergency and provisions of applicable permits. Section 4.2.2.1 provides a list of potential bulk water suppliers in the County. In addition to these sources, other water systems may continue to have drinking water available in their distribution systems (see "Community Services Districts" below). If water quality can be verified and approved by the California Department of Public Health (CDPH) Food and Drug Branch and applicable permits obtained, these sources may potentially be available to be used as a source for bulk water haulers. Additionally, the California Department of General Services has established a Statewide

Contract for Bulk Water Delivery. Under this contract, it may be possible for the County or other local government agencies to place purchase orders for delivery of potable water, and to have the contractor supply bulk potable water and storage capability at the receiving point.

For the purposes of this County DRP, it is important to note that the availability of licensed water haulers in the County is limited and may be a barrier to effectively using this as an STRA. Additionally, temporary tanks and adequate sources of water that meet public health standards may be difficult to source and/or place. The County does not currently have or maintain any temporary tanks. An appropriate funding source would need to be identified to implement this STRA. Additional funding, water haulers, temporary tanks, and source capacity may be made available if the County or State has declared a water shortage emergency. Other potential funding sources are included in Chapter 6 of this document.

County OES and County DEH are co-lead entities for this STRA. This STRA would be activated by and coordinated through the EOC, if activated. Locations, operating hours, and other information regarding water hauling and bulk water delivery would be communicated using the processes described in Section 4.2.1, or other processes as determined by the EOC.

Table 4-2. Community Centers and Locations for Bulk Water Delivery

Name	Address	Notes
Community Services Districts		
Hydesville County Water System	3455 CA 36 Hydesville, CA 95547	• Groundwater source
Garberville Sanitary District	919 Redwood Drive Garberville, CA 95542	• Surface water source • Groundwater source on standby for emergency use • Known to experience reduced source capacity during drought
Alderpoint County Water District	PO Box 117 Alderpoint, CA 95511	• Surface water source
Orleans Community Services District	37737 CA 96 Orleans CA 95556	• Surface water source
Willow Creek Community Services District	135 Willow Road Willow Creek, CA 95573	• Groundwater and surface water source • Willow Creek CSD also operates a park and campground
Community Centers		
Bridgeville Community Center	38717 Kneeland Road Bridgeville, CA 95526	• Community resource center that provides a food pantry and other services • Water source may be the Bridgeville Elementary School (nontransient noncommunity water supply served by a domestic well with oversight by State Water Board)
Whitethorn Construction	545 Shelter Cove Road Whitethorn, CA 95589	• Community center with multiple uses • Water source may be the Whitethorn Construction (nontransient noncommunity public water system served by surface water source with oversight by State Water Board)
Karuk Community Center	39051 Highway 96 Orleans, CA 95556	

Name	Address	Notes
Hoopa Neighborhood Center	11860 CA-96 Hoopa, CA 95546	• County emergency shelter location
McKinleyville Azalea Hall	1608 Pickett Road McKinleyville, CA 95519	• County emergency shelter location
McKinleyville Activity Center	1705 Gwin Road McKinleyville, CA 95519	• County emergency shelter location
Yurok Ada Charles Community Center	190 Klamath Boulevard Klamath, CA 95548	• County emergency shelter location
Bear River Community Center	265 Keisner Road, Loleta, CA 95551	• County emergency shelter location
Granges		
Mattole Grange	36512 Mattole Road Petrolia, CA 95558	
Van Duzen River Grange	5250 CA-36 Carlotta, CA 95528	
Bayside Grange	2297 Jacoby Creek Road Bayside, CA 95524	
Freshwater Grange	49 Grange Road Eureka, CA 95503	
Humboldt Grange	5845 Humboldt Hill Road Eureka, CA 95503	
Dows Prairie Grange	3995 Dows Prairie Road McKinleyville, CA 95519	
Redcrest Community Grange	115 Sorenson Road #6, Redcrest, CA 95569	
Schools		
Trinity Valley Elementary	730 CA-96 Willow Creek, CA 95573	• County emergency shelter location
Sunny Brae Middle School	1430 Buttermilk Lane Arcata, CA 95521	• County emergency shelter location
South Fork High School	6831 Avenue of the Giants Miranda, CA 95553	• County emergency shelter location
Parks		
A.W. Way County Park	Mattole Road Petrolia, CA 95558	• The County operates a 30-site campground with showers and a large flat day-use area • Water source may be the A.W. Way County Park (small noncommunity water system served by a domestic well with oversight by the State Water Board) • Location has previously served as a fire camp
Fire Stations, Sherriff's Stations or Substations		
Fortuna Fireman's Pavilion	9 Park Street Fortuna CA, 95540	• County emergency shelter location

4.2.2.3 Packaged and Bottled Water Supplies (STRA 05)

In areas where other emergency and interim drinking water supplies are unavailable, the County may provide packaged or bottled water (i.e., 1- to 5-gallon jugs and individual bottled waters) to affected domestic well, SSWS, or domestic surface water user communities. Packaged or bottled water is included in the County DRP as STRA 05.

Packaged or bottled water may be sourced from the vendors described below:

- During prior emergency events, the County has received bottled water donations from CDPH Food and Drug Branch–approved sources. The County does not have the capacity or facilities to store this water. In the past, local and community organizations have supported emergency response by managing the storage of bottled water in their own facilities. The request for donations and coordination of any donated bottled water would depend on the emergency.
- The Statewide Bottled Water Contract developed by the California Department of General Services may be leveraged by the County in the event of a drought or water shortage event. Products available to purchase will consist of bottled water packaged in various sizes.
    - The products will be available for three delivery categories with varying timelines: Emergency, Urgent, or Standard. Requests for Emergency delivery are to be fulfilled within 12 hours of the receipt of the order.
- Additional methods to source, transport, store, or distribute bottled water may be available if the State or federal government has declared a water shortage emergency.

Various retail stores within the County can be sources of bottled water and water jugs. All vendors must be approved by the CDPH Food and Drug Branch as commercial bottled water vendors. Additionally, in the event of a drought or water shortage emergency, funding and planning will be necessary to ensure the appropriate staffing is available to receive and/or distribute bottled water, and that adequate and appropriate storage is available.

The distribution process and location for packaged or bottled water will depend on the nature of the emergency. The same sites listed above in Table 4-2 may be considered for packaged or bottled water distribution. The MHOAC would be available to support the identification of vulnerable people who may need direct water deliveries to their homes.

An appropriate funding source to purchase, transport, store, and distribute the bottled water would need to be identified to implement this STRA. Funding may be available if the federal or State government has declared an emergency. Other potential funding sources are included in Chapter 6 of this document.

County OES is the lead entity for this STRA. Packaged or bottled water distribution would be activated by the EOC. Locations, operating hours, and other information regarding packaged or bottled water would be communicated using the processes described in Section 4.2.1, or other processes as determined by the EOC, if activated.

4.2.3 Agreements with Partner Agencies and Large Water Providers (STRA 06 and STRA 07)

Efficient implementation of STRAs would require coordination and cooperation with other entities beyond those within the Task Force. A mutual aid agreement is an arrangement established before an

emergency through which another entity or entities provide personnel, equipment, materials, and/or associated services during an emergency. A mutual aid agreement clearly describes how the involved entities would engage with the County and with each other during a water shortage emergency, along with their roles and responsibilities. Mutual aid agreements are included in the County DRP as STRA 06 with partner agencies and STRA 07 with water providers. County OES and DHHS are responsible for developing mutual aid agreements with partner agencies and large water providers, respectively. County OES is responsible for activating mutual aid agreements through the EOC, when activated.

Preliminary mutual aid agreements recommended for efficient activation of STRAs are outlined in Table 4-3, including the entities that should have a mutual aid agreement, the nature of the mutual aid, and the status of any agreement as of March 2025.

Table 4-3. Mutual Aid Agreements Recommended for Activation of Short-Term Response Actions Included in Humboldt County Drought Resilience Plan (as of March 2025)

Entities	STRA	Description of Services	Mutual Aid Agreement Status
HBMWD	STRA 02, STRA 03, STRA 04	Dedicated water filling stations; bulk or bottled water distribution sites	New agreements would have to be developed.
Wholesale Purchasers of Water from Humboldt Bay Municipal District	STRA 02, STRA 03, STRA 04	Dedicated water filling stations; bulk or bottled water distribution sites	New agreements would have to be developed.
Community Water Systems Throughout the County	STRA 02, STRA 03, STRA 04	Dedicated water filling stations; bulk or bottled water distribution sites	New agreements would have to be developed.
Emergency Shelter Locations	STRA 03, STRA 04, STRA 05	Bulk or bottled water distribution sites	Existing agreements would have to be amended for clarity on using these sites as water distribution sites.
Granges	STRA 03, STRA 04, STRA 05	Bulk or bottled water distribution sites	New agreements would have to be developed.
Parks	STRA 03, STRA 04, STRA 05	Bulk or bottled water distribution sites	New agreements would have to be developed.
Community Centers	STRA 03, STRA 04, STRA 05	Bulk or bottled water distribution sites	New agreements would have to be developed.
Schools	STRA 03, STRA 04, STRA 05	Bulk or bottled water distribution sites	New agreements would have to be developed.
Fire Stations	STRA 03, STRA 04, STRA 05	Bulk or bottled water distribution sites	Existing agreements would have to be amended for clarity on using these sites as water distribution sites.

4.3 Drought and Water Shortage Emergency Response Process

The Water Shortage ERP describes how the County would (1) determine and declare the current water shortage stage in the County, and (2) identify and activate the appropriate STRAs based on the water

shortage stage and location(s) of any water shortage emergency or other need. It would also communicate with affected domestic well, SSWS, or domestic surface water user communities.

4.3.1 Drought or Water Shortage Declaration

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.

Federal and State authorities have their own processes for declaring a drought or water shortage emergency, and the County should understand current processes and be aware of potential revisions. An emergency declaration by federal or State authorities influences the implementation of the STRAs identified in this County DRP.

The Water Shortage ERP is organized around three water shortage stages: Green, Yellow, and Red. The water shortage stage is informed using Table 4-4, which shows the indicators (water supply-related features) and associated triggers (conditions of indicators associated with a water supply status) to determine the current water shortage stage. These indicators and triggers can be used to support a water shortage stage recommendation. The information in Table 4-4 is not exhaustive, but is intended to show how the indicators and triggers could be considered. Other indicators and triggers may also be developed and integrated into the Water Shortage ERP by the County as needed. The County will evaluate its triggers and make a corresponding water shortage stage recommendation to the Task Force at its annual meeting held in April, after winter snowfall and precipitation have occurred. However, if conditions change, the County can reassess as necessary.

The water shortage stages are described below:

- **Green Stage:** This is the water shortage informational stage. In this stage, there is no major drought or potential for water shortage. In the Green Stage, the County will organize an annual meeting with the Task Force, complete an annual review of the County DRP Implementation Plan, evaluate the County's drought conditions, provide the Board of Supervisors with an update, update County resources (i.e., website, contact lists, etc.) as needed, and continue to build proactive outreach methods to domestic well, SSWS, and domestic surface water user communities.
- **Yellow Stage:** This is the water shortage alert stage, in which drought or the potential for water shortage exists but there is no active water shortage emergency. In the Yellow Stage, the County will focus on raising awareness of potential water shortage issues, providing information regarding the steps to follow if a water shortage occurs, encouraging temporary mitigation measures that may avoid a shortage, and coordinating with other organizations that may be involved in the event a shortage occurs (such as GSAs, public water systems, and other County departments).
- **Red Stage:** If a water shortage emergency is imminent or actively occurring, the County enters the Water Shortage Emergency Response Stage and activates mutual aid agreements to provide the emergency and interim drinking water supplies described in Section 4.2.

Table 4-4. Indicators and Trigger Considerations for Determining Active Water Shortage Stages in Humboldt County

Indicator Name	Indicator Description	Trigger Consideration When Going into the Yellow Stage	Trigger Consideration When Going into the Red Stage
US Drought Monitor	The U.S. Drought Monitor is a map updated every Thursday that classifies drought conditions across the U.S. into none, Abnormally Dry (D0), Moderate (D1), Severe (D2), Extreme (D3), and Exceptional (D4). The County can use this resource to understand the prevalence and severity of drought within the County and surrounding areas.	The County should use experience during previous droughts to determine which U.S. Drought Monitor classification warrants going into the Yellow Stage. Some areas of the County may be more resilient against drought conditions, while others, particularly those identified in the risk assessment, may be more vulnerable. In general, a Moderate (D1) or Severe (D2) drought in parts of the County may indicate Yellow Stage in County response.	In an Extreme (D3) or Exceptional (D4) drought, the County may go into the Red Stage. Note that an Extreme or Exceptional drought classification may not solely indicate that a water shortage emergency is occurring or imminent. The County should heighten its monitoring of other indicators if Extreme (D3) or Exceptional (D4) drought exists in the County.
Applications for New Well Permits or Dry Well Reports	The County may observe 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 existing wells as a proxy for water shortage. Furthermore, the County can use the existence of formal and informal dry well reports as an indicator of a water shortage. A formal Dry Well Report is filed with the California Department of Water Resources. An informal Dry Well Report may occur anecdotally to County staff or County Supervisors.	If the County is in a drought condition and there is an increase in new well permit applications, then the County could consider going into the Yellow Stage while evaluating if the new applications are due to water shortages for domestic wells or SSWSs. If the County receives formal or informal dry well reports, the County could investigate if these reports are due to well characteristics or water shortage events. During this investigative period and if a water shortage event is suspected, the County could consider activating the Yellow Stage.	If the County determines that an increase in new well permits is because of water shortages at domestic wells or SSWSs, then it may indicate water shortages at other domestic wells or SSWSs. Similarly, if the County receives formal or informal dry well reports, the County could investigate if these reports are due to well characteristics or water shortage events. Impacts from a water shortage event, are cause to go into the Red Stage.

Indicator Name	Indicator Description	Trigger Consideration When Going into the Yellow Stage	Trigger Consideration When Going into the Red Stage
GSA Monitoring	The County GSA is required to do regular monitoring (typically in October and April) of groundwater conditions as part of their reporting in the Eel River Valley Basin. The County can use these monitoring programs to inform a water shortage stage in the Eel River Valley Basin.	If monitoring or analysis by the County GSA indicates a decline in groundwater levels below an established threshold in the Eel River Valley Basin (such as a Minimum Threshold or Measurable Objective, as defined in the GSP) that could cause water supply issues, the County could consider enhanced coordination with the GSA and potentially activating the Yellow Stage in the Eel River Valley Basin to support the GSA in its activities.	If monitoring or analysis by the County GSA suggests implementing response actions to avoid water shortages to domestic wells or SSWSs in the Eel River Valley Basin, the County could consider going into the Red Stage in the Eel River Valley Basin to support the GSA in its activities, and reflect on the probability of similar impacts to areas beyond the Eel River Valley Basin.
Non-Drought Hazards	There are other hazards that could result in a water shortage including wildfires, earthquakes, floods, seawater intrusion, and power outages (either planned or unplanned), and the County should monitor conditions following a hazard event. Water supply impacts of some of these hazards can be worsened by drought conditions, and such events can also influence other indicators such as water quality.	Hazards that temporarily interrupt domestic well, SSWS, or domestic surface water user supplies for up to two days could trigger the Yellow Stage.	Hazards that interrupt domestic well, SSWS, or domestic surface water user supplies for an extended period (3 or more days), including public safety power shutoffs, could trigger the Red Stage.

Key:
County = Humboldt County
GSA = Groundwater Sustainability Agency
GSP = Groundwater Sustainability Plan
SSWS = State Small Water System

The County has aligned specific STRAs to each water shortage stage, as shown in Table 4-5. Table 4-5 lists the organizations responsible for STRAs that could be implemented in each water shortage stage and indicates other entities that may be involved or with which coordination may be needed. Additional information about these STRAs is provided in Section 4.2. New STRAs that are not listed in this County DRP may be identified and implemented, based on the actual shortage conditions. In addition, not all STRAs listed may be implemented during a shortage event. The County should consider the nature of the shortage when determining which STRA is most appropriate.

Table 4-5. Short-Term Response Actions Aligned to Water Shortage Stage with Responsible Organization(s) for Humboldt County

Water Shortage Stage	Description	STRAs[1]	Responsible Organization(s)	Comment
Green	No major drought or potential for water shortage	Annual Task Force Meeting	Task Force Members (County OES, County DEH, Planning)	Annual Task Force meetings will occur each April. Task Force members will review the status of the DRP Implementation Plan, determine if any modifications are required, and assign responsibilities for making DRP modifications.
		Water Shortage Condition Assessment	Chair(s) of the Task Force	The Chair(s) of the Task Force, in partnership with County OES and County DEH staff, will evaluate the water supply system health in March to support a water shortage stage recommendation for the Task Force's annual meeting, to be held in April.
		Annual Board of Supervisors Update	Chair(s) of the Task Force	An annual Board of Supervisors update will occur after the annual Task Force meeting to provide information to County Supervisors regarding water supply and DRP implementation.
		Annual website update	County OES	Website will be updated after the annual Task Force meeting to reflect current conditions.
		Proactive long-term mitigation strategy communications and outreach	Task Force Members (County OES, County DEH, Planning Department)	Task Force members would coordinate communications and outreach as defined in the DRP.
Yellow	Drought or other hazard occurring that could cause a water shortage	As-needed additional Task Force meetings	Chair(s) of the Task Force	Chair(s) of the Task Force may schedule additional Task Force meetings.
		Implement enhanced communication and outreach to domestic well, SSWS, and domestic surface water user communities (STRA 01)	County OES (Lead), County DEH	County OES may implement enhanced communications and outreach to domestic well, SSWS, or domestic surface water user communities on what to do if they experience a water shortage, as well as outreach on available resources for proactive water shortage mitigation, as defined in STRA 01, and public health considerations for reducing risks from waterborne diseases. County DEH and other partner organizations may conduct or lead certain communications as needed.

Water Shortage Stage	Description	STRAs[1]	Responsible Organization(s)	Comment
		As-needed coordination with relevant organizations - GSAs, NGOs, other County departments (STRA 02-STRA 07)	County OES (Lead), other entities	County OES would initiate coordination, but other organizations may be required to lead or participate, depending on conditions, as articulated in STRA 02 through STRA 07.
Red	Water shortage is occurring or is imminent	Emergency Task Force meetings	County OES	County OES may schedule additional Task Force meetings.
		Activate emergency and interim drinking water distribution process for area(s) experiencing shortage (STRA 02 – 07)	County OES, other entities	County OES may activate emergency and interim drinking water distribution as defined in STRA 02, 03, 04, and 05, but other organizations may implement specific activities as defined by STRA 06 and 07.
		Standing coordination with relevant organizations	County OES, other entities	County OES may organize regular coordination meetings as defined by STRA 06 and 07, and may delegate to other organizations as needed.

Notes: [1] Not all STRAs identified by the County are explicitly listed in this table as some may be grouped together. Furthermore, certain actions shown in this table refer to long-term implantation and are not explicitly STRAs but are listed here for ease of reference. All STRAs are described in Section 4.2.

Key: County = Humboldt County
DEH = Division of Environmental Health
NGO = Non-Governmental Organization
OES = Office of Emergency Services
Planning Department = Humboldt County Planning and Building Department
STRA = Short Term Response Action
Task Force= Humboldt County Drought and Water Shortage Task Force

4.3.2 Short-Term Response Action Activation

In a water shortage emergency, the County may use the information in Table 4-6 to assist with providing emergency water supplies. Table 4-6 aligns the emergency and interim drinking water STRAs described in Section 4.2 with the vulnerable domestic well, SSWS, or domestic surface water user communities identified in Section 3.5. Information in Table 4-6 is not exhaustive and should be periodically reviewed and updated by the County (following its County DRP adaptive management planning process described in Section 6.4). As described, an appropriate funding source would need to be identified to implement these STRAs.

Table 4-6. Summary of Short-Term Response Action Activation for Physically Vulnerable Domestic Wells and State Small Water Systems

Areas with Water Shortage Vulnerabilities	STRAs
Eastern Highway 36 Corridor	Enhanced Communication and Outreach (STRA 01) Dedicated Water Filling Stations (STRA 02) Bulk Water Delivery (STRA 03 and STRA 04) Packaged or Bottled Water (STRA 05)
Willow Creek and Surrounding Areas	Enhanced Communication and Outreach (STRA 01) Dedicated Water Filling Stations (STRA 02) Bulk Water Delivery (STRA 03 and STRA 04) Packaged or Bottled Water (STRA 05)
East of Arcata Bay	Enhanced Communication and Outreach (STRA 01) Dedicated Water Filling Stations (STRA 02) Bulk Water Delivery (STRA 03 and STRA 04) Packaged or Bottled Water (STRA 05)
Trinidad Area	Enhanced Communication and Outreach (STRA 01) Dedicated Water Filling Stations (STRA 02) Bulk Water Delivery (STRA 03 and STRA 04) Packaged or Bottled Water (STRA 05)
Garberville and Surrounding Areas	Enhanced Communication and Outreach (STRA 01) Dedicated Water Filling Stations (STRA 02) Bulk Water Delivery (STRA 03 and STRA 04) Packaged or Bottled Water (STRA 05)

Key:
STRA = Short Term Response Action

Contact information for agencies and organizations responsible for coordination or implementation of STRAs are listed in Table 4-7. This information is current as of August 2025.

Table 4-7. Contact Information for Organizations Involved in Implementation of Short-Term Response Actions

Organization	Point of Contact and Information	Comment
County Office of Emergency Services	Patric Esh Emergency Services Program Manager, Acting pesh2@co.humboldt.ca.us	Backup Contact: Patric Esh Hazard Mitigation Program Coordinator pesh2@co.humboldt.ca.us
County Division of Environmental Health	Mario Kalson Division of Environmental Health Director mkalson@co.humboldt.ca.us	Backup Contact: General DEH email address ENVHealth@co.humboldt.ca.us
County Planning and Building Department	Rodney Yandell RYandell@co.humboldt.ca.us.	
County Public Health Emergency Program	Brian Carter Public Health Emergency Program Coordinator bcarter@co.humboldt.ca.us	
County Department of Health and Human Services	Terrance McNally DHHS Emergency Prep Program Coordinator tmcnally@co.humboldt.ca.us	
County Groundwater Sustainability Agency	Hank Seeman Plan Manager hseemann@co.humboldt.ca.us	

5.0 Long-Term Mitigation Strategies and Actions

The risk assessment presented in Chapter 3 provided insight into the County areas supplied by domestic wells, SSWSs, and domestic surface water that may be susceptible to droughts and water shortages. Based on the outcomes of the risk assessment presented in Chapter 3, the Task Force identified potential LTMSAs. In the context of this County DRP, LTMSAs reduce the vulnerability to drought and water shortage events and are often preventative measures. LTMSAs may reduce the extent and cost of emergency response actions but cannot eliminate the need for emergency response actions.

These LTMSAs are described in this section of the County DRP and may be considered by the County and/or other collaborating entities for implementation. Implementation of these LTMSAs is dependent upon funding availability and support of agencies and owners involved. Table 5-1 is not an exhaustive list and may be modified in the future.

5.1 Legislative Direction

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

> *(b)* ***A county shall develop a plan that includes potential drought and water shortage risk and proposed*** *interim and* ***long-term solutions for state small water systems and domestic wells within the county's jurisdiction****. The plan may be a stand-alone document or may be included as an element in an existing county plan, such as a local hazard mitigation plan, emergency operations plan, climate action plan, or general plan. A county shall consult with its drought task force or alternative coordinating process as established by this section in developing its plan. A county shall consider,* ***at a minimum****, all of the following in its plan:*
>
> ***(1) Consolidations for existing water systems and domestic wells.***
>
> ***(2) Domestic well drinking water mitigation programs.***
>
> *(3) Provision of emergency and interim drinking water solutions.*
>
> *(4) An analysis of the steps necessary to implement the plan.*
>
> *(5) An analysis of local, state, and federal funding sources available to implement the plan*

5.2 Long-Term Mitigation Strategies and Actions Included in the Humboldt County Drought Resilience Plan

LTMSAs included in the County DRP are summarized in Table 5-1. LTMSAs included in the drinking water well mitigation program are described in Section 5.3. System consolidation opportunities within the County are described in Section 5.4. LTMAs that address data gaps are discussed in Section 5.6.

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

ID	Long-Term Mitigation Strategy or Action Name	Long-Term Mitigation Strategy or Action Description	Responsive Agency/Organization
LTMSA 01	Drought and water shortage risk assessment (*pending funding)*	The County may periodically update the risk assessment completed for this County DRP to incorporate relevant updated information or improved data.	Task Force (to be assigned to participating agencies/staff)
LTMSA 02	County planning integration (*pending funding)*	The County may integrate information presented in the County DRP with other County plans and vice versa to confirm interagency roles, responsibilities, and actions associated with any implementation activities of the Drought Resilience Plan.	Task Force (to be assigned to participating agencies/ staff)
LTMSA 03	Education and outreach (*pending funding)*	The County may communicate information about sustainable water use and resilience to build relationships and trust with domestic well, SSWS, or domestic surface water user communities. Some example topics may include communications regarding regional groundwater levels, water quality concerns, available service providers and/or water conservation best practices.	Task Force (to be assigned to participating agencies/ staff)
LTMSA 04	Improving well data collection and management (*pending funding)*	The County may review existing processes that would enable improved data collection and management regarding dry wells, including amending permit applications for new wells to identify when wells are proposed to supplement or replace low-performing wells, or other methods as appropriate.	County DEH (lead)
LTMSA 05	Reducing barriers to on-property water storage (*pending funding)*	The County may work with County departments and local NGOs to understand what barriers or deterrents may currently exist for on-property water storage and/or managed aquifer recharge, and what programs have been developed to date to reduce this burden.	Planning Department (lead)
LTMSA 06	Fiscal/technical assistance (*pending funding)*	The County may relay fiscal or technical information to domestic well, SSWS, or domestic surface water user communities to alert them of the availability of federal, State, local and other opportunities and share resources on application support.	County DEH (lead)
LTMSA 07	System consolidation evaluation	The County may evaluate system consolidation regarding physical or managerial interconnection between water systems to permit the exchange or delivery of water between those systems in the County DRP, with emphasis on prioritizing connections with water systems without backup supplies and/or few resources.	Completed—see Section 5.4.

ID	Long-Term Mitigation Strategy or Action Name	Long-Term Mitigation Strategy or Action Description	Responsive Agency/Organization
LTMSA 08	Address data gaps (*pending funding)*	The County may address data gaps identified during the County DRP development process, including potentially: • Well data characterization • Hauled water delivery capacity • Domestic wells and SSWSs • Surface water user inventory • Capacity of groundwater basins outside of the Eel River Valley Basin • Non-drought hazards • Service area boundaries of community water systems	Task Force (with coordination from other departments and partner agencies, including DWR, State Water Board, local water systems)

Key:
County DEH = Humboldt County Division of Environmental Health
DWR = California Department of Water Resources
LTMSA = Long Term Mitigation Strategy and Action
Planning Department = Humboldt County Planning and Building Department
SSWS = State Small Water System
State Water Board = California State Water Resources Control Board
Task Force= Humboldt County Drought and Water Shortage Task Force

5.3 Drinking Water Well Mitigation Program

Within the context of the County DRP, a drinking water well mitigation program is a series of coordinated efforts that would seek to reduce the vulnerability of domestic wells, SSWSs, and domestic surface water users to water supply shortages. A drinking water well mitigation program would generally involve: (1) identifying domestic wells, SSWSs, or domestic surface water users vulnerable to water supply shortages (see Chapter 3), (2) developing the components of the drinking water well mitigation program (this section), (3) implementing the components in coordination with other local and State agencies and the community, based on available funding (see Section 6.4), and (4) continued coordination and monitoring after implementation, contingent upon funding availability (see Section 6.2.1). This section details the components of the drinking water well mitigation program that the County may implement under this County DRP. The components described in this section are not exhaustive and may be modified in the future.

5.3.1 Drought and Water Shortage Risk Assessment (LTMSA 01)

The drought and water shortage risk assessment documented in Chapter 3 is a key component of a successful drinking water mitigation program. It helps define the areas and populations with domestic wells, SSWSs, or domestic surface water users with a higher vulnerability to water shortage. It also characterizes what conditions may be driving water shortage vulnerability. Both can help inform the components of a drinking water well mitigation program.

The risk assessment completed and documented in Chapter 3 was used to help identify needs of the drinking water well mitigation program documented in this County DRP. However, this risk assessment could be enhanced by including a more detailed assessment within currently identified vulnerable areas, addressing data gaps, and/or completing a more detailed risk assessment on surface water users and non-drought hazards. It was determined that a more thorough evaluation of individual domestic well, SSWSs, or domestic surface water user vulnerabilities, including characterizing well depth, infrastructure type, material and age, and capacities would identify areas where reliability could be improved in the future. Additionally, an evaluation of groundwater basins outside the Eel River Valley Basin, as well as documentation of service area boundaries of community water systems, would support sustainable development and improved water shortage mitigation planning. See a full list of identified data gaps that would support an enhanced risk assessment in Section 5.5. The County may consider revisions to the risk assessment as part of future County DRP updates (described in Section 6.2.3). An appropriate funding source would need to be identified to implement updates to the risk assessment.

5.3.2 County Planning Integration (LTMSA 02)

There are many related regional and County planning efforts that intersect with the County DRP. Coordination by the County within these other regional and County planning efforts may help ensure that these plans consider domestic wells, SSWSs, and domestic surface water users in their resilience efforts. Integrating these planning efforts is an important component of a successful drinking water well mitigation program. LTMSA 02 details how the County may incorporate outcomes and information from the County DRP into the related planning efforts shown in Table 5-2. The plans in Table 5-2 were sourced from the Task Force. Table 5-2 is not an exhaustive list of all potentially relevant planning efforts, and the County may monitor regional planning efforts for additional coordination opportunities. Additional information on the implementation of these efforts is presented in Section 6.3.

During the annual Task Force meetings, County Task Force members may review the status of relevant planning efforts to determine if any opportunities for plan integration or regional water planning may exist, and assign responsibilities for coordinating with the responsible agencies, as appropriate, and dependent upon the willingness of the responsible agency. Implementation of this LTMSA is dependent upon funding availability.

Table 5-2. Humboldt County Planning Efforts

Planning Effort	Most Recent Update	Current Status of any future updates	County Department and Role in Planning Effort
Eel River Valley Groundwater Sustainability Plan	January 2022	Periodic Evaluation anticipated 2027	Humboldt County Groundwater Sustainability Agency
Humboldt County General Plan	October 2017	No publicly announced schedule for General Plan rewrite or multi-element updates.	Planning Department
Humboldt County Hazard Mitigation Plan	March 2020	Update under review with Cal OES as of June 2025	County OES
Humboldt County Climate Action Plan	Currently under development - Adoption anticipated by end of 2025	N/A	Planning Department
Community Infrastructure & Services Technical Report	July 2008	In need of update; no update planned	Planning Department (previously Community Development Services)
Community Wildfire Protection Plan	2019	To be determined	Public Works
South County Regional Water and Wastewater Municipal Services Review and Sphere of Influence (LAFCo)	November 2023	Anticipated 2028	Humboldt County Local Agency Formation Commission (LAFCo)

Key:
CAL OES = California Office of Emergency Services
County = Humboldt County
OES = Office of Emergency Services
Planning Department = Humboldt County Planning and Building Department
Public Works = Humboldt County Public Works Department

Additional planning efforts coordinated and managed by partner agencies that may have relevance to the County DRP include:

- HBMWD Urban Water Management Plan
- HBMWD Draft Municipal Service Plan
- City of Arcata Emergency Operations Plan
- City of Arcata Urban Water Management Plan

- City of Eureka Urban Water Management Plan

5.3.3 Education and Outreach (LTMS 03)

Education and outreach by the County to domestic well, SSWSs, and domestic surface water users may be an important component of a successful drinking water well mitigation program. Enhanced education and outreach could be an effective way to build drought and water shortage resilience and relationships between domestic well, SSWS, and domestic surface water communities and the County. Some potential topics for educational programs and enhanced outreach are proposed below. These proposed topics may be revised based on community interest and available funding.

With adequate funding the County could develop or deliver water conservation curriculum or host educational programs and discussion focused on water conservation practices, efficiency programs, or other sustainable water use topics. Similar programs have been implemented by the County and could build upon existing resources and relationships. The County may partner with other organizations, such as local environmental nonprofits, to organize and deliver this material. Additionally, the State and federal government have resources available on these topics which could be adopted for the County's local context.

The County may also build proactive communication venues to share information. These venues would support regional awareness of issues related to drinking water. For example, the County could have a webpage that links to information about regional groundwater levels or groundwater contaminants, using data organized either by the County GSA or by State agencies.

The Task Force is the lead entity for this LTMSA. During the annual Task Force meetings, County Task Force members may review the status of the County DRP Implementation Plan and may assign responsibilities for implementing any education and outreach programs, as appropriate. Implementation of this LTMSA is dependent upon staffing capacity and funding availability.

5.3.4 Improving Well Data Collection and Management (LTMS 04)

Poor performing wells can result from a variety of factors including aging and damaged infrastructure or diminishing availability of ground water. Improving well data collection and data management may help improve well water productivity by supporting understanding of the cause and prevalence of dry wells and identification of areas of the County that are susceptible to dry wells during drought or water shortage events. This may support the County in tailoring outreach or other STRAs or LTMSAs, which may improve resilience.

Monitoring of water levels within individual wells could provide helpful insight into quality and availability of groundwater resources. The County could consider establishing a program to receive private well data for the purposes of predicting water shortage events, trends in capacity and saltwater intrusion, and increasing resilience. The value of the data would be dependent upon support and participation of the public in reporting requested data or allowing access for monitoring purposes.

The County has an existing well permitting process that ensures that wells drilled in the County comply with applicable local and State law regulating water well construction. During this process the County evaluates well permits in accordance with the Public Trust Doctrine to minimize impacts of new wells on neighboring users and resources. There may be data considered in this process that, if incorporated into a data management framework, could provide helpful understanding of ground and surface water availability.

Under County DRP implementation, the County may review permits for new wells to identify if the permit is requested to supplement low-performing wells or dry wells. The County may also review historic well permit records to determine if any previously approved wells were requested to supplement low-performing or dry wells, to better understand the magnitude of a drought. Dry well archives can help identify areas where wells may struggle in future droughts. The County may also digitize historic County forms to increase data accessibility and understanding. Finally, the County may develop streamlined services to enhance customer service in well permitting, which may include online permitting, a dedicated portal with links relevant to specific resources needed for submittal of a completed application.

County DEH is the lead entity for permit-relevant aspects of LTMSAs, with support from the Planning Department and Public Works as implementation staff for the County GSA. Development of a groundwater monitoring program would require commitment and support from the Task Force and a resolution approved by the County Board of Supervisors. Implementation of this LTMSA is dependent upon staff capacity and funding availability.

5.3.5 Reducing Barriers to On-Property Water Storage (LTMS 05)

Facilitating and incentivizing on-property water storage may be an appropriate way to increase resilience for property owners who rely on domestic wells, SSWSs, or domestic surface water. Additionally, on-property water storage may provide auxiliary benefits. For example, it could increase water availability for rural firefighting or provide environmental benefits as water stored during wet winter months may reduce demand during dry months, thus increasing water availability for habitat resilience for sensitive species. Current permitting requirements and tax implications disincentivize owners from increasing onsite water storage. The County may work to reduce those barriers and/or create incentives.

The County may partner with local Non-Governmental Organizations (NGO) such as Sanctuary Forest—who are already working in communities to build resilience through on-property storage—to identify existing barriers to on-property water storage, including permitting requirements and tax structures, that County policies may be able to address. The County may work with these local NGOs to understand what existing programs the NGOs have developed and may seek to understand how County support could collaborate on, expand, or enhance these programs.

The Planning Department is the lead entity for this LTMSA, with support from County DEH and the County Assessor's Office. Implementation of this LTMSA is dependent upon funding availability.

5.3.6 Fiscal/Technical Assistance (LTMS 06)

Many domestic well, SSWSs, or domestic surface water user communities lack the capacity to apply for and receive technical assistance or funding to enhance reliability of, or replace, their water source. Technical assistance and funding can improve resilience by providing resources directly to domestic well, SSWS, or domestic surface water user communities, which can increase the capacity of these systems to maintain infrastructure, develop upgrades, or otherwise enhance services. The need for fiscal and technical assistance is highlighted in the Disadvantaged Community & Tribal Water & Wastewater Service Providers Needs Assessment Summary (2020) which found that there was a high need for technical assistance and trainings, particularly for assistance obtaining funding.

As part of the County's well mitigation program, the County may provide fiscal or technical assistance in the form of alerting domestic well, SSWS, or domestic surface water user communities of the availability

of federal, State, local, or other resources that could assist in the remediation or replacement of existing wells, installing bulk water tanks, installing point-of-use water treatment, or other methods to improve water supply or quality. Fiscal and technical assistance may also include coordination with NGOs in publicizing funding opportunities, or the development of peer-to-peer learning opportunities for application support and assistance. Additional coordination with North Coast Resource Partnership to build upon the efforts from the North Coast Resource Partnership Integrated Regional Water Management Grant submitted to the Department of Water Resources under the Proposition 1 grant (2019, 2022), as well as the North Coast Resource Partnership Drought Relief Regional Proposal Submission (2021) may also be beneficial. These grants aim to support long-term resiliency of water supplies for domestic and environmental uses, and include funding for projects that help assist water infrastructure systems adapt to climate change.

County DEH is the lead entity for this LTMSA, with support from the Planning Department and County OES. Implementation of this LTMSA is dependent upon staff capacity and funding availability.

5.4 System Consolidation Evaluation (LTMS 07)

System consolidation is the physical or managerial merger of two or more water systems. In the context of domestic wells, SSWSs, and domestic surface water users, these systems can be consolidated with each other and/or a larger community or public water system. System consolidation can improve water quality and supply reliability by capitalizing on economies of scale and by building resilience via enhanced capacity or shared resources. Interviews with local water providers indicated that rural areas of the county struggle to maintain institutional knowledge and staffing. Some rural systems struggle with regulatory compliance, especially during water shortages. Consolidation may alleviate some of these concerns.

When considering consolidation or other shared resilience strategies, there are many important aspects to consider including fiscal health, water resource availability, community backing, and geospatial location of each entity. While consolidation can lead to public health improvements for existing local communities, growth-inducing effects created by expansion of water resources must also be considered.

The County has not completed a comprehensive analysis to fully consider consolidation and has no authority to mandate consolidation. However, the County General Plan Goal WR-G6 aims to ensure that public water systems can provide adequate water supply to meet existing and long-term community needs in a manner that protects other beneficial uses and the natural environment. In alignment with that goal, the Task Force seeks to support public water systems in achieving water supply reliability. This section provides an initial overview of potential consolidation opportunities for domestic wells, SSWSs, and domestic surface water users, and characterizes the steps and barriers to successful consolidation.

5.4.1 System Consolidation Opportunities under Consideration

Within the County, there are multiple consolidation discussions already underway. These discussions are focused on consolidation between community water systems but could be enhanced to additionally incorporate domestic wells, SSWSs, and domestic surface water users, where appropriate. These consolidations are the responsibility of the agencies involved and impacted communities. The County does not have the authority to mandate or implement these consolidations nor require the inclusion of domestic wells, SSWSs, or domestic surface water users in these consolidations. However, existing consolidations opportunities are included below for consideration. Additional potential consolidation

opportunities specific to domestic wells, SSWSs, and domestic surface water users are discussed in Section 5.4.2.

Systems considering consolidation or expansion include:

- Moonstone MWA and Westhaven Community Services District
- Cher-Ae Heights Indian Community of the Trinidad Rancheria and HBMWD
- Big Lagoon Community Services District and Big Lagoon Park Water System and Big Lagoon Rancheria
- Palomino Estates Water Company and Benbow–Del Oro Water Company.
- Garberville Sanitation District
- Redway Community Services District
- Orleans Community Services District and Orleans Mutual Water Company

Additionally, the County may consider establishing a network, either through a Joint Powers Agreement or Memorandum of Understanding to support shared resources and increase capacity of small systems that may face challenges in meeting compliance or achieving sustainable funding sources for systems in the southern part of the County.

To support additional discussion about these opportunities, the County General Plan and the Community Infrastructure & Services Technical Report define certain areas of the County as Urban Study Areas or Water Study Areas. Urban Study Areas are regions within the County that are either already served by both water and sewer systems or are under consideration for these services. Water Study Areas are regions within the County that have community water systems or areas where it may be appropriate to expand existing systems. Descriptions of each Urban Study Area and Water Study Area, plus identified deficiencies and funding opportunities, are explored in the County Community Infrastructure & Services Technical Report (Humboldt County 2008) and may provide a basis for further discussion for consolidation opportunities.

Finally, according to the HBMWD, HBMWD currently has water rights available beyond what is needed for its municipal customers. If those water rights granted by the State are not used, HBMWD may lose the right to that water. A potential option articulated in the County General Plan (2017b) and by HBMWD envisions that HBMWD may be able to transport available water to another public agency for an authorized public use, which would enable the district to maintain local control of its water rights, generate additional revenue for the benefit of its municipal customers and local ratepayers, and potentially support water supply challenges in other parts of the County.

5.4.2 System Consolidation, Domestic Well, SSWS, and Domestic Surface Water User Opportunity Analysis

One type of potential system consolidation opportunity that may benefit domestic wells, SSWSs, or domestic surface water users includes consolidation of those users that reside *within* the existing service area boundaries of a public water system. While a public water system is not required to provide water service to domestic well, SSWS, or domestic surface water user communities, new connections mean

more rate payers, which in turn may increase revenue. Proximity within the service area to existing infrastructure presents lower cost of connecting and increases the feasibility of system consolidation.

Similarly, domestic surface water users and SSWSs *nearby* public water systems present consolidation opportunities. The State Water Board considers domestic wells and SSWSs that are within a 0.38-mile path along roadways to the nearest receiving system as feasible consolidation opportunities. Domestic wells and SSWSs that are more than 0.38 mile along roadways face additional barriers to consolidation, including infrastructure constraints and cost. Furthermore, groups of domestic wells or groups of domestic wells and SSWSs may consolidate with each other, and either form their own new system or then consolidate with a nearby public water system. This would enable economies of scale and increase the distance that would be feasible to consider for consolidation opportunities.

Figure 5-1 characterizes the proximity of domestic wells and SSWSs within a PLSS to public water systems within the five focus areas identified in the risk assessment (see Chapter 3). Note that surface water users are not represented as the data available for surface water users is insufficient for this level of analysis (see Section 5.5, Data Gaps).

The data presented here are also subject to the same data limitations discussed in Chapter 3, regarding domestic wells and SSWS data gaps. Figures are for informational purposes and are not meant to serve as the basis for actual consolidation projects. The County may coordinate with domestic well, SSWS, domestic surface water user communities, and public water systems within these areas to better understand actual system consolidation opportunities and support consideration of consolidation projects. There may also be system consolidation opportunities in the County outside the areas discussed in this section.

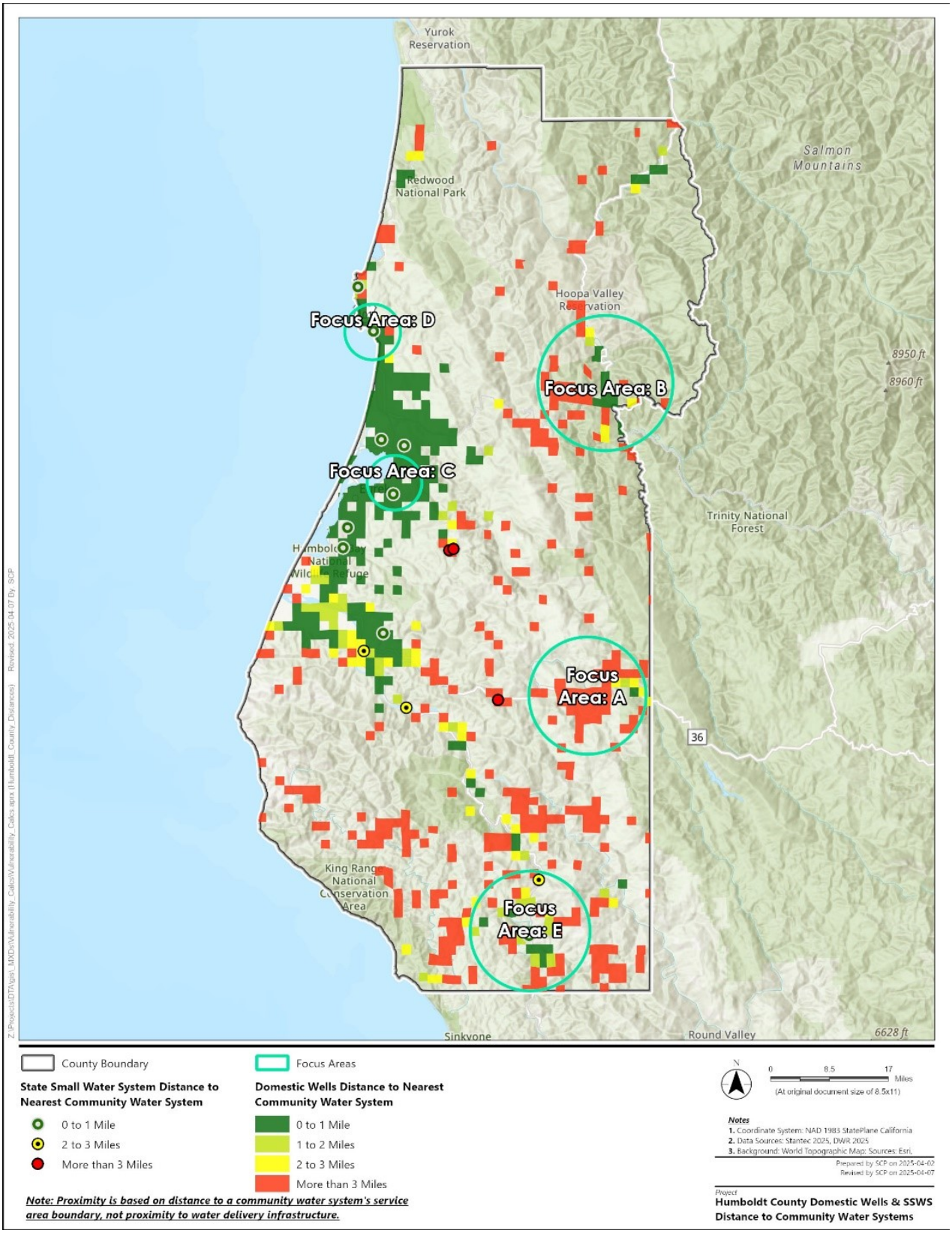


Figure 5.1. Proximity of Domestic Wells and State Small Water Systems to Public Water System Within Five Focus Areas

Table 5-3 summarizes opportunities for system consolidation with public water systems found within the five focus areas identified in the Chapter 3 risk assessment. This table includes the estimated number of domestic wells and SSWSs in each water system area, the estimated number of domestic wells and SSWSs within 1 mile of each water system, and the presence of domestic surface water users, when known. Note that domestic wells and SSWSs within 1 mile of each system are shown, instead of the 0.38-mile distance suggested by the State Water Board, Well location data did not provide sufficient domestic well location information i for this analysis.

Table 5-3 also describes the Safe and Affordable Fund for Equity and Resilience Risk Status of the public water system, which indicates whether the public water system is at risk of failing to provide safe clean drinking water to its customers based on technical, managerial, or financial constraints. Systems that are at risk of failing need careful consideration of resource capacity and feasibility of consolidation. These systems may be unable to meet safe drinking water standards and thus may have limited capacity to serve water to additional customers. Notwithstanding the challenges, additional customers may help these systems achieve the economies of scale needed to overcome technical, managerial, or financial constraints and thus consolidation may be mutually beneficial. The North Coast Resource Partnership Disadvantaged Community & Tribal Water & Wastewater Service Provider's Needs Assessment Summary (2020) additionally identified certain systems that have high drought and water shortage risk in the County, including Alderpoint County Water, Benbow WC, and Orleans Community Services District (CSD). These systems in particular should be evaluated carefully to determine if they are appropriate systems to consider consolidation and if consolidation may support the long-term sustainability of that system.

Note that public water systems such as schools, campgrounds, and recreational vehicle (RV) parks were excluded from this analysis. These systems may be considered for consolidation opportunities between a nearby public water system but are unlikely to be suitable as receiving systems for domestic wells, SSWSs, or domestic surface water users.

Table 5-3. Opportunities for System Consolidation with Public Water Systems for Domestic Wells, SSWSs, and Domestic Surface Water Users in Humboldt County Focus Areas

Focus Area	Public Water System Name	SAFER Risk Status	Estimated Number of Domestic Wells and Estimated Number of SSWSs within Public Water System Service Area	Domestic Wells or SSWSs within 1-mile Range of Public Water System	Domestic Surface Water Users
Focus Area B	Willow Creek Community Services District	Not-At-Risk	Estimated 30–35 domestic wells	Estimated 1–5 domestic wells	Yes
Focus Area C	Humboldt Bay Mutual Water District (Including: City of Arcata; City of Eureka; City of Blue Lake; Humboldt CSD; Fieldbrook Glendale CSD; Manila CSD; McKinleyville CSD)	Not-At-Risk	Estimated 1,040–1,045 domestic wells and 6 SSWSs	Estimated 25–30 domestic wells	Yes
Focus Area D	City of Trinidad	At-Risk	Estimated 1–5 domestic wells	Estimated 1 SSWS	Yes

Focus Area	Public Water System Name	SAFER Risk Status	Estimated Number of Domestic Wells and Estimated Number of SSWSs within Public Water System Service Area	Domestic Wells or SSWSs within 1-mile Range of Public Water System	Domestic Surface Water Users
Focus Area D	Moonstone Heights MWA	At-Risk	Estimated 20–25 domestic wells		Yes
Focus Area E	Redway CSD	Not-At-Risk	Estimated 1–5 domestic wells		Yes
Focus Area E	Benbow–Del Oro Water Company	Potentially-At-Risk	Estimated 1–5 domestic wells	Estimated 1–5 domestic wells	Yes
Focus Area E	Garberville Water Company	Not-At-Risk	Estimated 1–5 domestic wells and 1 SSWS	Estimated 1–5 domestic wells	Yes

Key:
CSD = Community Services District
MWS = Mutual Water Association
SSWS = State Small Water System

There are additional water systems within or nearby the five focus areas that did not have domestic wells estimated to exist within their service area boundaries, but which may have domestic wells within 1 mile of their service district boundaries. These systems include Palomino Estates Water Company, Briceland CSD, Westhaven CSD, and Seawood Estates Mutual Water Company.

As described above, the County does not have authority over consolidation activities for these systems or for domestic wells, SSWSs, or domestic surface water users. The County may coordinate with these users and agencies to better understand their needs and interest in consolidation, as well as to understand actual system consolidation opportunities.

County DEH can assist in coordination of conversations with users and responsible agencies to better understand consolidation opportunities. Funding to support this outreach and any subsequent planning or consolidation implementation would need to be identified. Implementation of this LTMSA is dependent upon funding availability.

5.5 Address Data Gaps (LTMS 08)

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

The Task Force is the lead entity for reviewing opportunities to address the data gaps identified. During the annual Task Force meetings, County Task Force members may review the status of the County DRP Implementation Plan, determine if any modifications are required, and assign responsibilities for making County DRP modifications, which may include reviewing the availability of any new or updated data sets from the State, universities, or local sources, as well as updating elements of the risk assessment based

on any new or improved data, as appropriate. Implementation of this LTMSA is dependent on funding availability.

5.5.1 Well Data Characterization

The Task Force has identified well data characterization as a key data gap to better understand risk and vulnerabilities. This includes information about well infrastructure, such as well depth, screen interval, dug wells, and well capacity, such as low production, or frequency of seasonal shortages and dependence on supplemental hauled water.

5.5.2 Hauled Water Deliveries

California does not require local oversight of state potable water haulers, and therefore there is limited data regarding the frequency of location of hauled water deliveries. There is also limited information about resources that hauled water purveyors may need now or in the future. Similarly, deliveries of non-potable water may be used to supplement residential demands. Understanding details of this industry, including source of water, number of properties receiving deliveries and usage of delivered water would provide clarity on potential risks in water shortage events.

5.5.3 Domestic Well and SSWS Data

The County has noted that the domestic wells documented by DWR in the WSVE Tool are incomplete. Additionally, total SSWSs in the County as reported by County staff differ from the information available from the State Water Board. See Appendix A for an inventory of the County's SSWSs as of July 2025.

Online databases could be updated using digitized County archives and local knowledge. Migration of data into a digital format would increase access to data available only in paper form. Improved data, combined with enhanced accessibility and usability of digital data sources, would support STRA or LTMSA to address specific risks at a granularity not possible with current data limitations.

5.5.4 Dry Well Reporting

DWR maintains a dry well reporting system that also provides support and resources to Californians experiencing dry wells. This system relies on Californians self-reporting their dry wells, and County staff believe that dry wells in the County are under-reported in this statewide system. Only two wells were reported to DWR as going dry in the previous drought, and during the development of this County DRP, County DEH staff subsequently learned that one the wells was reported erroneously as dry. However, there are anecdotal reports of dry wells made to DEH staff during permitting. The County could require additional data regarding dry wells prior to issuing a new well permit to increase awareness of extent of the effect of water shortage events. County staff speculate that residents may not be aware of the State system or may choose not to report their dry wells due to concerns about negative financial impacts within the real estate market, potential development restrictions, or other regulatory or enforcement concerns. Educational campaigns emphasizing the benefits of reporting may increase participation.

5.5.5 Domestic Surface Water Users

As directed by SB 552, this County DRP addresses water shortage vulnerabilities for domestic wells and SSWSs. It is important to note that some SSWSs in the County use domestic surface water and springs as a supply source, while other SSWSs are reliant on groundwater. In addition to the domestic wells and the SSWSs required under SB 552, the County elected to include domestic surface water users in its County DRP because these users may face similar vulnerabilities and risks as domestic well users and

SSWSs. However, a comprehensive dataset regarding domestic surface water users was not available, so in-depth analysis was not feasible.

Further data collection for the location, prevalence, and risks that domestic surface water users face, including the frequency of seasonal shortages or use frequency of supplemental hauled water, would support better planning and management, including targeted STRAs or LTMSAs.

5.5.6 Comprehensive Groundwater Basin Analysis

A comprehensive evaluation of groundwater basins and groundwater resources outside of the Eel River Valley Basin has not been completed, and thus the capacity and resilience of these systems is undefined. More wells are being drilled each year to serve new development, yet little is known about the location or capacity of these groundwater resources. Additional information about these groundwater sources would support better planning and management.

Additionally, groundwater wells serve as the water source for much of the development within the rural areas of the county but represent only one sector of water use. Other uses including public water supply, fire suppression, tribal cultural rights, agricultural uses, fisheries and forestry, and recreational demands present essential considerations. Understanding potential impacts and risks to public health and the environment from drought and water shortages is a complicated process that requires a comprehensive understanding of existing groundwater capacity, user demand, and climate conditions. The County would have increased resilience and tools for strategic planning with completion of a comprehensive basin-by-basin assessment.

5.5.7 Non-Drought Hazards

The County has identified non-drought hazards that may directly or indirectly cause water shortage events. These include, but are not limited to, wildfire, floods, earthquakes, landslides, vandalism, and other natural and human-caused non-drought hazards. While wildfire risk is considered in the County DRP, data were insufficient to identify relevant or actionable mitigation strategies. Additional data on the ways that wildfire may impact water quality and water distribution infrastructure is needed.

5.5.8 Service Area Boundaries of Community Water Systems

The County Local Agency Formation Commission (LAFCo) is actively working on mapping existing jurisdictional boundaries. The County LAFCo plans to publish these maps as GIS resources so that they may be used for analytical purposes in County planning, including consolidation discussions and annexation considerations.

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6.0 Implementation Considerations

The STRAs and LTMSAs identified and described in Chapters 4 and 5 represent a range of in-progress and proposed activities. Implementation of these STRAs and LTMSAs often falls under authorities and jurisdictional responsibilities of separate County departments and other local and State agencies. Consequently, many STRAs and LTMSAs will require the coordination of multiple organizations. To implement these STRAs and LTMSAs and ultimately improve water supply reliability for domestic well, SSWS, and domestic surface water user communities, this section describes the implementation steps designed to assist the County with:

- Ongoing water supply monitoring and collaboration
- STRA and LTMSA implementation responsibility, status, and resource management actions that support multi-agency coordination
- Identifying opportunities to align the County DRP to other County policy and planning documents
- Identifying opportunities for implementation funding

6.1 Legislative Direction

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

> *(b) A county shall develop a plan that includes potential drought and water shortage risk and proposed interim and long-term solutions for state small water systems and domestic wells within the county's jurisdiction. The plan may be a stand-alone document or may be included as an element in an existing county plan, such as a local hazard mitigation plan, emergency operations plan, climate action plan, or general plan. A county shall consult with its drought task force or alternative coordinating process as established by this section in developing its plan. A county shall consider, **at a minimum**, all of the following in its plan:*
>
> *(1) Consolidations for existing water systems and domestic wells.*
>
> *(2) Domestic well drinking water mitigation programs.*
>
> *(3) Provision of emergency and interim drinking water solutions.*
>
> ***(4) An analysis of the steps necessary to implement the plan.***
>
> ***(5) An analysis of local, state, and federal funding sources available to implement the plan.***

6.2 Implementation Roadmap

The County DRP is organized to describe existing and proposed STRAs and LTMSAs that support the County in meeting its objectives under CWC Section 10609.70 (b) (1), (b) (2), and (b) (3). This section

presents the implementation roadmap for this County DRP, identifying the ongoing monitoring and collaboration that County staff will complete to support implementation, as well as resource and funding needs. Many identified STRAs and LTMSAs have funding and resource requirements beyond what County staff have available.

6.2.1 Monitoring and Collaboration

Supply monitoring and interagency collaboration supports County DRP implementation by evaluating water supply reliability and maintaining ongoing coordination and collaboration among County departments, related organizations, and the Task Force. With adequate funding, County staff will conduct a range of activities as described in Table 6-1. These activities may be superseded by the activities described in Section 4.3 if a drought or water shortage emergency occurs.

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

Activity	Description and Responsibilities	Timing
Water Supply Monitoring and Coordination	County OES and County DEH to regularly engage with agencies/organizations (such as the Planning Department, Public Works, Agriculture Department, Farm Bureau, RCRC, local Resource Conservation Districts, etc.) that monitor physical risk factors and water supply conditions and concerns associated with domestic well, SSWS, and domestic surface water user communities. Key data may include groundwater elevation data, seasonal precipitation, dry well reports (both formal and informal), and U.S. Drought Monitor indicators. Based on available water supply data, County OES and County DEH staff to support the Chair(s) of the Task Force to develop the Water Shortage Condition Assessment.	Annually prior to each Task Force meeting
Task Force Meeting	County staff to schedule and facilitate a minimum of one Task Force meeting annually. The meeting will follow the Chair(s) of the Task Force's completion of a Water Shortage Condition Assessment. Results of this assessment shall support the Task Force to evaluate potential activation of water shortage response measures as described in this plan. County OES is responsible for coordinating and scheduling the Task Force meeting.	April of each year
Board of Supervisors Update	After each annual Task Force meeting, the Chair(s) of the Task Force may update the Board of Supervisors to keep the Board apprised of County DRP implementation progress and any findings from the Water Shortage Condition Assessment.	Annually after each Task Force meeting
GSA Coordination	County DEH will stay updated on the proceedings of scheduled meetings of the Humboldt County GSA Board and meet with GSA staff after annual monitoring is complete.	As scheduled by the County GSA Board and after the annual submission of the GSA Annual Report

Activity	Description and Responsibilities	Timing
Internal Coordination	County OES, County DEH, and the Planning Department will have additional internal coordination meetings as needed to coordinate activities and set schedules and responsibilities. County OES is responsible for scheduling these meetings.	As needed
Drought Resilience Plan Website Update	County OES will work with County DEH and the Planning Department to review the website contents and update if needed. This includes any contact info, list of resources, and other website content.	As needed

Key:
Agriculture Department = Humboldt County Agriculture Department
County = Humboldt County
DEH = Division of Environmental Health
DRP = Drought Resilience Plan
Farm Bureau = Humboldt County Farm Bureau
GSA = Groundwater Sustainability Agency
OES = Office of Emergency Services
Planning Department = Humboldt County Planning and Building Department
Public Works = Humboldt County Public Works Department
RCD = Resource Conservation District
RCRC = Redwood Coast Regional Center
SSWS = State Small Water System
Task Force = Humboldt County Drought and Water Shortage Task Force

6.2.2 Oversight, Responsibilities, Priorities, and Resource Needs

Implementation and oversight of the overall County DRP will be the responsibility of the Task Force. However, various County departments may be responsible for implementing individual STRAs and LTMSAs. Note that, as described in Chapters 4 and 5, implementation of the STRAs and LTMSAs is dependent upon funding and staff capacity, and not all STRAs and LTMSAs may be implemented. Additionally, STRAs and LTMSAs not identified in this County DRP may be developed based on available resources.

Table 6-2 details the implementation of the County DRP STRAs and LTMSAs, including the responsible and coordinating entities, implementation priority and status, and resource requirements. The information in this table may change outside the County DRP development process and should be regularly updated. Activation timeline is classified as: near-term in the next two years, mid-term within two to five years, and long-term, five or more years in the future. Implementation status is classified as follows: available, in progress for those currently being implemented, and proposed for those that require additional resources. The Resource Requirement columns specify if the STRA/LTMSA would require additional staff time, County budget, and outside funds beyond what the County currently has available. These outside funds could include grants, federal funding, State funding, or in-kind donations to support DRP implementation.

As of the development of this County DRP, the currently available and in-progress County DRP implementation activities are summarized below.

- County OES will lead the effort of ensuring packaged water supplies are available during a drought or water shortage emergency (STRA 05), dependent upon available funding.

- The first drought and water shortage risk assessment is available in Chapter 3 of this County DRP. County OES will lead future updates to the risk assessment (LTMSA 01), dependent upon available funding.
- County DEH has implemented education and outreach activities and will continue to identify opportunities to enhance these engagement activities (LTMSA 03). In the event of a water shortage emergency, County DEH will develop enhanced communications and outreach (STRA 01), dependent upon available funding and resources.
- County DEH will work to improve dry well data collection and management (LTMSA 04), depending upon available funding.
- An initial system consolidation evaluation is available in Chapter 5 of this County DRP (LTMSA 07). County DEH will work with associated agencies (e.g. LAFCo, State Water Board Division of Drinking Water, public water systems) to continue to identify opportunities to support consolidation planning and evaluation, dependent upon available funding. Implementation of any consolidation activities would ultimately be considered and executed by the water systems in coordination with the County LAFCo.

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

Table 6-2. Short-Term Response Action and Long-Term Mitigation Strategy and Action Implementation Summary

Action/Strategy ID and Name	Lead Agency	Supporting Agency	Activation Timeline	Status	Resource Requirement		
					Additional Staff Time	County Budget	Outside Funds
STRA 01/Enhanced Communications and Outreach	County OES	County DHHS	Mid-Term	In Progress	Yes	Yes	No
STRA 02/Dedicated Water Filling Stations	County OES	County DHHS	Mid-Term	Proposed	Yes	No	Yes
STRA 03/Water Hauling, Bulk Water for Existing Tanks	County OES	County DEH	Mid-Term	Proposed	Yes	No	Yes
STRA 04/Water Hauling, Bulk Water for Temporary Tanks	County OES	County DEH	Mid-Term	Proposed	Yes	No	Yes
STRA 05/Packaged and Bottled Water Supplies	County OES	County DEH	Mid-Term	In Progress	Yes	No	Yes
STRA 06/Agreement with Partner Agencies	County OES	County DHHS	Near-Term	Proposed	Yes	No	No
STRA 06/Agreement with Large Water Providers	County DHHS	County OES	Near-Term	Proposed	Yes	No	No
LTMSA 01/Drought and Water Shortage Risk Assessment	County OES	County DEH; Planning Department	Long Term	Available	Yes	Yes	No
LTMSA 02/County Planning Integration	Planning Department	County OES, County DEH	Near-Term	Proposed	Yes	Yes	No
LTMSA 03/Education and Outreach	County DEH	County OES, Planning Department	Near-Term	Available	Yes	Yes	No
LTMSA 04/Improve Well Data Collection and Management	County DEH	Planning Department	Near-Term	In Progress	Yes	Yes	No
LTMSA 05/Reducing Barriers to On-Property Water Storage	Planning Department	County DEH, Nonprofit groups	Mid-Term	Proposed	Yes	Yes	No

Action/Strategy ID and Name	Lead Agency	Supporting Agency	Activation Timeline	Status	Resource Requirement		
					Additional Staff Time	County Budget	Outside Funds
LTMSA 06/Fiscal/Technical Assistance	County DEH	County OES, Planning Department, North Coast Resource Partnership	Long Term	Proposed	Yes	No	Yes
LTMSA 07/System Consolidation Evaluation	County DEH	Planning Department; County LAFCo, Water Systems	Long Term	Available	Yes	No	Yes
LTMSA 08/Address Data Gaps	County OES	County DEH; Planning Department; DWR; State Water Board, Water Systems	Long Term	Proposed	Yes	Yes	Yes

Key:
County = Humboldt County
DEH = Division of Environmental Health
DHHS = Department of Health and Human Services
DWR = California Department of Water Resources
LAFCo = Local Agency Formation Commission
LTMSA = long-term mitigation strategy and action
OES = Office of Emergency Services
Planning Department = Humboldt County Planning and Building Department
SSWS = State Small Water System
State Water Board = California State Water Resources Control Board
STRA = Short-Term Response Action

6.2.3 Adaptive Management for the Drought Resilience Plan

The County DRP will be updated periodically or in response to updated information or changing conditions to ensure findings, STRAs, and LTMSAs are appropriate and relevant. At a minimum, this County DRP will be reviewed and updated by County staff every five years, depending on the availability of funding. The County DRP may also be revisited after major droughts, water shortage events, changes in GSA status, as well as when new data, strategies, policies, or requests from the Task Force arise. The Chair(s) of the Task Force are responsible for initiating and coordinating the County DRP update.

Updates to the County DRP may include: (1) reviewing the risk assessment findings in light of new and improved information that characterizes water supply vulnerability, (2) evaluating progress on STRA LTMSA implementation, (3) updating any communications and outreach materials and information, (4) updating Task Force details, and (5) revising the County DRP content to incorporate any changes.

6.2.4 Funding Opportunities and Assistance Programs

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

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

County staff have noted that tracking and applying for grants or other funding sources to implement STRAs or LTMSA would require staff time and resources that may not be available. Furthermore, some staff involved with the Task Force work in programs funded through “fee-for-service” funding which may preclude their ability to conduct many tasks articulated as mitigations, or risk increasing costs to applicants beyond reasonable means considering local economic context. Those departments that are not fee-for-service may still not have sufficient staff resources to track or apply for grants or other funding sources. County staff have suggested a need for a dedicated staff person, either within specific departments or centralized for the County as a whole, to track, review, analyze, and apply for potential grant opportunities and coordinate, if not provide, grant implementation management. Without identified resources to track and apply for funds, obtaining sufficient funding to implement the STRAs or LTMSAs identified in the County DRP may be difficult or impossible.

Domestic well, SSWS, and domestic surface water user communities are also limited in their ability to access reliable funding due to limited staff, reserves, and flexibility. They may find that it is cost- and resource-prohibitive to implement drought or water shortage solutions by themselves, that solutions frequently require participation or involvement of other entities, and that it is challenging to prepare for, navigate, apply for, and administer the various local, State, and federal funding mechanisms that could be available at any given time. These system owners/operators may need assistance. Note that

the County does not have the authority to require domestic well, SSWS, or domestic surface water user communities to implement any actions to enhance their resilience. With adequate funding, the County aims to support communities in accessing fiscal/technical assistance to support resilience during water shortage events (see LTMSA 06).

Using the STRAs, LTMSAs, and actions developed for the County (listed in Section 4.2 and 5.2, respectively), this DRP investigated and analyzed potential funding sources for implementation, as shown in Table 6-3. The analysis presented in this table may be used as a basis for developing future funding strategies and is neither a complete list nor an exhaustive one. Note that available funding sources are constantly changing. Funding needs, timing, and potential opportunities must be evaluated and balanced prior to commitment to implementation.

Table 6-3. Funding Opportunities and Assistance Programs for Drought Resilience Plan Implementation

Agency	Program	Description
DWR; North Coast Resource Partnership	NCRP: Urban and Multibenefit Drought Relief Grants (*northcoastresourcepartnership.org/ncrp_multibenefit_drought_grant*)	In 2021, DWR provided grant funding through the Urban and Multi-benefit Drought Relief Grant Program. The drought relief goal was to address immediate impacts on human health and safety and on fish and wildlife resources, and to provide water to persons or communities that lost or were threatened with the loss or contamination of water supplies. The NCRP solicited project proposals to be considered for inclusion into the NCRP Urban and Multi-benefit Drought Relief Grant Proposal for submittal to DWR. Should DWR announce subsequent phases of the funding, the NCRP will develop a new timeline for additional regional proposal submissions.
California State Library	California Grants Portal (*grants.ca.gov*)	Searchable webpage with information on State funding opportunities (input and updated by State administering agencies and departments). Grants Portal hosts State funding opportunities offered on a competitive or first-come basis (other types of grants are not listed).
State Water Board	County-wide and Regional Funding Programs (SAFER) (*waterboards.ca.gov/safer/funding_solicitation.html*)	Grant funding to implement regional programs that address drought-related and/or contamination issues for domestic wells and SSWSs serving disadvantaged communities (DACs) and low-income households.
State Water Board	Small Community Funding Program (*waterboards.ca.gov/water_issues/programs/grants_loans/sustainable water solutions*)	Funding and assistance to help DACs providing drinking water service to less than 10,000 people and having a median household income (MHI) of less than 80% of the statewide MHI, with technical assistance needs, interim water supplies, and implement eligible drinking water capital improvement projects.
State Water Board	Domestic Water Wells and State Smalls Program (*waterboards.ca.gov/water_issues/programs/grants_loans/drinking_water_well.html*)	Assistance to disadvantaged individuals or households served by a domestic well or SSWS with a water quality issue.
State Water Board	Drinking Water SRF (*waterboards.ca.gov/drinking_water/certlic/drinkingwater/fundingincentives.html*)	SRF webpage specific to funding and incentives for consolidation and regionalization projects.
State Water Board	Financial Assistance Funding – Grants and Loans Website (*waterboards.ca.gov/*	Information on grant and loan programs (State Water Board and other agencies).

Agency	Program	Description
	water_issues/programs/grants_loans)	
DWR	Technical Assistance *(water.ca.gov/Work-With-Us/Technical-Assistance)*	Technical guidance and assistance resources to local and regional organizations through four regional offices.
DWR	Grants and Loans *(water.ca.gov/Work-With-Us/Grants-And-Loans)*	Information on grant and loan programs that support integrated watershed management activities addressing environmental stewardship, water supply reliability, flood risk, groundwater sustainability, drought, and more.
California Financing Coordinating Committee	California Financing Coordinating Committee Funding Information *(cfcc.ca.gov)*	Information on grants, loans, and bond financing for infrastructure projects from four State agencies (State Water Board, DWR, California Department of Housing and Community Development, California Infrastructure and Economic Development Bank) and two federal agencies (U.S. Bureau of Reclamation, U.S. Department of Agriculture Rural Development). Also, information on and links to California Rural Water Association and Rual Community Assistance Corporation. Tabs for funding fairs, infrastructure funding programs, and additional funding programs.
California Governor's Office of Land Use and Climate Innovation	Integrated Climate Adaptation and Resiliency Program *(lci.ca.gov/climate/icarp)*	Information on planning and implementation of grant programs, technical assistance, and other resources to support planning for and adapting to climate change.
National Oceanic and Atmospheric Administration, National Integrated Drought Information System	Funding Opportunities *(drought.gov/drought-in-action/funding-opportunities)*	Information on and links to funding offered by the National Oceanic and Atmospheric Administration and its partners related to drought early warning research across many sectors and fields including science, education, and technology. Webpage also includes links to other drought-related federal funding opportunities.
FEMA	Hazard Mitigation Assistance Grants *(fema.gov/grants/preparedness)*	Funding for eligible long-term solutions that reduce the impact of disasters in the future. Information on many funding/assistance opportunities.
U.S. Department of Agriculture, Rural Development	Rural Utilities Service Water and Environmental Programs—Water and Environmental Grant and Loan funding *(rd.usda.gov/programs-services/water-environmental-programs)*	Technical assistance, training, and financing to develop drinking water and waste disposal systems in rural communities (populations of 10,000 or less).

Agency	Program	Description
U.S. Department of Agriculture, Rural Development	Emergency Community Water Assistance Grants (*rd.usda.gov/programs-services/water-environmental-programs/emergency-community-water-assistance-grants*)	Funding to prepare for or recover from an emergency that threatens the availability of safe, reliable drinking water.
U.S. Department of Agriculture, Rural Development	Water and Waste Disposal Loan and Grant Program (*rd.usda.gov/programs-services/water-environmental-programs/water-waste-disposal-loan-grant-program*)	Funding for clean and reliable drinking water systems, sanitary sewage disposal, sanitary solid waste disposal, and stormwater drainage to households and businesses in eligible rural areas. For qualified applicants not otherwise able to obtain commercial credit on reasonable terms.

Key:
DAC = Disadvantaged Community
DWR = Department of Water Resources
FEMA = Federal Emergency Management Agency
MHI = Median Household Income
NCRP = North Coast Resource Partnership
SAFER = Safe and Affordable Fund for Equity and Resilience
SRF = State Revolving Fund
SSWS = State Small Water System
State Water Board = California State Water Resources Control Board

In analyzing potential funding sources, the DRP identified symptoms of limited resources and funding:

- Capacity to track and pursue funding (staff, other resources)
- Capacity to manage grant awards and administer funds
- Limitations on authority to apply for and administer funds
- Capacity and ability to potentially identify local cost-share funds or manage funds made available through reimbursement
- Funding DRP general implementation (not specific to the actions), including tracking/monitoring and updates
- Developing a funding strategy for STRA/LTMSAs and identifying/securing resources to implement and periodically update that strategy
- Capacity to track/monitor existing water resources beyond the GSA basin(s)

7.0 Communications and Engagement

7.1 Legislative Direction

SB 552 requires the County to develop a method to coordinate and engage with individuals, organizations, and agencies interested in drought and water shortage preparedness for domestic wells and SSWSs, per CWC Section 10609.70 (**bold face** added for emphasis as related to communication and engagement):

> *(1) A county shall establish a standing county drought and water shortage task force to facilitate drought and water shortage preparedness for SSWSs 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 SSWSs 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.***
>
> *(3) A county that establishes a drought task force on or before January 1, 2022, shall be deemed in compliance with this subdivision as long as the task force continues to exist.*

7.2 County Drought Resilience Plan Interested Parties

Meaningful and ongoing engagement with individuals, organizations, and agencies interested in drought and water shortage preparedness for domestic wells, SSWSs, or domestic surface water users ("DRP interested parties") enhanced the development of this County DRP and will continue to inform preparedness for future water shortage and drought events. The DRP interested parties list includes:

- Local residents and communities served by domestic wells, SSWSs, or domestic surface water
- State and local governments
- Tribes
- County GSA
- Community-based organizations
- Local water suppliers

Outreach and engagement activities will be focused on communities served by domestic wells, SSWSs, and domestic surface water, when appropriate and necessary. Other DRP interested parties, such as State and local governments, Tribes, community-based organizations, or local water suppliers, may also be informed via the outreach tools described below. The County OES will maintain a database of contact

information of DRP interested parties for communicating updates about County DRP development or implementation. This DRP interested-parties' database may also be used for communication during a water shortage emergency. Individuals, organizations, or agencies can sign up to be included in the database.

7.3 Outreach Tools

7.3.1 County Drought Resilience Plan Website

The Task Force has developed a County DRP website for DRP interested parties and other community members to stay up to date on the County DRP development and implementation activities. County OES will maintain and update the website with timely and relevant information throughout the County DRP development process. The website will be used as a location to post the draft County DRP, solicit public review, and receive input through a fillable comment form. After County DRP development, the County DRP website may be used to communicate updates on County DRP implementation activities and for communicating information during a water shortage emergency.

7.3.2 Public Notices

The Task Force may provide public notices to promote public meetings, workshops, activities, and resources available during water shortage emergencies. Notices may include flyers, emails to the DRP interested-parties' database, posting on websites, social media posts, local newspapers, or web-based media organizations.

Flyers and public notices posted at physical locations will prioritize reaching communities served by domestic wells, SSWS, or domestic surface water, which may be located in rural areas. Public notices in rural areas may include popular community convening locations, such as community centers, granges, grocery stores, markets, and churches.

7.3.3 Outreach Activities

Public outreach activities are intended to inform, engage, interact with, and respond to DRP interested parties and the public during the development, adoption, and implementation of the County DRP. Public outreach activities may also assist the Task Force in responding to a water shortage emergency.

7.3.4 Briefings to the Board of Supervisors

The Task Force may provide briefings to the County Board of Supervisors on the development and implementation of the County DRP. Briefings are anticipated to be conducted during regularly scheduled board meetings.

7.3.5 Public Meetings

Public meetings may be an important venue for educating the public about SB 552, the County DRP, and water shortage resources. Additionally, County staff may provide periodic updates through informational items and presentations at other relevant meetings, such public meetings hosted by partner organizations, or as ad hoc engagements with other local groups.

Meeting details will be made available to the public on the County DRP website and through the DRP interested parties' database.

7.3.6 Collaboration with Relevant Agencies

The Task Force may collaborate with other local and State agencies, such as local water suppliers, community services districts, the County GSA, UC Cooperative Extension, the County LAFCo, Cal Poly

Humboldt, the State Water Board, and DWR, to facilitate the development of the County DRP, support County DRP implementation, and respond to future water shortage emergencies. Collaboration may include information and resource sharing, partnering to host joint meetings, and coordination of targeted outreach activities.

7.3.7 Implementation Activities

Following the completion of the County DRP, the Task Force will continue to implement this Communications & Engagmenet Framework and to reevaluate the effectiveness of the public outreach process throughout the County DRP implementation. Informational materials and website content will be updated regularly at key implementation milestones, with periodic updates to reflect the status of the County DRP's implementation. In addition, new materials may be developed to help the public understand next steps, how to stay engaged in the County DRP's implementation, and how to participate in implementation activities.

8.0 References

California Department of Water Resources. (2023). *County Drought Resilience Plan Guidebook.*

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Appendix A: Humboldt County State Small Water System Inventory

State Small Water System Inventory 7-7-2025

RECORD NAME	System Serves	Ownership type	Location of System	Population Served	# of Service Connections	Water Source	Source Entity Type	# of Wells	Well Depth	Well Log	Source Flow Rate (GPM)	Estimated Water Use (Avg Day)	Distance to Public Water System	Distance to State Route	Water Source Other	Storage Capacity	Local Sewage Disposal Method
1259 Fickle Hill Water System	Residential subdivision	mutual owners	Fickle Hill	20	5	Surfacewater spring	Surfacewater treated	NA	NA	NA			0.25 mi	1.6 mi	none	8300 gal (one 3300 gal, two	onsite wastewater
Alton Trailer Park - Water	Trailer park	park operator	Alton, Hwy 36	17	9	Groundwater	Groundwater treated	1	55 ft	yes		1750 gpd	1.25 mi	0.5 mi	none	1550 gal	onsite wastewater
Baker Ranch Mutual Water	Residential subdivision	Homeowner association	Scenic Drive Trinidad	15	11	Groundwater	Groundwater treated	2	40 ft, 165 ft	no	12 gpm, 22 gpm		0.75 mi	1.5 mi	well	17,500 gal (three 5000gal,	onsite wastewater
Central Water System (added)	Residential subdivision	mutual owners	Table Bluff	23	13	Groundwater	Groundwater treated	1	220 ft	no	28 gpm		1.75 mi	2 mi	none	5000 gal (two 2500 gal)	onsite wastewater
Elk Meadow Cabins (new)	Multiple unit housing	landlord owner/operator	Orick	<25	9	Groundwater	Groundwater treated	1	80 ft	yes	10 gpm	1950 gpd	1.8 mi	o mi, on hwy 101	none	11/788 gal (four 2500 gal, one 1500 gal, and two 119 gal	onsite wastewater treatment systems
Elk River Road Water System	Multiple unit housing	landlord owner/operator	Elk River, Ridgewood Dr., Eureka	12	7	Groundwater	Groundwater raw	1		no			Within HCSD service boundary	1.5 mi	none	170 gal (two 85 gal pressurized tanks)	onsite wastewater treatment
Farley Water System	Multiple unit housing	landlord owner/operator	Redmond Rd, Freshwater	11	9	Groundwater	Groundwater treated	1	90 ft	no			Within HBMWD boundary	2.4 mi	none		onsite wastewater
Foss Rd Mutual Water Co	Residential subdivision	Incorporated ownership	Kneeland	12	5	Groundwater	Groundwater raw	1	100 ft	yes	10 gpm		9.5 mi	18 mi	well	3000 gal on each parce.	onsite wastewater
Marilann Court - Water System	Multiple unit housing	landlord owner/operator	Arcata Bottom	21	8	Groundwater	Groundwater treated	1	unk - shallow	no			0.5 mi	1.3 mi	none	5000 gal	onsite wastewater
May Street Water Company	Residential subdivision	mutual owners	Fortuna, Kenmar Rd	4	5	Groundwater	Groundwater treated	1	200	yes			Within City of Fortuna service	0.5 mi	none (within service area)	7200 gal (two 3600 gal)	city sewer
Riley Creek Water System	Residential subdivision	mutual owners	Patricks Point Drive, Trinidad	18	8	Surfacewater creek	Surfacewater treated	NA	NA	NA		1700 gpd	4 mi	1.5 mi	none	10,000 gal	onsite wastewater
Rivercrest Mutual Water Co	Residential subdivision	mutual owners	Garberville, Sprowl Creek Rd	7	17	Surfacewater river bar	Surfacewater raw (inadequate treatment)	NA	NA	NA			0.75 mi	1..2 mi	none	500 gal	onsite wastewater treatment
Splinter Lane Water	Residential subdivision	mutual owners	Arcata, Sunny Brae	15	5	Groundwater	Groundwater raw	1	480 ft	yes	12.5 gpm		0.2 mi	2.75 mi	none	45,000 gal (9000,	onsite wastewater
Stafford RV Park	Trailer park	park operator	Avenue of the Giants	18	12	Groundwater	Groundwater treated	1	180 ft	yes	45 gpm	1500 gpd	2.5 mi	0.3 mi	none	6000 gal (two 3000 gal)	onsite wasteweter
Tim Mullen Rd Mutual Water	Residential subdivision	Incorporated ownership	Kneeland	19	10	Groundwater	Groundwater raw	2	300 ft, 330 ft	yes	15 gpm, 16 gpm		9.5 mi	18 mi	well	3000 gal on each parcel	onsite wastewater
Troubled Water-Water System	Residential subdivision	mutual deeded ownership	Elk River	15	9	Groundwater	Groundwater raw	2	184 ft, 196 ft	no	8 gpm, 20 gpm		0.9 mi	2.75 mi	well	4500 gal (three 1500 gal)	onsite wastewater

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