SB 552 Drought and Water Shortage Risk Analysis and Response Plan

June 2023

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1 Introduction and Background

This Tulare County Drought and Water Shortage Response Plan ("Drought Plan") was developed to satisfy the requirements of Senate Bill 552 (Drought Planning for Small Water Suppliers and Rural Communities, SB 552) and to prepare the County of Tulare ("County") for future droughts and water shortages. This Drought Plan improves the County's preparedness for and resiliency to drought in a number of key areas. First, the Plan explores the relative risk of water shortage for the County's self-supplied communities, including analysis of State data and local stakeholder feedback. Second, opportunities to improve reliability and sustainability through water system consolidation are considered. Third, an Action Plan that includes monitoring protocols the County will use to detect water shortages; and interim and long-term solutions for state small water systems and domestic wells within the County. Lastly, the Drought Plan provides recommendations for additional policies and actions which can further improve the County's preparedness for droughts and water shortages.

Overall, this Drought Plan assists the County to work towards anticipating water shortages before they occur and begin to respond proactively, thereby reducing the risk of drought impacts throughout the County. As it is implemented, the Drought Plan will be updated periodically with additional information and lessons learned. The Drought Plan therefore functions as a living document that will adapt to the needs of the County.

1.1 Legal Basis

In response to the historic drought California experienced from 2012-2016, the State Legislature implemented a series of initiatives designed to improve the drought planning and response processes for water providers. Critically, small water suppliers and rural communities were identified as being particularly vulnerable to water shortages during droughts because they "vary widely in supply source reliability and organizational capacity".[1] Beginning in 2018, the Department of Water Resources (DWR) organized a County Drought Advisory Group (CDAG) to identify small water suppliers and rural communities that are vulnerable to drought and water shortage and developed recommendations for improvement of drought preparedness through water shortage contingency planning.[2] DWR submitted a recommendation report, Small Water Systems and Rural Communities Drought and Water Shortage Contingency Planning and Risk Assessment,[3] to the Legislature and Governor Newsom in Spring 2021. DWR's recommendations became the basis of SB 552.

[1] Department of Water Resources, & State Water Resource Control Board, Primer of Senate Bill 552: Drought Planning for Small Water Suppliers and Rural Communities (2022). Retrieved from: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/SB-552/Primer-of-SB-552-052522_final.pdf

[2] Department of Water Resources, & State Water Resource Control Board, Primer of Senate Bill 552: Drought Planning for Small Water Suppliers and Rural Communities (2022).

[3] Department of Water Resources. (2022). Countywide Drought and Water Shortage Contingency Plans. Retrieved from https://water.ca.gov/Programs/Water-Use-And-Efficiency/2018-Water-Conservation-Legislation/County-Drought-Planning

SB 552 amends California Water Code §10609.70 to include new drought planning requirements for counties, which this Drought Plan fulfills. The requirements are as follows:[4]

a) Establish a standing county drought and water shortage task force or alternative process that facilitates drought and water shortage preparedness for state small water systems and domestic wells.

b) Assess potential drought and water shortage risk.

c) Provide emergency and interim drinking water solutions in the county drought and water shortage risk mitigation plan (plan).

d) Consider consolidations for existing water systems and domestic wells in the plan.

e) Consider domestic well drinking water mitigation programs in the plan.

f) Consider an analysis of steps to implement the plan.

g) Consider an analysis of local, state, and federal funding sources available to implement the plan.

Tulare County established a Drought Taskforce, which satisfies the above requirement subsection (a).[5] The remaining requirements of SB 552 are satisfied by this Drought Plan.

The focus of the Drought Plan is on the County's smallest water systems – those with 14 or fewer connections and domestic wells. While other larger water systems also face drought related risks, the Legislature has assigned water systems with 15 or more service connections the responsibility for completing their own drought planning efforts. In contrast, water systems with 14 or fewer connections and domestic well owners often lack the organizational capacity to complete their own drought plans. Instead, SB 552 assigned the County responsibility to complete a Drought Plan for these smallest systems and domestic wells.

1.1.1 Human Right to Water

California is one of the first states in the nation to legislatively recognize the human right to water. Through the passage of AB 685 and the subsequent amendment to Section 106.3 of the Water Code, "every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes."[6] Importantly, the human right to water extends to all communities, including rural and disadvantaged individuals. Implementation requires sustained engagement at the regional and state level. The SWRCB is making efforts to implement outreach programs and improve access to technical assistance providers which is fundamental to

[4] California Water Code §10609.70
[5] California Water Code §10609.70 (a)
[6] State Water Resources Control Board. (2022). Human Right to Water Portal. https://www.waterboards.ca.gov/water_issues/programs/hr2w/

ensure the human right to water for all Californians. Many of the programs and actions documented in this Drought Plan also advance the State's goal of protecting the human right to water.

1.2 Drought Planning Efforts in Tulare County

In Tulare County, several County Departments and local agencies play a role in facilitating drought preparedness. These agencies include the Tulare County Resource Management Agency (RMA), the County Office of Emergency Services (OES), and various Groundwater Sustainability Agencies (GSAs) formed under the Sustainable Groundwater Management Act (SGMA). The Tulare County Health & Human Services Agency (HHSA), Environmental Health Division also has a role regulating domestic water supply. During the historic 2012-2016 drought, a number of nonprofit organizations have also played a key role in the County's drought response, including Self-Help Enterprises (SHE)[7] and the Community Water Center.[8] Drought preparedness and response actions are coordinated on an ongoing basis through regular meetings of the County's Drought Taskforce.

While Tulare County has elected to prepare this Drought Plan as a stand-alone document focused on satisfying the requirements of SB 552, this Drought Plan will complement and support other County planning documents and efforts related to drought risk. The Drought Plan will advance goals of the County's Multi-Jurisdictional Local Hazard Mitigation Plan (MJLHMP)[9], such as protecting "life, property, and reduce potential injuries from natural, technological, and human-caused hazards" and promoting "disaster resistance for the County's natural, existing, and future built environment." Other water- and drought-related hazards, such as loss of water supply due to public safety power shutoffs (PSPS), are addressed in the MJLHMP. (The County's 2018 MJLHMP has recently undergone a comprehensive update, with a new document released in March 2023. This Drought Plan will be included as an attachment to the MJLHMP.) The conclusions of this Drought Plan can also help guide future planning efforts, such as Groundwater Sustainability Plan (GSP) updates, MJLHMP updates, and General Plan Updates.

1.3 Stakeholder Engagement

Stakeholder engagement during the development of this Drought Plan was conducted primarily through the County's Drought Taskforce, which includes major stakeholder organizations involved in drought-related issues in the County. During the latter portion of 2022, four presentations on the development of the SB 552 plan were given during the bi-monthly recurring Drought Taskforce Meetings:

1. Monday August 1, 2022: Announcement of plan preparation and invitation to engage in plan development

[7] https://www.selfhelpenterprises.org/
[8] https://www.communitywatercenter.org/
[9] Tulare County, Multi-Jurisdictional Local Hazard Mitigation Plan (2018). Retrieved from: https://oes.tularecounty.ca.gov/oes/mitigation/tulare-county-mjlhmp/

2. Monday October 3, 2022: Stakeholder listening session regarding risk factors and tracking protocols

3. Monday November 7, 2022: Stakeholder listening session regarding response actions[10]

4. Thursday March 16 – Friday April 14, 2023: Release of Draft Drought Plan for public review comment period

5. Monday August 7, 2023: Presentation of Final Drought Plan

In addition, member organizations of the Drought Taskforce were encouraged to distribute meeting invitations and engagement materials with organizations and contacts.

1.4 PLAN ORGANIZATION

The remainder of this Drought Plan is organized into the following sections:

Section 2 – Identification of Drought and Water Shortage Risk

Section 3 – Small System Consolidation Opportunities

Section 4 – Shortage Response Actions (Action Plan)

Section 5 – Conclusions and Recommendations

1.4.1 Definitions

Consistent with the definitions presented in DWR guidance literature[11] and the California Water Code, terms used in this Drought Plan have the following meanings:

- California's Groundwater Live (GWLive) – A groundwater webtool developed by DWR which features the latest groundwater information, live statistics and a series of interactive dashboards.[12]

- 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 Section 116275 of the Health and Safety Code (Water Code §10609.51 subd. (a)).

- 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

[10] This meeting of the Drought Taskforce was specifically scheduled to provide an opportunity to discuss SB 552 Drought Plan Response Actions. Drought Taskforce meetings typically occur the first Monday of even-numbered months.
[11] Department of Water Resources, & State Water Resource Control Board, Primer of Senate Bill 552 (2022).
[12] Available at: https://sgma.water.ca.gov/CalGWLive/

than four service connections, as defined in Section 116681 of the Health and Safety Code (Water Code §10609.51 subd. (k)).

- Drought Risk Explorer Tool – A map-based webtool developed by the Department of Water Resources to support drought resilience planning among rural communities.[13]

- Groundwater Sustainability Agency (GSA) – a local public agency tasked with developing and implementing Groundwater Sustainability Plans under SGMA. GSAs can be formed by any local public agency, but are most commonly formed by water districts, irrigation and reclamation districts, cities, and counties.

- Groundwater Sustainability Plan (GSP) – A 20-year plan to ensure that groundwater is managed sustainably within a groundwater basin, implemented by a GSA under SGMA.

- Non-community non-transient 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 6 months per year, as defined in Section 116275 subd. (k) of the Health and Safety Code. Example of this includes a school (Water Code §10609.51 subd. (g)).

- Public water system – A system for the provision of water for human consumption through pipes or other constructed conveyances that has 15 or more service connections or regularly serves at least 25 individuals daily for at least 60 days out of the year (Health and Safety Cde §116275 subd. (h).)

- Rural community – A community with fewer than 15 service connections or regularly serving less than 25 individuals daily at least 60 days out of the year, including domestic wells (Water Code §10609.51 subd. (j)). In other words, a "rural community" as defined by SB 552 covers all water systems or domestic wells for human consumption that do not meet the definition of a public water system.

- Safe and Affordable Funding for Equity and Resilience (SAFER) program – A program led by the SWRCB which proactively identifies water systems that are out of regulatory compliance and collaborates on short- and long-term solutions. The program includes a set of tools, funding sources, and regulatory authorities.

- Self-supplied community – A community with fewer than 15 service connections. For the purposes of this Drought Plan, a self-supplied community has the same definition as a rural community.

[13] Retrieved from: https://tableau.cnra.ca.gov/t/DWR_IntegratedDataAnalysisBranch/views/DWRDroughtRiskExplorer-RuralCommunitesMarch2021/Dashboard?%3AshowAppBanner=false&%3Adisplay_count=n&%3AshowVizHome=n&%3Aorigin=viz_share_link&%3AisGuestRedirectFromVizportal=y&%3Aembed=y

- 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 (Water Code §10609.51 subd. (k)).

- State small water system – A system for the provision of piped water to the public for human consumption that serves at least five, but not more than 14, service connections and does not regularly serve drinking water to more than an average of 25 individuals daily for more than 60 days out of the year as defined in Section 116275 (n) of the Health and Safety Code (Water Code §10609.51 subd. (m)). These systems are sometimes referred to as "state smalls".

- Sustainable Groundwater Management Act (SGMA) – A three-bill legislative package, passed in 2014, set forth a statewide framework to help protect groundwater resources over the long-term. GSAs are responsible for adopting GSPs to avoid undesirable results and mitigate overdraft within 20 years.[14]

- Urban water supplier – A supplier, either publicly or privately owned, providing water for municipal purposes either directly or indirectly to more than 3,000 customers or supplying more than 3,000 acre-feet of water annually. An urban water supplier includes a supplier or contractor for water, regardless of the basis of right, which distributes or sells for ultimate resale to customers.

[14] https://water.ca.gov/programs/groundwater-management/sgma-groundwater-management

2 Identification of Drought and Water Shortage Risk for Self-Supplied Communities

For Tulare County to effectively and proactively prepare for droughts and water shortages, it is crucial to evaluate which communities are most at risk and what factors contribute to that risk. The County's risk evaluation focuses specifically on self-supplied communities,[15] which consist of state small water systems and domestic wells (4 or fewer connections). The Legislature found self-supplied communities are the most likely to rely on shallow domestic wells, which are the most susceptible to well failure when droughts occur or groundwater levels drop due to consistent over pumping, and the least likely to have access to alternative water supplies.

The Department of Water Resources (DWR), through a collaboration with other State agencies and stakeholders,[16] developed the Drought and Water Shortage Risk Explorer Tool for self-supplied communities ("Risk Explorer Tool") to assist counties in performing risk assessments. DWR also administers California's Groundwater Live (GWLive) web interface which provides additional information about current groundwater conditions and domestic well infrastructure. In addition, the SWRCB's Division of Drinking Water, Division of Financial Assistance, and Office of Public Participation work together to implement the Safe and Affordable Funding for Equity and Resilience (SAFER) program. The SAFER Mapping Tool illustrates the current failing Human Right to Water systems and the results of the Risk Assessment for state small water systems. This section of the County's Drought Plan reviews the results of three tools (Risk Explorer Tool, GWLive, and SAFER) as well as their results, including a county-wide risk evaluation. The factors most predictive of future water shortage are considered. *Section 2* concludes with a discussion of the limitations of the tools and recommendations for incorporating the tools findings into the response action framework described in *Section 4* of this plan.

2.1 Tulare County Hydrology

Tulare County is located entirely within the Tulare Lake Basin, which is a closed hydrologic basin draining to Tulare Lake at the southern end of the San Joaquin Valley. The geography of the County is dominated by the Sierra Nevada Mountains and Foothills in the east and the flat, fertile farmland of the Central Valley in the western portion of the County. The vast majority of the County's population resides in the largely agricultural communities on the Valley floor or in the western foothills of the Sierra Nevada.

Supply of water resources in Tulare County comes from four major sources, including groundwater, local streams and rivers, imported surface water, and imported surface water by exchange. Of these sources, groundwater is by far the most important source for self-supplied communities.

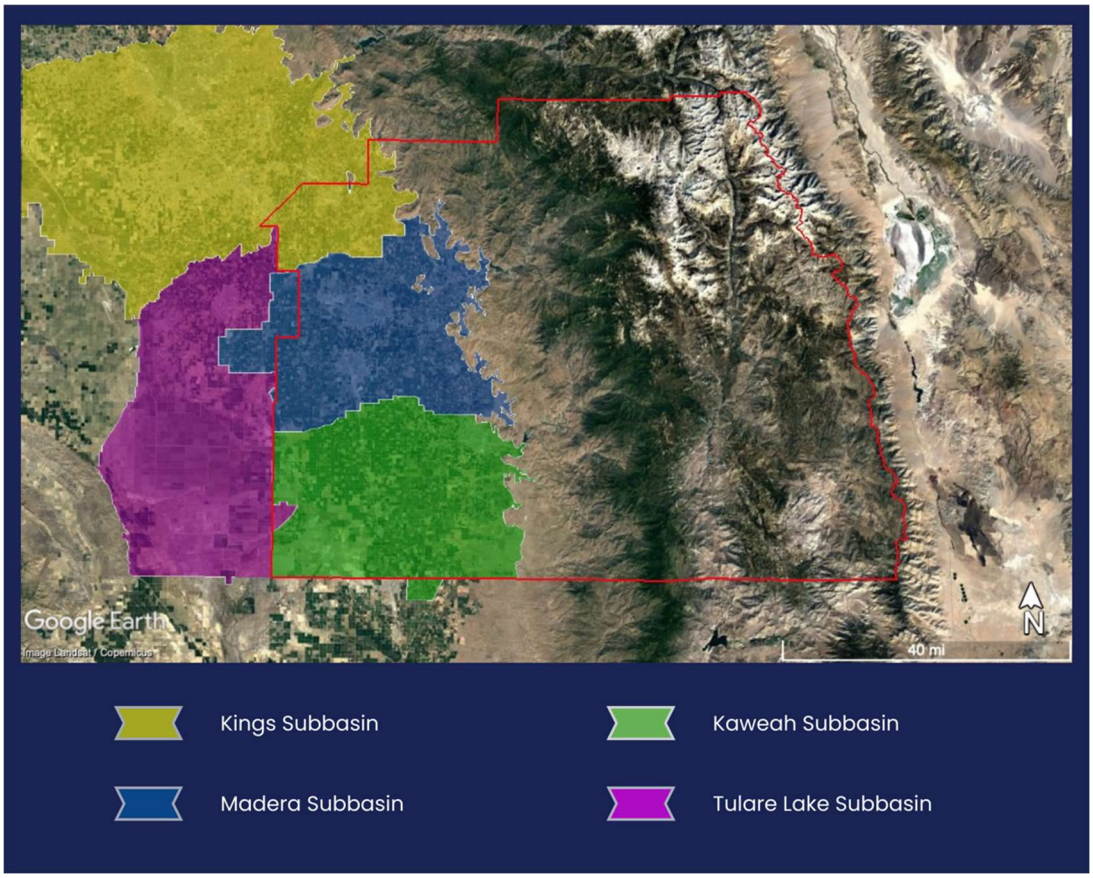
[15] Water Code Section 10609.51 defines a "Rural Community" as "a community with fewer than 15 service connections, or regularly serving less than 25 individuals daily at least 60 days out of the year."
[16] This Plan uses County Drought Advisory Group (CDAG), the State Water Board, and the Office of Environmental Health Hazard Assessment

In the Valley floor portion of the County, large alluvial aquifers have historically yielded significant quantities of groundwater for agriculture, urban, and domestic uses. The County overlies all or portions of the Kings, Kaweah, Tule, and Tulare Lake Subbasins of the San Joaquin Valley Groundwater Basin (Figure 2-1).[17] All four Subbasins have been classified under the Sustainable Groundwater Management Act (SGMA) as in critical overdraft,[18] due to long term declines in groundwater levels driven by groundwater use that has exceeded average recharge for many decades. The aquifer thickness in these Subbasins typically increases to the west, with the aquifers thinning on their eastern margins and ultimately pinching out at their contact with the bedrock foothills. Many of the self-supplied communities at greatest risk of water shortage in Tulare County are threatened by declining groundwater levels in these Subbasins, especially on the eastern edges of Subbasins where aquifers are thinner. The ongoing implementation of SGMA by the GSAs will be an important factor effecting the risk to self-supplied communities of future groundwater declines in the alluvial subbasins of Tulare County.

[17] Tulare County also includes very small areas of the Kern River Valley and Tulare Lake Subbasins. No domestic wells have been recorded in the Tulare County portion of either of these subbasins and they are therefore excluded from the discussion above.

[18] https://gis.water.ca.gov/app/bp-dashboard/final/

Figure 2-1: Groundwater Basins in Tulare County



In the Sierra Nevada foothills, many communities and individuals rely upon fractured rock aquifers that the Department of Water Resources (DWR) does not recognize as being divided into distinct groundwater subbasins. SGMA does not apply to groundwater users in fractured rock areas. Most of the water systems in this portion of the County are individual and serve mostly untreated water for domestic purposes through wells that tap into the fractured rock aquifers. Because the volume of water stored in fractured rock aquifers is typically much less than in alluvial aquifers, aquifers in the County's foothills region can be quickly impacted by droughts, resulting in rapid loss of productivity for domestic wells.

The majority of Tulare County's local water resources ultimately originate as precipitation in the Sierra Nevada mountains, with high-elevation snowpack playing a particularly important role. According to California's Fourth Climate Change Assessment, climate change is already underway in the Sierra Nevada, affecting heat and precipitation extremes, with long-term warming trends,

declining snowpacks, and changes in streamflow timing.[19] Over the coming decades, climate change will continue to present new challenges to all Tulare County water users.

2.2 Drought and Water Shortage Risk Explorer Tool

To evaluate the relative risk of drought and water shortage vulnerability for self-supplied communities, DWR collaborated with the State Water Resources Control Board (SWRCB) and the CDAG to develop a tool utilizing a common framework based on important risk indicators. The methodology used by the Risk Explorer Tool does not define thresholds whereby certain communities are "at risk" of drought and water shortage and others are not. Instead, according to the CDAG report, "the methodology inherently recognizes that all communities in California face some risk of drought and water shortage and thus provides a tool to calculate the relative risk of these suppliers and communities."[20] The primary benefit of the Risk Explorer Tool is to offer local and regionally specific information to assist with drought and water shortage planning.

The unit of analysis for the Risk Explorer Tool is the Census Block Group (the geographical unit used by the United States Census Bureau, typically between 600 and 3,000 people) with a record of a domestic well installed within the last 50 years (1970-2019).[21] Census Block Groups with zero population and those with no record of a domestic well within the last 50 years were excluded from the analysis. The Risk Explorer Tool used this spatial unit for its analysis to allow DWR to access demographic information that is otherwise not available. Actual drought risk *within* each census block can vary substantially, because even close neighbors may rely on different water sources or be served by wells of different ages and depths. The Risk Explorer Tool is therefore useful for a broad overview of how risk varies across the County but should not be assumed to reflect the actual drought risk of any specific water system or domestic well. In Tulare County, an estimated 88,245 households reside in the Census Block Groups evaluated by the Risk Explorer Tool (but not all of those households are self-supplied, as defined by this report). As of July, 2022, 6,338 domestic wells in Tulare County are recorded with DWR over the last 50 years.

2.2.1 Risk Indicators

The Risk Explorer Tool identifies 20 indicators for the self-supplied community grouping. These indicators were created to cover three general categories of risk defined by the SWRCB, CDAG, and other stakeholders. These components are: (1) the exposure of suppliers and communities to

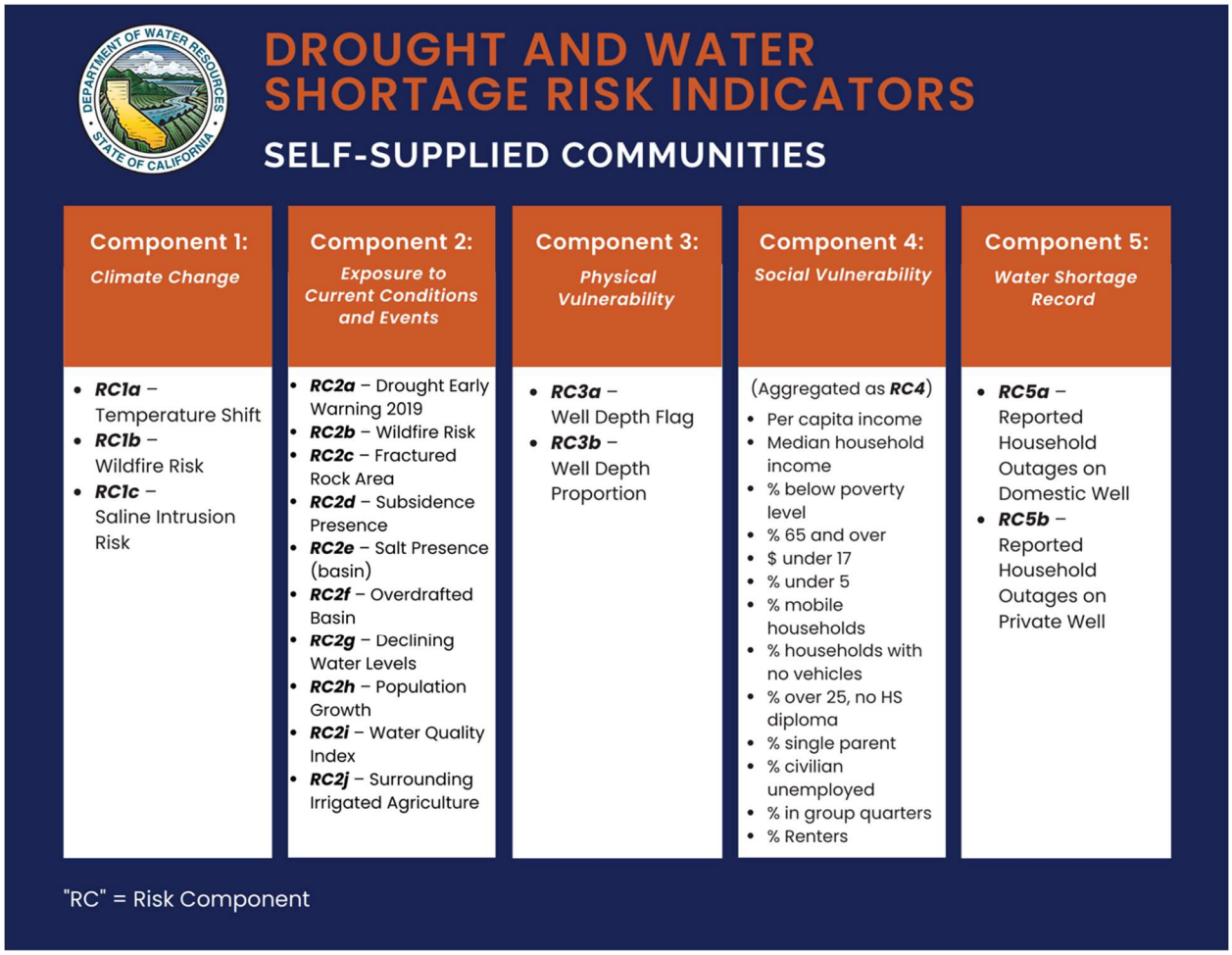
[19] Dettinger, Michael, Holly Alpert, John Battles, Jonathan Kusel, Hugh Saford, Dorian Fougeres, Clarke Knight, Lauren Miller, Sarah Sawyer. 2018. Sierra Nevada Summary Report. California's Fourth Climate Change Assessment. Publication number: SUM-CCCA4-2018-004. Retrieved from: https://www.energy.ca.gov/sites/default/files/2019-11/Reg_Report-SUM-CCCA4-2018-004_SierraNevada_ADA.pdf

[20] California Department of Water Resources Water Use Efficiency Branch, Small Water Systems and Rural Communities Drought and Water Shortage Contingency Planning and Risk Assessment (2021). Retrieved from: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/CDAG/PART-2-CDAG-Report-Final.pdf

[21] California Department of Water Resources Water Use Efficiency Branch (2021)

hazardous conditions and events, (2) the physical and social vulnerability of suppliers and communities to the exposure, and (3) recent history of shortage and drought impacts.[22] From these categories the Risk Explorer Tool drilled down to the individual indicators and separated them into five Risk Component (RC) groups, with each component broken into individual metrics (Figure 2-2).

Figure 2-2: Risk Indicators, Self-Supplied Communities



[22] Small Water Systems and Rural Communities Drought and Water Shortage Contingency Planning and Risk Assessment - Part 2 – Drought and Water Shortage Vulnerability Assessment and Risk Scoring. Retrieved from: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/CDAG/PART-2-CDAG-Report-Final.pdf

Brief descriptions of the risk indicators shown in Figure 2-2 are listed below with the data source in parentheses. More information on how DWR developed the risk indicators and scoring methodology used by the Risk Explorer Tool is available in Appendix 1 of the CDAG report.[23]

Component 1 – Climate Change:

- **RC1a Temperature Shift** tracks projected increase in maximum temperature by mid-century, averaged across climate models. (DWR)
- **RC1b Wildfire Risk** projects severe or high-severe wildfire risk for each block group boundary. (UC Merced)
- **RC1c Saline Intrusion Risk** identifies susceptibility to seawater intrusion as measured by 1 meter of sea level rise into coastal aquifers. (University of Wyoming/USGS)

Component 2 – Exposure to Current Conditions and Events

- **RC2a Drought Early Warning** tracks an annual early drought risk warning indicating less than 70% of average precipitation by Jan 31 of that water year. (PRISM OSU)
- **RC2b Wildfire Risk** models the current risk maximum for wildfire for each block group. (CalFire)
- **RC2c Fractured Rock Area** shows if the community is located in a fractured rock area. (DWR)
- **RC2d Subsidence Presence** documents a record of subsidence within the block group. (DWR)
- **RC2e Salt Presence (basin)** documents a record of salts and salt intrusion points in the basin. (DWR)
- **RC2f Overdrafted Basin** shows if the area is in a critically overdrafted basin. (DWR)
- **RC2g Declining Water Levels** identifies declining groundwater levels. (DWR)
- **RC2h Population Growth** uses census data to estimate population growth rate to determine projected population growth. (DWR)
- **RC2i Water Quality Index** indicates the likelihood that groundwater accessed by domestic wells may contain constituents above regulatory levels. (SWRCB)
- **RC2j Surrounding Irrigated Agriculture** identifies the presence of irrigated agriculture in the surrounding basin. (DWR)

[23] Small Water Systems and Rural Communities Drought and Water Shortage Contingency Planning and Risk Assessment - Part 2: Appendix 1 – Drought and Water Shortage Risk Scoring. Retrieved from: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Water-Use-And-Efficiency/Urban-Water-Use-Efficiency/CDAG/Part-2-Appendix-1-Scoring-Method-Final.pdf

Component 3 – Physical Vulnerability

- **RC3a Well Depth Flag** flags "relatively shallow" well depth if any portion of the groundwater units that intersect with the block group. (OSWCR-DWR)

- **RC3b Well Depth Proportion** identifies where max depth of domestic wells is 10% or more shallow than the max depth of public wells. (OSWCR-DWR)

Component 4 – Social Vulnerability

RC4 is a composite index of demographic indicators shown in Figure 2-2 taken from American Community Survey 2012-2016 and 2010 US Census.

Component 5 – Water Shortage Record

RC5a Reported Household Outages on Domestic Well indicates the presence of one or more households that have reported a domestic well outage in the block group. (DWR)

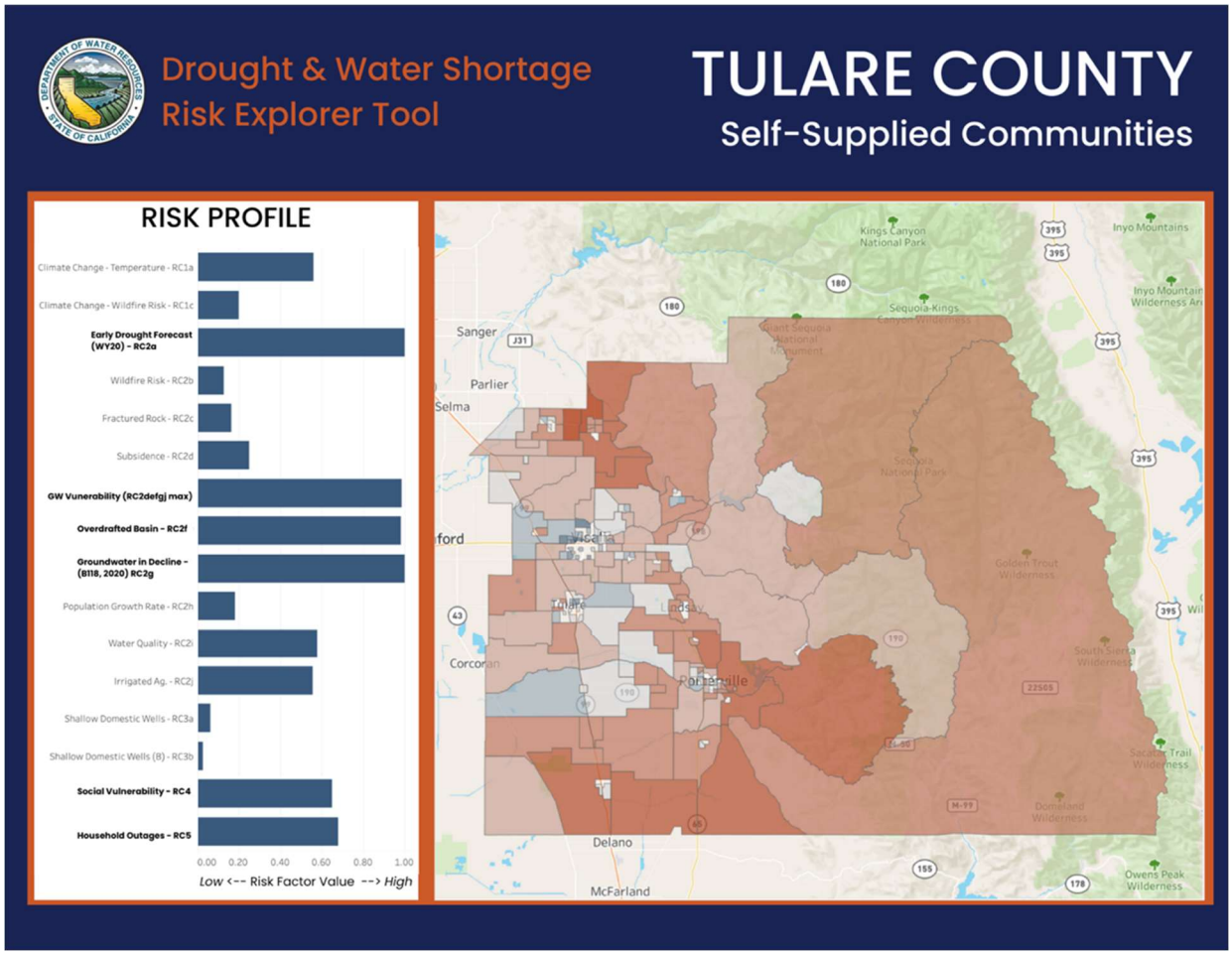
RC5b Reported Household Outages on Private Well shows the proportion of households with reported outages in the block group using a 0-1 scalar metric. (DWR)

Some risk components have less implication than others in Tulare County; for instance, RC1c-Saline Intrusion Risk is not applicable because the County is located more than 70 miles inland and hydraulically disconnected from the ocean. Some risk components are more applicable in parts of the County than in others due to geographical differences in the County from east to west. The eastern census block groups have higher risk associated with RC2c-Fractured Rock Area, as they are located in the foothills and mountainous areas outside of the alluvial groundwater basin. Higher elevations of those communities would be less impacted by surrounding irrigated agriculture (RC2j) and subsidence (RC2d) than lower elevation communities in the county.

2.2.2 County-Wide Risk

According to the Risk Explorer Tool (Figure 2-3), areas of high drought risk are spread throughout the County, affecting both foothill and Valley floor communities. The risk profile for the County on the whole is concentrated most highly in groundwater vulnerability indicators (RC2) based on historic and current overdraft and groundwater levels that are in decline. These indicators are concentrated in the western part of the County in the alluvial aquifers where groundwater monitoring is prevalent. Like much of the state, the County's risk is amplified by drought, and an early drought forecast for the water year (RC2a). Both recent and current drought cycles are contributing factors to overall risk for all water supply in the County. In mountain and foothill areas of the County, the Risk Explorer Tool indicates domestic wells may be at elevated risk due to their location in fractured rock areas, because fractured rock tends to contain less reliable groundwater than the alluvial aquifers of the Valley floor. Social vulnerability also contributes to the County's high risk score. Reported household outages are a key indicator to watch, as wells reported dry in the past are at risk of going dry in the future, particularly with the presence of other associated risk conditions, such as projected temperature increases due to climate change (RC1).

Figure 2-3: County Wide Risk Assessment



Users are able to access the Risk Explorer Tool to examine individual Census Block Groups within the County and view the component scores and associated risk indicators for specific blocks. The block group view also gives a quick look at the percentage of households that are reliant on domestic wells, and therefore where County response and outreach efforts might be concentrated.

2.2.3 Limitations of Analysis

The Risk Explorer Tool is useful in determining overall drought risk trends and vulnerabilities across broad block-level areas. However, its effectiveness for providing risk evaluation at the household-level and incorporating specificity into its overall risk evaluation is limited. While the RC indicator model and methodology are comprehensive and the result of a large, coordinated effort of experts and a diverse group of stakeholders, there is inherent variability within the units of analysis. The Risk Explorer Tool is unable to comprehensively communicate risk through an aggregated score based on census block groups.

The variability between household wells within the same block group is hard to quantify. Water quality is specific to individual well locations, underlying geology, and proximity to potential contaminants and presence of salinity. For instance, a single property with multiple wells can have different water quality from well to well along with different productivity and risk. Importantly, household and private well data is only as accurate as the reporting and record keeping. Some households and communities may be averse to reporting the presence of a well or outages for a variety of reasons, including lack of trust in government institutions, language barriers, or simply being unaware of reporting tools or requirements.

Another key risk indicator not considered by the Drought Explorer Tool is Technical, Managerial, and Financial (TMF) capacity. TMF capacity refers to a water system's long-term administrative sustainability and its ability to maintain compliance with all applicable drinking water laws and regulations. TMF is a critical factor when considering the reliability of a water system. Small water systems may lack the TMF capacity to adequately promote water reliability and provide clean and safe drinking water to its customers. When a system has strong technical and managerial capabilities, the system can obtain adequate and reliable drinking water, maintain infrastructure for treatment and storage, and employ knowledgeable operators. Having a strong financial capability will result in stronger technical and managerial systems. The ability to pay the costs related to maintenance and operations creates creditworthiness and effective future planning.

Examining the individual risk components from the Risk Explorer Tool, putting them into context using County-specific knowledge, and engaging additional resources will complement the Risk Explorer Tool's data sets. It will further maximize the effectiveness of the County's drought planning and response. *Section 4* expands on these ideas through the proposed Action Plan.

2.3 California's Groundwater Live: Well Infrastructure Information

DWR's GWLive[24] is another online resource that provides a suite of dashboards to assess the state's latest groundwater information on groundwater conditions, groundwater levels, well infrastructure, and land subsidence. The Well Infrastructure section of GWLive[25] includes dashboards to help identify the location of individual domestic wells, their susceptibility to going dry, and a record of well characteristics and reliability.

GWLive uses Geographic Information Systems (GIS) "story maps" for spatial analysis of California groundwater resources, based on data from Well Completion Reports (WCRs) to DWR's Online System of Well Completion Reports (OSWCR). These maps are valuable for determining well location, depth, age, and other defining characteristics, as well as assessing susceptibility and patterns of outages. GWLive can help the County evaluate future risk for Self-supplied communities with greater spatial detail than the Drought Risk Explorer Tool described in *Section 2.2*. The

[24] https://sgma.water.ca.gov/CalGWLive/
[25] https://sgma.water.ca.gov/CalGWLive/#wells

following sections (*2.3.1 - 2.3.3*) present information available through three GWLive dashboards[26] used for preparation of this Drought Plan: Domestic Wells, Reported Dry Wells, and Dry Domestic Well Susceptibility within Groundwater Basins.

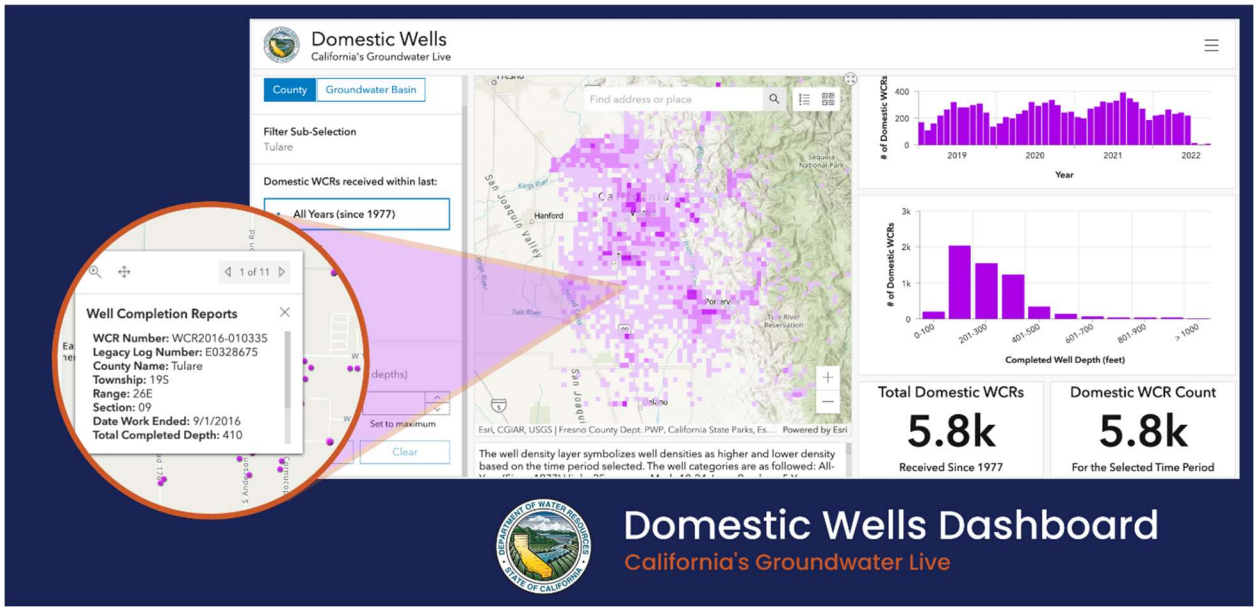
2.3.1 Domestic Wells Dashboard

The Domestic Wells Dashboard in GWLive pulls information from the state's Well Completion Reports, which have been required for every person who "digs, bores, or drills a water well" since January 1997 pursuant to California Water Code § 13751. Key pieces of information include total depth of the well, and depth of water in the well. The location of domestic wells, along with the details filed in the OSWCR, is useful to understand well densities in the County and what communities rely on domestic and private wells.

When zoomed out, the dashboard presents a map of well density that indicates the number of wells on file with the OSWCR to give a macro understanding of where domestic well are concentrated. These densities are categorized into "high", "medium", or "low" on the map according to the timeframe selected. The map allows zooming to view approximate locations of individual wells which can be clicked to display the OSWCR data for that individual well. Filters for number of well WCRs received by OSWCR in the past year, and all time, give the user an understanding of well drilling activity which could indicate new water needs or desire for improved groundwater access. Well depth filters are also available to display location and density of wells by depth. This allows for quick analysis of which individual wells may be at risk due to groundwater conditions in certain locations. Figure 2-4 shows the Domestic Wells Dashboard display with the well density layer indicating concentration of all wells that have been reported within the County since 1977.

[26] All GWLive Well Infrastructure Dashboards can be accessed at: https://storymaps.arcgis.com/stories/f2b252d15a0d4e49887ba94ac17cc4bb

Figure 2-4: Domestic Wells Dashboard



2.3.2 Reported Dry Wells Dashboard

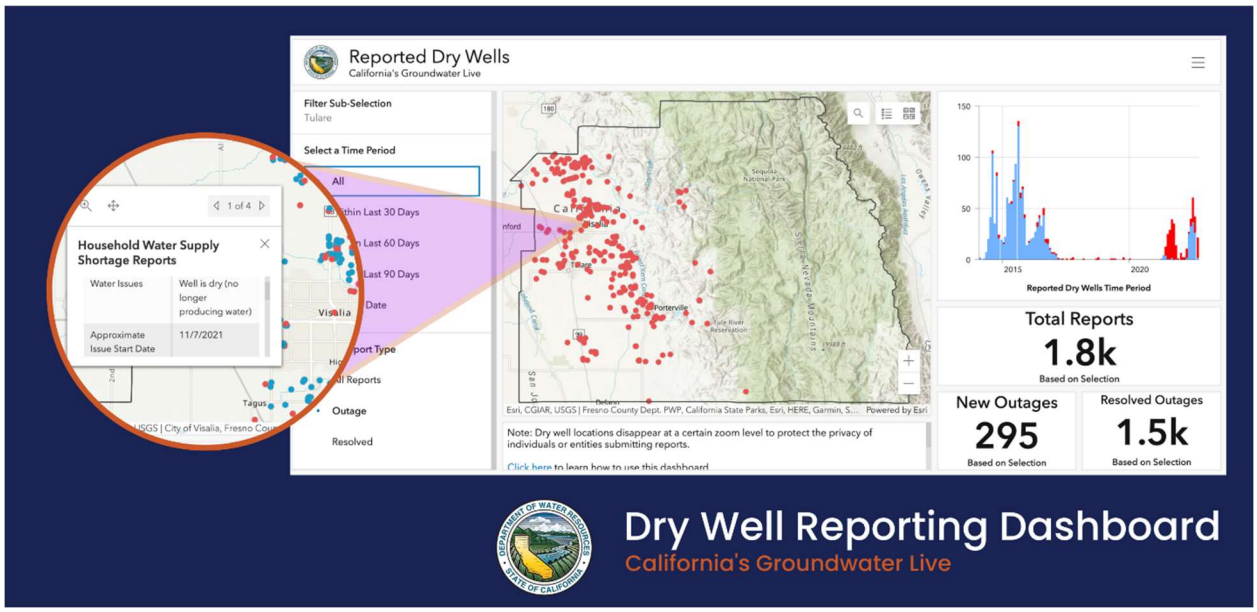
The GWLive Reported Dry Wells Dashboard[27] is intended to inform state, county and local agencies of drought impacts on household water supplies. If households are experiencing issues with well production, they should be encouraged to complete the Dry Well Report Form.[28] Data collected includes contact information of the household reporting the issue, water shortage issue and location, and well log data. This data is displayed in a map with specific location of reported outages. Filters allow users to select a time period within the last year or see all dry well reports from 2014 to present. The Report Type filter shows either reported outages, resolved outages, or both as plots on the map. Clicking on the individual report on the map shows the individual well detail of the reported issue, including the basin and subbasin name. Resolved Outage reports indicate a well with a reported outage in the past was updated during the report time period selected is producing water again.

Using the Reported Dry Wells Dashboard to identify geographic and basin-specific trends can help assess risk for nearby wells, especially when combined with data regarding well depth and reported depth of water in the well. Users can also access the Dry Well Report Form through the Dashboard, which in turn directs homeowners to resources such as links to contact the County's Office of Emergency Services, well contractors, and County well permit application links in case of a need to

[27] Accessed at: https://dwr.maps.arcgis.com/apps/dashboards/bd00ee8c357c449ca4ac5714bb95a81c
[28] Available at: https://mydrywell.water.ca.gov/report/

refurbish or drill a new well. In Tulare County, SHE offers assistance completing the Dry Well Report Form. The Reported Dry Wells Dashboard is shown in Figure 2-5.

Figure 2-5: Reported Dry Wells Dashboard



2.3.3 Dry Domestic Well Susceptibility within Groundwater Basins Dashboard

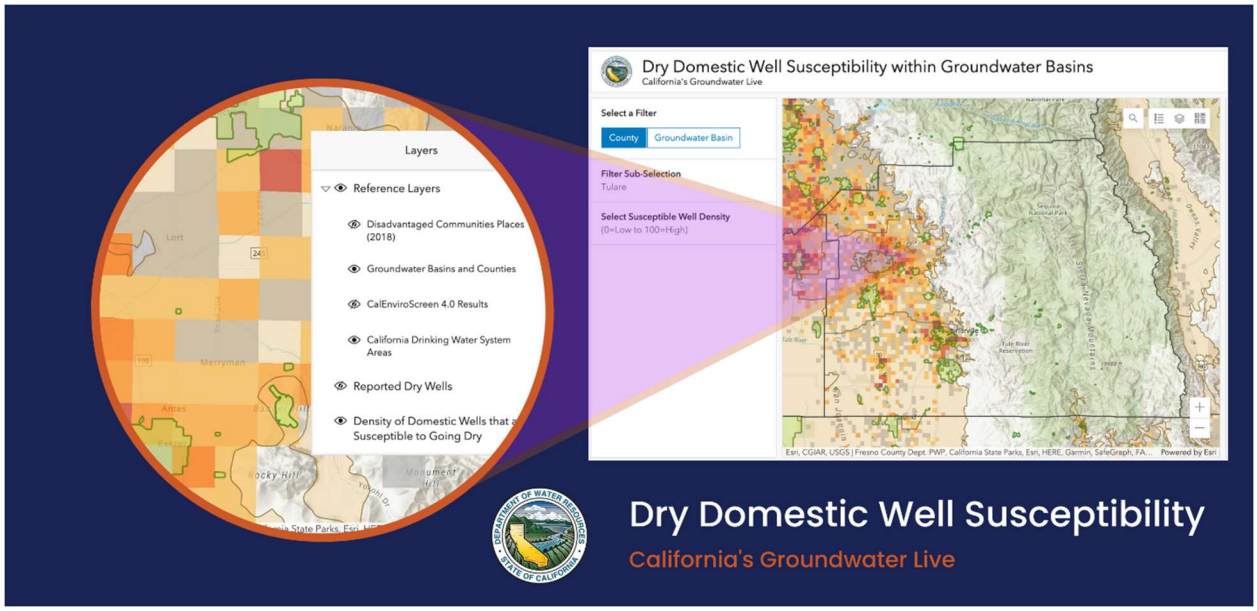
The Dry Domestic Well Susceptibility within Groundwater Basins Dashboard[29] identifies areas within groundwater basins that may be prone to groundwater shortages and domestic wells going dry. The map displays susceptibility per square mile based on analysis combining the latest information on domestic well locations, depths, and local groundwater level conditions. The dashboard identifies the density of "susceptible" domestic wells per square mile based on a combination of domestic well locations and depths, recent groundwater level measurements, and modeled future depth to water. If the modeled future depth to water falls below the dry well depth of a domestic well, the well is labelled susceptible. The map allows users to filter the map display by county and groundwater subbasin, with risk presented as a color-coded grid (with redder colors indicating higher risk). The interactive map also includes optional reference layers showing contributing risk factors for susceptibility such as: Disadvantaged Communities, CalEnviroScreen 4.0 Results, and California Drinking Water System areas.

Risk assessment for the County can be best visualized by using the grid overlay. Each grid square is one square mile with colors representing density of wells susceptible to going dry; gray squares represent areas with wells not susceptible, tan squares show a low density of susceptible wells, and purple represents a high density of susceptible wells. This grid view can help the County anticipate where wells may go dry based on the historical conditions and applicable risk indicators. These

[29] Accessed at: https://dwr.maps.arcgis.com/apps/dashboards/f876cfa53ce3466c8b3778e7f4adb50e

density views can help inform the County's decisions and action plans for drought preparedness and response. The tool is intended to be used for informational forecasting to help prepare for well outages. Figure 2-6 shows the Tulare County view, with the California Drinking Water System Areas layer (green outlines) enabled. Much of the County is outside of these drinking water system areas; and it is appropriate to draw attention to these self-supplied zones with high susceptibility that are without the resources of a centralized drinking water system.

Figure 2-6: Dry Domestic Well Susceptibility within Groundwater Basins Dashboard



Dry well susceptibility in areas outside of the SGMA and CASGEM monitoring networks are not shown in the dashboard because groundwater elevation monitoring is limited to the alluvial basins on the valley floor. Due to this, users will notice the eastern part of the County does not have the grid overlay.

The County can also encourage self-supplied communities to use this tool to evaluate their own susceptibility, and to keep their dry well reporting submissions current, which will allow greater accuracy in the Dry Well Susceptibility tool.

2.4 Safe and Affordable Funding for Equity and Resilience (SAFER) Tool

The SWRCB has implemented the SAFER program which provides a set of dashboards, funding sources, and regulatory authorities designed to assist Californians who currently lack safe and

affordable drinking water as quickly as possible.[30] This is done through the identification of public water systems and domestic and private wells that are considered "at-risk" of failing. Therefore, the SWRCB can proactively target these areas through technical and financial assistance.[31]

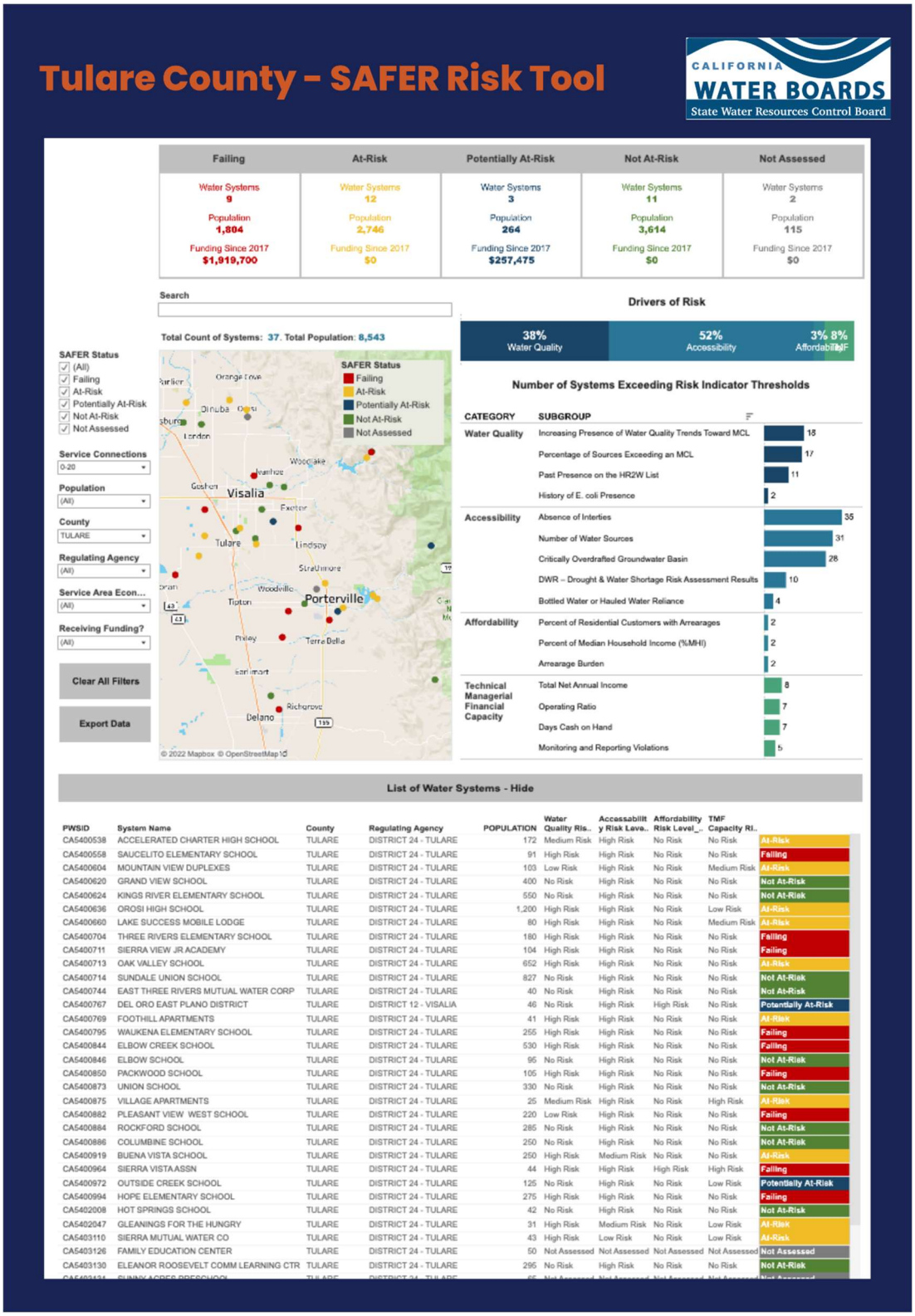
In accordance with federal regulations, water systems are required to sample water sources to determine compliance with drinking water standards. According to the SAFER mapping tool, the Failing systems are identified based on Monitoring and Reporting Violations, Primary Maximum Contaminant Level (MCL) Violations, Secondary MCL Violations, Treatment Technique Violations, or E. coli Violations. When a water system fails to conduct regular monitoring, fails to address MCL violations, or does not follow the required treatment techniques to reduce risk from contaminants, the system is considered failing.

The water systems on the SAFER[32] Map are organized by different risk categories including Failing, At-Risk, Potentially At-Risk, Not At- Risk, and Not Assessed. For state small water systems, the risk status is based on aquifer risk reflecting the drinking water quality. Furthermore, the database search can be filtered by number of service connections and population within a county or city. The map display is useful to visually see the identified service connections with the current SAFER status.

Using the SWRCB online database tools will be helpful in determining individual facilities and communities that are at-risk and failing. Based on the SAFER mapping tool results, Figure 2-7 below shows the list of water systems identified as small (0-20 service connections) with the associated risk status. There are roughly 8,500 residents that rely upon a small water system for their potable water supply in the County.[33] Out of the small water systems identified, 9 systems are considered failing, and 12 systems are at-risk. Recognizing what the weaknesses are in a specific water system can help create clarity for future action. Every failing system identified within the County resulted from a Primary MCL Violation (or a health-related effect), specifically due to Nitrates or 1,2,3-Trichloropropane (TCP). While the water quality challenges documented by the SAFER tool are not necessarily caused by drought, water systems that are currently struggling with water quality may be at heightened risk of water shortage during droughts, when alternative water supplies are least available. The SAFER tool therefore provides additional useful context when evaluating drought risk in the County.

[30] State Water Resources Control Board. (2022). *About the SAFER Program*. SAFER Drinking Water. https://www.waterboards.ca.gov/safer/background.html
[31] Association of California Water Agencies. (n.d.). SAFER Webinar: Identifying "At-Risk" Public Water Systems and Wells. https://www.acwa.com/events/safer-webinar-identifying-at-risk-public-water-systems-and-wells/
[32] Accessed at: https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/2022.html
[33] State Water Resources Control Board. (2022). SAFER Status Tool. https://www.waterboards.ca.gov/drinking_water/certlic/drinkingwater/2022.html

Figure 2-7: SAFER Status of Small Water Systems in Tulare County



2.5 COMMUNITY KNOWLEDGE & STAKEHOLDER INPUT

During the Monday, October 3, 2022 meeting of the Tulare County Drought Task Force, stakeholders in the County were given the opportunity to comment on a draft of *Section 2* of this Drought Plan. As part of that review, the following input was gathered.

Multiple stakeholder comments centered on the different challenges facing Valley floor and foothill communities. In the foothills, a lack of broadband access and less reliable electricity service due to Public Safety Power Shutoffs (PSPS) may prevent constituents from accessing internet resources, including information on how to report dry wells. Foothill communities also face groundwater quality issues, some of which originate from naturally occurring contaminants such as arsenic and uranium found in fractured rock aquifers. Many Foothill communities are located far from population centers and access to services. In contrast, Stakeholders noted that many of the Valley Floor communities face risks associated with long-term groundwater declines that are not simply caused by a single dry year.

Throughout the County, the age and maintenance status of domestic wells was identified as a major factor causing well outages. Well service and maintenance, well installation date, well density were all identified as potential indicators of vulnerability.

There was general agreement among Stakeholders present at the meeting that non-government organizations (NGOs) and community organizations such as SHE are key to effective Drought Response Actions. Many County residents (both homeowners and renters) may not know what services are available to assist them in a water supply crisis and may face language or other barriers when seeking assistance. NGOs such as SHE can submit dry well reports on behalf of residents who lack broadband services and can offer services in both English and Spanish. The County may use NGOs to maximize the effectiveness of its outreach and help community members learn more about benefits and services offered. For these reasons, partnerships with trusted community organizations are even more important.

Risk Summary and Conclusions

The analysis presented in *Section 2* indicates Tulare County faces a variety of risks related to drought and water shortage. The Drought Risk Explorer Tool highlights multiple intersecting risk factors facing communities, including long term groundwater declines, climate change, and social vulnerability. In the foothill region, reliance on domestic wells drilled into fractured rock is a key factor contributing to high drought risk.

DWR's GWLive Dashboards provide additional detail on drought risks to domestic wells in the County. There is a high degree of domestic well reliance, including some wells that are relatively old or shallow. The County has experienced increases in the number of domestic well outages during recent droughts, with those outages often concentrated in specific communities. Many of these same communities may be highly susceptible to future domestic well outages, because well depths are relatively shallow compared to underlying groundwater levels.

The SAFER Tool focuses on water quality challenges that are not directly related to drought risk, but the water systems that are currently struggling with water quality may be at heightened risk of water shortage during droughts, when alternative water supplies are least available.

The Drought Risk Explorer Tool, California GWLive datasets, SAFER Tool, and stakeholder feedback indicate the County has a complex combination of drought risks, and the severity of these risks manifests differently in the Valley floor and foothill regions of the County. Climate change will continue to present new challenges to drought response. A coordinated effort is paramount to address these vulnerabilities and risk factors for all communities, as detailed in the Shortage Response Actions presented in *Section 4*.

3 Small System Consolidation Opportunities

Senate Bill 552 requires the County to consider Water System Consolidation,[34] which is the joining of two or more water systems in a manner to improve the reliable supply or quality of drinking water for at least one of the systems. Typically, consolidation involves a smaller water system being absorbed into a larger system or extending drinking water infrastructure or the extension of water services to households on domestic wells and communities that are not connected to publicly regulated systems.[35]

In 2015, the California State Legislature passed Senate Bill 88 which authorized the SWRCB to facilitate the consolidation of severely underperforming water systems.[36] For water systems that the SWRCB has not designated as severely underperforming, consolidation remains voluntary. The County does not have the authority or desire to compel mandatory consolidation but may support voluntary consolidation where appropriate.

Consolidation can offer many benefits in improved system resiliency and customer affordability, but the process to achieve successful consolidation is complex. A key challenge for small water systems is high costs of providing water; a larger water system can achieve lower costs for drinking water per individual by spreading capital, maintenance, and operational costs across a larger pool of ratepayers.[37] Service rates can be significantly higher for small systems due to outdated infrastructure and deferred maintenance. Furthermore, consolidation can promote responsible economic growth within communities and reduce the risk of adverse health impacts on customers.[38]

This section of the Drought Plan provides an overview of consolidation types, implementation approaches, and a discussion of the communities within the County that have already pursued consolidation. This section concludes with recommendations and next steps to guide the County's implementation of consolidation support.

3.1 Types of System Consolidations

Consolidation can involve a spectrum of collaborative efforts that merge aspects of two or more water systems. Consolidation can occur at a managerial level, such as merging and sharing of operations like administration and billing. Consolidation can also be considered at the physical level,

[34] 10609.70 of the California Water Code

[35] Lai, L., (2017). *Adopting County Policies Which Limit Public Water System Sprawl and Promote Small System Consolidation*. University of California, Los Angeles, Luskin School of Public Affairs. https://innovation.luskin.ucla.edu/wp-content/uploads/2019/03/Adopting_County_Policies_which_Limit_Public_Water_System_Sprawl_and_Promote_Small_System_Consolidation.pdf

[36] Lai, L., (2017).

[37] Nylen, N.G., Pannu, C., & Kiparsky, M., (2018). *Learning from California's Experience with Small Water System Consolidations*. Wheeler Water Institute Center for Law, Energy & the Environment University of California, Berkeley, School of Law. https://www.law.berkeley.edu/wp-content/uploads/2018/05/SmallWaterSystemConsolidation_2018-05-02.pdf

[38] Lai, L., (2017).

which involves the merging of the physical water system infrastructure, including distribution pipelines and water treatment facilities.

3.1.1 Managerial Consolidations

Managerial Consolidation involves the technical, managerial, and financial (TMF) components where systems combine billing, equipment sharing, and merging staff or consultants into one system.[39] A managerial consolidation can be better suited for two or more systems within 30 miles or less of each other. Because managerial consolidations require the merging of staff and human resources into one system, a consideration of commute time is important. It is suggested that a commute greater than one-hour results in reduced productivity and efficiency.[40]

Smaller systems are less likely to have the TMF necessary to ensure a drinking water system is compliant with state and federal requirements. Rural systems servicing disadvantaged communities, especially when they are largely or entirely reliant on groundwater, may struggle to provide and maintain clean and reliable drinking water. Furthermore, prolonged insufficient TMF can result in a cycle of instability for the system. Hiring experienced staff and conducting rate studies are critical in determining the real costs of providing water and managing long term system assets. A small system may not fully know the condition of their assets and may run the risk of system failure because they are unable to maintain or replace them.[41] Small water systems facing TMF challenges may be good candidates for managerial consolidations, which can allow the consolidated system to achieve economies of scale in its staff and equipment without the cost of constructing new physical infrastructure.

3.1.2 Physical Consolidations

Physical consolidation involves the merging, sharing, or expansion of the physical water system infrastructure, including distribution pipelines and water treatment facilities. The best candidates for physical consolidation are systems or private well communities that are within three miles or less due to potentially high development costs to connect pipelines and other infrastructure needs.[42]

3.1.3 Regionalization

Regionalization is consolidation on a larger scale, when two or more water systems or private well communities form into a single system. It can be used when a large geographic area, such as a watershed, an entire county, or several local water systems or communities form into a combined system. This route is considerably more legally complex, but the overall goals and outcomes are functionally similar. The process of regionalization could result in water partnerships such as formal

[39] Nylen, N.G., Pannu, C., & Kiparsky, M., (2018).
[40] Nylen, N.G., Pannu, C., & Kiparsky, M., (2018).
[41] Nylen, N.G., Pannu, C., & Kiparsky, M., (2018).
[42] Porter, K., Bostic, D., & Shimabuku, M., (2020). *Building Resilience and Addressing Inequities in Small, Underperforming Drinking Water Systems*. Pacific Institute. https://pacinst.org/building-resilience-addressing-inequities-in-small-underperforming-drinking-water-systems/

agreements and joint ventures that may not require the degree of infrastructure integration associated with physical consolidation.[43]

3.2 Accomplishing Consolidations

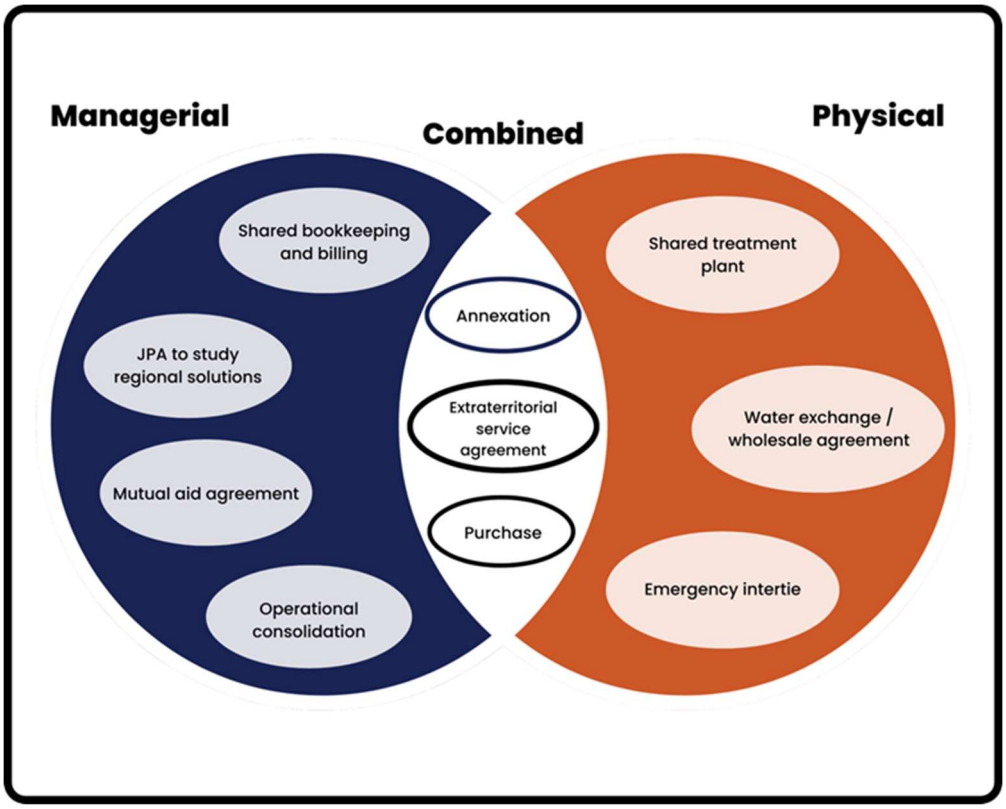
There is an array of institutional arrangements and structures to implement consolidation. It should be emphasized that consolidation possibilities can be a continuous process that does not need to be over-categorized.[44] Remaining open to potential possibilities of combinations and options for participation is important when seeking a solution.

3.2.1 Institutional Arrangements and Structures to Implement Consolidation

Figure 3-1 below illustrates the combined relationship options between physical and managerial consolidation, such as annexation of unincorporated areas into cities, extraterritorial service agreements, and purchases. There has also been success from the managerial consolidation structures through Joint Powers Agreements (JPAs) and mutual aid agreements; as well as shared bookkeeping and billing or shared operations staff. Furthermore, physical options of water exchanges or wholesale agreements, emergency interties (or interconnection), and shared treatment plants create solutions for at risk communities without access to water.[45]

[43] Nylen, N.G., Pannu, C., & Kiparsky, M., (2018).
[44] Nylen, N.G., Pannu, C., & Kiparsky, M., (2018).
[45] Nylen, N.G., Pannu, C., & Kiparsky, M., (2018).

Figure 3-1: Merging Aspects of Two or More Water Systems[46]



3.2.2 Funding Sources

Financial incentives and additional support for small systems can reduce inequities and challenges when considering consolidation opportunities. Because consolidation can result in short-term rate shock and long-term rate increases, funding is crucial to achieve progress and successful consolidation efforts. Funding and grant opportunities may be available for consolidation purposes through the DWR and the SWRCB Drinking Water State Revolving Fund for financing consolidation projects. Also, the SWRCB opened a Regional Funding Solicitation[47] for eligible partner entities to receive funding for regional programs related to drought or contamination issues with small water systems. The eligible project types to receive funding include assessments such as community outreach or domestic well testing as well as interim solutions to deliver bottled and hauled water, provide tanks, and POU/POE systems. Long-term programs such as well repairs or replacements, and limited scale consolidations are eligible. Applications are submitted using the SWRCB's Financial Assistance Application Submittal Tool (FAAST). Additional funding may be also available through the Integrated Regional Water Management (IRWM) grant program, but the future of the IRWM

[46] Nylen, N.G., Pannu, C., & Kiparsky, M., (2018).
[47] Accessed at: https://www.waterboards.ca.gov/safer/funding_solicitation.html

program is uncertain at this time. Ultimately, the availability of outside funding support will affect the feasibility of most small water system consolidations.

3.2.3 Outreach Strategies and Accessible Information

Providing accessible information is one strategy for implementing consolidation promotion, by offering learning opportunities that are tailored to small water systems. The information presented can include a variety of water system topics, such as the financial and health benefits from consolidation and the threats small systems face. The information would promote the overall goals of small water system consolidation with curricula and materials that are accessible to participants from various County communities. The County may continue to inform residents of the drought resources available[48] and provide information on nonprofits like SHE for water storage tank deliveries, bottled water programs, water quality testing, and well assessments.

3.2.4 Direct Support

Tulare County continues to directly support the communities impacted by drought with solutions such as interim water hauling and bottled water services. NGOs such as SHE have provided technical assistance and emergency solutions throughout Tulare County. All of these services are subject to funding and availability.

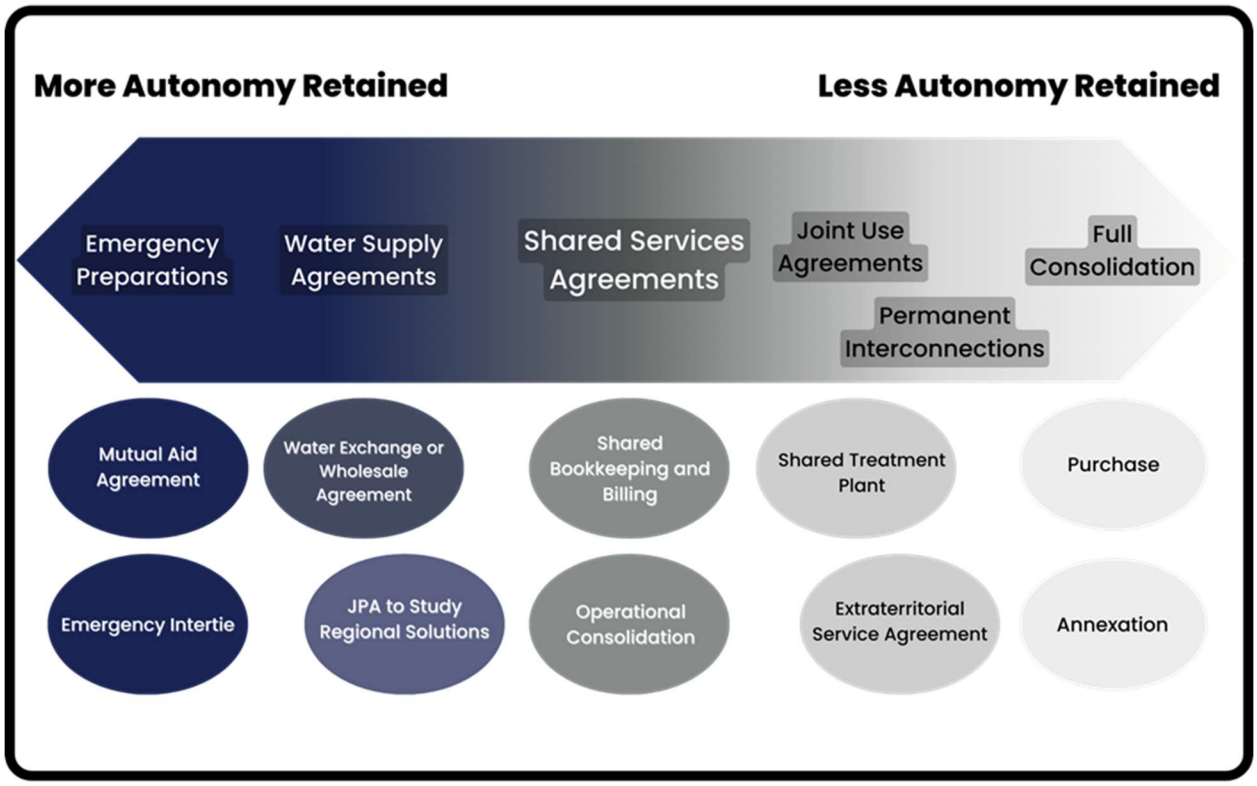
3.2.5 Limitations and Challenges to Consolidation

Consolidation can be challenging when the customers of the subsumed system are reluctant to give up the independent autonomy of their system. There is an array of retained autonomy that comes from the spectrum of institutional arrangements, identified in Figure 3-2 below, when considering consolidation. Depending on the arrangement, local control can differ. A realistic approach could start with a managerial option which can provide savings, the opportunity to build partnerships, and further develop relationships before fully moving towards a physical consolidation or regionalization approach. However, funding mechanisms may be contingent upon the levels of consolidation. It is important to understand these tradeoffs when communities consider consolidation of their water system.

Consequently, a receiving system and its residents may resist consolidation efforts due to a reluctance to take on the debt, tax liability, or non-compliance penalties accrued by the small water system. These concerns highlight the necessity of accurate information on costs and benefits, local water security, and improved economies of scale for all systems involved in the consolidation.

[48] Information for Tulare County available at: https://tularecounty.ca.gov/_api/render/file/?fileID=98AFB6E9-5056-BBFD-607F2905089975E6

Figure 3-2: Variation in Retained Autonomy of Small Water System Users for Institutional Arrangements[49]



3.3 Examples of Consolidation in Tulare County

A number of successful consolidation projects have recently been completed or are ongoing in Tulare County. This section provides examples of recent consolidation projects.

The community of Seville is served by a community water system that has historically faced serious leaks and water quality concerns. Since 2009, Seville's water system was under the receivership of Tulare County. In its role as receiver of the water system, the County successfully applied for Proposition 1 bond funding to complete a consolidation of Seville's water system with the neighboring water system in Yettem. The consolidation is being implemented in two phases: first, Seville's water distribution system and storage infrastructure was replaced, with construction concluding in 2019. The second phase of consolidation is ongoing and will provide water supply improvements through the construction of a two-mile transmission main from Seville's new storage tank to a new well in Yettem. The completion of a voluntary physical consolidation of the Yettem

[49] Nylen, N.G., Pannu, C., & Kiparsky, M., (2018).

and Seville Water System Improvement Project is expected by 2025.[50] Until consolidation is complete, residents of Seville continue to face the risk of water shortages due to drought.

East Orosi is another community served by a water system with long-standing water quality concerns located less than one mile from a neighboring water system (the community of Orosi) which has safe drinking water. In 2018, the SWRCB initiated the process of voluntary consolidation between East Orosi and Orosi. Due to lack of progress towards voluntary consolidation, in 2020 the SWRCB issued a mandatory consolidation order. This process has lasted several years with resistance from the receiving water system of Orosi. Therefore, Tulare County was appointed Administrator for the East Orosi Community Services District public water system in 2021. At this time, the consolidation project is still ongoing, and residents of East Orosi still face water shortage risk until the consolidation is complete.

It is important for the County to promote examples of successful voluntary consolidations as well as consider future evaluations to monitor the benefits of these projects which may result in fewer mandatory consolidation actions. For example, on September 13, 2022, a resolution was adopted by the Exeter City Council for an application submission to DWR for the potential Exeter-Tooleville Emergency Intertie and Water System Improvement Project consolidation. DWR, through the Small Community Relief Program, approved funding of $7.2 million. The funding process requires the approval of the City Council. Due to the extensive infrastructure improvements needed, the estimated time frame to complete the consolidation is approximately eight years.

The Tooleville Mutual Non-Profit Water Association's (TMNPWA) water supply has continued to decline with only one water producing well and storage tank being used. Intermittent hauled water deliveries to storage tanks within the water system have provided necessary supplies. The proposed interim master meter solution of installing a new well and connection lines between Exeter and Tooleville to master meter water to the TMNPWA storage tanks will provide a reliable water supply within two years of project implementation.[51] Again, it is important to remain open to the spectrum of consolidation when dealing with emergency situations and communities out of water. Ideally, parties will act quickly and provide resources while simultaneously implementing long-term infrastructure solutions.

3.4 Opportunities for Consolidation

Currently, Tulare County has facilitated several successful consolidation efforts and additional consolidations are ongoing. The County will focus its efforts on further identifying the communities susceptible to dry wells to promote and facilitate the managerial and/or physical consolidation processes. The most promising candidates for physical consolidations will likely be water systems

[50] California Natural Resources Agency. (2015). Project: County of Tulare - Yettem and Seville Water System Improvement Projects - Phase 2. http://bondaccountability.resources.ca.gov/Project.aspx?ProjectPK=48361&PropositionPK=48

[51] City of Exeter Agenda Item Transmittal. Agenda Item No. I5. (2022). https://cityofexeter.com/wp-content/uploads/2022/09/CC-Staff-Reports-September-13-2022.pdf

located less than three miles from a neighboring system. The Drinking Water System Outreach Tool[52] is an additional database which records completed consolidation projects. This database may be helpful in determining future consolidation possibilities.

3.5 Conclusions and Next Steps

To support and navigate the coming challenges that drought will create for small water systems, the County will continue to encourage water systems to take proactive steps to ensure resiliency, prepare for emergency situations, and respond to consolidation efforts. The County may assist with planning outreach and educational opportunities, and implement support strategies to provide interim and permanent solutions to ensure water availability for communities. The County will continue to conduct outreach and investigate opportunities for voluntary consolidations.

[52] Accessed at: https://gispublic.waterboards.ca.gov/portal/apps/webappviewer/index.html?id=70d27423735e45d6b037b7fbaea9a6a6

4 Shortage Response Actions (Action Plan)

The County is not a large water purveyor directly responsible for managing water supplies or planning to ensure water supply reliability. The County does own and operate two small community water systems. The County also has other legal and fiduciary responsibilities to assist with the general wellbeing of its residents – including the availability and reliability of water for human use and consumption. Before and during drought events, the County of Tulare can take actions that improve the County's preparedness for drought, reduce the risk of water shortages, and coordinate response actions to relieve drought impacts. SB 552 requires the County to provide emergency and interim drinking water solutions and consider domestic well drinking water mitigation programs. The focus of this Shortage Response Actions Plan (Action Plan) is on Self-supplied communities (also called "rural communities).

The Action Plan is intended to be "action ready" and can be used by County staff to coordinate before and during droughts. The Action Plan presented in *Section 4* is organized in stages of increasing severity within each response action.

4.1 Primary Risk Factors

As described in greater detail in *Section 2*, the County identified and assessed potential drought and water shortage risks. The following risk factors represent threats to the reliability of water supplies for Rural Communities.

Declining groundwater levels

Over recent decades, many groundwater subbasins within the County have experienced declining groundwater levels. Groundwater declines often accelerate during droughts and may not fully recover during normal or wet hydrologic periods. The GSPs for each of the subbasins underlying the County have identified actions that should correct these declines and return groundwater levels to sustainability.

History of Well Failure

According to GWLive, approximately 5,200 dry wells are reported in the County since 2014. Of these, approximately 1,500 dry wells are resolved. This is likely an undercount, with more wells going dry than are reported to the State. Historically, well failures occurred during the summer and fall months of severe drought periods such as 2012-2015 and 2021.

Dry Domestic Well Susceptibility

DWR's Domestic Well Susceptibility dashboard in the GWLive portal compares current groundwater level conditions to available information on domestic well locations and depths. According to this dashboard, the County contains many areas with a high dry domestic well susceptibility, including some areas above the 90th percentile of risk. Domestic wells that are relatively shallow compared to groundwater levels are at greater risk of going dry.

Domestic Wells in Fractured Rock Aquifers

The eastern portion of the County in the Sierra Nevada foothills, domestic wells rely on fractured-rock aquifers rather than alluvial groundwater basins. The geology of fractured-rock aquifers is typically not well understood, and the total volume of water held in storage is less than alluvial aquifers. This makes the reliability of domestic wells in these areas difficult to assess. In many cases, groundwater availability in fractured rock areas may be more immediately impacted by the current year's hydrology than in areas with larger, deeper alluvial basins. Poor water quality is also a risk in these areas.

Social Vulnerability

Communities and individuals vary not only in their exposure to drought risks, but also in their ability to cope with impacts when water shortages occur. In particular, factors such as income, English fluency, age, education, and tenants versus owner-occupied can all affect an individual's ability to access support and resources during water shortages. Based on DWR's risk tools, the County has many areas which measure highly on one or more of these social vulnerability metrics. These overlap to a high degree with Dry Domestic Well Susceptibility. Furthermore, many areas also lack reliable broadband connectivity, especially in remote areas of the Sierra Nevada and Foothills, which adds challenges for the County to effectively and efficiently communicate risks and learn about outages.

4.2 Response Action Framework

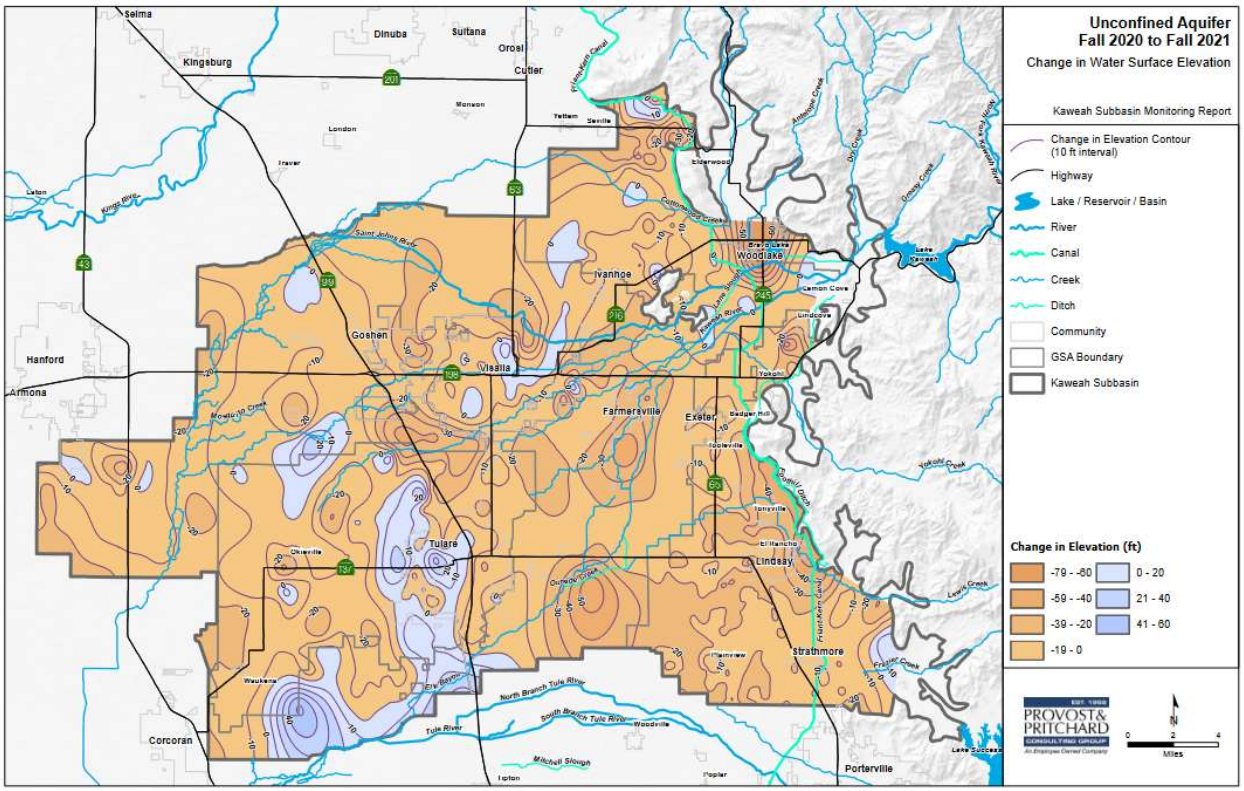
Through the risk assessment and stakeholder engagement process described in *Section 2* a number of key metrics were identified that can be used to measure drought and water shortage severity, and trigger the response actions identified below. All the tracking measures identified in this Drought Plan will be monitored on a regular, ongoing basis. Each tracking measure is organized into stages of severity, with each subsequent stage reflecting worsening drought conditions. *Sections 4.2.1 - 4.2.3* describe the County's tracking measures, and *Section 4.2.4* presents the County's plan to use the Response Action Framework to guide response actions.

4.2.1 Groundwater level change from previous year in alluvial groundwater basins

Assessing current groundwater levels relative to the previous year's conditions is of fundamental importance in predicting the risk of water shortage for Self-supplied communities. If groundwater levels drop below the elevation generally accessed by domestic wells, there is significant risk to those wells running dry. GSAs within the County are assumed to be the organizations with the most accurate and up-to-date information on groundwater levels within their respective basins and will be key partners in monitoring efforts. Each year by April 1, GSAs are required by SGMA to release their Annual Reports. In Tulare County, the vast majority of groundwater users in alluvial basins are within the areas covered by GSA Annual Reports covering the Tule, Kaweah, or Kings Subbasins. In

each GSA's Annual Report, change in groundwater storage is presented. An example of the Change in Groundwater Level Map is included as Figure 4-1, below.[53]

Figure 4-1: Example Groundwater Level Change Map



It is assumed that most domestic wells access groundwater in the Upper/ Unconfined or Undifferentiated Aquifer.[54] The map depicts change in Groundwater Levels in each Annual Report to assess where in the County groundwater levels have declined from the previous year. The following stages of severity are used to inform a tiered response action.

Stage 0 – Long Term Resiliency Actions

Groundwater levels in alluvial groundwater basins have increased, remained stable, or declined less than 15 feet since the previous year.

[53] This image appears as Appendix F in the Kaweah Subbasin April 2022 Annual Report. That report is available at: http://greaterkaweahgsa.org/wp-content/uploads/2022/08/502211_WY_2021.pdf

[54] The Upper/ Unconfined or Undifferentiated Aquifer lies above the Corcoran Clay layer, a horizontally continuous aquitard found in the western portion of the San Joaquin valley generally 200–800 feet beneath the surface. Where present, the Corcoran Clay separates the groundwater subbasins into distinct upper (unconfined) and confined (lower) aquifers.

Stage 1 – Moderate Drought

Groundwater levels in alluvial groundwater basins have declined 15 to 30 feet from the previous year.

Stage 2 – Severe Drought

Groundwater levels in alluvial groundwater basins have declined more than 30 feet from the previous year.

Potential Future Modifications and Consistency with Adopted GSPs

The thresholds presented above may be modified in future, at the County's discretion as appropriate. This Drought Plan will initially use 1-year changes in groundwater levels as a tracking measure, but multiyear changes in groundwater levels relative to a historic baseline may be considered in the future. Multiyear groundwater level change tracking measures would be selected for consistency with GSA monitoring of domestic wells. Not all have Subbasins in the County have currently established groundwater level thresholds for the protection of domestic wells, but once such thresholds are developed, the County may consider incorporating them into the tracking measures of this Drought Plan.

4.2.2 Dry Well Reports

Well age, lack of maintenance, and equipment failure can all cause wells to stop producing regardless of current drought conditions. In non-drought years, the County has historically experienced and will continue to experience a small number of Dry Well Reports each year. Dry Well Reports spike substantially during droughts, with serious water supply disruptions for the communities and residences that rely on domestic wells. The DWR maintains a dry well reporting system to gather information on well outages and connect individuals and communities with available aid and resources. The Reported Dry Well portal will help the County to trigger drought response actions if an uptick in the number of outages is detected. Effective communication on how to report well outages will be an important strategy to ensure that Dry Well Reports remain an accurate indicator of drought impacts. The following stages of severity are used to inform a tiered response action.

Stage 0 – Long Term Resiliency Actions

4 or fewer dry well reports are received in the County each month.

Stage 1 – Moderate Drought

5 – 10 dry well reports are received in the County each month.

Stage 2 – Severe Drought

11 or more dry well reports are received in the County each month.

4.2.3 Current Year Hydrology from Bulletin 120

The complex geology of fractured rock aquifers makes it impractical for the County to perform the regional-scale surveillance of groundwater conditions in the manner described above in *Section 4.2.1*. In addition, no other agencies, such as GSAs, exist in fractured rock areas that could share the burden of groundwater condition surveillance. It is assumed that fractured rock aquifers respond more readily to the current year's hydrology than alluvial aquifers. Bulletin 120 is prepared annually by DWR beginning in February each year and updated monthly through May. As the best readily available proxy depicting the risk of well failure in fractured rock aquifer areas, the County will monitor DWR's Bulletin 120 report each month. Specifically, runoff in the Kaweah, Kings, and Tule River watersheds are assumed to be good predictors of groundwater recharge (and thus well reliability for the upcoming year) in fractured-rock aquifer areas of Tulare County. Bulletin 120 is prepared annually starting in February each year and is updated monthly through May. The following stages of severity are used to inform a tiered response action.

Stage 0 – Long Term Resiliency Actions

Most recent Bulletin 120 Forecast of April through July Unimpaired Runoff in percent of historical average for both the Kaweah, Kings, and Tule River are 80 percent or greater.

Stage 1 – Moderate Drought

Most recent Bulletin 120 Forecast of April through July Unimpaired Runoff in percent of historical average for the Kaweah, Kings, and Tule River is 50 – 80 percent.

Stage 2 – Severe Drought

Most recent Bulletin 120 Forecast of April through July Unimpaired Runoff in percent of historical average for the Kaweah, Kings, and Tule River is less than 50 percent.

4.2.4 Using the Response Action Framework

The tracking measures described above will allow the County to evaluate the severity of drought conditions using a tiered approach. Using this Drought Plan's Response Action Framework, the County can then trigger appropriate response actions. Figure 4-2 illustrates the relationship between the County's framework of tracking protocols and response strategies presented in *Section 4.3*.

Figure 4-2: Response Actions Framework

Drought Stage	TRACKING MEASURE			Response Actions
	Groundwater Decline	Dry Wells Reports	Current Year Hydrology	
0	Less than 15 feet	Less than 4 reports	More than 80% of average Tule, Kaweah, and Kings Rivers runoff	Baseline Actions
1	15 - 30 feet	5 - 10 reports	50 - 80% of average Tule, Kaweah, and Kings Rivers runoff	Moderate Actions
2	More than 30 feet	More than 11 reports	Less than 50% of average Tule, Kaweah, and Kings Rivers runoff	Severe Actions

If a particular risk metric is found to be above a staged threshold, the County will activate the corresponding response action. The County will prioritize response based on greatest risk to the extent reasonable and feasible. More information on the geographic focus of tracking indicators and response actions is presented in *Section 4.2.5*.

4.2.5 Geographic Focus Options

Monitoring protocols and response actions will be most effective if they allow the County to focus attention and resources on the areas with the greatest immediate risk of water shortage. The Drought Plan can attempt to narrow the geographic scope of its response actions in various ways. To preserve the operational flexibility of the Drought Plan and allow for situational judgement in the future, no single method for geographic focus is prescribed. Potential options to help the County focus response actions are presented below, which may be refined or amended as the Drought Plan is implemented.

Option 1 – Census Block Groups

Census Block Groups (the geographical unit used by the United States Census Bureau, typically between 600 and 3,000 people) are a readily available geographic unit that can be used to focus

Drought Response Actions. Advantages of this approach include fairly high geographic specificity and ability to access the demographic data of each census block. Figure 2-3 in *Section 2* represents a snapshot of Census Block Groups in Tulare County.

Option 2 – Groundwater Subbasins and/or Groundwater Sustainability Agencies

Groundwater Subbasins are the geographic unit used to implement the SGMA through the various GSAs. GSAs are legally obligated under SGMA to avoid undesirable results of chronic lowering of groundwater levels, are required to monitor groundwater conditions in their jurisdictions, and provide domestic well mitigation programs. For all these reasons, the subbasins and GSAs may be appropriate geographic units to use when the County considers how to focus its response actions.

Option 3 – Set Radius Around Flagged Criteria Using GIS

Using GIS, it is simple to take a particular flagged risk criteria (such as the locations of dry wells, or areas with groundwater declines greater than a given threshold, as described in *Section 4.2*) and draw a radius around those areas. The resulting radius would then be used to help concentrate response actions in the high-risk area. The advantage of this approach is the high degree of geographic specificity, but disadvantages may include greater County resource demand.

Option 4 – Specific Community or Water System

Drought impacts may be highly localized, with a specific community or water system suffering the greatest impacts and requiring the greatest assistance. For example, the County may choose to focus response actions on a specific community experiencing a high number of dry wells or on the customers of a small water system whose single source of supply has failed.

4.3 RESPONSE STRATEGIES

This section of the Drought Plan describes the response strategies the County can pursue to prepare for droughts and provide interim and long-term solutions to water shortages. While SB 552 assigns new responsibilities to the County, the law does not directly provide new funds for the County to implement its Drought Response Strategies. Therefore, many of the strategies described below focus on proactive surveillance of drought threats and coordination with partner organizations.

4.3.1 Stage 0 – Long Term Resiliency Actions

Drought preparedness is most effective when certain adaptive actions become an engrained way of life – not a reactive approach only implemented during emergencies. This Action Plan is consistent with that philosophy and includes many response actions the County will pursue even when there is not a current drought. The Long Term Resiliency Actions presented below form the foundation upon which the Emergency Response Actions listed in *Section 4.3.2* and *4.3.3* build.

Monitoring and tracking protocols

The County will use the monitoring and tracking protocols described in *Section 4.2* to evaluate current drought and water shortage conditions in the County. The tracking protocols will be

evaluated on at least an annual basis each spring and may be monitored more often during times of drought. The County RMA will be the lead department for this action.

Coordination with GSA(s)

Throughout the County, GSAs are the organizations with the most accurate and up-to-date data regarding groundwater conditions within their respective boundaries. GSAs are responsible for developing and implementing domestic well mitigation plans within their jurisdictions. Cross-agency coordination will involve regular communication, collaboration on areas of overlapping responsibility, technical support, and joint pursuit of grant funding where appropriate.

Constituent outreach and education

The goal of constituent education and outreach is for residents of the County who rely on domestic wells are knowledgeable about what resources are available to assist them in preparing for and responding to drought. Outreach will include a number of topics, which include (but are not limited to):

- Long term maintenance of wells. The GSAs and NGO partner organizations such as Self-Help Enterprises, Community Water Center, and others may be able to provide assistance to well owners that need their domestic well evaluated or tested.
- Reporting of outages, through the California Dry Well Reporting System. NGO Partner organizations have historically assisted constituents with dry wells in navigating the reporting process and submitting accurate data. Going forward, GSAs through their Well Mitigation Programs may assist with this data collection process.
- Process to request interim drinking water solutions such as bottled or tanks and hauled water.
- Tenant Rights regarding legally inhabitable residences. California Law requires dwellings to have "Plumbing facilities in good working order, including hot and cold running water, connected to a sewage disposal system."[55] Many rental dwelling units in the County rely on domestic wells for water supply, and it is important for tenants to know their legal rights regarding a reliable water supply in a rented dwelling unit.

The County will make reasonable efforts to provide multilingual outreach materials in culturally appropriate formats. Communication materials, both existing and new, will be made available on the County's website or as hard copies distributed through the County's drillers and other contacts, as identified and deemed appropriate.

During the first three years of this Drought Plan's implementation, the County may expand this "Constituent Outreach and Education" section into a more detailed stand-alone attachment. Such a stand-alone outreach plan would provide additional detail regarding strategies to effectively

[55] Civ. Code § 1941.1.

communicate with County residents. A more detailed outreach plan would be an optional addition to this Drought Plan, to be developed at the County's discretion, subject to funding and staff availability.

Encourage voluntary consolidations of Small Water Systems

While the County does not have the authority or desire to compel water system consolidations in most cases, the County recognizes the potential improvements in water service reliability that consolidation can provide (see *Section 3*). The County will work with small water systems to encourage voluntary mutual aid agreements, interties, or consolidations where appropriate and desired by all parties involved.

Consider updating well permit and land use policies

Under its authority in well permitting and land use planning, the County has authority over installation of new wells and future residential development in its jurisdiction. The County may choose to review its existing polices and update them where appropriate to improve the resilience of future developments or to expand protection of domestic wells through more rigorous well construction standards (e.g., requiring protective minimum depths for well setting). A review of existing policies or recommendations for modifications is outside the scope of this Drought Plan.

4.3.2 Stage 1 – Emergency Drought Response Actions

When the County determines that a drought or water shortage is occurring using the tracking protocols described, the County can begin to implement emergency drought response measures. While these Actions are intended to address acute water shortages for Rural Communities, the County is limited to expanding outreach, facilitating access to State or federal funding, and helping constituents plan and prepare to be more resilient during future droughts. The County lacks the authority and the funding to resolve all impacts that may be experienced by Rural Communities and domestic well owners during drought events. Rather, the emergency actions described below are intended to provide short-term assistance and information within the County's authority and available resources.

Initiate actions to access additional funding

While SB 552 adds new responsibilities for counties, the legislation does not provide a new funding source for counties to implement new programs. For this Drought Plan to be most effective, additional funding sources will need to be accessed during emergencies. Potential funding sources include: California Disaster Act Assistance (DAA), IRWM grants,[56] State Revolving Funds, other State and Federal Grant Funds, and individual water systems' reserve funds where applicable. Parallel to the efforts of the County, GSAs and NGO partners may also apply for additional emergency funding.

[56] The IRWM program is in the process of issuing Proposition 1 Round 2 Implementation Grants, as of early 2023. Unless new funding is approved to support IRWM in future, it is expected that IRWM will not be an available funding source after Round 2 grants are distributed.

When a drought emergency is triggered, the County will increase coordination with these parties to assure all funding opportunities are identified, vetted, and pursued accordingly.

Implement drinking water solutions through partners

The County has historically obtained grant and emergency funding for emergency drinking water solutions. In addition to direct response efforts by the County, the County also partners with NGO organizations to deliver emergency services. The arrangement will continue in the future and evolve based on funding availability. When the County determines that emergency drinking water solutions are needed, the County will collaborate with its NGO partner organizations to trigger pre-defined arrangements regarding responsibilities and coordination. Emergency drinking water solutions may include:

- Bottled water delivery
- Water tank placement
- Hauled water
- Well testing and repair

Targeted outreach to affected constituents

Using the tracking protocols and geographic focus criteria considered earlier in this section, the County may identify particular constituents most at risk during a drought or water shortage. The County can then initiate targeted outreach to those particular communities and individuals. Communication materials may be multilingual and include information to inform stakeholders of heightened drought risk in their area and suggest voluntary demand reduction actions. It will be important to inform affected communities how to report dry wells, access emergency water supplies, and proactively request domestic well owners submit outage condition reports to DWR.

Request County Board of Supervisors make an emergency proclamation

An emergency proclamation in place at the County level can be helpful to raise public awareness of drought conditions and water conservation importance, as well as open additional funding sources for emergency response. Any emergency declarations are at the discretion of the County's elected officials and cannot be prescribed by this Drought Plan.

Consider extending well permit review timeline for agricultural and public well supply wells

The County has broad authority over the authorization of new well permits, including domestic, agricultural, and public well supply wells. During drought emergencies, it may be appropriate for the County to extend the well permit review timeline such that approval is not granted for a period of 6 months following submission, with an exception for domestic well permits to address emergency conditions, and construction must occur within 2 years of permit approval (this latter condition may reduce applications that are just seeking to obtain a permit approval but may never drill or may significantly delay drilling).

Encourage voluntary demand reductions

While the County generally does not have the authority to mandate demand reductions, the County can use its public communications to encourage voluntary demand reduction efforts throughout all water using sectors. Voluntary demand reductions may be useful in reducing the pressure on limited water supplies such as shared groundwater resources.

Increase frequency of monitoring in identified high risk areas

The risk tracking protocols identified by this Drought Plan should be monitored more frequently during times of heightened drought risk (e.g., monthly versus annually), particularly in the specific geographic areas the County determines to be at highest risk. In coordination with the Drought Task Force, the County can continue to follow-up and assess drought risk and reduce the frequency of monitoring when it determines that conditions have improved.

4.3.3 Stage 2 – Additional Emergency Drought Response Actions

If the County finds drought conditions have continued or worsened, the County may pursue additional emergency drought response actions beyond those described in *Section 4.4.2*.

Seek State Disaster Declaration and Federal Emergency/Disaster Declaration

If not already in place, the County should seek a Gubernatorial State of Emergency Proclamation,[57] which can release additional funding for emergency response actions, such as CDAA or direct State General Fund allocations. Once the Governor has issued an Emergency Proclamation, the County may request that the Governor also seek a Presidential Declaration of an Emergency or Presidential Declaration of a Major Disaster. Federal-level declarations can release funding through FEMA that can support emergency response actions as well as long-term recovery efforts post-disaster. State and Federal proclamations and declarations should be pursued in accordance with the County's adopted MHLHMP.

Evaluate enforcement of renters' rights

California law requires dwellings to have "Plumbing facilities in good working order, including hot and cold running water, connected to a sewage disposal system."[58] Working with the RMA Code Enforcement Division, the County may evaluate enforcement of renters' rights by requiring landlords or property managers to address health and safety concerns, especially where rental properties have lost a domestic well and do not have access to clean drinking water. The County may evaluate whether it is appropriate to deem certain rental dwelling units uninhabitable, even as a temporary determination until a water supply condition is rectified ("red-tagging"). Because red-tagging has the potential to reduce the available housing stock and may negatively affect low-income property owners, this action involves inherent challenges and should only be pursued carefully and sparingly.

[57] Cal OES (2022)
[58] Civ. Code § 1941.1.

Consider temporary moratorium on new agricultural well permits

The County Board of Supervisors may, at its own discretion, consider a temporary moratorium on new agricultural well permits until drought conditions improve. Such a moratorium, if adopted, would continue to allow for replacement of existing domestic wells that have failed due to drought and would be developed and implemented in coordination with local GSAs.

Implement mutual aid agreements as necessary

The County may facilitate the implementation of mutual aid agreements between public water systems and state small water systems, as appropriate, to provide additional support and water supplies to struggling systems.

4.4 Implementing the Action Plan

SB 552 requires that this Drought Plan provide "an analysis of the steps necessary to implement the plan" and "an analysis of local, state, and federal funding sources available to implement the plan."[59] Consistent with these requirements, the following section presents the County's anticipated implementation staffing structure. As the County implements the Drought Plan, certain aspects of this plan may be adjusted based on operational judgement and experience.

4.4.1 County Department Responsibilities

The implementation of the Drought Plan will rely on coordination between multiple departments within the County as well as outside organizations.

The Resource Management Agency

The RMA will be the lead agency within the County for this Drought Plan's implementation. RMA is responsible for ongoing monitoring of the Drought Plan's tracking protocols, constituent communication, and coordination with other departments and organizations. At this time, RMA has not yet obtained a new funding source to support new programs and will continue to coordinate with its partners to provide long and short-term drinking water solutions.

Tulare County Office of Emergency Services

The Tulare County Office of Emergency Services (OES) will assist in implementing the Emergency Response Actions presented in *Section 4.3.2* and *4.3.3*. Tulare County OES is also the lead agency on accessing CDAA and FEMA funding.

Local Groundwater Sustainability Agencies

Local GSAs are already responsible under the requirements of the SGMA for monitoring groundwater conditions within their jurisdiction and avoiding undesirable results. Additionally, GSAs are required to include Domestic Well Mitigation Plans in their GSPs. This Drought Plan anticipates that in most cases GSAs will be the primary agencies within the County responsible for ongoing

[59] Water Code Section 10609.70 (b)

monitoring and funding domestic well mitigation.[60] The RMA will coordinate data sharing between the County and GSAs.

California Department of Water Resources

DWR will support the implementation of this Drought Plan by maintaining its data portals (such as California's GWLive and Dry Well Reporting Tool) and administering grants and other funding sources the County will access to support its continuing implementation.

Non-governmental organization partners

NGO partners are a critical piece of this Drought Plan, as it is anticipated that these partner organizations will be the direct providers of drinking water solutions to constituents, funded by grants. While emergency response resources and solutions have historically been delivered by various organizations and directly by the County, this Drought Plan is intended to be flexible and not reliant on any specific NGO or assistance delivery method. The County will leverage existing community relationships and NGO partnerships to determine responsibility for delivery of emergency water; assisting constituents with well maintenance, testing, and reporting and overall solution delivery. Financial Needs and Funding Sources

SB 552 requires that each County's Drought Plan consider an analysis of local, state, and federal funding sources available to implement the plan,[61] but SB 552 does not directly provide any new funding to help Counties fulfill the law's requirements. Access to reliable funding is considered a major factor that will affect the long-term success and reach of the response strategies presented above.

Long-term funding strategies

The County RMA is the lead County department for the implementation and coordination of this Drought Plan with assistance from other County Departments. These County departments are currently funded by the County's General Fund. It is anticipated that core functions of this Drought Plan, such as the staff time required to monitor tracking protocols and coordinate with partner agencies, will be funded through these departments' General Fund allocations.

Currently, many emergency response actions are performed by NGO partners. These services are funded by grants administered by the SWRCB and DWR, including through the State Revolving Fund, SAFER, and Small Community Drought Assistance programs, as wells as direct allocations from the State General Fund for drought response. It is assumed a similar funding structure will continue in the future, with grants from the State supporting the direct emergency response actions provided by NGO partners.

[60] Many GSAs' Domestic Well Mitigation Programs contain eligibility criteria, which may include the age of the affected well or its depth relative to minimum thresholds established by the applicable GSP. These criteria will limit which domestic wells are eligible for mitigation by the GSAs.
[61] Water Code Sec. 10609.70 (b)(5)

GSAs are required to include Domestic Well Mitigation Programs in their GSPs. GSAs are also empowered to charge fees to landowners within their jurisdiction in order to support the GSAs' programs. This Drought Plan anticipates that GSAs will contribute by funding Domestic Well Mitigation Plans for eligible wells in the portions of the County overlying groundwater basins regulated by SGMA.

For Small Water Systems in the County, the most sustainable funding source will continue to be the revenue generated by these systems' own customers through water rates. As discussed in *Section 2*, TMF capacity remains a challenge for many of these small systems, but TMF is critical to long-term system reliability. Ultimately, changes to some of these water systems' rate structures may be needed. Technical Assistance for small water systems interested in improving their finances and building reserve funding, can be accessed through the SWRCB Technical Assistance program. The County may be appointed Administrator for failing systems by the SWRCB.

In addition to the long-term funding strategies listed above, there are a number of opportunities for various parties, including but not limited to the County, to apply for and obtain grant funding to support additional programs. A few of the currently available funding sources are identified below, but this Drought Plan encourages the County take advantage of other funding opportunities as they arise.

- SWRCB SAFER program – The Safe and Affordable Funding for Equity and Resilience (SAFER) program can fund water key actions, such as testing domestic well equipment, GIS database management, public outreach, creation of web resources, well inspection, and Point of Use/Point of Entry (POU/POE) treatment systems. SAFER grants can be applied for by the County, NGO partners, GSAs, and Water Systems.

- FEMA Assistance – the Federal Emergency Management Agency (FEMA) is a source of funding for victims of a natural hazard, be it an individual property owner or a water system. The County will not be the recipient of FEMA funds on behalf of the victims but can help provide information and recommendations to them about FEMA processes. FEMA assistance comes in a variety of forms, including Individual Assistance (after a disaster), the Hazard Mitigation Funding program, and the Building Resilient Infrastructure and Communities program. While FEMA has not approved the County's requests for assistance with drought-related emergencies in the past, FEMA funding could conceivably be available in future.

- Land*Flex* – Land*Flex* is a new program offered by DWR to provide incentives to farmers to limit unsustainable groundwater pumping, leaving more water in the ground for drinking water wells. GSAs are the local government agencies that will be responsible for identifying vulnerable communities, applying for grant funding, and distributing the funding to participating farmers.

5 Conclusions and Recommendations

This Drought Plan was prepared to fulfill the requirements of SB 552 and to prepare the County for future droughts and water shortages. The Plan explores the Risk Factors (*Section 2*) that affect water supply reliability in the County. Voluntary water system consolidation can be one of the best methods available for decreasing risk exposure for small systems long-term (*Section 3*). Other Response Actions that the County can pursue to mitigate drought risks and respond to shortages are presented as an Action Plan with tiered levels of response tied to increasing drought severity (*Section 4*).

The County has experienced serious droughts in the recent past, and many of the Response Actions presented in this Drought Plan are continuations of programs the County has in place. One major benefit of this Drought Plan, beyond its role of meeting the requirements of SB 552, is to document and formalize the County's drought response strategy so the County is more prepared for future droughts. This Plan concludes with recommendations for immediate near-term actions, opportunities for improvement of the Plan, and commentary on the long-term visions for drought preparedness in the County.

5.1 Immediate Near-Term Actions

For this Drought Plan to be most effective, there are a number of actions the County can take in the near-term to enhance its preparedness for future drought. Those actions are as follows:

Coordination between departments within County and with outside organizations

The responsibility for this Drought Plan is spread across multiple County departments and outside organizations (*Section 4.4.1*). Therefore, communication and coordination are crucial. The County should ensure that is has current contact information for all points of contact at the agencies listed in *Section 4.4.1* and maintain such a list as an attachment to this Drought Plan. The existing structure of the Tulare County Drought Taskforce can be leveraged to advance this coordination. Any agencies that do not regularly attend the bi-monthly Drought Taskforce meetings should be encouraged to attend.

Begin Long-Term Resiliency Actions

County staff may begin to conduct the Drought Plan's Long-Term Resiliency Actions (*Section 4.3.1*). These Actions include monitoring and tracking protocols. The County is coordinating with GSAs, constituent outreach and education, encouraging voluntary water system consolidations, and updating well permit in conjunction with GSAs. The County may update land use regulations as appropriate.

Pursue new funding sources

As discussed in *Section 4.4.2*, reliable funding is a key factor that will affect the implementation of this Drought Plan. The County can consider applying for grants to obtain additional funding (or encourage its agency partners to apply) to carry out the Drought Plan. Potential funding sources

include SWRCB's SAFER program, DWR Small Community Drought Relief Program, FEMA Hazard Mitigation and Building Resilient Infrastructure and Communities programs, and Land*Flex*. Other funding sources, beyond those identified by this Plan, should be considered and pursued when appropriate.

5.2 Opportunities for Improvement and Long-Term Vision

This Drought Plan is intended to function as a living document and should be revisited and revised periodically (e.g., bi-annually) after completion. Certain risk indicators, tracking protocols, thresholds, or response actions may require adjustment as conditions in the County evolve and data sets improve and become more accessible. As the Plan is implemented, the County may identify further opportunities for improvement.

One specific opportunity for future improvement involves the documentation of institutional knowledge. The County has recently experienced severe droughts that have caused serious water supply challenges for Rural Communities, and the County has been forced to find emergency solutions. As a result, many County staff members have built up valuable institutional knowledge which is a major asset when responding to future droughts. This Drought Plan should consider adding, as an addendum, documentation of staff institutional knowledge. This could take a number of forms, including transcribed interviews, survey results, or one-page fact sheets on specific topics. Key topics that should be documented include lessons learned, effective communication strategies, and operational challenges that could potentially be fixed.

Ultimately, drought and water supply challenges are an unavoidable hazard in Tulare County, and California more broadly, and these hazards may intensify in the future due to climate change. The goal of the Drought Plan is to improve communities' resilience to drought. This Drought Plan is most effective as part of a larger framework, including GSPs and the County's MJLHMP. Taken together, these plans can reduce County communities' exposure to risk and prepare the County to respond proactively and effectively.