



**Stanislaus County  
Drought Resilience Plan (DRP)**

Water Advisory Committee Meeting

**Drought Resilience Plan  
Presentation**

March 25, 2026



This presentation summarizes the Stanislaus County Drought Resilience Plan (DRP). Additional detail is available in the DRP, available on the WAC Website:

<https://www.stancounty.com/er/groundwater/wac.shtm>

# Agenda

1. Introduction, Purpose, and Scope
2. Drought and Water Shortage Task Force
3. Risk Assessment
4. Actions and Strategies
5. DRP Implementation
6. Next Steps



# Drought Resilience Plan Introduction, Purpose, and Scope



# Drought Resilience Plan Purpose

Meet requirements of Senate Bill 552 by:

1. Establish a standing county **drought and water shortage task force** to facilitate drought and water shortage preparedness for ***state small water systems*** and ***domestic wells*** within the county's jurisdiction.
2. Develop a **County Drought Resilience Plan** that includes potential drought and water shortage risk and proposed interim and long-term solutions.

Primer of Senate Bill 552:  
Drought Planning for Small Water  
Suppliers and Rural Communities

Prepared by



And



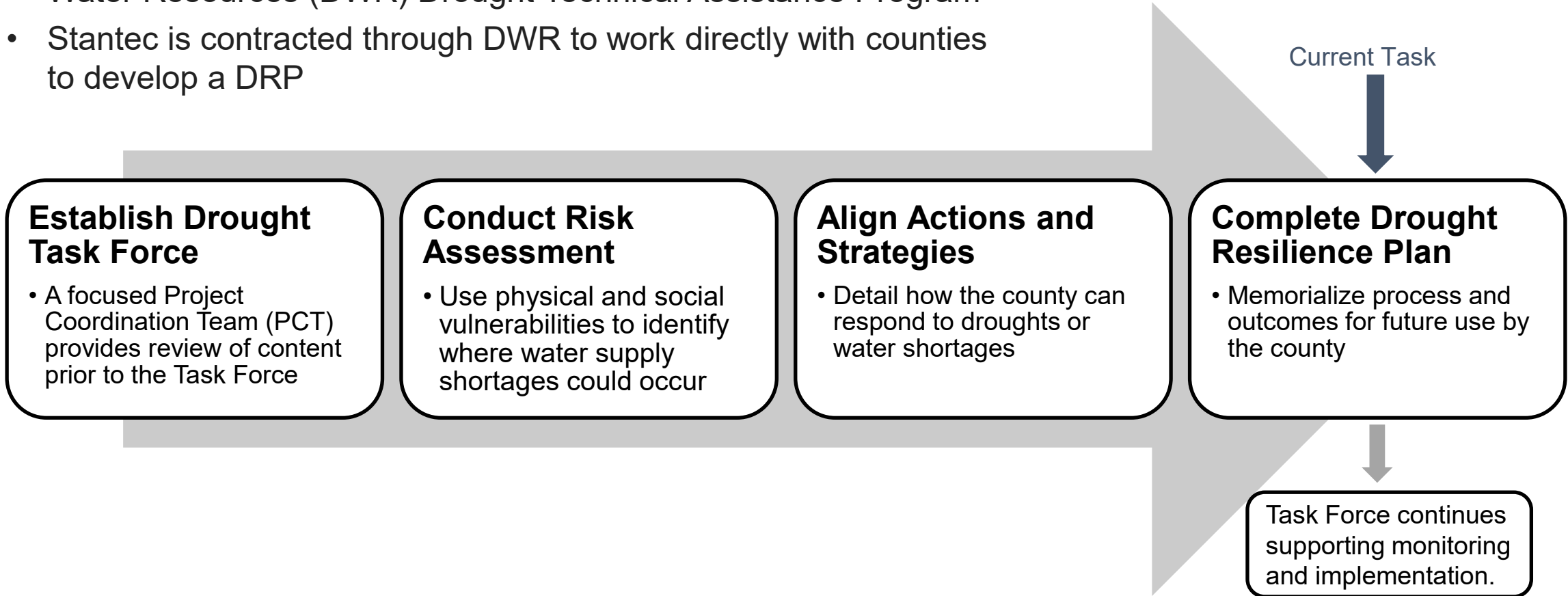
May 2022

[Primer-of-SB-552-052522\\_final.pdf \(ca.gov\)](#)



# Drought Technical Assistance Program

- Drought Resilience Plan prepared through the Department of Water Resources (DWR) Drought Technical Assistance Program
- Stantec is contracted through DWR to work directly with counties to develop a DRP





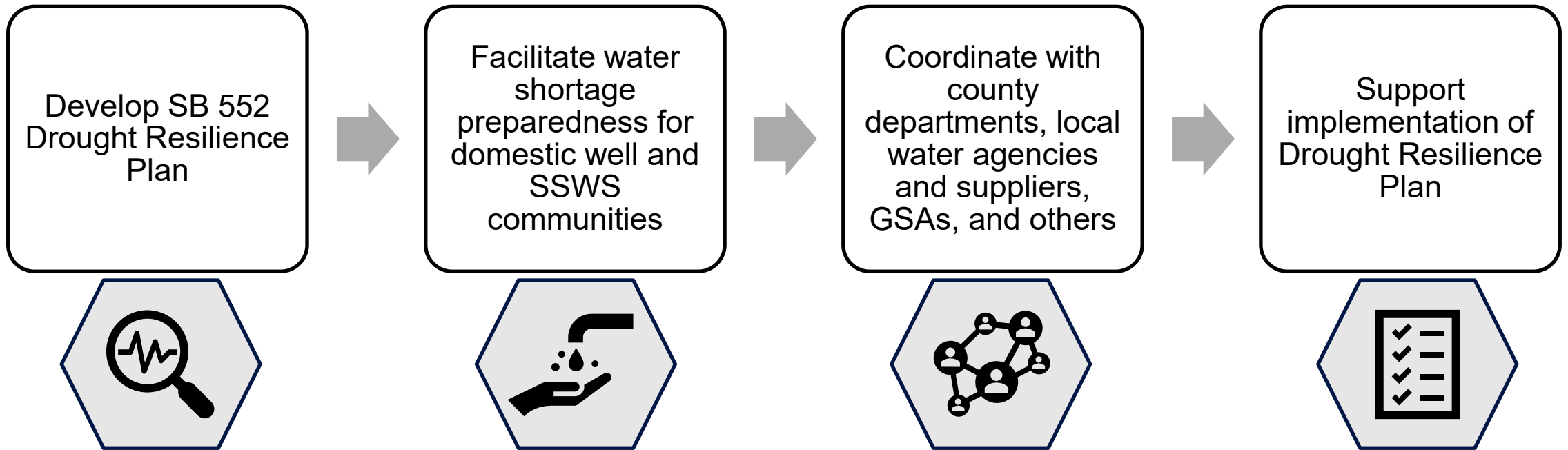
*Photo Credit: Knights Ferry Bridge, <https://knightsferry.com/>*

# Drought and Water Shortage Task Force



# Drought and Water Shortage Task Force Responsibilities

Stanislaus County has elected to utilize its existing Water Advisory Committee (WAC) to fulfill the role and responsibilities of the task force consistent with CWC Section 10609.70(a)(1).





# Coordination and Communication

- **DRP Website** to distribute information to domestic well and SSWS communities such as:
  - DRP document, resources, county contact info
- **Notifications** via newsletters, social media, DRP website, amongst others
- **Communication and Engagement Activities** such as Board of Supervisor updates, town hall meetings, workshops, and informational presentations
- **Community Feedback** via the DRP website to solicit input
- **Education Campaigns** in partnership with other county entities and water providers and suppliers



# Risk Assessment



# Risk Assessment Analysis

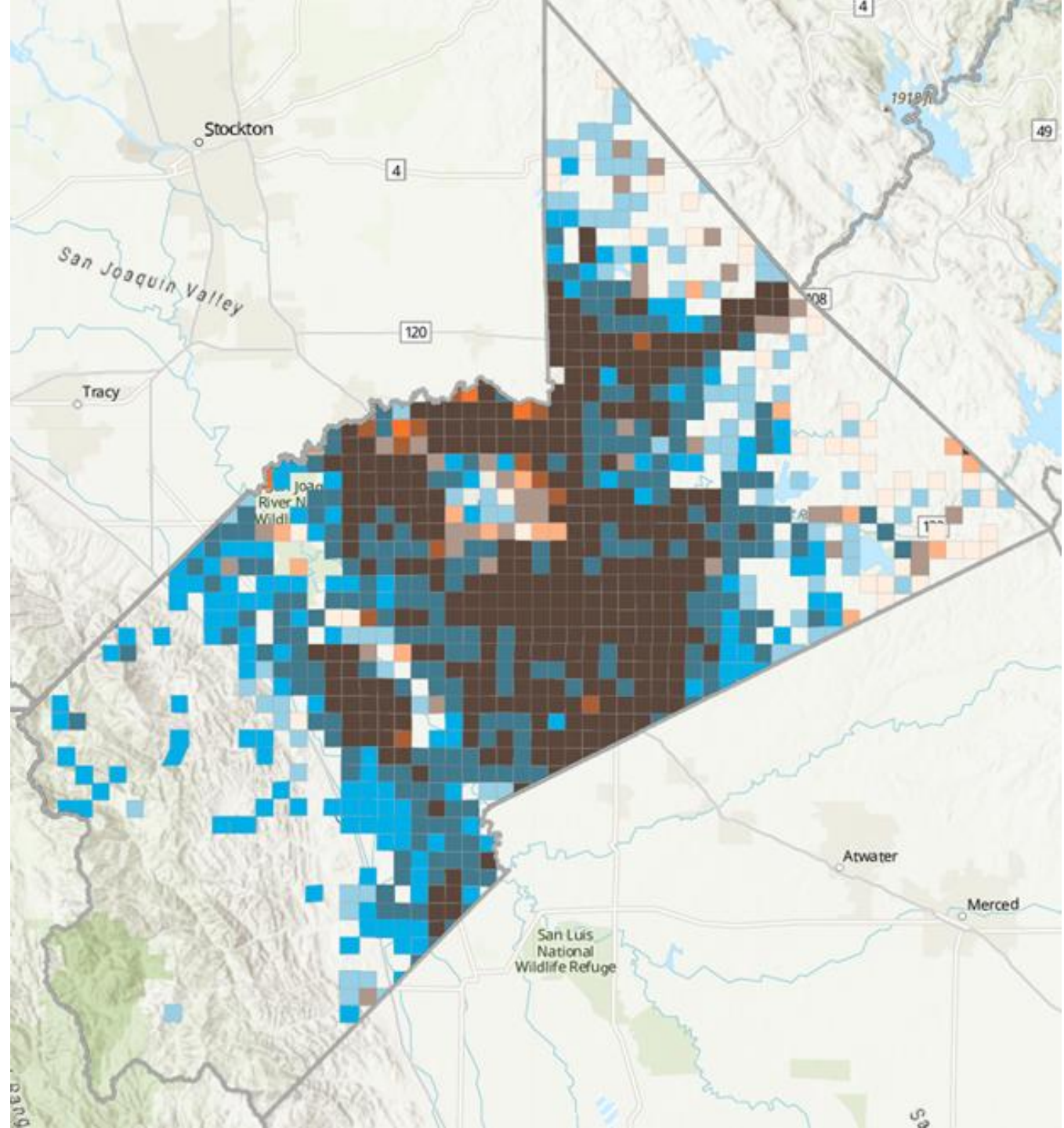
1. Use **DWR Water Shortage Vulnerability Explorer (WSVE) Tool** to evaluate physical and social vulnerabilities within the County.
2. Merge with the **domestic well and SSWS** data to determine where the two overlap
3. Determine what indicators drive **physical vulnerability**
4. Characterize how **social vulnerability intersects with physical vulnerability**
5. The results of the risk assessment are used to develop **Short-Term Actions and Long-Term Strategies** for addressing shortage of domestic wells and SSWSs across the County (these are Chapters 4 and 5).

*\*Detailed physical and social vulnerability methodology and the underlying data is available on the WSVE Tool [website](#)*



# Physical Vulnerability by Domestic Wells

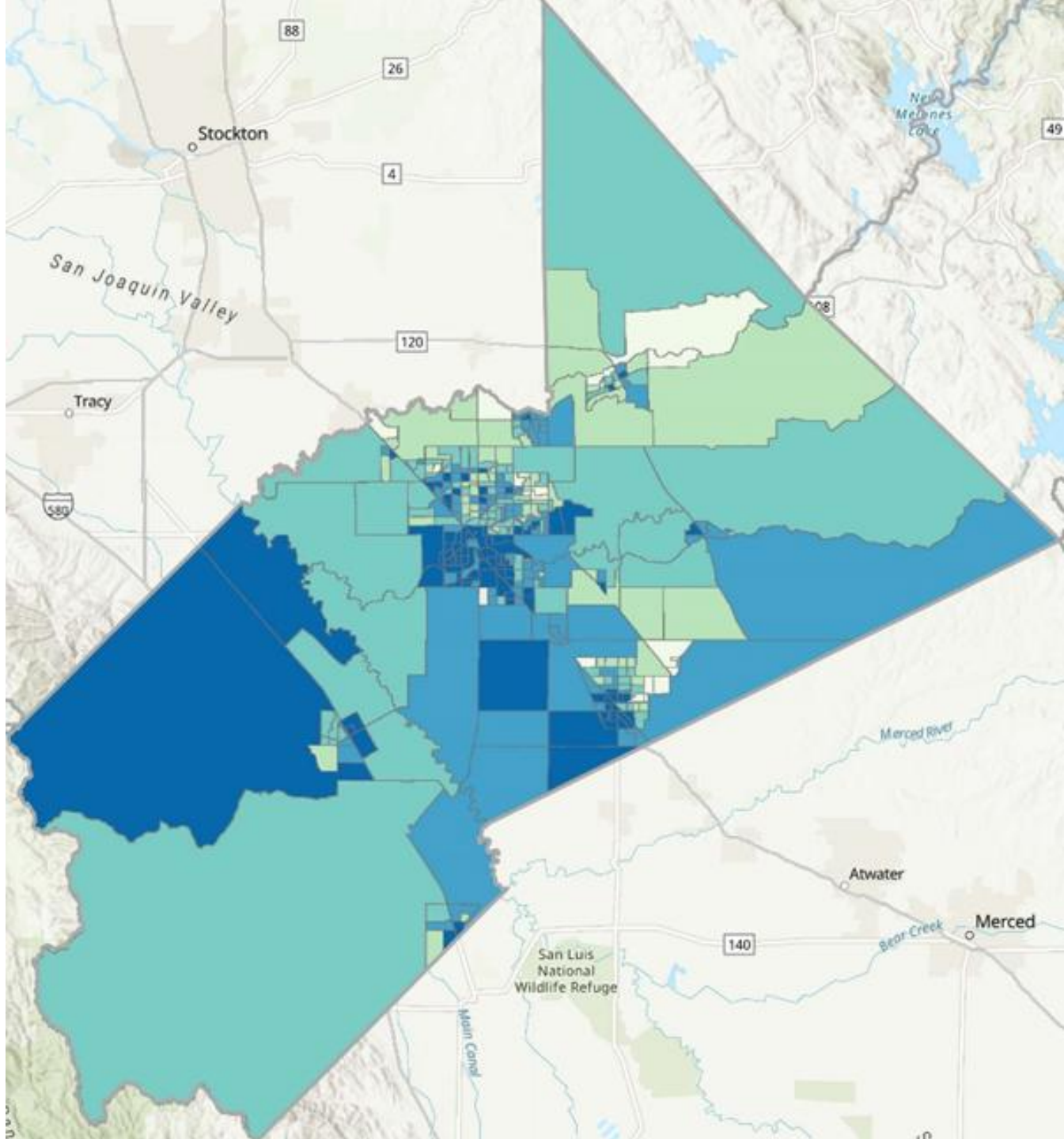
- Intersection of Physical Vulnerability and location of domestic wells and SSWS
- **Dark Brown areas** indicates higher presence of domestic wells or SSWSs within an area of high physical vulnerability
- **Blue areas** have higher physical vulnerability but minimal domestic wells or SSWSs
- **Orange areas** have higher presence of domestic wells or SSWSs but low physical vulnerability





# Total Social Vulnerability Results

- **Composite of all 15 social vulnerability indicators**
- **Dark shaded areas indicate higher social vulnerability**
- Total social vulnerability calculated at the Census Block Group scale (geographical unit with population between 600 and 3,000 people, based on U.S. Census Bureau)

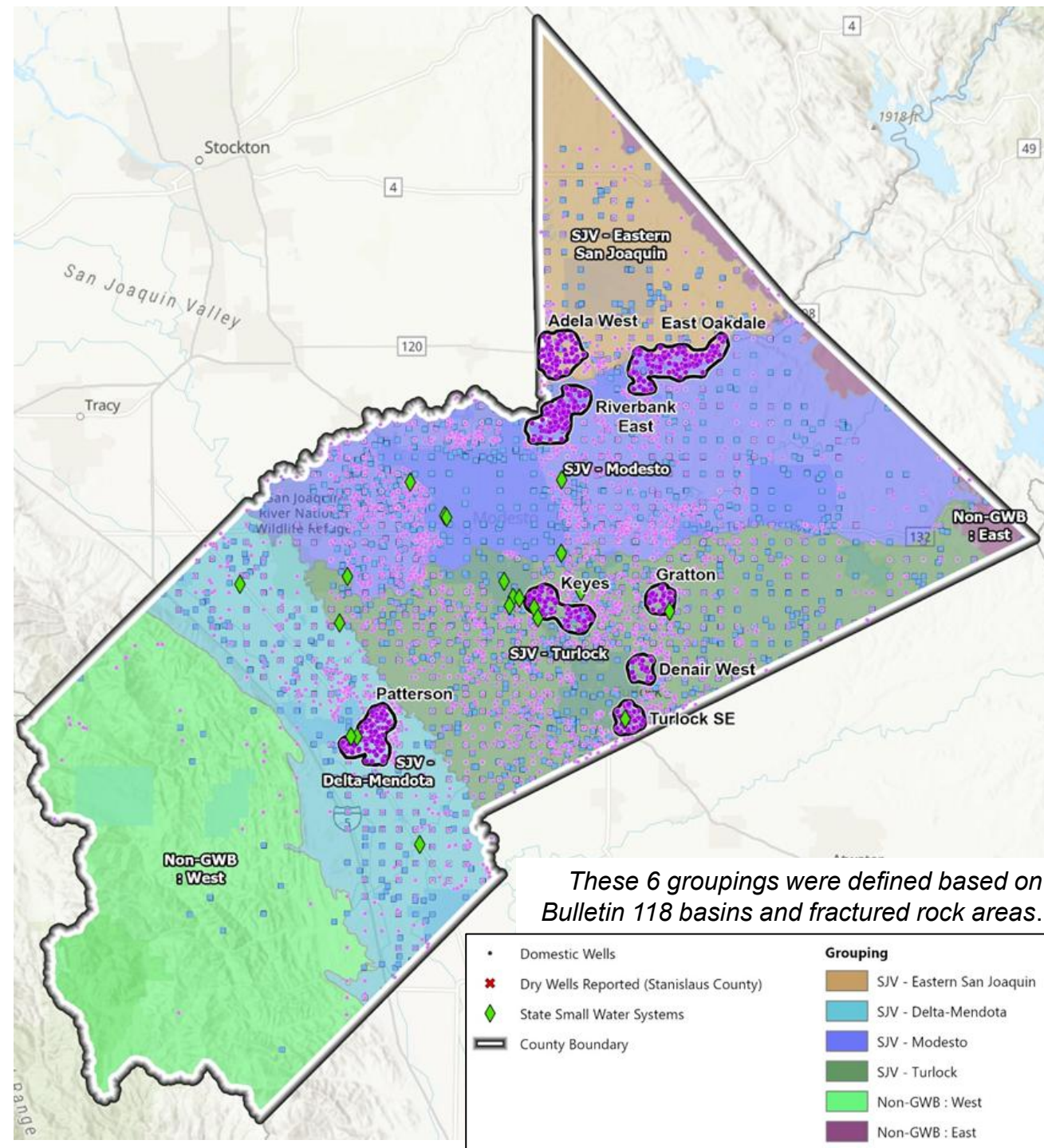




# Risk Assessment Findings

- A density-based clustering analysis was performed to highlight areas where domestic wells and SSWS are more concentrated
- A density threshold of 100 wells within a 1-mile radius was applied to identify clusters
- Number of wells per cluster is not the same everywhere in the County.
- Clusters are intended for identifying where the greatest number of domestic well and SSWS users could be affected at once

Note: GWB = groundwater basin; SJV = San Joaquin Valley





# Risk Assessment Findings

Area	Subregion	Domestic Wells <sup>1</sup> (pre-1977)	Domestic Wells <sup>1</sup> (1977 to current)	Acreage <sup>1,2</sup>	Average Distance between Wells <sup>1</sup> (feet)	Average Well Casing Depth <sup>1</sup> (feet)	Average Total Physical Vulnerability Score <sup>3</sup>	Average Social Vulnerability Index <sup>4</sup>
Adela West	SJV – Eastern San Joaquin	68	202	3,275	210	191	72	Medium-Low (35)
Denair West	SJV - Turlock	25	95	1,102	110	203	60	Low (18)
East Oakdale	SJV – Eastern San Joaquin and SJV – Modesto	94	403	5,744	178	218	50	Medium-Low (28)
Gratton	SJV – Turlock	10	108	1,236	180	223	71	Medium-Low (36)
Keyes	SJV – Turlock	48	209	3,181	219	169	58	Medium (56)
Patterson	SJV – Delta-Mendota	8	226	3,725	348	229	66	Medium-High (66)
Riverbank East	SJV – Modesto	82	292	3,945	185	157	51	Medium (55)
Turlock SE	SJV – Turlock	47	93	1,412	170	168	56	Medium-High (71)

- Notes:
- Information is based on DWR Well Completion Reports. Geographic information on WCRs may be inaccurate and/or place the well not at the actual well location. As a result, the number of domestic wells may be overestimated, and the placement of wells may not reflect actual locations.
  - Values are approximations due to the predominance of PLSS locations of wells.
  - This is the average total physical vulnerability per cluster. Total physical vulnerability score ranges from 0 to 100, with a higher score indicating a worse physical vulnerability.
  - This is the average social vulnerability per cluster. Total social vulnerability index is divided into five equal groups (quintiles), ranging from low to high, with high representing the highest social vulnerability. Numerical values for the five indices are: low (0–20), medium-low (20–40), medium (40–60), medium-high (60–80), high (80–100).



# Short-Term Response Actions and Long-Term Mitigation Strategies and Actions



# Short-Term Response Actions (STRA) Overview

1. Evaluated and identified STRAs that provide **emergency and interim drinking water supplies**
2. Identified **potential pre-negotiated contracts or mutual aid agreements** to help efficiently activate STRAs
3. Developed **Drought and Water Shortage Emergency Response Process**
  - Establishes water shortage stages tied to water supply conditions
  - Links County Staff and Task Force activities to each stage
  - **Emergency and Interim Drinking Water Distribution Plan**
    - Outlines process for distributing emergency and interim drinking water supplies



# Identified STRAs

ID	Short-Term Response Action Name	Short-Term Response Action Description
STRA 01	<b>Packaged and Bottled Water Supplies</b>	County to provide outreach and develop agreements as necessary with vendors and specialized local emergency and assistance agencies, to identify, acquire, and distribute packaged or bottled water to domestic well and SSWS users in the event of an emergency.
STRA 02	<b>Dedicated Water Filling Stations</b>	County to continue collaborating with local assistance agencies to assist in developing a network of emergency potable water supply stations/suppliers to be available in the event of a water shortage emergency. County to develop agreements as necessary to ensure network of water filling stations are adequate and have sufficient water supplies consistent with the estimated populations at-risk to shortage. County to maintain a list of approved water-hauling vendors, water well contractors, and qualified professionals, which can be provided to consumers who need such services.
STRA 03	<b>Expediated Well Permitting</b>	County to prepare and implement expedited permit authorization for construction of replacement wells in the event of a water shortage emergency.



# Pre-Negotiated Contracts and Mutual Aid Agreements

- Enables efficient material acquisition necessary for the protection of public health, welfare, or safety via existing emergency procurement policies
- Procured/negotiated prior to emergency event
- Activated in coordination with County, State, or Federal emergency declaration



# Drought and Water Shortage Emergency Response Process

- Drought and water shortage stages
  - **Stage 1 - Information Stage:** No major drought or water shortage issues
    - General proactive communications
  - **Stage 2 - Alert Stage:** Drought is occurring, but no active water shortage emergency
    - Additional coordination, communication, and outreach
  - **Stage 3 - Response Stage:** Water shortages are occurring or imminent
    - Activate Emergency and Interim Drinking Water Distribution Checklist
- Stages set by County Staff during annual water supply condition assessment, informed by triggers and conditions, and re-evaluated as needed



# Emergency and Interim Drinking Water Distribution Plan (EIDWD Plan)

- Summarizes activation, notification, and information collection activities for distributing emergency and interim drinking water supplies
- County Environmental Resources is the lead for implementing the EIDWD Plan
- Activation:
  - Based on water supply conditions assessment or other information
- Notification:
  - County DRP Website, email, broadcast media, social media, hotline
  - Coordination with other organizations (community groups, non-profits, etc.)
- Information Collection:
  - Cost recovery and to inform future efforts
  - Non-personal information such as demographics, general location, and duration of need



# Long-Term Mitigation Strategies and Actions (LTMS/A) Overview

A total of **17 LTMS/As** were identified, these actions apply under six categories

## **System Consolidation** (1 action)

- Physical or managerial joining of two or more systems that would include domestic wells and/or SSWS

## **Interties** (2 actions)

- Physical interconnection between water systems to permit the exchange or delivery of water

## **Drinking Water Well Mitigation Program**

(8 actions)

- Series of coordinated efforts that seek to reduce the vulnerability of domestic wells and SSWS to water supply shortages

## **Regional Water Infrastructure Investment**

(1 action)

- Participation in related planning efforts and larger water supply projects to benefit domestic wells and SSWS

## **Addressing Data Gaps** (4 actions)

- Improving planning, forecasting, and monitoring of domestic well and SSWS supplies

## **Emergency and Interim Drinking Water Supplies**

(1 action)

- Establishing longer term water supplies during drought or until the water shortage emergency event ends



# System Consolidation

- **LTMS/A 01: System Consolidation**
  - **SSWS Annexation:** potential to consolidate two or more public water systems and includes potential to annex nearby SSWSs
  - **Domestic Well Consolidation:** assess areas with high concentration of domestic wells that are vulnerable to water shortage and consider consolidation into nearby public water or formation of new system.
- Consolidation efforts represent opportunities to improve regional water reliability and resilience by consolidating and expanding service to nearby small systems and domestic well users.



# Interties

- **LTMS/A 02: SSWS Intertie, Emergency**
  - Emergency intertie is an above-ground or shallow subsurface pipeline that temporarily connects two or more willing water systems in the event of a water supply emergency that risks basic health and safety of residents
- **LTMS/A 03: SSWS Intertie, Permanent**
  - Permanent intertie would allow for connection between two or more willing water systems, not limited to water supply emergency use case.
- Activation of an intertie for water sharing should be based on terms and conditions of an operating agreement established between entities prior to a water shortage event.



# Drinking Water Well Mitigation Programs

- The goal and objective of a **Drinking Water Well Mitigation (DWWM) Program** is to provide technical and financial solutions that limit or respond to water shortage events that occur in domestic well and SSWS communities.
- A DWWM Program typically includes **four core elements**:
  - **Identify wells** that maybe impacted by drought or water shortage event
  - **Develop options** for mitigation, including well rehabilitation
  - **Implement community-supported solutions** in collaboration with other local and State agencies
  - Coordinating **well monitoring** for maintenance, assurance, and adoption for changes in conditions should they occur



# Drinking Water Well Mitigation Programs

- **LTMS/A 04: Dry and Distressed Well Tracking**
  - County to update groundwater well permitting practices that support coordination with the State's Dry Well Reporting Program and other local programs.
- **LTMS/A 05: Domestic Well Resource Support**
  - Provide, in coordination with other local and State public agencies, information to owners and operators of domestic wells and SWSs to self-collect groundwater well samples for water quality testing and measure depth-to-water levels.
- **LTMS/A 06: Alternative Supply Identification**
  - County, in coordination and collaboration with other local public agencies, to identify and evaluate potential alternative water supplies for identified at-risk communities through connection and treatment of non potable resources, such as irrigation canals or springs.



# Drinking Water Well Mitigation Programs

- **LTMS/A 07: County DRP Website**
  - County to create and maintain a web portal that connects domestic well and SSWS communities with information related to drought and water shortage preparedness.
- **LTMS/A 08: Regional Groundwater Level Monitoring and Communication**
  - County to monitor and communicate (via social media, website, WAC meetings, etc.) regional groundwater levels in coordination and collaboration with groups and entities (e.g., GSAs, DWR) that have established charges and practices for well monitoring.
- **LTMS/A 09: Well Permitting Considering Future Growth**
  - County to implement existing policy such that the Planning Department evaluates specific plans, vacant land in unincorporated regions zoned for residential use, and other long-term development initiatives for groundwater basin or subbasin water demands at full build-out.



# Drinking Water Well Mitigation Programs

- **LTMS/A 10: County Planning Integration**
  - County to update its Multi-Jurisdictional Hazard Mitigation Plan, Emergency Operations Plan, and/or related documents to confirm interagency roles, responsibilities, and actions associated with implementation of the DRP.
- **LTMS/A 11: Well Permitting Considering Impacts to Other Groundwater Users**
  - County to update policy to include coordination and collaboration with other entities, as applicable, for the review and authorization of new groundwater wells by including the potential to affect other nearby wells (e.g., cumulative impacts).



# Regional Water Infrastructure Investment

- **LTMS/A 12: Regional Planning Integration**
  - County staff will monitor the status of regional projects and, as appropriate, engage with the lead entities to evaluate the opportunity for enhancing the reliability of domestic well and SSWS water supplies.
  - Related Planning Efforts include
    - County General Plan
    - Multi-Jurisdictional Hazard Mitigation Plan
    - Emergency Operations Plan
    - Groundwater Sustainability Plans
    - East Stanislaus Integrated Regional Water Management Plan
    - Urban Water Management Plans



# Data Gaps

- **LTMS/A 13: Dry Well Abandonment**
  - County to continue supporting formal abandonment of domestic groundwater wells that are no longer in operation and represent a potential risk to groundwater quality or other public safety concerns.
- **LTMS/A 14: State Small Water System Monitoring**
  - County to continue to oversee SSWS well owner compliance with drinking water monitoring compliance with the California Safe Drinking Water Act pursuant to AB 664.
- **LTMS/A 15: Evaluate and Update Well Completion Report Administrative Record**
  - County to collaborate with DWR and update WCR information to the State registry for geographic location, operation, and other factors where feasible and applicable.
- **LTMS/A 16: Database Management System**
  - County to amend existing database management systems (DMS) to include additional metrics integrated with groundwater well permits issued by the County.



# Emergency and Interim Drinking Water Supplies

- **LTMS/A 17: Water Hauling, Bulk Water for Temporary Tanks**
  - County to provide outreach and assist in the installation of temporary bulk water storage tanks. This includes ensuring policies and agreements are in place as needed for coordination with vendors, specialized local emergency and assistance agencies, and public water systems to provide temporary water supplies and resources to deliver temporary supplies.



# Drought Resilience Plan Implementation



# Implementation Considerations

- The STRAs and LTMS/As identified represent the range of in-progress and proposed activities.
- The implementation steps are designed to assist the County with:
  - On-going water supply monitoring and inter-agency collaboration in support of implementation
  - Outlining STRA and LTMS/A implementation responsibility, status, and resource needs
  - Identifying opportunities to align the County DRP with other County policy and County and regional planning documents
  - Adaptive management
  - Identifying funding opportunities



# Implementation Roadmap: Monitoring and Collaboration

Activity	Description	Timing
<b>Water Advisory Committee Meeting</b>	County staff to schedule and facilitate meetings throughout the year. These meetings focus on evaluating the status of the groundwater resources in the County to identify and develop programs and practices that ensure reliable and sustainable groundwater supply. Results of these meetings shall support County staff, in collaboration with its WAC, to identify potential activation of actions as described in this plan.	January, May, and September, or as conditions merit.
<b>Water Supply Monitoring and Coordination</b>	County Environmental Resources to regularly engage with agencies/ organizations that monitor physical risk factors and water supply conditions as associated with domestic well and SSWS communities.	As-needed, April through November
<b>GSA Basin Coordination on Annual Reports</b>	County staff to meet with GSA managers and staff prior to the release of basin GSP Annual Reports (Water Code Section 10728). This may include additional coordination based on water supply conditions.	Monthly
<b>GSA Basin Coordination on Technical Groups</b>	County staff to engage, where applicable, with GSA advisory or technical groups/committees where those activities assist to inform or implement actions that compliment the County DRP.	As needed
<b>Drought Resilience Plan Website Update</b>	County staff to update the website content and resource materials consistent with information developed in coordination with GSAs and implementation of actions identified in the County DRP. Website updates may also include information about available grant programs, timelines, and technical assistance for domestic well and SSWS owners/operators, including outreach materials, eligibility criteria, and points of contact. These updates will prioritize communication to high-risk or underserved communities.	Ongoing



# Implementation Roadmap: Oversight, Responsibilities, Priorities and Needs

- **Oversight:** County Environmental Resources will oversee implementation, including Task Force coordination and updating the County DRP
  - County DRP updated at least every 5 years, or after an emergency event
- **Responsibility:** Each STRA and LTMS/A has a County entity responsible for implementation, with support from other entities
- **Priorities:**
  - Near-Term: next 2 years
  - Mid-Term: 2 to 5 years
  - Long-Term: 5 or more years
- **Resource Needs:**
  - Additional Staff Time: Reallocation of existing County Staff time or new staff
  - County Budget: Additional budget, but could be funded through existing County budget
  - External Funds: Additional non-County funds (i.e. grants)



# Implementation Roadmap: Oversight, Responsibilities, Priorities and Needs

Action/Strategy ID and Name	Priority	Status	Resource Requirement		
			Additional Staff Time	County Budget	External Funds
STRA 01: Packaged and Bottled Water Supplies	Near Term	Available	No	No	Yes
STRA 02: Dedicated Water Filling Stations During a Water Shortage	Near Term	In-Progress	Yes	No	Yes
STRA 03: Expediated Well Permitting	Near Term	Available	No	No	No



# Implementation Roadmap: Oversight, Responsibilities, Priorities and Needs

Action/Strategy ID and Name	Priority	Status	Resource Requirement		
			Additional Staff Time	County Budget	External Funds
LTMS/A 01: System Consolidation Planning	Mid Term	Proposed	Yes	No	Yes
LTMS/A 02: SSWS Intertie, Emergency	Long Term	Proposed	No	No	Yes
LTMS/A 03: SSWS Intertie, Permanent	Long Term	Proposed	No	No	Yes
LTMS/A 04: Dry and Distressed Well Tracking	Mid Term	In-Progress	Yes	Yes	No
LTMS/A 05: Domestic Well Resource Support	Near Term	In-Progress	Yes	Yes	No
LTMS/A 06: Alternative Supply Identification	Long Term	Proposed	Yes	No	Yes
LTMS/A 07: County DRP Website	Near Term	Available	Yes	Yes	No
LTMS/A 08: Regional Groundwater Level Monitoring and Communication	Long Term	Proposed	Yes	Yes	No



# Implementation Roadmap: Oversight, Responsibilities, Priorities and Needs

Action/Strategy ID and Name	Priority	Status	Resource Requirement		
			Additional Staff Time	County Budget	External Funds
LTMS/A 09: Well Permitting Considering Future Growth	Long Term	Available	No	Yes	No
LTMS/A 10: County Planning Integration	Long Term	Proposed	Yes	Yes	No
LTMS/A 11: Well Permitting Considering Impacts to Other Groundwater Users	Near Term	In-Progress	Yes	Yes	No
LTMS/A 12: Regional Planning Integration	Near Term	Available	Yes	No	No
LTMS/A 13: Dry Well Abandonment	Mid Term	In-Progress	Yes	Yes	No
LTMS/A 14: State Small Water System Monitoring	Mid Term	Proposed	Yes	Yes	Yes
LTMS/A 15: Evaluate and Update Well Completion Report Administrative Record	Near Term	Proposed	Yes	No	Yes
LTMS/A 16: Database Management System	Near Term	Available	Yes	Yes	No
LTMS/A 17: Water Hauling, Bulk Water for Temporary Tanks	Near-Term	Available	Yes	No	Yes



# Funding Opportunities

Resource	Funding Agency	Description
General Fund	County	The County General Fund includes revenues such as sales and property tax. Use of these fund are discretionary and subject to approval by the Board of Supervisors.
Proposition 4: Safe Drinking Water, Wildfire Prevention, Drought Preparedness, and Clean Air Bond Act of 2024	Multiple State agencies	Major categories with potential support for domestic and SSWS communities includes: <ul style="list-style-type: none"> <li>• Safe Drinking Water, Drought, Flood, and Water Resilience</li> <li>• Wildfire and Forest Resilience</li> </ul>
Sustainable Groundwater Management Grant Program	DWR	Provides GSAs with assistance and engagement support for preparation and implementation of GSPs.
Countywide and Regional Funding Program	SWRCB	Direct funding to support SSWS and domestic wells serving disadvantaged communities and low-income households. Community outreach, domestic well testing, and interim and long-term solutions are eligible to receive funds
Drinking Water State Revolving Fund	SWRCB	Fund provides low-cost loans for planning, design, and construction of drinking water improvements to water systems and can be used to support system consolidation.
Technical Assistance Funding Program	SWRCB	Provides technical assistance for small, disadvantaged communities to develop, fund and implement eligible drinking water needs, including system consolidation support.
Water and Environmental Program	USDA	Through the Rural Utilities Service Water and Environmental Programs, communities with populations of 10,000 or less can submit for funding support to construct water and wastewater facilities. Such programs could support annexation of SSWS and domestic well communities as part of a multi-benefit project led by a WEP eligible public water system.



# Next Steps



# Next Steps

## DRP Completion Schedule:

- Administrative Final DRP to County: 3/4 (complete)
- DRP Finalization: Through 3/31
- DRP Approval and Adoption by County: June/July 2026

## Post-DRP Completion:

- Annual Task Force meeting organized by County Environmental Resources
- Additional Task Force meetings scheduled as needed for drought and water shortage emergency response
- DRP updated at least every 5 years



# Additional Questions and Discussion



# Contact Us

- **Christy McKinnon** (Stanislaus County)
  - [cmckinnon@envres.org](mailto:cmckinnon@envres.org)
- **Sarah Hamilton** (Stantec)
  - [Sarah.Hamilton@stantec.com](mailto:Sarah.Hamilton@stantec.com)