County of San Luis Obispo
SB552
IWG Meeting
March 4, 2025

Source: County of San Luis Obispo

Agenda

1. Introductions
2. Risk Analysis
3. Risk Analysis Questions
4. Water System Consolidation Method
5. Consolidation Method Questions

Risk Assessment – Results and Overview

Source: County of San Luis Obispo

COUNTY OF SAN LUIS OBISPO

Risk Assessment Process

Today's Meeting

Complete Baseline Risk Assessment

- Using the DWR's Water Shortage Vulnerability Explorer (WSVE) Tool and well data from the County

Review the Baseline Results with Task Force

- Submit to Task Force for Review (consolidated comments due March 11th)

Finalize Risk Assessment

- Incorporate feedback and additional data from PCT, Task Force and IWG

Incorporate as an appendix to the MJHMP

- Becomes Appendix to the MJHMP

Key Definitions

Hazard – Source of harm or difficulty that can be natural or human-made and include social processes that can lead to water shortages in the county.

- Natural hazards, warming temperatures, low income are all hazard examples

Community Assets – The people, structures, facilities, and systems that have value to the community.

- Assets in the DRP must include **state small water systems (SSWS)** and **domestic wells** and populations reliant on these water supplies.

Vulnerability – Characteristics of community assets or population that make them susceptible to damage from a given hazard. It includes both **physical vulnerability and social vulnerability**.

- Physical Vulnerability
- Social Vulnerability

Physical Vulnerability Score Methodology

- Identified 17 indicators of physical vulnerability of domestic wells and SSWSs to water shortages
- Calculate a value for each indicator
- Indicators' values are multiplied by their corresponding weighting and summed to determine the total physical vulnerability score
  - Indicators weighted based on perceived vulnerability influence
  - Aligns with the State Water Board SAFER Program's Needs Assessment

Physical Vulnerability Score Methodology

Climate Change Conditions	
Projected Temperature Shift	1
Saltwater Intrusion in Coastal Groundwater	1
Wildfire Increase	1

Current and Recent Environmental Conditions	
2024 Precipitation Pattern	2
Consecutive Dry Years Between 2020 and 2024	2
Wildfire Risk	3
Fractured Rock Area	5
Presence of Subsidence	2
Current Saltwater Incursion	3
Critically Overdrafted Basin	2
Chronically Declining Water Levels	3
Presence and Amount of Irrigated Agriculture	3
Groundwater Water Quality	3

Infrastructure Conditions	
Density of Domestic Wells in Fractured Rock Basins	5
Dry Well Susceptibility in Alluvial Basins	5
Dry Well Susceptibility in Fracture Rock Basins	5
Reported Household Outages on Wells	3

Social Vulnerability Score Methodology

Applied methodology used by the Center for Disease Control for its social vulnerability index

Indicators primarily sourced from 2020 Census data

Indicators are normalized from 0 to 1 across the state and summed to get the Total Social Vulnerability Score.

Socioeconomic Status
Poverty Level
Unemployment
Per Capita Income

Demographics
Elderly Population
Non-Adult Population
Minority Population
Disability
Single Parent Households

Race and Ethnicity
Persons of Color

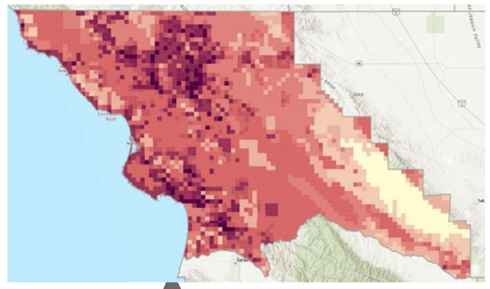
Language and Education
Education Attainment
English Language Proficiency

Housing and Transportation
Multi-Unit-Housed Population
Mobile Home-Housed Population
Crowded Conditions
No Vehicle Access

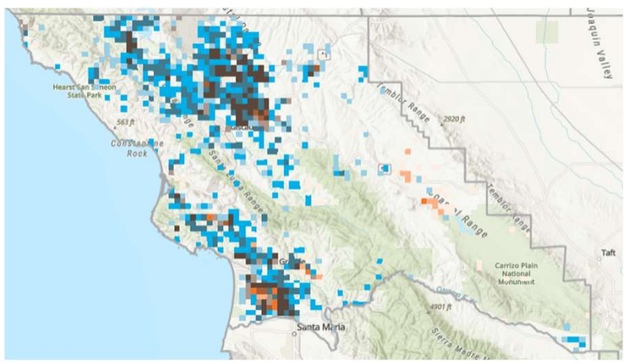
Risk Assessment Analysis Process

1

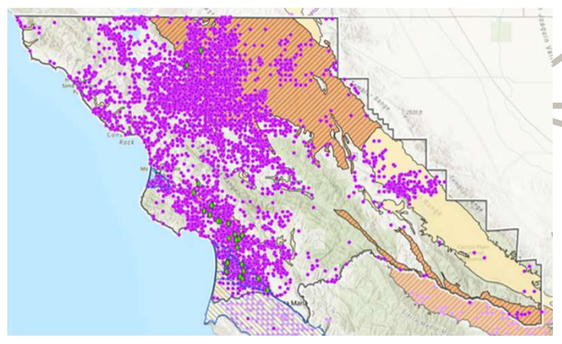
Use DWR Risk Assessment tool to evaluate physical and social vulnerabilities within the county

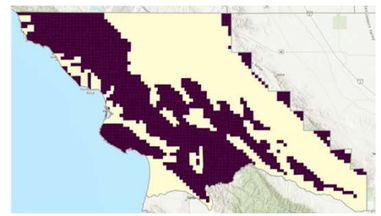


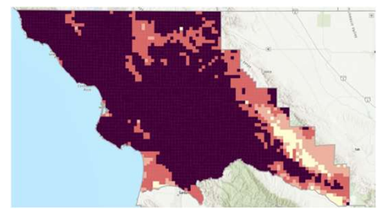
2 Merge with SSWS and domestic wells to determine where the two overlap



2 Compare with domestic well data provided by County

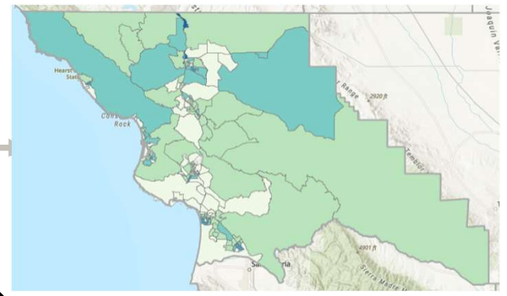






3 Determine what indicators drive physical vulnerability

4 Characterize how social vulnerabilities intersect



Risk Assessment – Results and Findings

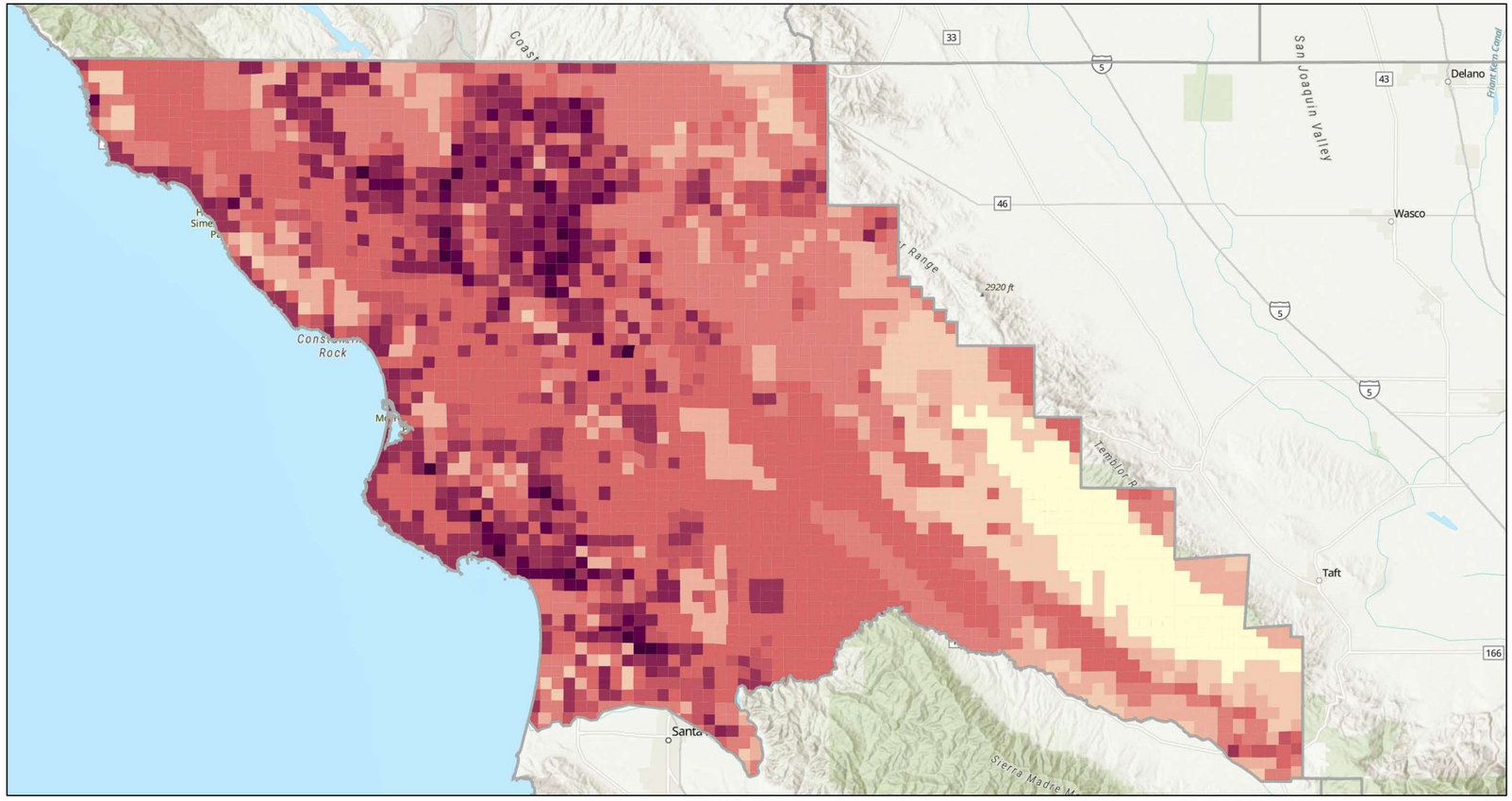
Source: County of San Luis Obispo

Physical Vulnerability Results

Darker shades indicate higher physical vulnerability

Composite of all physical vulnerability indicators

Are the areas with physical vulnerability where you expected?



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California Counties

Physical Vulnerability Index (Sections)

- 2 - 10
- > 10 - 17
- > 17 - 24
- > 24 - 30
- > 30 - 35
- > 35 - 41
- > 41 - 51
- > 51 - 63
- > 63 - 75
- > 75 - 100

1:633,689

0 5 10 20 mi

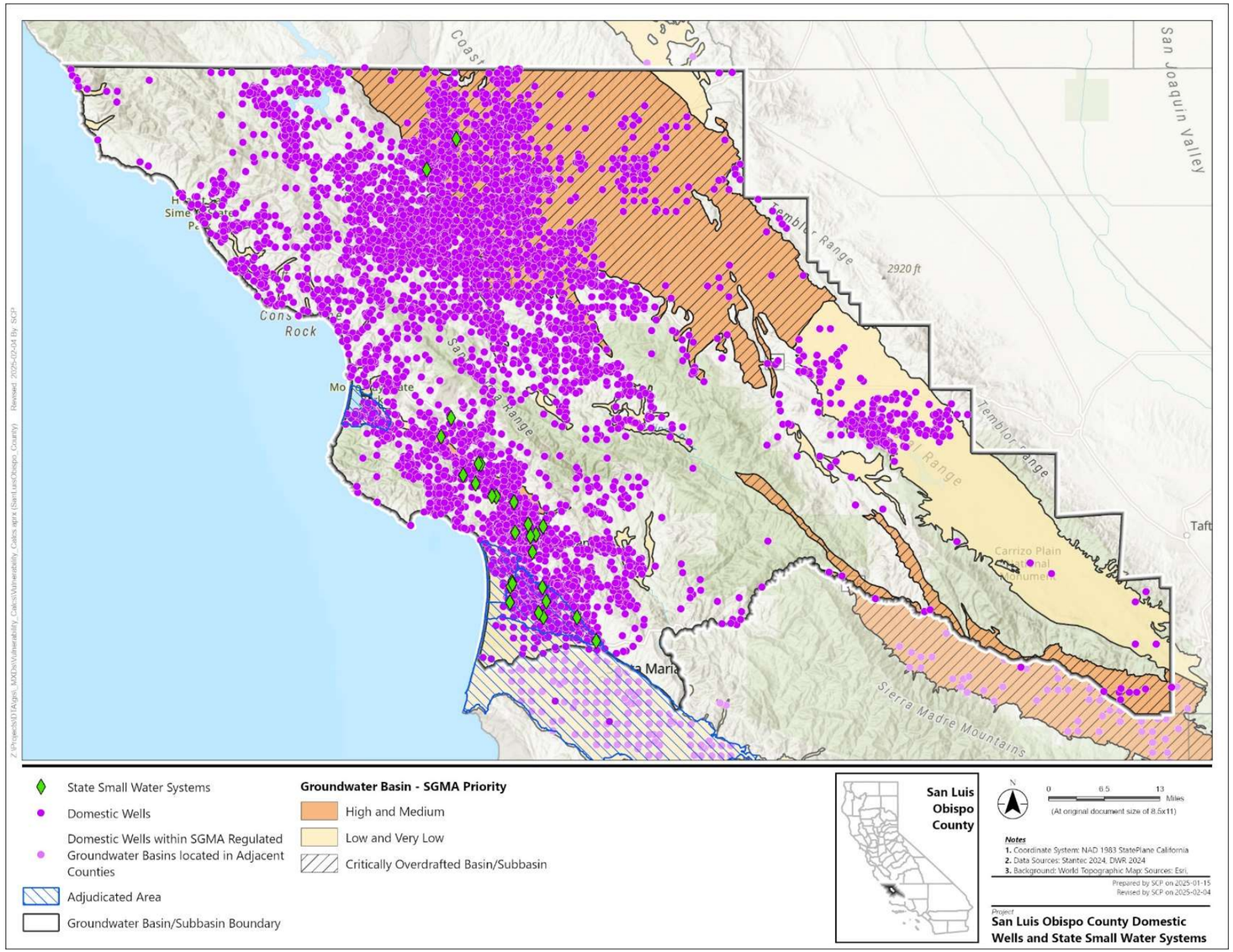
0 10 20 40 km

U.S. Bureau of Reclamation, California Department of Conservation, California Department of Fish and Game, California Department of Forestry and Fire Protection, National Oceanic and Atmospheric Administration. Contact: gis@water.ca.gov, Esri, USGS, California State

California Department of Water Resources

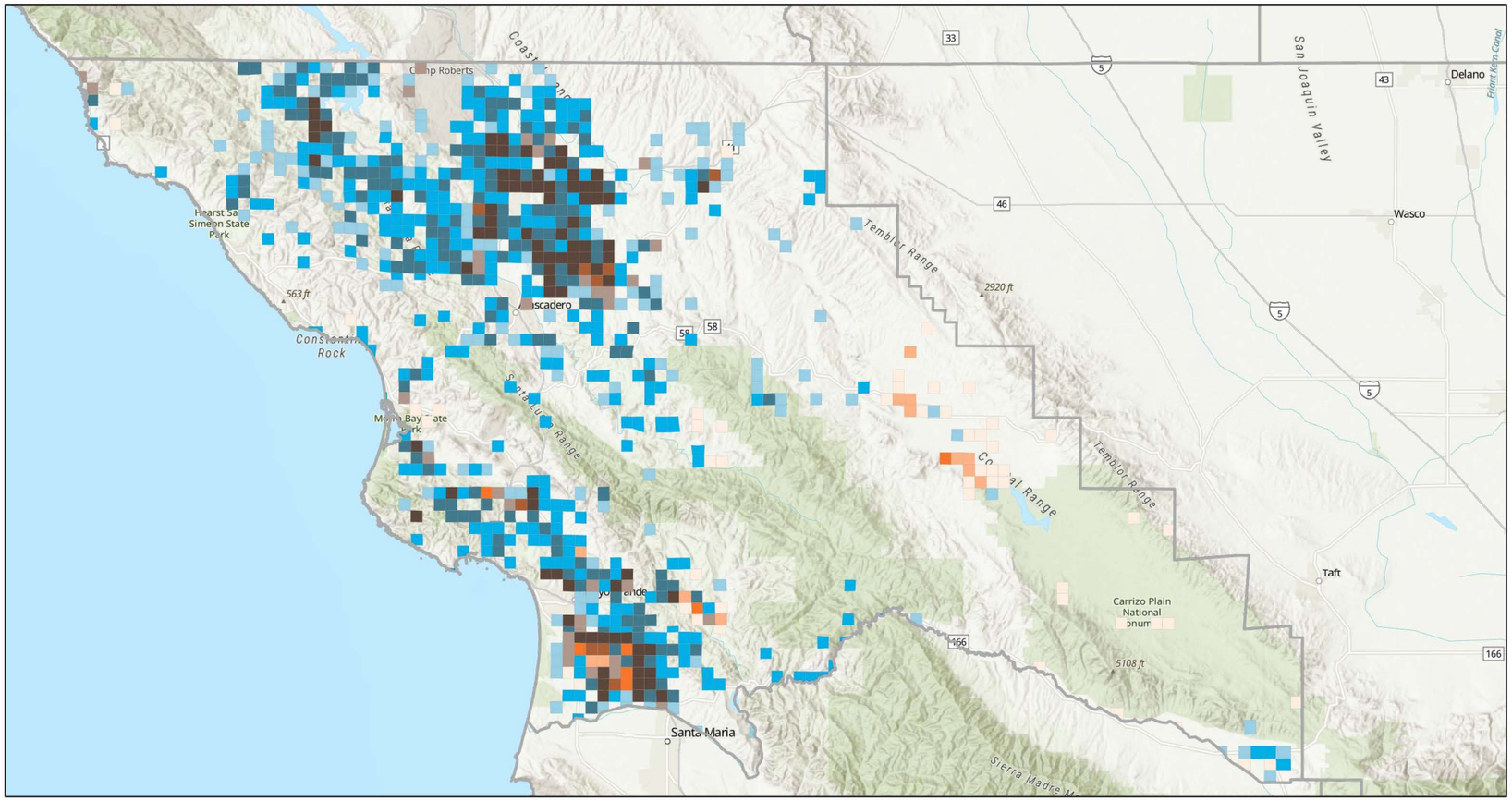
SSWS and Domestic Wells

Note that DWR mapping tool was not used for domestic well counts. Well data was provided by the County.



Risk Assessment Analysis Results

- Combines physical vulnerability with SSWS and domestic well locations
- Darker brown indicates high physical vulnerability and high SSWS and domestic well presence

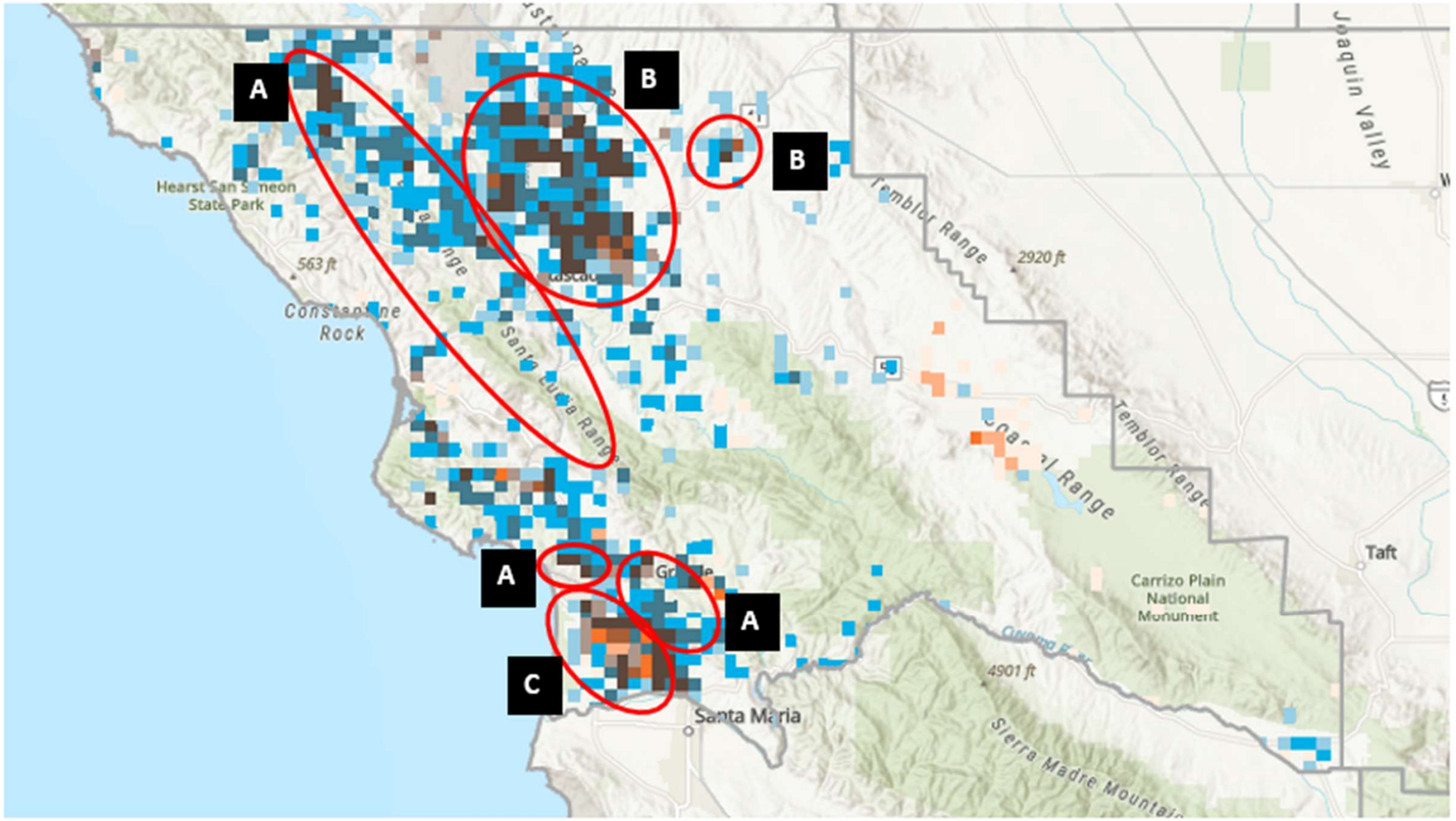


Regions with Water Shortage Vulnerability

A) Communities in Fractured Rock Areas (West of Lake Nacimiento, Northern portion of the Santa Lucia Range, north of Arroyo Grande, Nipomo Valley)

B) Areas within the Salinas Valley - Paso Robles Area Basin and the Salinas Valley – Atascadero Valley Basin

C) Areas within the Santa Maria River Valley – Santa Maria Basin and the Santa Maria River Valley – Arroyo Grande Basin



Risk Assessment Findings

Location in Figure	Area with Water Shortage Vulnerability and Domestic Wells/SSWSs	Physical Vulnerability Indicators	Notes
A	Communities in Fractured Rock Areas (West of Lake Nacimiento, Northern portion of the Santa Lucia Range, north of Arroyo Grande, Nipomo Valley)	Fractured Rock Area Wildfire Hazard Competing Demand Water Quality Risk Irrigated Agriculture	
B	Areas within the Salinas Valley - Paso Robles Area Basin and the Salinas Valley – Atascadero Valley Basin	Overdrafted Basin Water Quality Groundwater Decline Wildfire Risk Household Outages Irrigated Agriculture	Wells right on boundary of basin but are drilled deeper (within fractured rock) Add GW basin boundary to maps
C	Areas within the Santa maria River Valley – Santa Maria Basin and the Santa Maria River Valley – Arroyo Grande Basin	Water Quality Groundwater Decline Household Outages Irrigated Agriculture	Add GW basin boundary to maps

Physical Vulnerability Drivers

Indicators driving physical vulnerability:

- Fractured rock areas
- Dry Domestic Well Susceptibility in Basins
- Wildfire Hazard Indicator
- Water Quality Risk
- Critically Overdrafted Basins

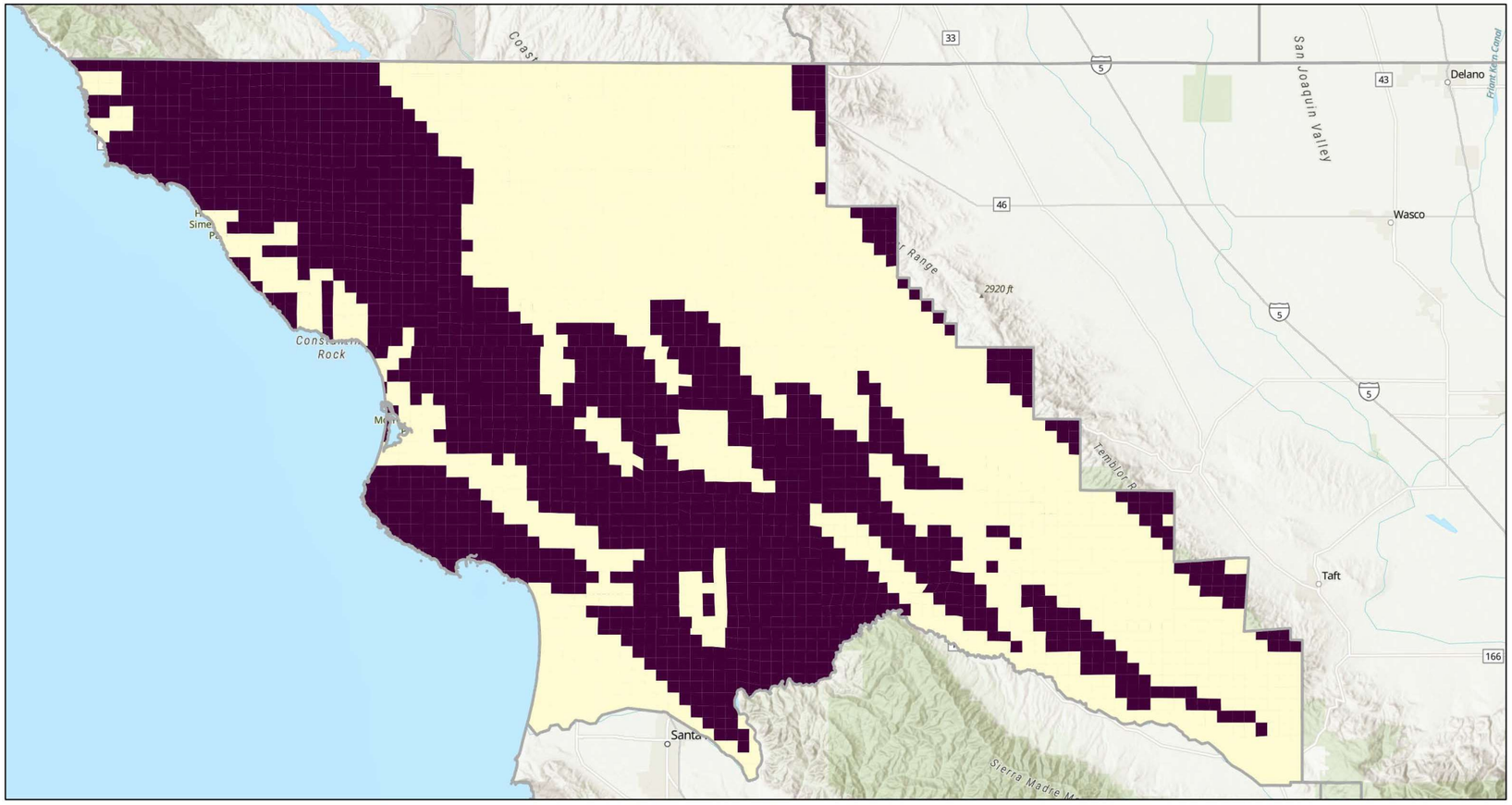
Indicator Detail: Fractured Rock Areas

Indicator Metric:

Areas of fractured rock

Vulnerability Impact:

Unpredictable flow patterns in fractured rock systems make them more vulnerable to prolonged dry periods, which can cause wells to run dry or significantly reduce their yield.



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California Counties

RC2c- Fractured Rock Areas

No, not fractured rock area

Yes, fractured rock area

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0 10 20 40 km

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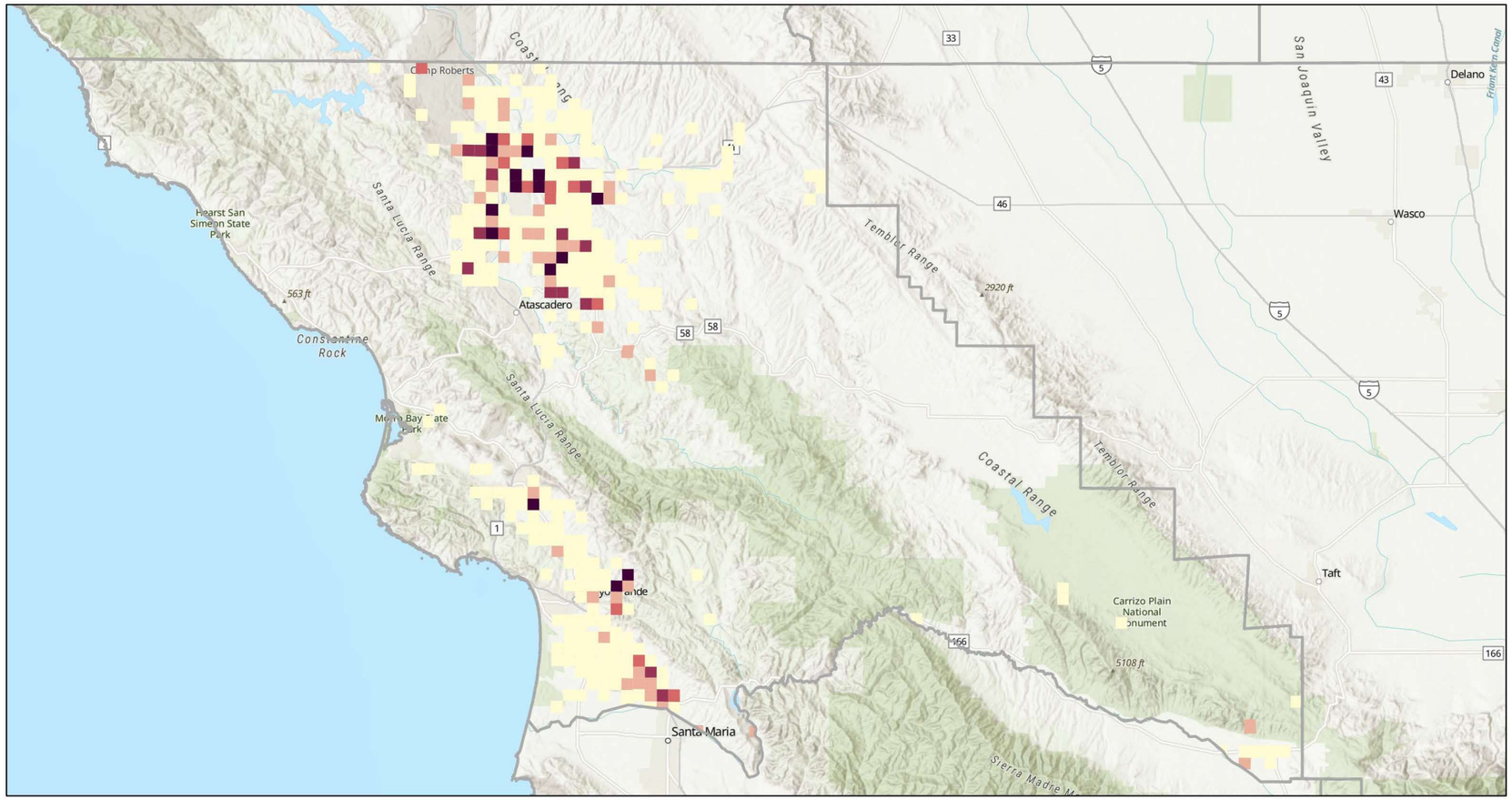
Indicator Detail: Dry Domestic Well Susceptibility in Basins

Indicator Metric:

This is a relative density-based indicator developed as an estimate of where domestic wells may go dry if recent groundwater trends continue.

Vulnerability Impact:

Dry wells signal depleted groundwater, highlighting reduced water availability and increased vulnerability to shortages.



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California Counties

RC3a - Domestic Well Susceptibility in Basins (SGMO Dry Well Susceptibility)

0

1

2

3 - 4

5 - 75

1:633,689

0 5 10 20 mi

0 10 20 40 km

U.S. Bureau of Reclamation, California Department of Conservation, California Department of Fish and Game, California Department of Forestry and Fire Protection, National Oceanic and Atmospheric Administration. Contact: gis@water.ca.gov, Esri, USGS, California State

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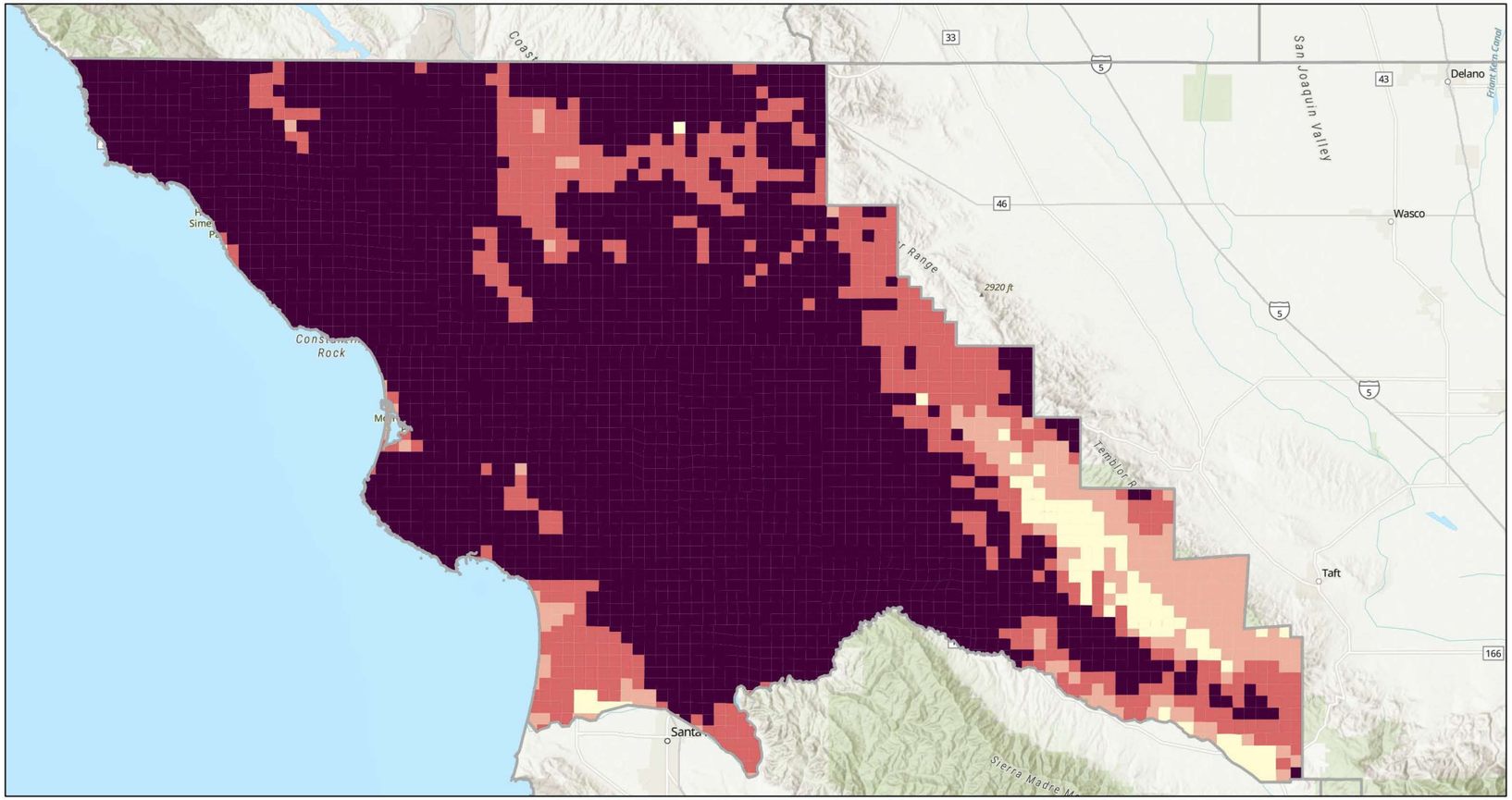
Indicator Detail: Wildfire Hazard

Indicator Metric:

The relative potential for high-intensity wildfire that may be difficult to manage

Vulnerability Impact:

Damage or destroy natural and built infrastructure that can alter water quality and stress water resources



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California Counties

RC2b - USFS Wildfire Hazard

No or Low Risk

Moderate Risk

High Risk

Very High Risk

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0 5 10 20 mi

0 10 20 40 km

U.S. Bureau of Reclamation, California Department of Conservation, California Department of Fish and Game, California Department of Forestry and Fire Protection, National Oceanic and Atmospheric Administration. Contact: gis@water.ca.gov, Esri, USGS, California State

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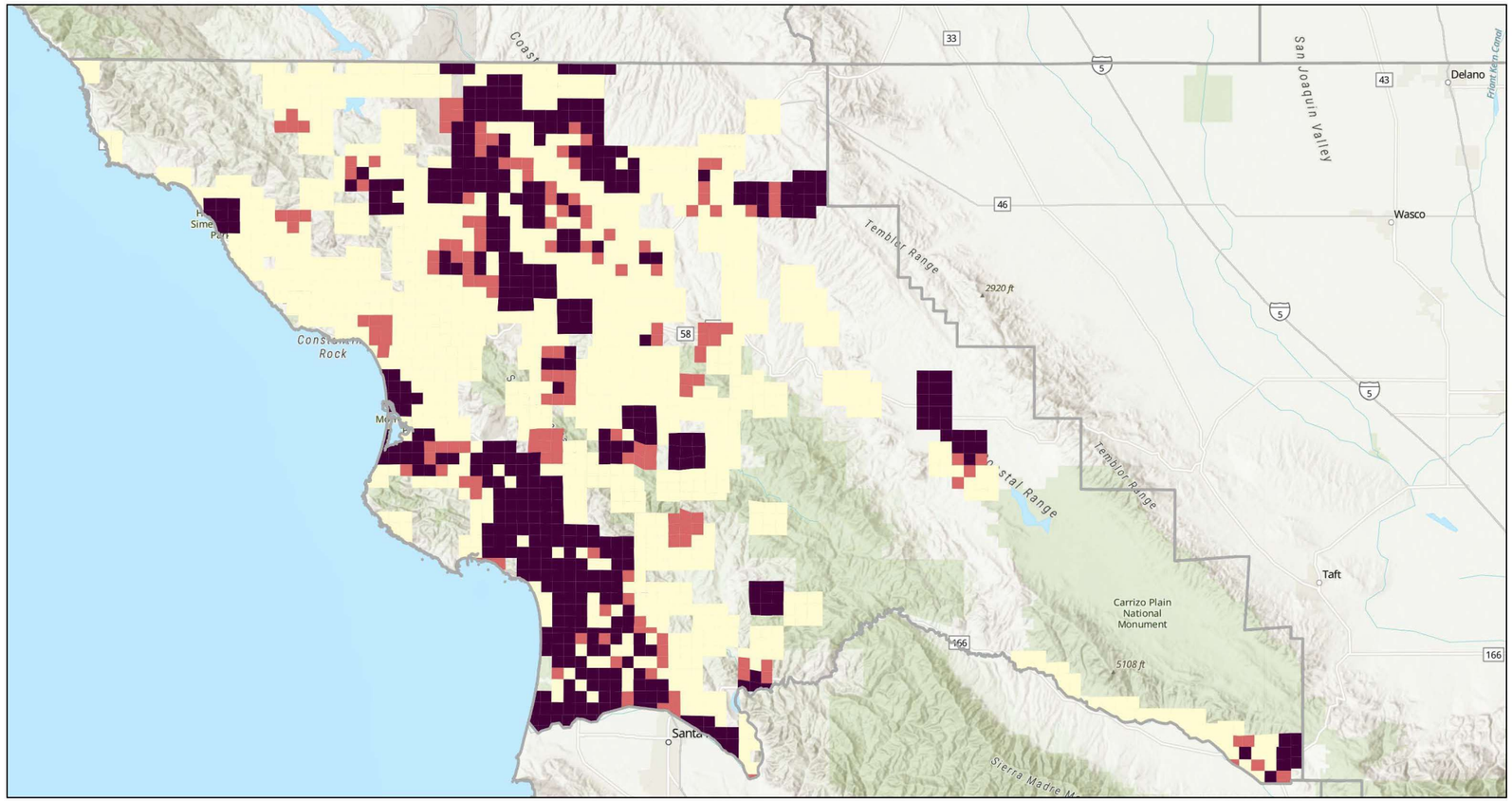
Indicator Detail: Water Quality Risk

Indicator Metric:

Applied 2024 SAFER Needs Assessment for water quality, which shows the raw groundwater quality risk based on existing data. Does not predict or estimate actual water quality at given locations.

Vulnerability Impact:

Increased risk of domestic well or SSWS being unable to deliver drinking water due to water quality impact



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California Counties

RC2i - SWRCB 2024 Water Quality Risk

Low

Medium

High

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0 5 10 20 mi

0 10 20 40 km

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California Department of Water Resources

California Department of Water Resources

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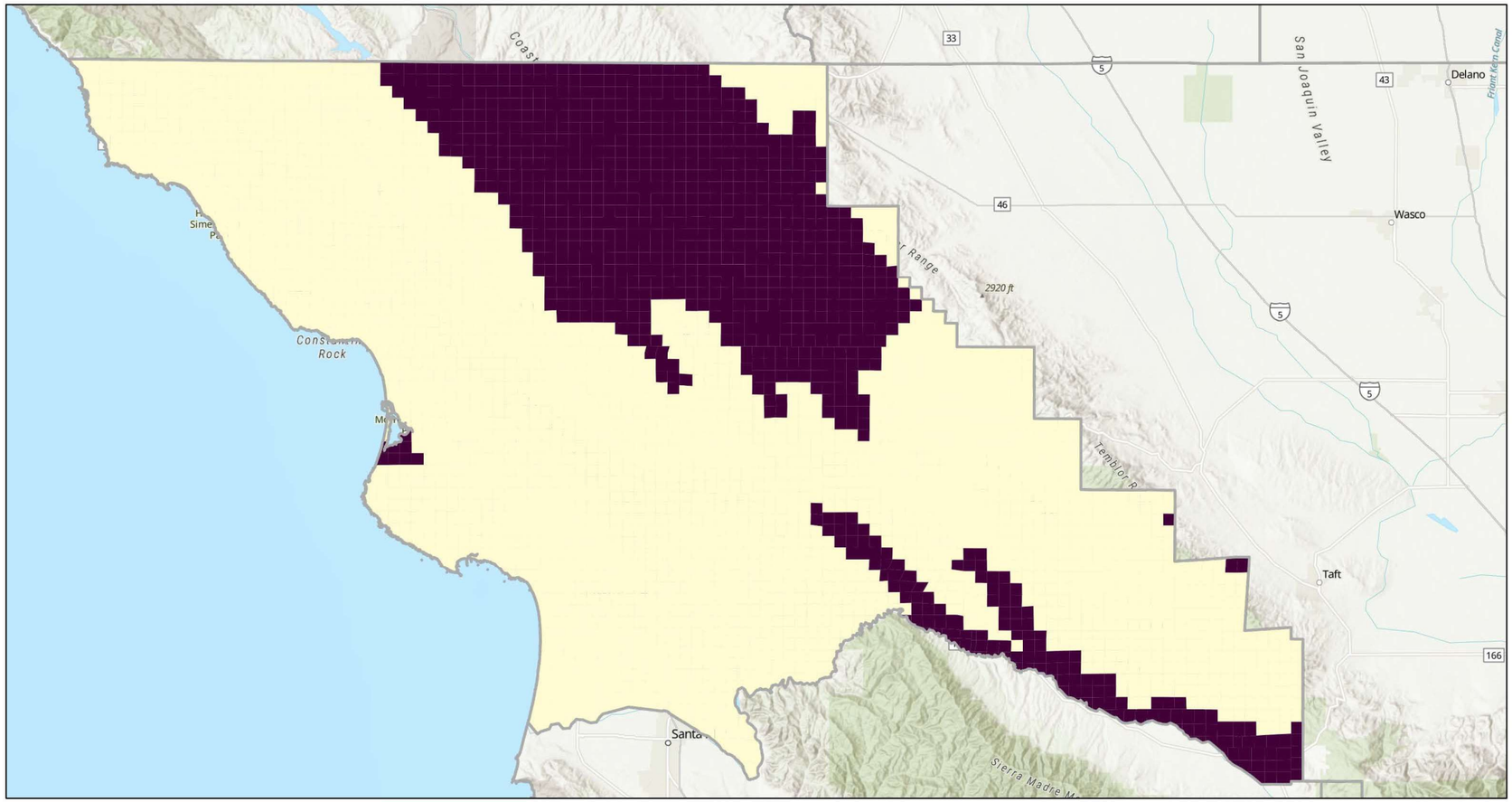
Indicator Detail: Critically Overdrafted Basins

Indicator Metric:

Determinations of critically overdrafted groundwater basins

Vulnerability Impact:

A critically overdrafted basin depletes groundwater reserves, increasing water shortage vulnerability by reducing available supply and stressing surface water sources.



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California Counties

RC2f - Overdrafted Basin

Not Critically Overdrafted Basin

Critically Overdrafted Basin

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0 5 10 20 mi

0 10 20 40 km

U.S. Bureau of Reclamation, California Department of Conservation, California Department of Fish and Game, California Department of Forestry and Fire Protection, National Oceanic and Atmospheric Administration. Contact: gis@water.ca.gov, Esri, USGS, California State

COUNTY OF SAN LUIS OBISPO

IWG and Task Force Comments Reminder

Deadline for comments on the Draft Risk Assessment: March 11th

- Competing comments should be addressed prior to providing comments to Stantec.
- Comments should be condensed into one track changes Word document.

Water System Consolidation Methodology Discussion

COUNTY OF SAN LUIS OBISPO

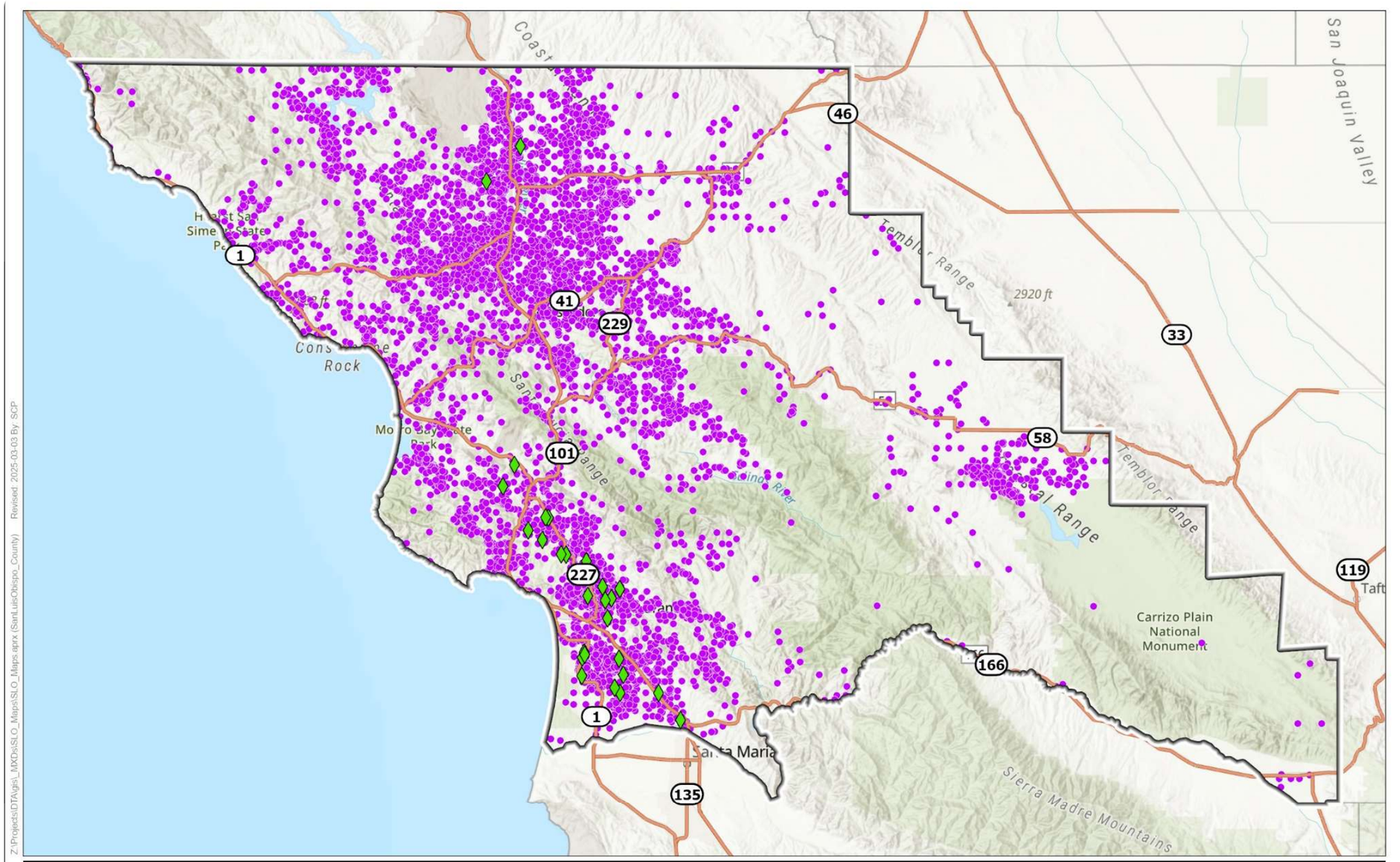
COUNTY OF SAN LUIS OBISPO

Existing Wells

Well information provided by the County

15,174 domestic (private wells)

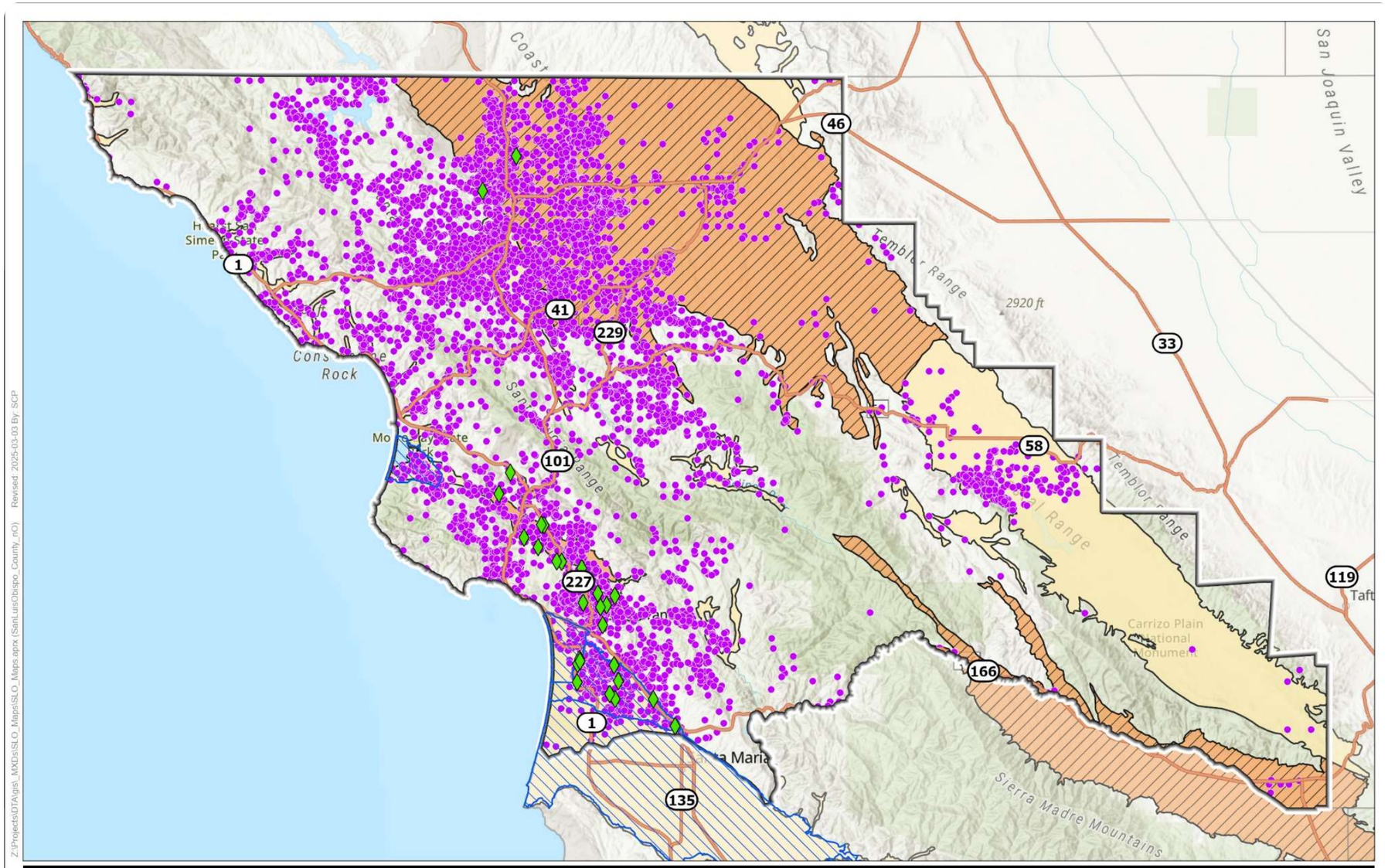
27 state small water systems



COUNTY OF SAN LUIS OBISPO

Existing Wells

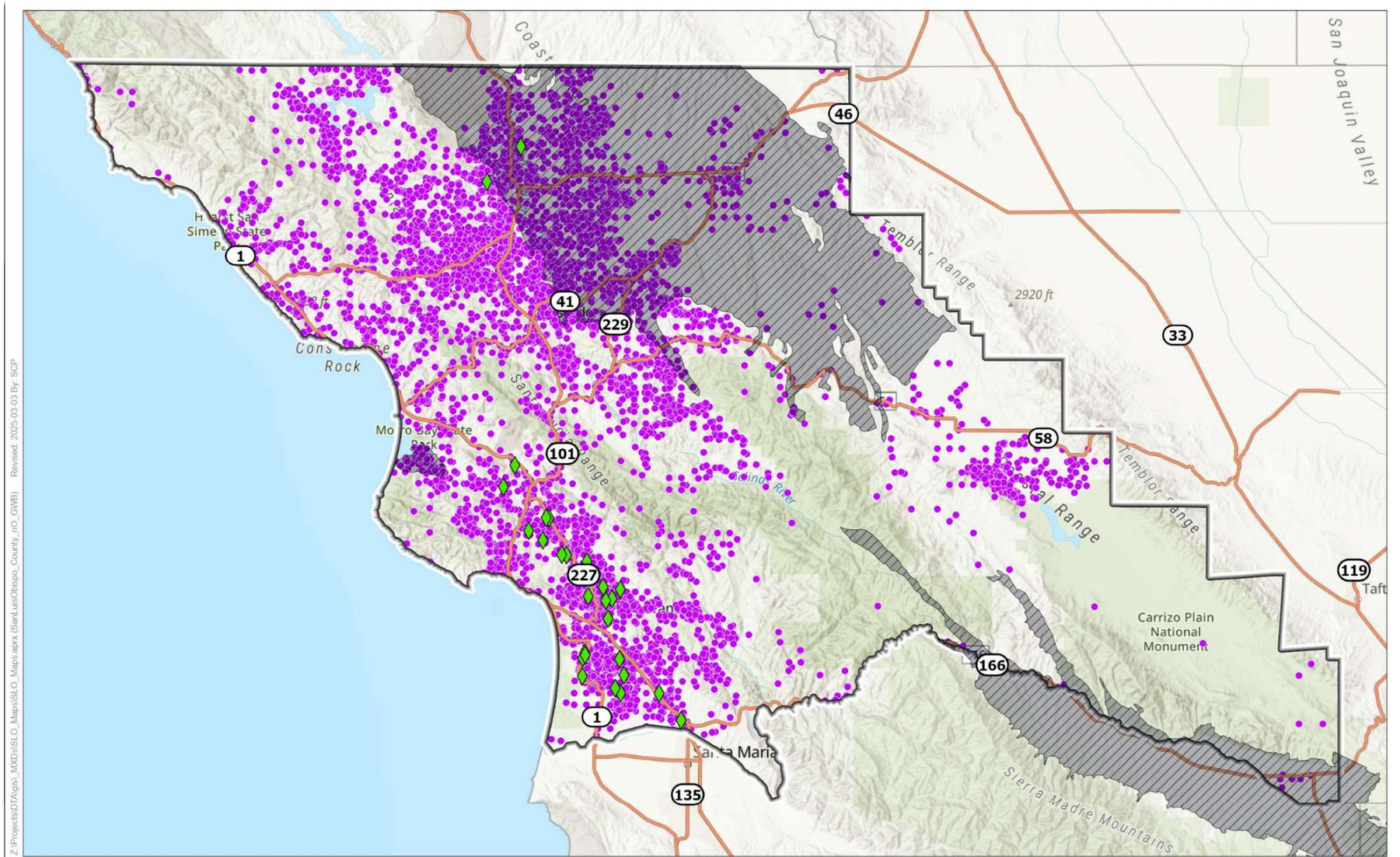
Existing wells over the prioritized groundwater basins



COUNTY OF SAN LUIS OBISPO

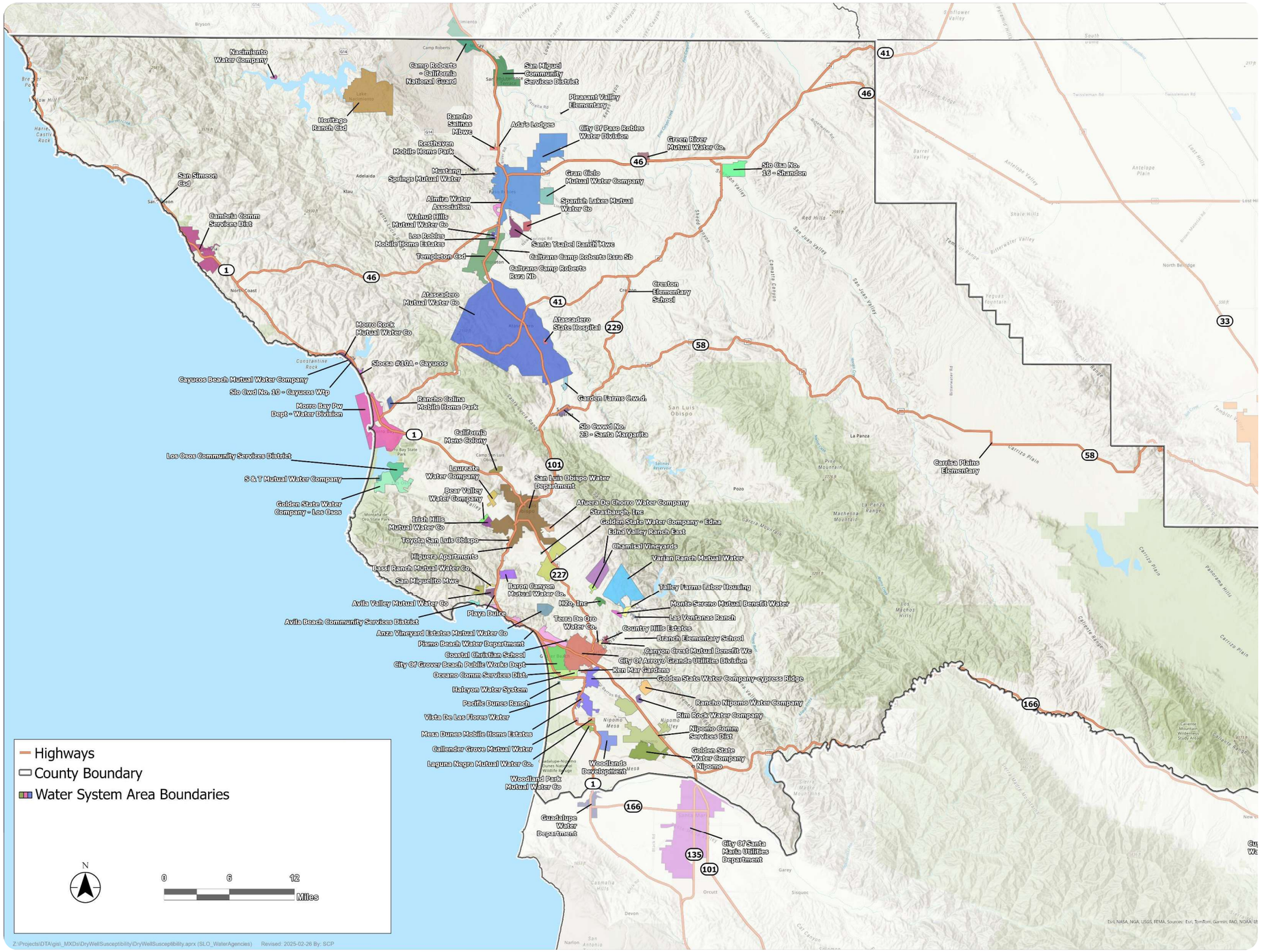
Existing Wells

Existing wells over critically over-drafted groundwater basins that was discussed in the Risk Assessment



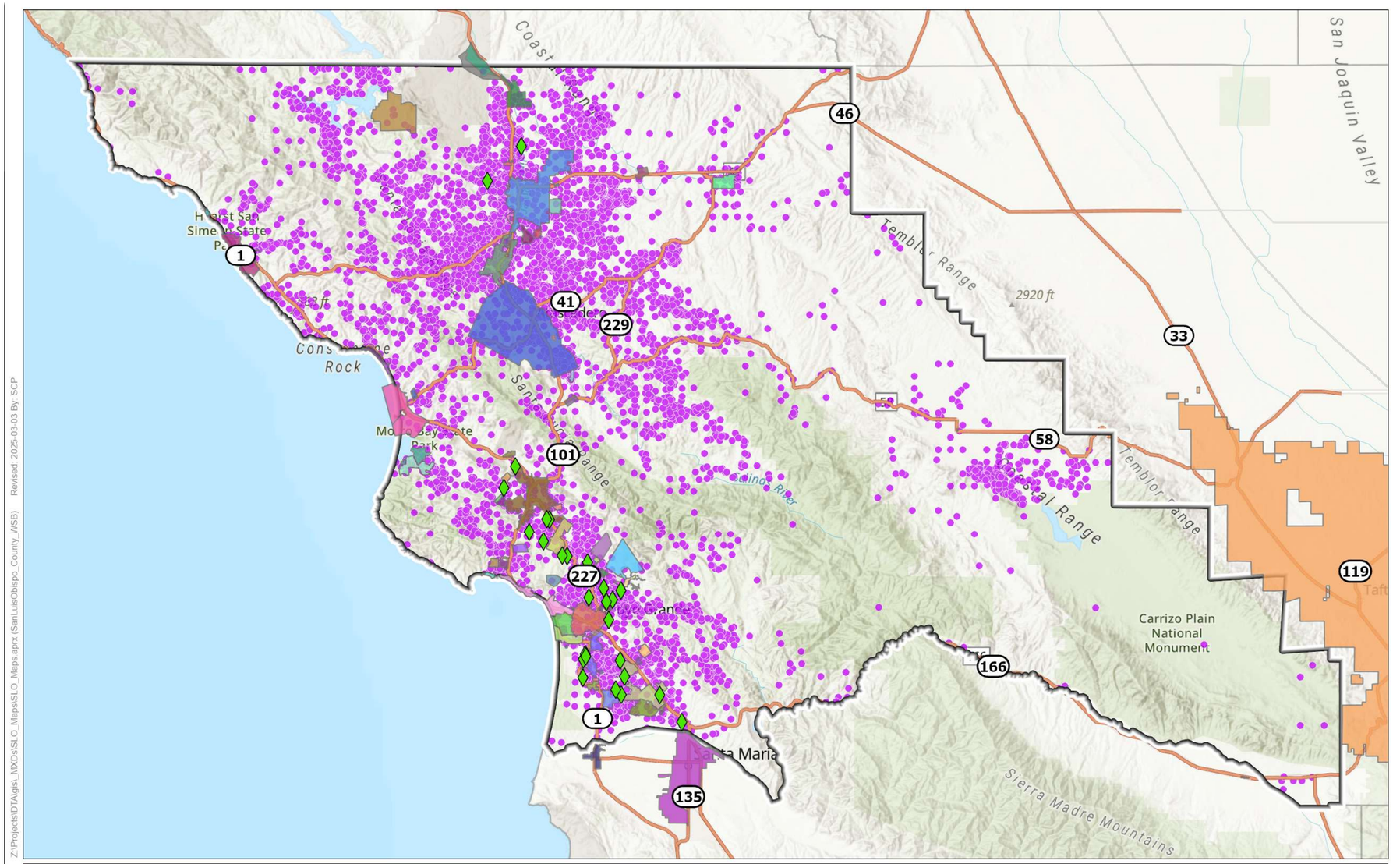
Water Systems

- Cities
- Community services districts county service areas
- Special districts that serve water
- Mutual water companies
- Nontransient noncommunity water systems that serve schools
- Water companies
- Total of 90 systems



COUNTY OF SAN LUIS OBISPO

Wells and Agencies



State Small Water Systems

Domestic (Private) Wells

Highways

County Boundary

Water System Area Boundaries

N

0 6.5 13 Miles

(At original document size of 8.5x11)

Notes

1. Coordinate System: NAD 1983 StatePlane California

2. Data Sources: Stantec 2024, DWR 2024

3. Background: World Topographic Map: Sources: Esri,

Prepared by SCP on 2025-03-03

Revised by SCP on 2025-03-03

Project

San Luis Obispo County Domestic Wells and State Small Water Systems

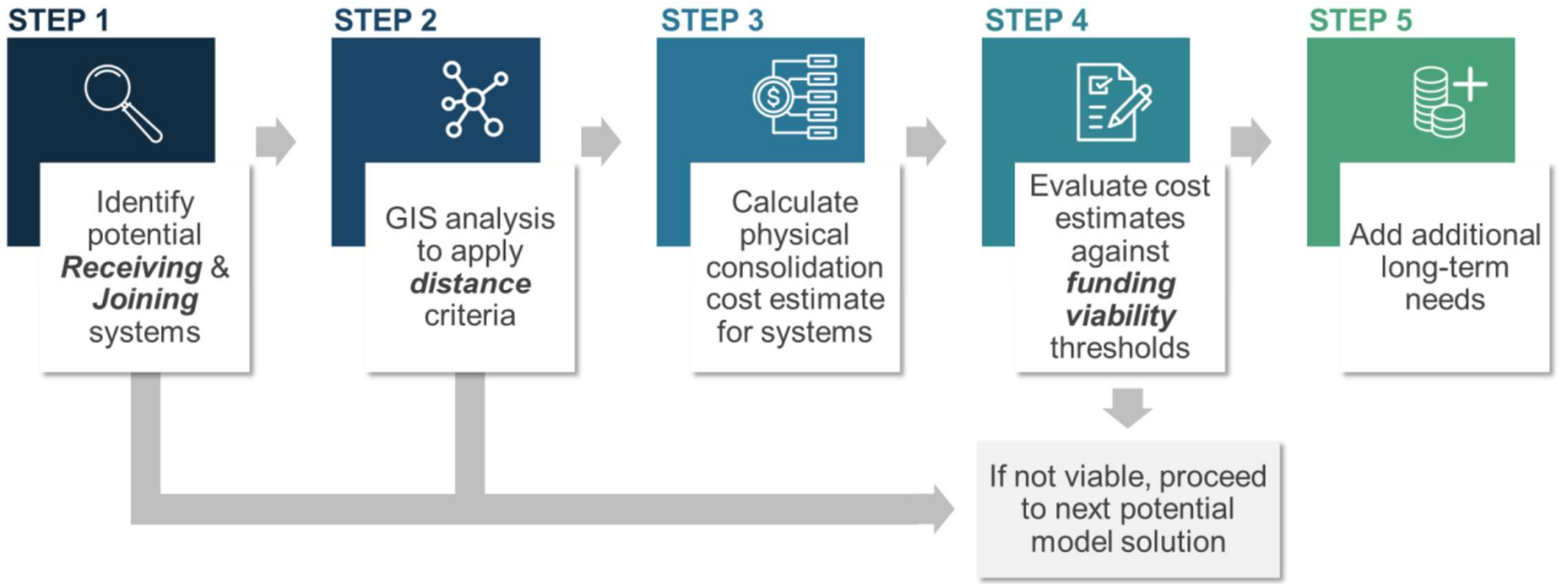
COUNTY OF SAN LUIS OBISPO

Method

- Water Boards Physical Consolidation Cost Estimate Methodology- Last Updated June 2024
- Five Step Process

CALIFORNIA
Water Boards

SUPPLEMENTAL APPENDIX:
PHYSICAL CONSOLIDATION COST ESTIMATE METHODOLOGY

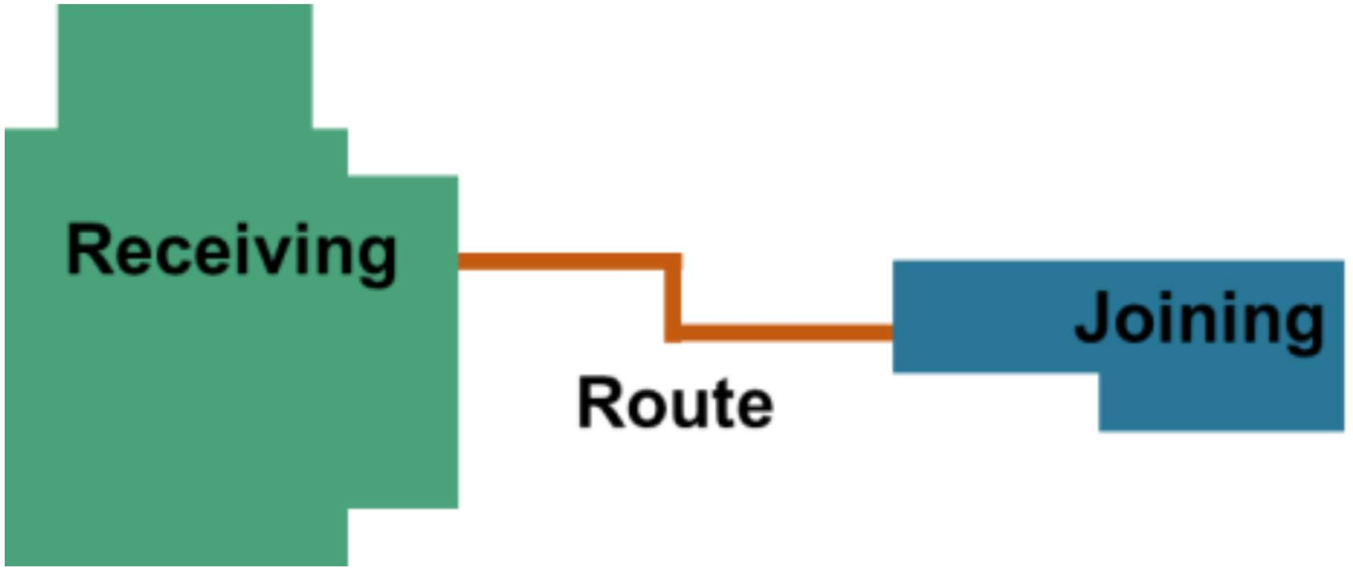


Step 1: Receiving and Joining

First, identify potential one-to-one physical consolidations between two different systems

Receiving Systems: Commonly larger public water systems that expand to subsume Joining systems and provide water supply to both of their customers.

Joining Systems: Commonly smaller public water systems, state small water systems, and domestic wells that are dissolved into existing receiving public water systems and are no longer responsible for providing water to their own customers.



Step 1: Joining Criteria

Public Water Systems that are potentially at-risk, not at-risk, and not assessed are not considered a joining system, but could be a receiving system.

Joining Systems:	
Failing Public Water Systems	≤ 1,000 service connections.
At-Risk Public Water Systems	≤ 500 service connections.
Potentially At-Risk, Not At-Risk, & Not Assessed Public Water Systems	*Excluded*
State Small Water Systems & Domestic Wells	High-Risk in the *Water Quality* and/or *Water Shortage* categories in the Risk Assessment.

Step 1: Receiving Criteria

State small and domestic systems are not considered receiving systems.

90 water systems, 79 have SAFER status

- Failing – 9
- At-Risk – 14
- Potentially At Risk – 6
- Not At-Risk – 47
- Not Assessed – 3
- Only 30 systems are over 500 connections

This criteria means that the receiving system could be failing or at-risk public water systems.

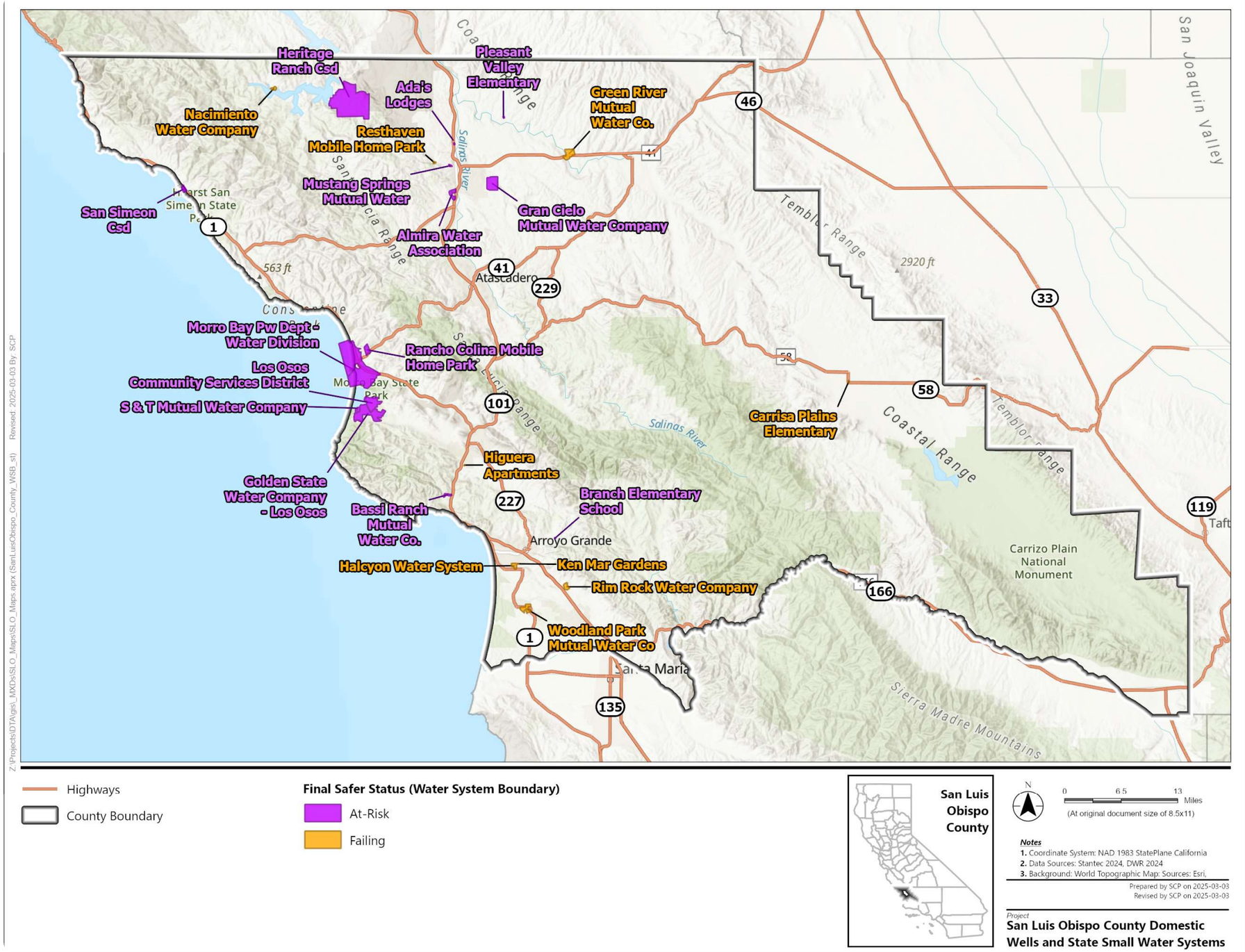
Receiving Systems for Joining Public Water Systems:	
Failing Public Water Systems	***Largest System*** **>** 1,000 service connections.
At-Risk Public Water Systems	***Largest System*** **>** 500 service connections.
Potentially At-Risk, Not At-Risk, Not Assessed Public Water Systems	***Largest System*** **>** 500 service connections.
State Small Water Systems & Domestic Wells	*Excluded*

Receiving Systems for Joining State Small Water Systems & Domestic Wells:	
Failing Public Water Systems	***Largest Nearby System***
At-Risk Public Water Systems	***Largest Nearby System***
Potentially At-Risk, Not At-Risk, Not Assessed Public Water Systems	***Largest Nearby System***
State Small Water Systems & Domestic Wells	*Excluded*

Receiving System Exclusions?

Should failing and as-risk systems be excluded from being a receiving system?

- San Simeon CSD potential consolidation with Cambria CSD per LAFCO
- Higuera Apartments application for annexation with City of SLO per LAFCO

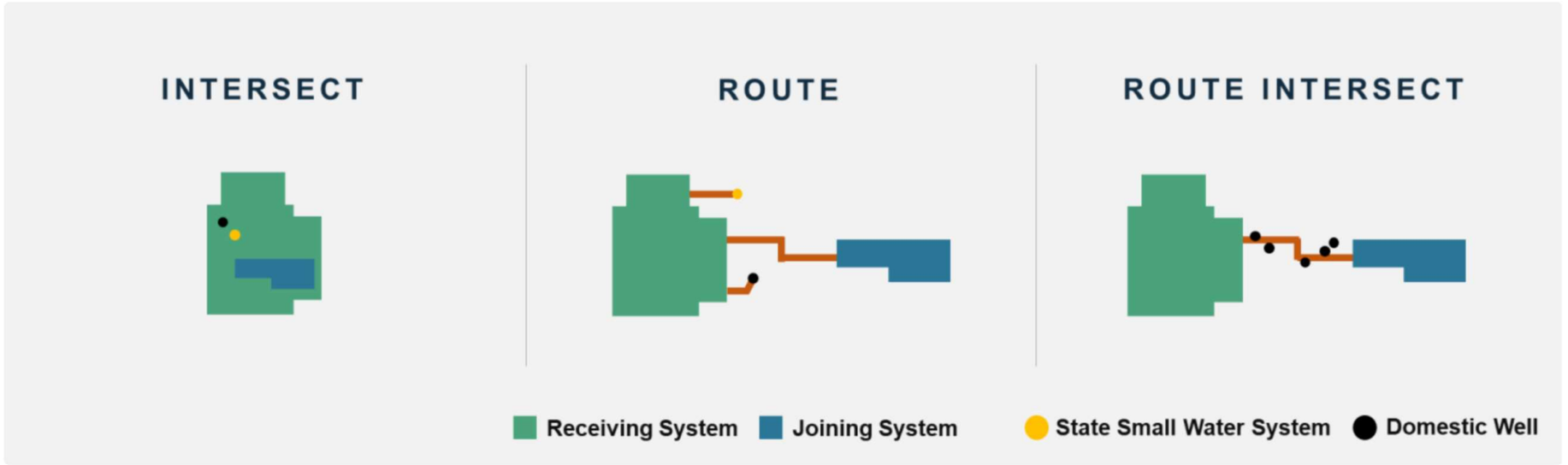


Step 2: Distance Criteria

Intersect: Where the Joining system, state small water system, or domestic well is physically located within the service area boundary of a potential Receiving system.

Route: Where the Joining system is physically located within a maximum distance from the service area boundary of a potential Receiving system along a street.

Route Intersect: Where the Joining state small water system or domestic well is along the modeled route of a potential public water system physical consolidation.



	Viability Criteria
Public Water Systems	• ***Intersect*** • ***Route:*** Maximum route distance = 3 miles
State Small Water Systems	• ***Intersect*** • ***Route***: Maximum route distance = 0.38 miles • ***Route Intersect:*** Systems that intersect a viable public water system's modeled physical consolidation route.
Domestic Wells	• ***Intersect*** • ***Route:*** Maximum distance = 0.38 miles • ***Route Intersect:*** Domestic wells located within a 1-mile section that intersects a viable public water system's modeled physical consolidation route.

Step 3: Cost Estimate

Need to discuss Pipeline Cost per linear foot.

Need to consider multipliers to the pipeline linear cost:

Santa Cruz County assumed:

- Landslide: 1.25
- Expansive Soils: 1.15
- Liquefaction: 1.3
- High groundwater: 1.20
- If the elevation difference between the system and source exceeds 50 feet, a pressure cost factor of 1.05 is applied to the entire pipeline length.
- Slope: 1 to 1.15 depending on a normalized slope relative to the max slope
- Fault crossing: +$100,000

Cost Component	Application	Cost Estimate ($)
Pipeline ($/Lf)	Based on modeled route.	$220
Connection Fees ($/Joining system service connection)	Averaging connection fees for Receiving systems for each scenario	• **Public Water Systems** = $5,437 • **SSWS** = $2,600 • **DW** = $3,342
Service Line Cost ($/Project)	Included for both intersect and route Joining systems	$6,200
Administrative Cost ($/Project)	Included for all Failing and At-Risk systems, except At-Risk Domestic wells	15% of total construction cost.
CEQA Cost ($/Project)	• Included for all Failing and At-Risk systems, except At-Risk DWs	• **Intersect** systems = $25,000 • **Route** systems = $100,000

Pipelines are designed to convey treated water from receiving systems to Joining systems' customers by connecting to the Receiving system's existing distribution system. Pipelines are assumed to be 12-inch diameter to ensure delivery of water at adequate pressure throughout the system.

Material cost for 12" PVC C900 = $55 per linear foot

Installation Cost = $165 per linear foot

Pipeline Cost/lf= Material ($55) + Installation ($165) = $220 /lf

Recent bid construction prices in Santa Barbara= $300/lf

Step 3: Cost Estimate

Inflation is forecast between April 2023 to April 2024. Inflation will need to be increased.

SLO is a Suburban County

If Regional Multiplier is used, then adjustment to pipeline cost may not be needed.

Cost Component	Application	Cost Estimate ($)
Treatment Cost	Included for Failing Receiving systems due to water quality issues	Apply BAT[27] Capital and O&M[28] per failing analyte. (*excluded from physical consolidation funding viability determination*)
Additional Source	Included for Receiving systems with single source of water supply.	Additional cost for well if system relies on one source. (*excluded from physical consolidation funding viability determination*)
Contingency	Included for all Failing and At-Risk systems, except At-Risk DWs	20% Total cost
Inflation	Included for all systems regardless of size and type	3.1% Total cost
Planning & Construction	Included for all systems regardless of size and type	10% Total cost
Engineering Services	Included for all systems regardless of size and type	15% Total cost
Regional Multiplier	Included for all systems regardless of size and type	• Rural Counties (0%) • Urban Counties (+32%) • Suburban Counties (+30%)

Step 4: Funding Viability

Funding viability thresholds from 2023-24 Clean Water State Revolving Fund Intended Use Plan, then inflated by 20% per DDW and DFA.

The Division of Financial Assistance does not currently employ funding viability thresholds for consolidation projects for state small water systems and domestic wells. Funding decisions are made on a case-by-case basis.

	Funding Viability Criteria
Public Water System *> 75 service connections*	Estimated Capital Cost per Connection < $96,000
Public Water System *< 75 service connections*	Estimated Total Capital Cost < $7.2 million
State Small Water System	Estimated Total Capital Cost < $2 million
Domestic Well	Estimated Total Capital Cost < $150,000

Step 5: Model Additional Infrastructure/Admin Needs for Receiving Systems

Treatment Cost: If failing due to water quality issues, then add treatment replacement

Additional Source (Well Cost): If single source of water supply, then add backup public supply well.

Other Essential Infrastructure (OEI): If aging infrastructure, then add costs for upgrades and replacements. Need to follow the Supplemental Appendix: Additional Long- Term Modeled Solutions Cost Estimate Methodology.

Additional Costs: May include technical assistance and/or administrator assistance per Supplemental Appendix.

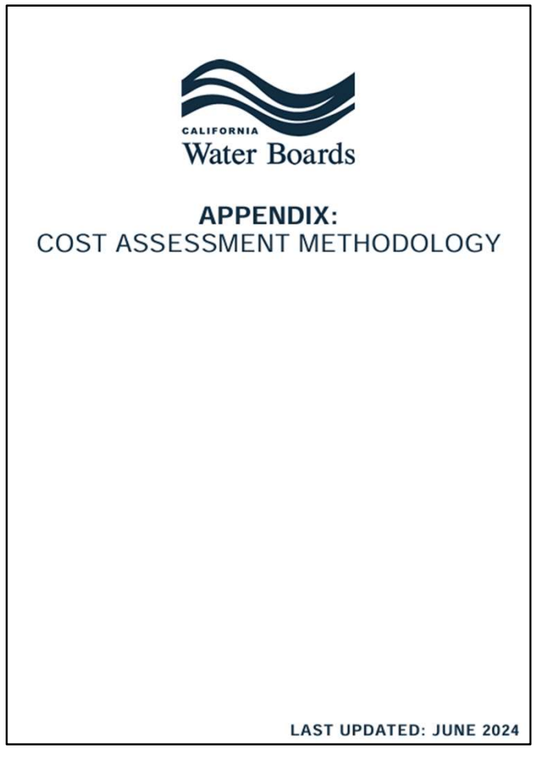
Need to decide if failing or at-risk public water systems should be included as a receiving system.

- Failing – 9
- At-Risk – 14

If included, then these additional costs would be included.

Step 6: Long Term Solutions for Systems Where Physical Consolidation is Not Selected

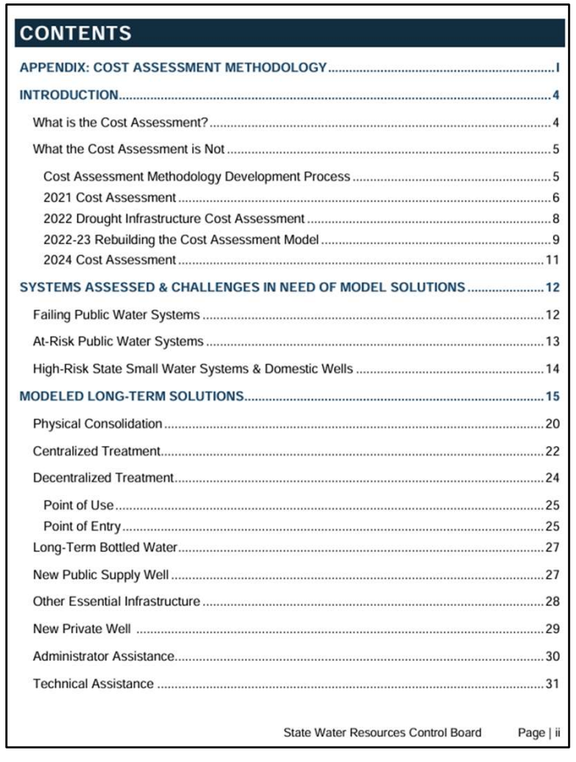
Systems where modeled physical consolidation does not meet the physical and/or funding viability criteria will move forward in the Cost Assessment Model to identify alternative modeled long-term solutions. The Cost Assessment Model will match identified challenges to possible long-term and short-term solutions. Learn more in the Cost Assessment Methodology Appendix.



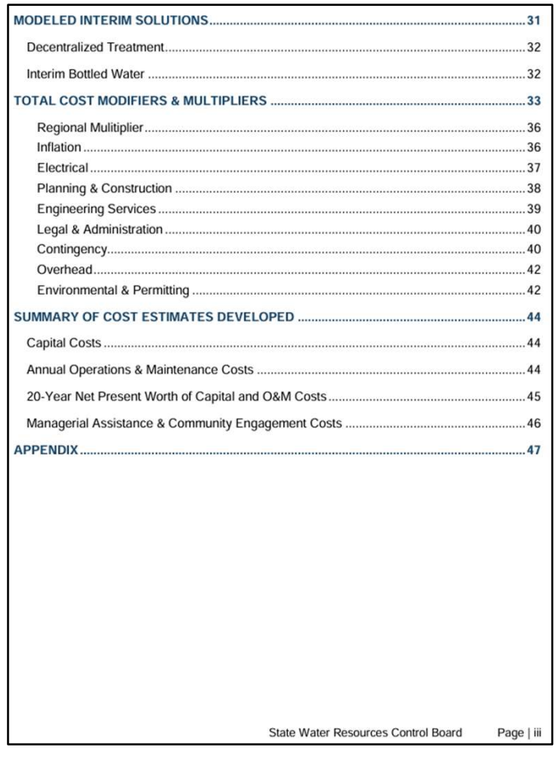
CALIFORNIA
Water Boards

APPENDIX:
COST ASSESSMENT METHODOLOGY

LAST UPDATED: JUNE 2024



CONTENTS



Next Steps

Prioritize Consolidation

1. Meets Physical Criteria (Distance)
2. Meets Funding Viability Criteria (Cost)
3. Interested Water Systems
4. Interested Private Well Owners
5. Wells within Priority Groundwater Basins

Next Steps:

1. WRAC Vision & Mission meeting- April
2. LAFCO workshop #2- March/April

	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25
Risk Assessment									
Baseline Risk Assessment									
PWD/IWG Meeting #1: Risk Assessment		•							
Revised Baseline Risk Assessment									
SLO SB552 System Consolidation Plan									
PWD/IWG Meeting #2: Vision and Mission Workshop		•							
LaFCO Workshop			•						
WRAC Meeting #1: Vision and Mission Confirmation				•					
GIS Analysis									
WRAC Meeting #2: Draft SB552 SCP						•			
SB552 System Consolidation Plan Summary									
SB552 System Consolidation Plan						▲		★	
County DRP Support									
Public Works Department Meetings	•	•	•	•	•	•	•	•	
2024 MJHMP/County DRP Support									
Task 4. CSP Administration									

Legend:
▲ = Draft SB552 SCP
★ = Final SB552 SCP

Thank you

COUNTY OF SAN LUIS OBISPO