

# Septic System Mapping Study and Analysis



Results of Board Directed Project



Term: OWTS

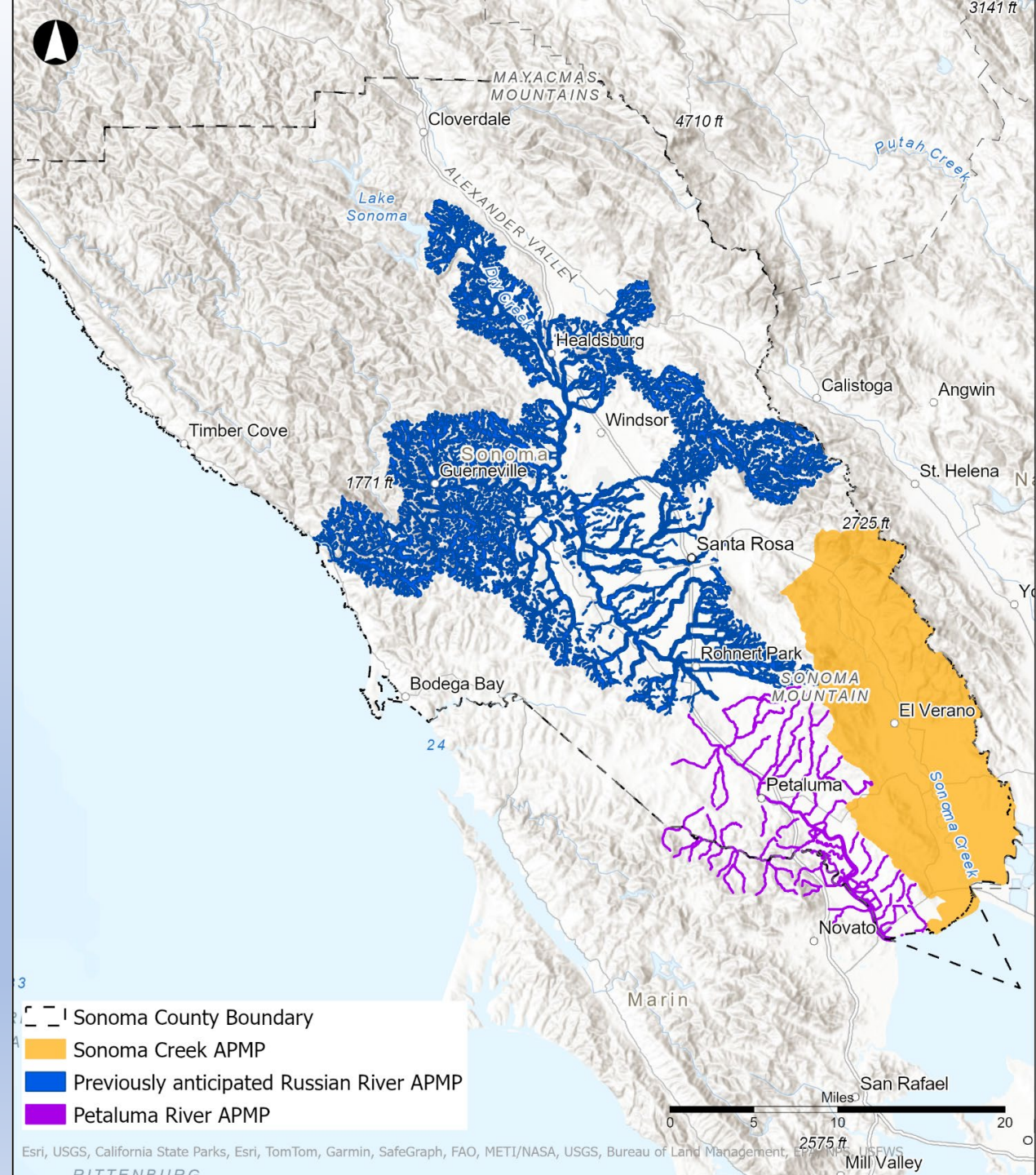
Onsite Wastewater Treatment Systems (OWTS)

aka Septic Systems

# Term: APMP area

Advanced Protection  
Management Program area

aka impaired area



# Initiation and Project Execution

## ➤ 2021

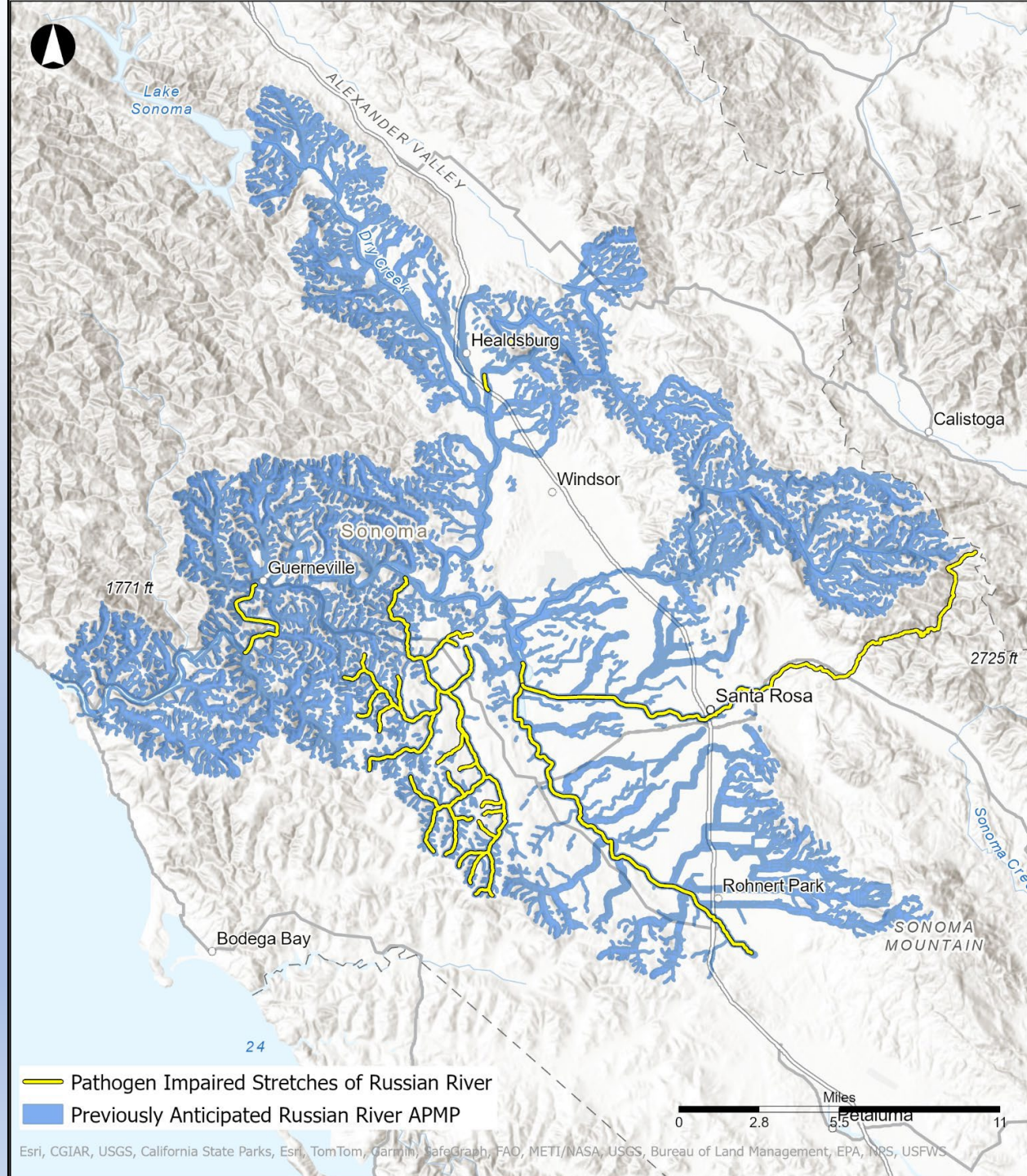
- Regulatory context
- Board directed study
- Purpose

## ➤ 2021-2023

- Storming and forming

## ➤ 2023-2024

- Project execution
- Deliverables



# Deliverable: Analysis Report

## Contents:

- Introduction to Septic Systems in Sonoma County
- Existing Treatment of wastewater
- Opportunities and Challenges (governance and infrastructure)
- Community cluster analysis

County of Sonoma

## OWTS Mapping and Analysis Study

Mapping Study Report

Reference: 296767-T5-RPT

2 | June 3, 2024



Lower Russian River Trail, Sonoma County Regional Parks © County of Sonoma

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 296767-05

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[arup.com](http://arup.com)

# Deliverable: Interactive, web-based map

**CWTS Hub** Sign in

## Sonoma County OWTS Interactive Mapping Tool

[Quick Guide](#) [FAQ](#) [Terms and Conditions](#)

### Legend

**Key Layers**

**Governance Boundaries**

**Supervisorial Districts**

- 1st
- 2nd
- 3rd
- 4th
- 5th

**Base Data**

**Sonoma County Boundary**

**Water and Wastewater**

- Petaluma River APMP Boundary
- Sonoma Creek APMP Boundary
- Previously Anticipated Russian River APMP Boundary

### Data Layers

[Export Figure / Report](#)

Find address or place

Data Layers	Filters
<input type="checkbox"/> Groundwater Availability Areas	...
<input type="checkbox"/> Water Right Points of Diversion - Water Right Points of Diversion	...
<input type="checkbox"/> Public Trust Review Area	...
<input type="checkbox"/> California Drinking Water System Area Boundaries	...
<input type="checkbox"/> Permit Sonoma Well (WEL) Permits	...
<input checked="" type="checkbox"/> Petaluma River APMP Boundary	...
<input checked="" type="checkbox"/> Sonoma Creek APMP Boundary	...
<input checked="" type="checkbox"/> Previously Anticipated Russian River APMP Boundary	...
<input checked="" type="checkbox"/> Pathogen Impaired Stretches of Russian River	...
<input type="checkbox"/> Bodega Bay Public Utility District	...

5 mi

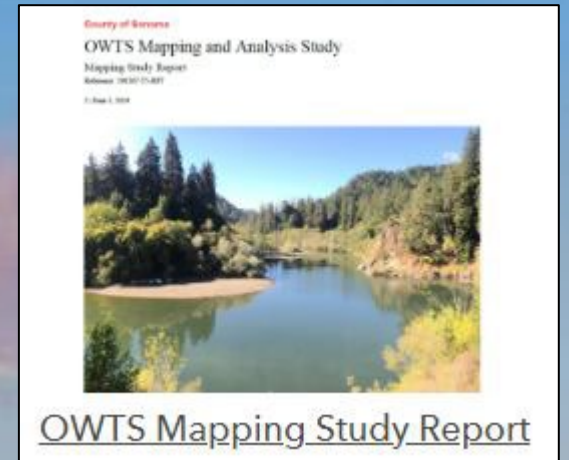
Selected features: 0

California State Parks, Esri, SafeGraph, FAO, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USFWS | Kristina Yoshioka | Powered by Esri

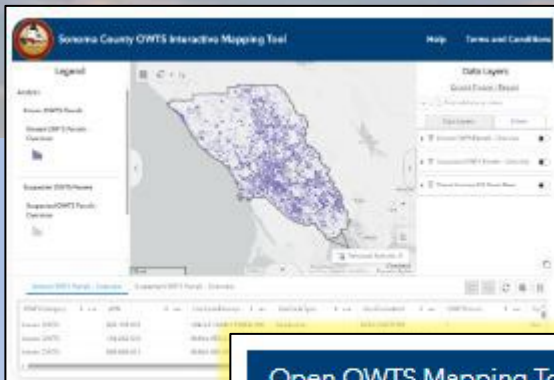


<https://gis-owts.sonomacounty.ca.gov>

# Sonoma County OWTS Hub



[OWTS Mapping Study Report](#)



[Open OWTS Mapping Tool](#)

## Resources



[Permit Sonoma Septic System Information](#)

Explore



[North Coast Regional Water Board](#)

Explore



Lower Russian River Wastewater  
Citizen Advisory Group

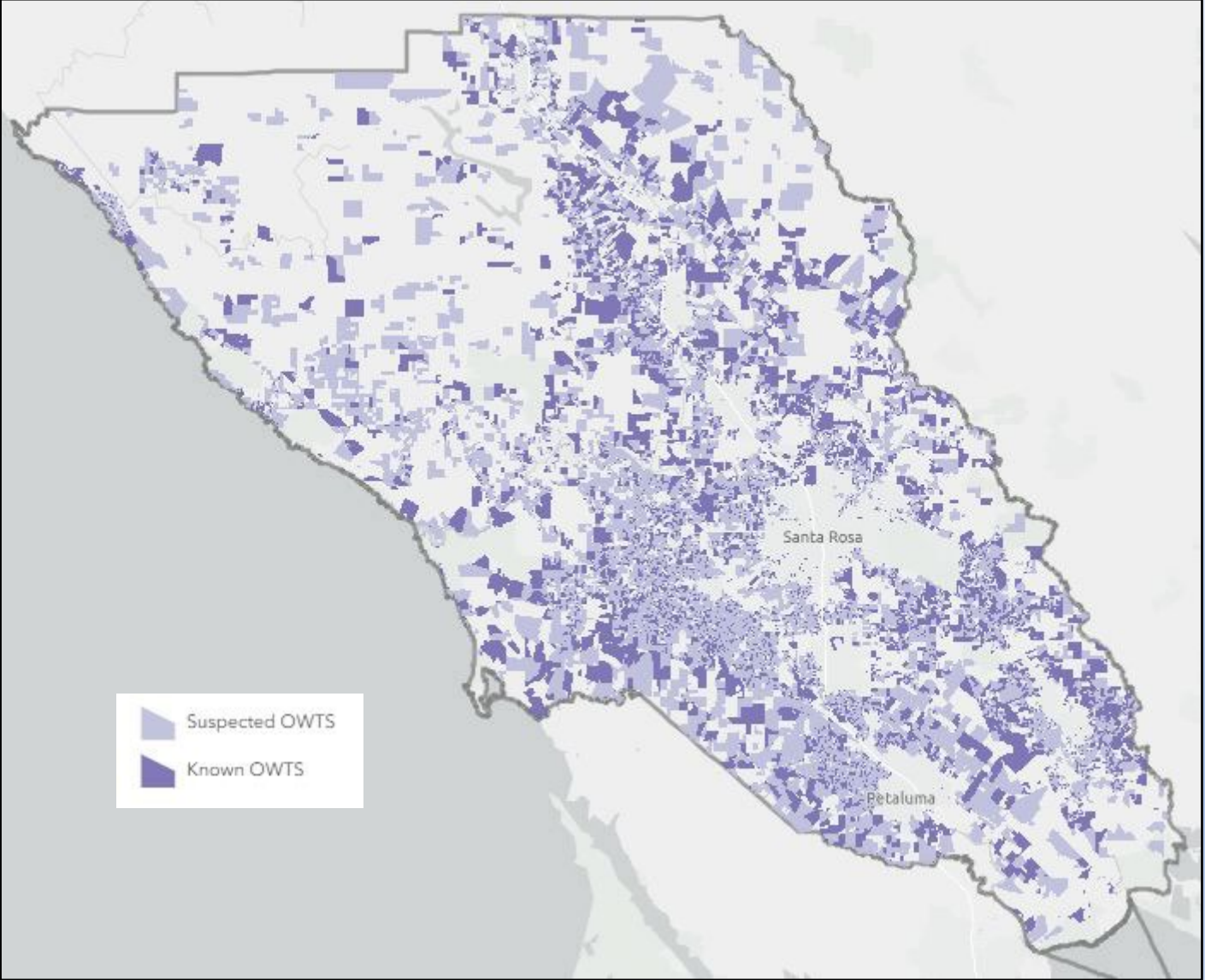
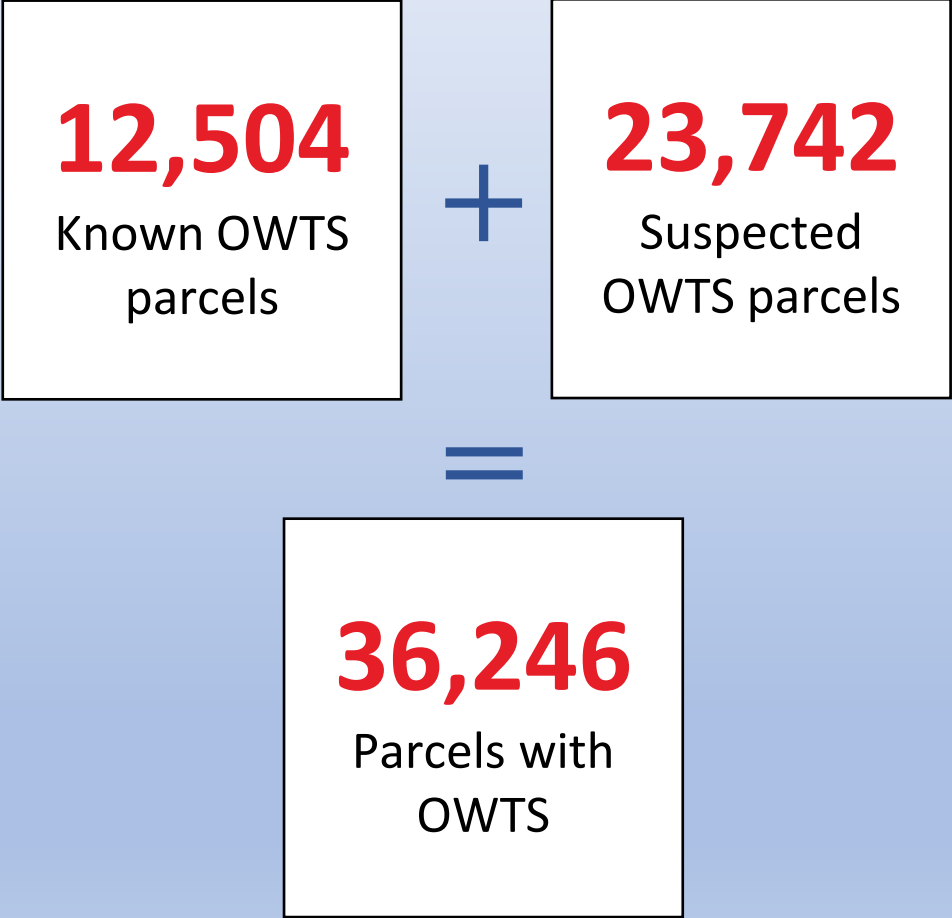
[Lower Russian River Wastewater  
Citizen Advisory Group](#)

Explore

# FACTS AND MAPS

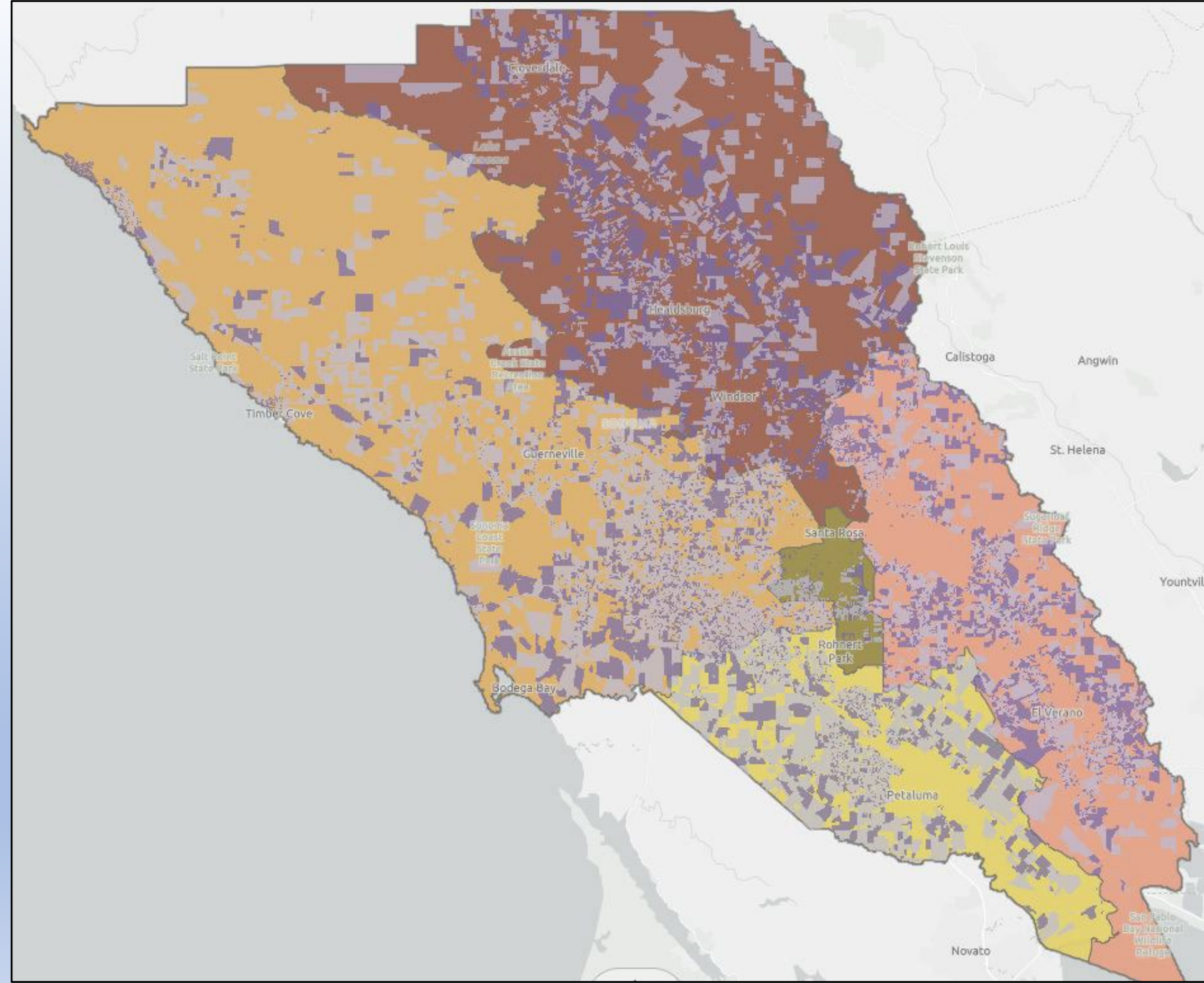


# Known and Suspected Septic Systems

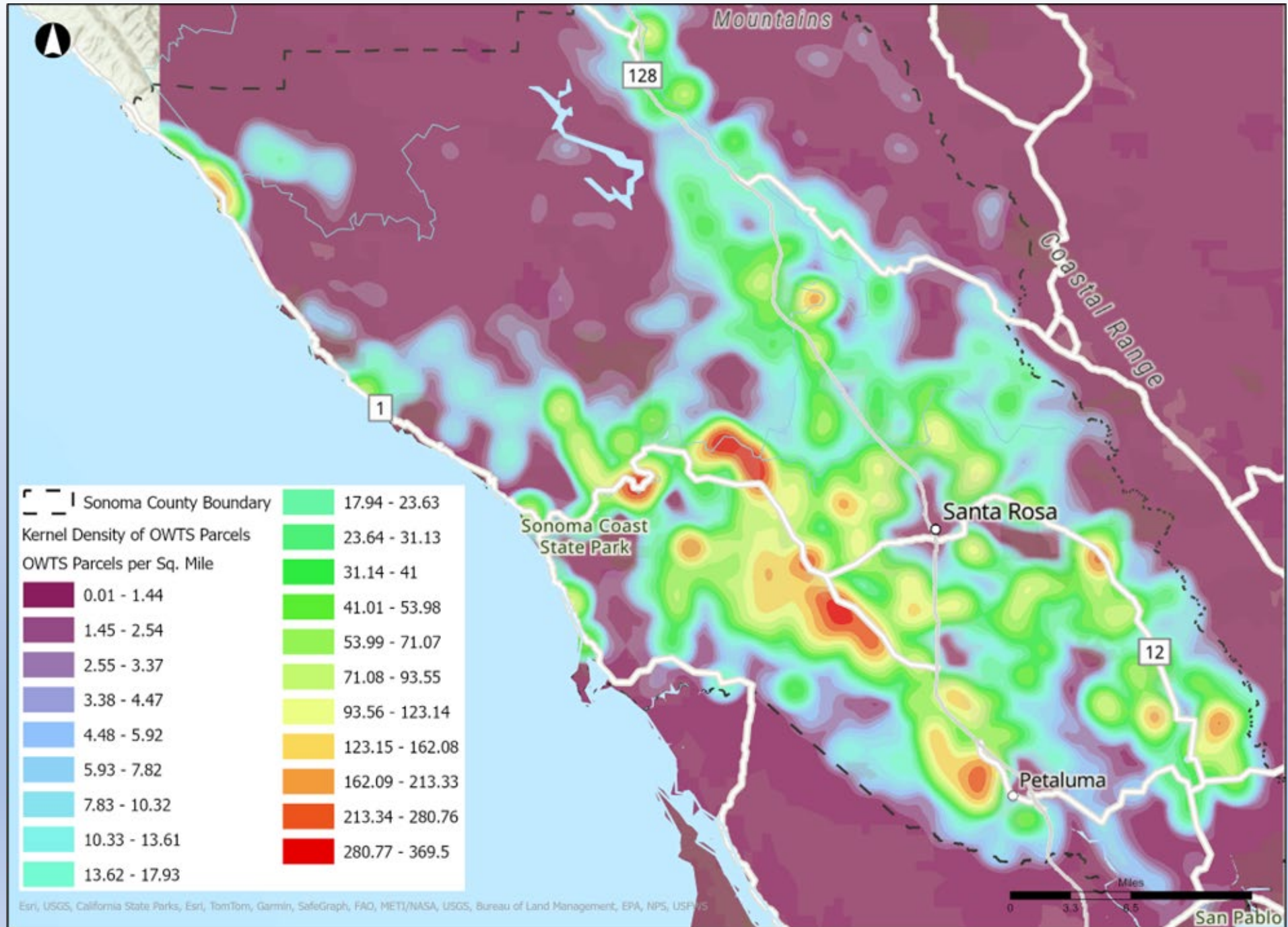


# Septic Systems' Locations by Supervisorial Districts

District	Number of parcels with known or suspected septic systems
1	7,302
2	5,385
3	776
4	5,210
5	17,573

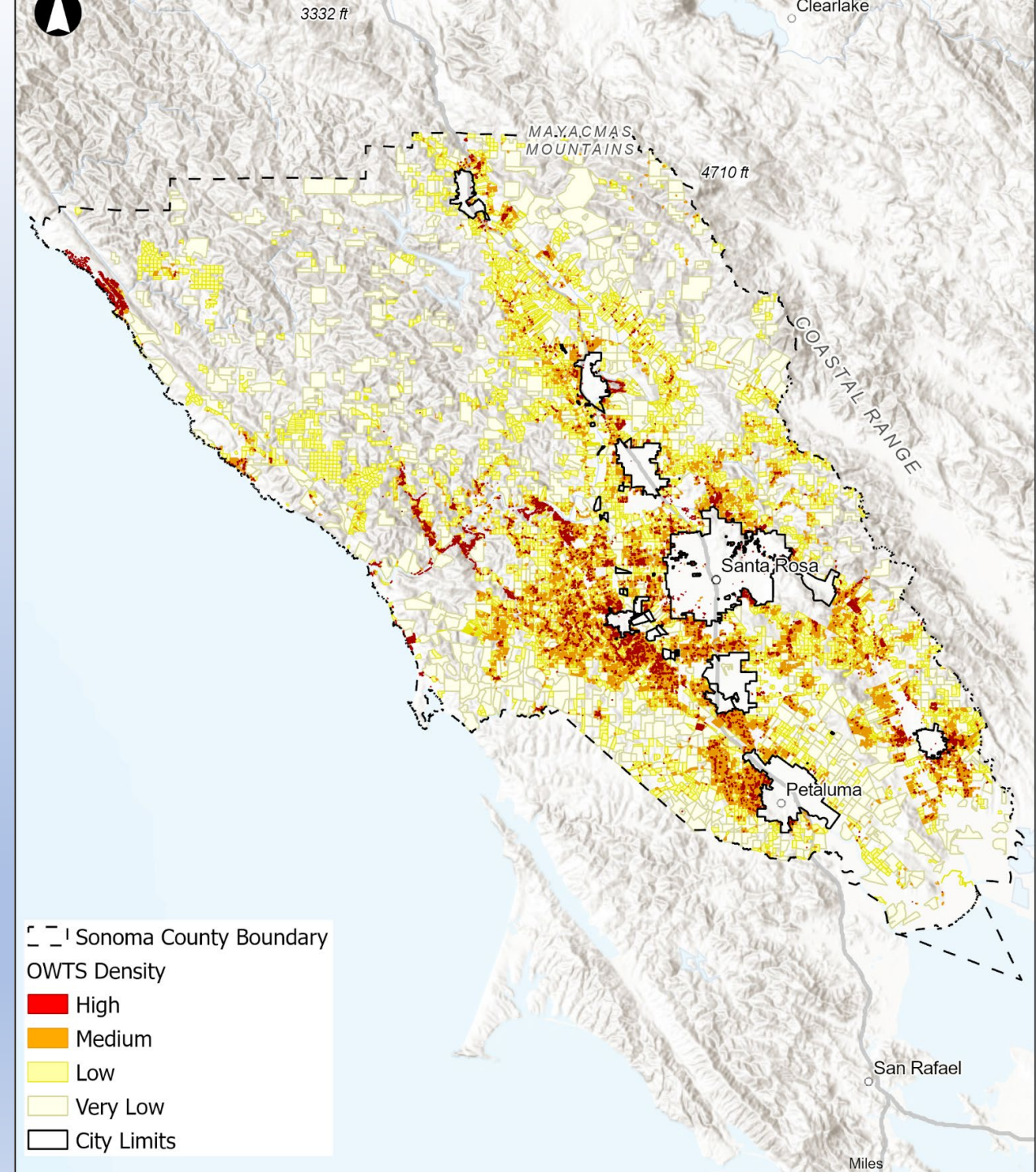


# Septic Systems' Locations by Parcel Concentration Density



# Septic Systems' Locations by Density of Parcel Size

Category	Density
Very low density	Over 100 acres per parcel
Low density	Over 10 acres per parcel
Medium density	Over 1.25 acres per parcel
High density	1.25 acres per parcel or less



# ANALYSIS

OPPORTUNITIES AND CHALLENGES

# Governance Considerations

## Merge with an existing governance entity

- Dense locations near existing entity

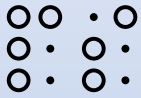
## Create a new community services district

- Dense locations not near existing entity

## Create a new special district

- Remote communities with unstable technical conditions

# Technical Considerations



Parcel density



Slope



Distance from  
public wells



Distance from  
water intakes



Depth to  
groundwater



Soil types

Connect to existing  
wastewater  
treatment plant  
and service area

Create a  
community system  
and wastewater  
service area

Upgrade and/or  
monitor existing  
septic systems

Evaluate feasibility  
of site-specific  
upgrades

# Community Clusters

47

community clusters identified

9

prioritized  
clusters examined  
in detail



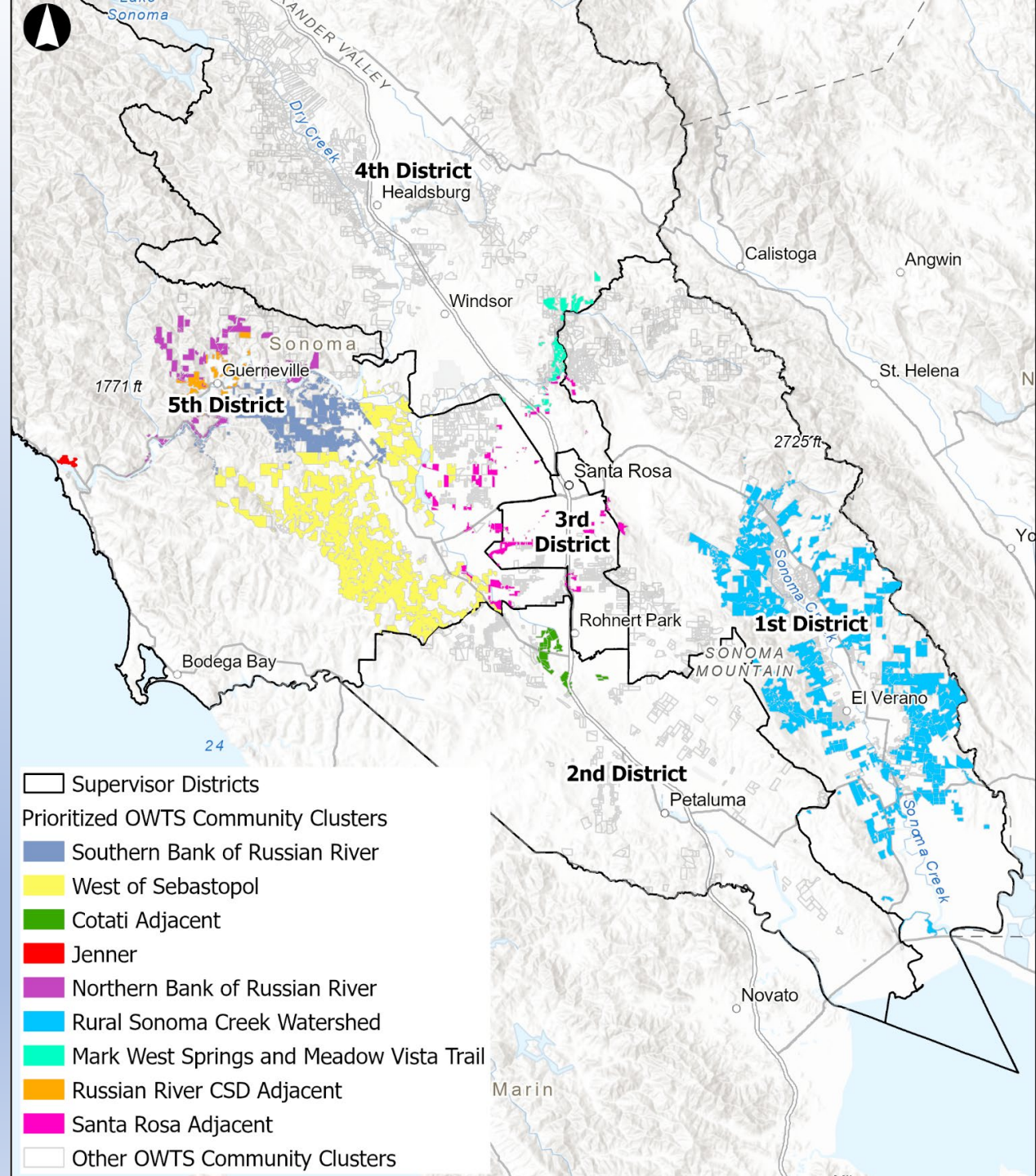
5

of 9 clusters  
split into 12  
sub-clusters



16

clusters and sub-  
clusters  
described

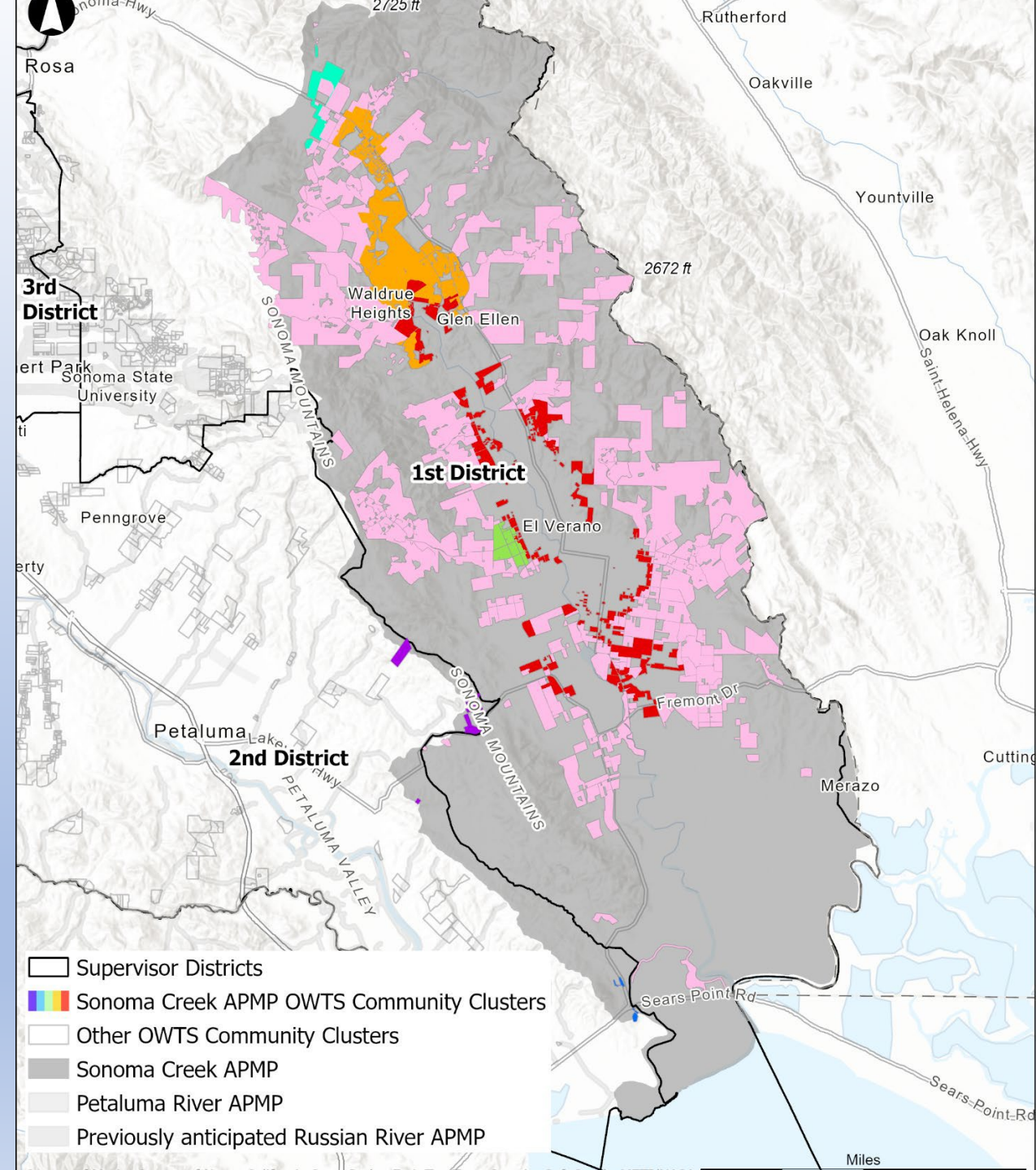




# Community Clusters

## Sonoma Creek

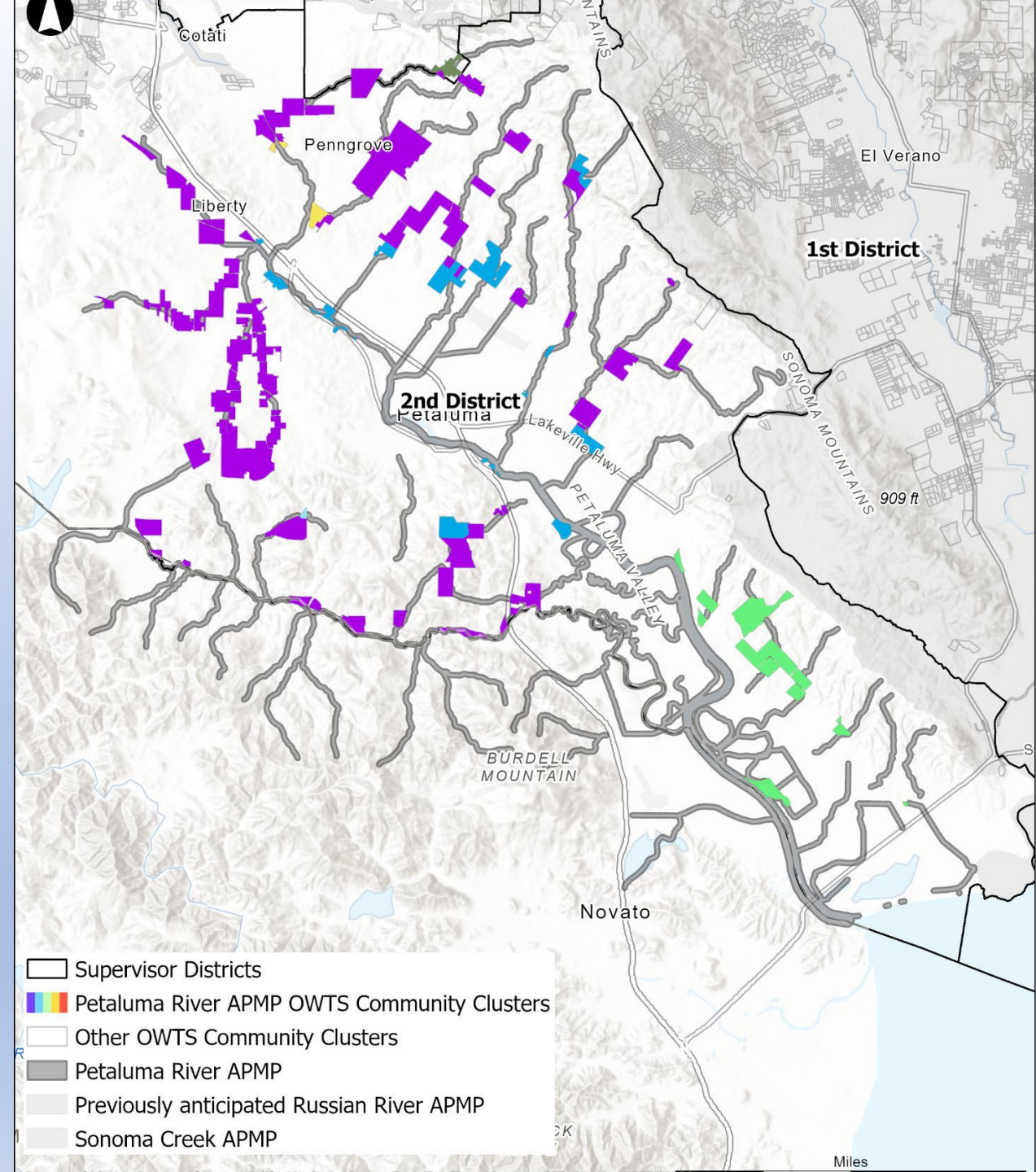
- 4 clusters identified
- 2006 Pathogen Total Maximum Daily Load (TMDL)



# Community Clusters

## Petaluma River

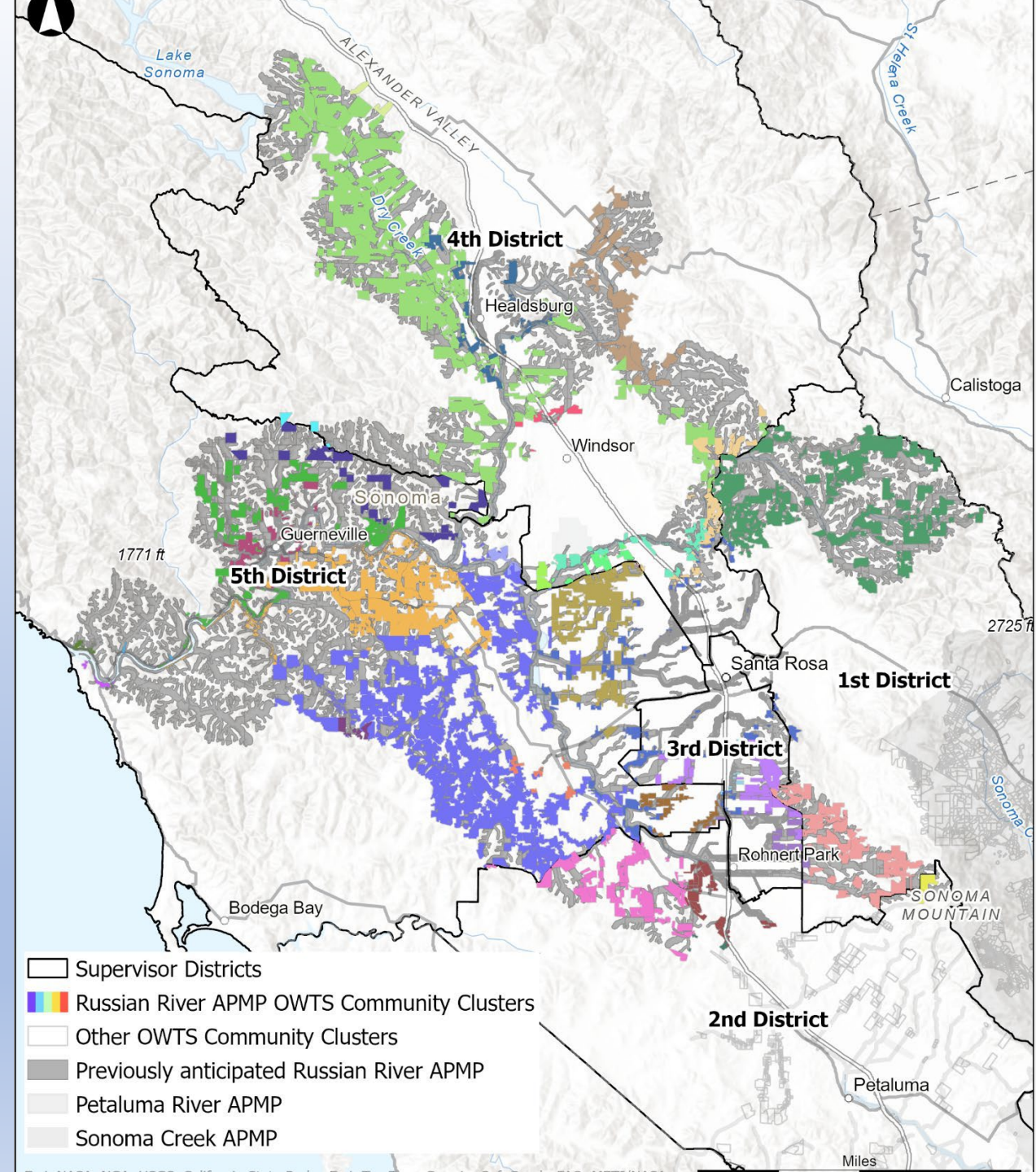
- 4 clusters identified
- 2020 Bacteria TMDL



# Community Clusters

## Russian River

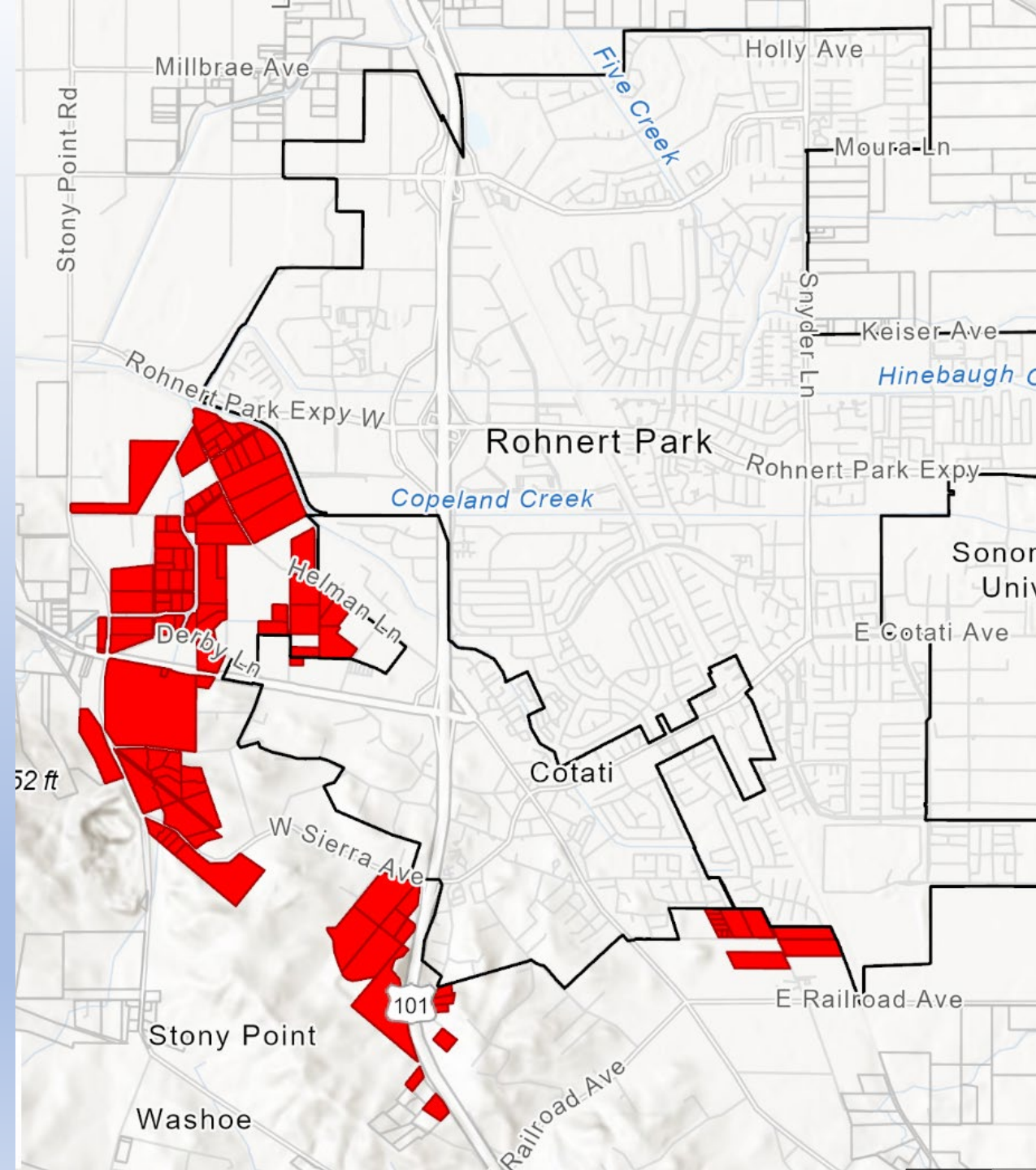
- 39 clusters identified
- Previously anticipated APMP
- Anticipated impairment area will still touch many of these clusters



# Cotati Adjacent

Small medium density area adjacent to city

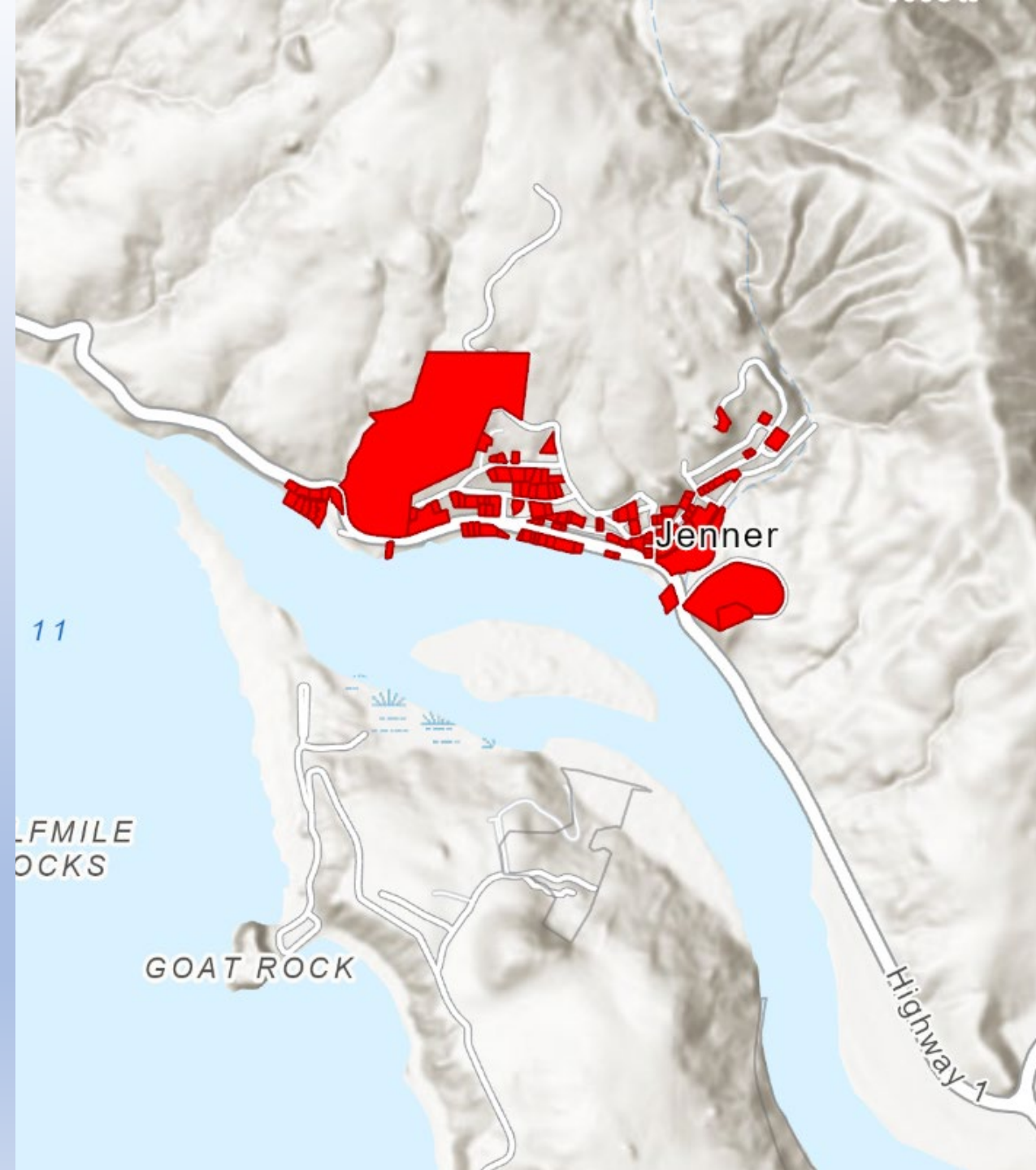
- Supervisorial District 2
- Potential suitability for annexation or connection to city wastewater system
- Similar elevations to treatment plant
- Potential to incorporate more parcels



# Jenner

## High-density coastal community

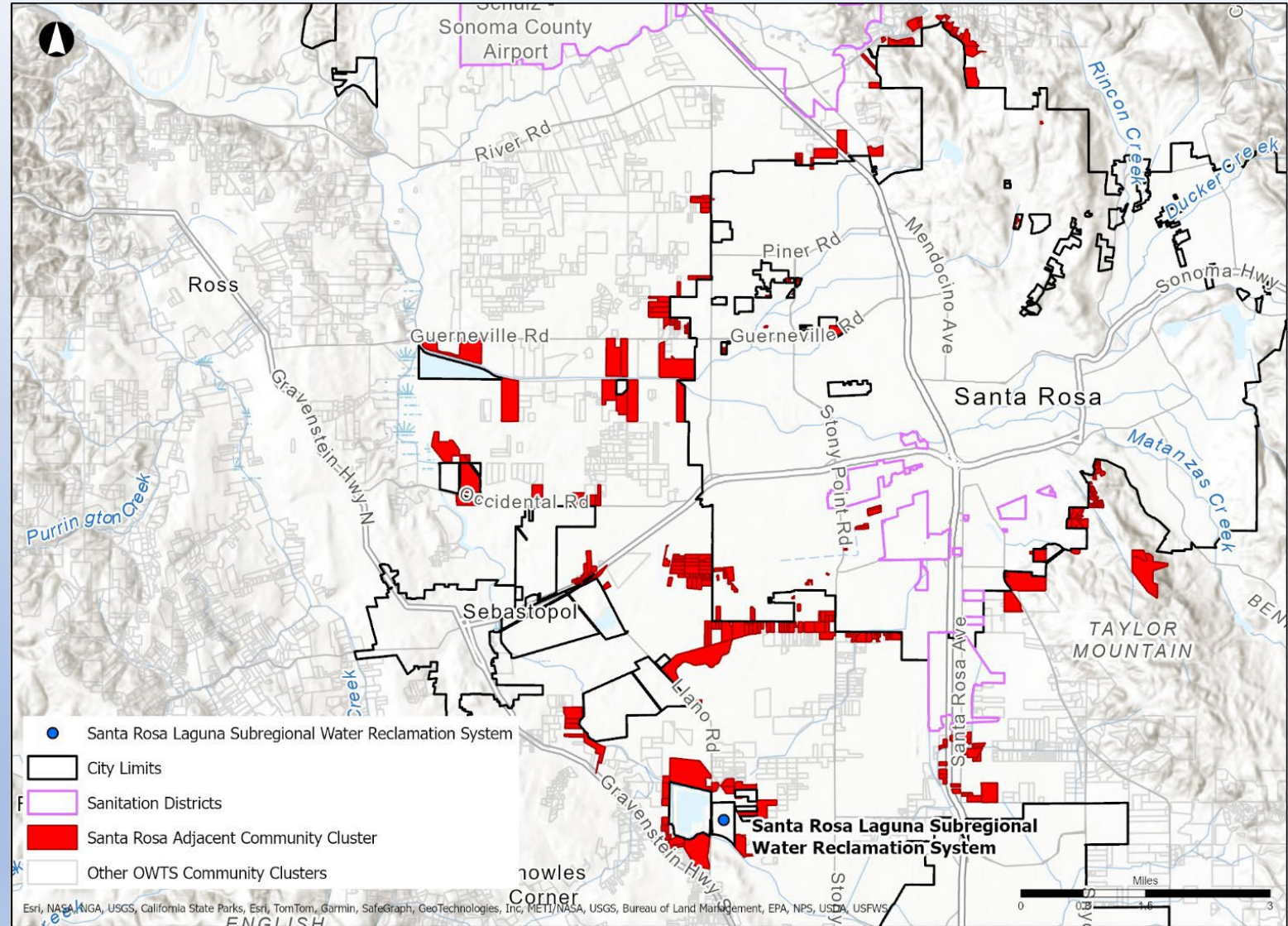
- Supervisorial District 5
- Potential suitability for community septic systems
- Suitable density, shape, terrain
- Remote from existing sanitation district service areas



# Santa Rosa Adjacent

## Medium density area adjacent to city

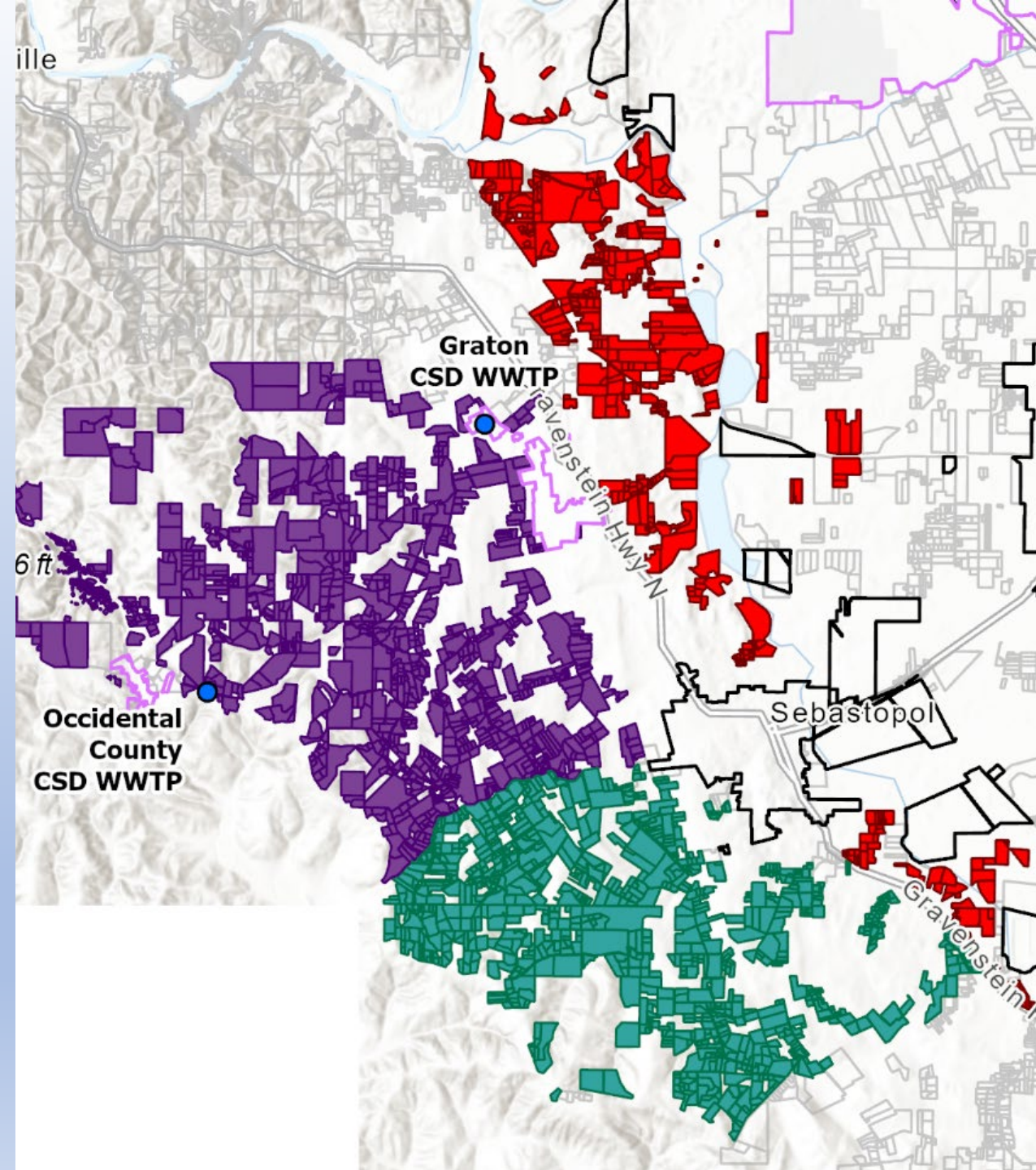
- Supervisorial Districts 1, 3, 4, 5
- Potential suitability for annexation or connection to city wastewater system
- Similar elevations to nearby treatment plant
- Parcels close to roadways or utility network corridors



# West of Sebastopol

Large cluster with differing characteristics

- Supervisorial District 5
- Eastern area (**red**) is uphill and close to treatment plants
- Southern area (**green**) may be most appropriate for community septic systems
- Northern area (**purple**) would need more detailed evaluation

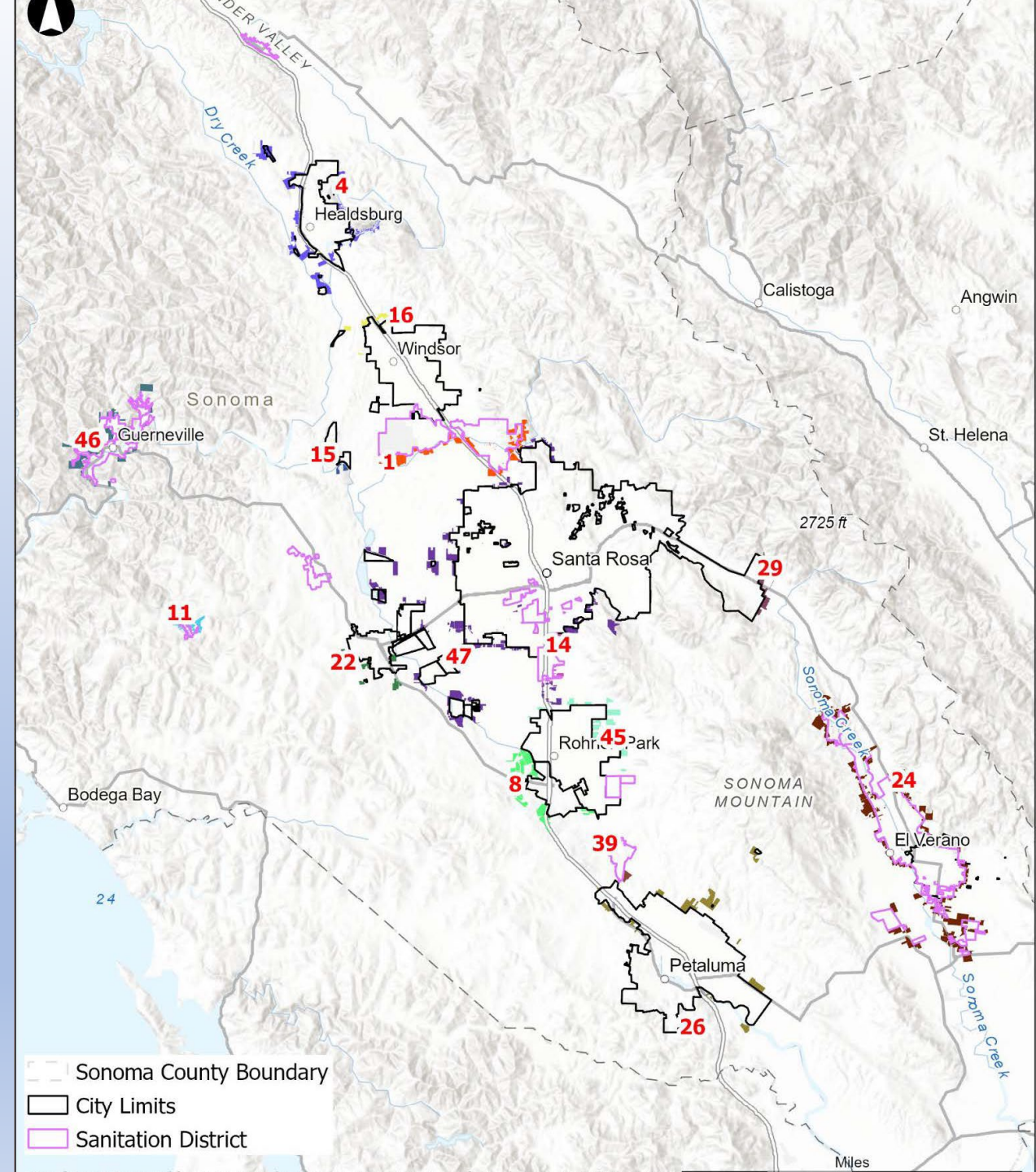


# Community Clusters

15 clusters

Adjacent to cities and sanitation districts and zones

Cluster ID	Name of Adjacent Area
1	Airport-Larkfield-Wikiup Sanitation Zone
4	City of Healdsburg
8	City of Cotati
11	Occidental County Sanitation District
14	South Park County Sanitation District
15 & 16	Town of Windsor
22	City of Sebastopol
24	Sonoma Valley County Sanitation District
26	City of Petaluma
29 & 47	City of Santa Rosa
39	Penngrove Sanitation Zone
45	City of Rohnert Park
46	Russian River County Sanitation District





**NEXT STEPS**

# Use of Deliverables

- County Staff and Partners
- Residents and Communities
- Board of Supervisors



SONOMA COUNTY  
**Board of  
Supervisors**

Sonoma County OWTS Hub



# Ongoing Activities

Pathogen Reduction Planning Project

Ombudsperson Support and Community Engagement

Monte Rio/Villa Grande Pilot Project

Septic System Policies and Regulations

West County Water Quality and  
Recycled Water Feasibility Study

Water Resilience Planning

Septic System Mapping Study





Questions?



# Treatment Plants and Community Septic Systems

