

Drought and Water Shortage Task Force

Risk Assessment

Brendan McGovern
Groundwater Planner
Napa County

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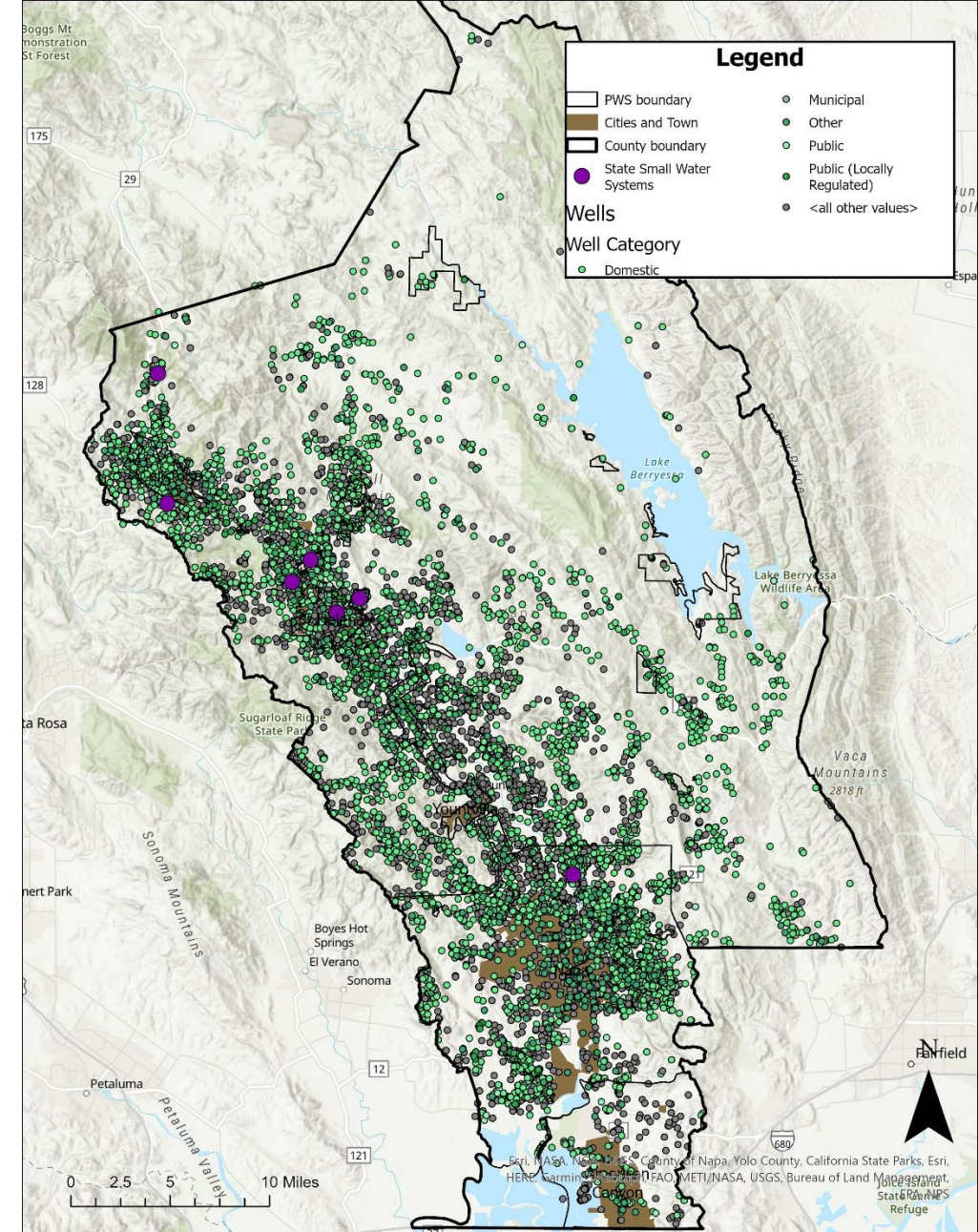


Overview

- SB 552 requires that a DWSTF conduct a risk assessment to consider risk of dry wells
- Risk assessment – Product or process that collects information and assigns values to risks for the purpose of informing priorities, developing or comparing courses of action, and informing decision-making.
- Identify and address opportunities to respond to these vulnerabilities
- Focus on impacts to:
 - State Smalls Water Systems
 - Domestic groundwater wells

Purpose of Conducting a Risk Assessment

- Determine the potential impacts of drought and other water shortage-inducing hazards on the people, economy, and environments of the community
- Foundation for developing the mitigation plan to reduce and avoid the potential impacts
- Identify areas susceptible to experiencing water shortages and/or where residents are most vulnerable to impacts of potential water shortages

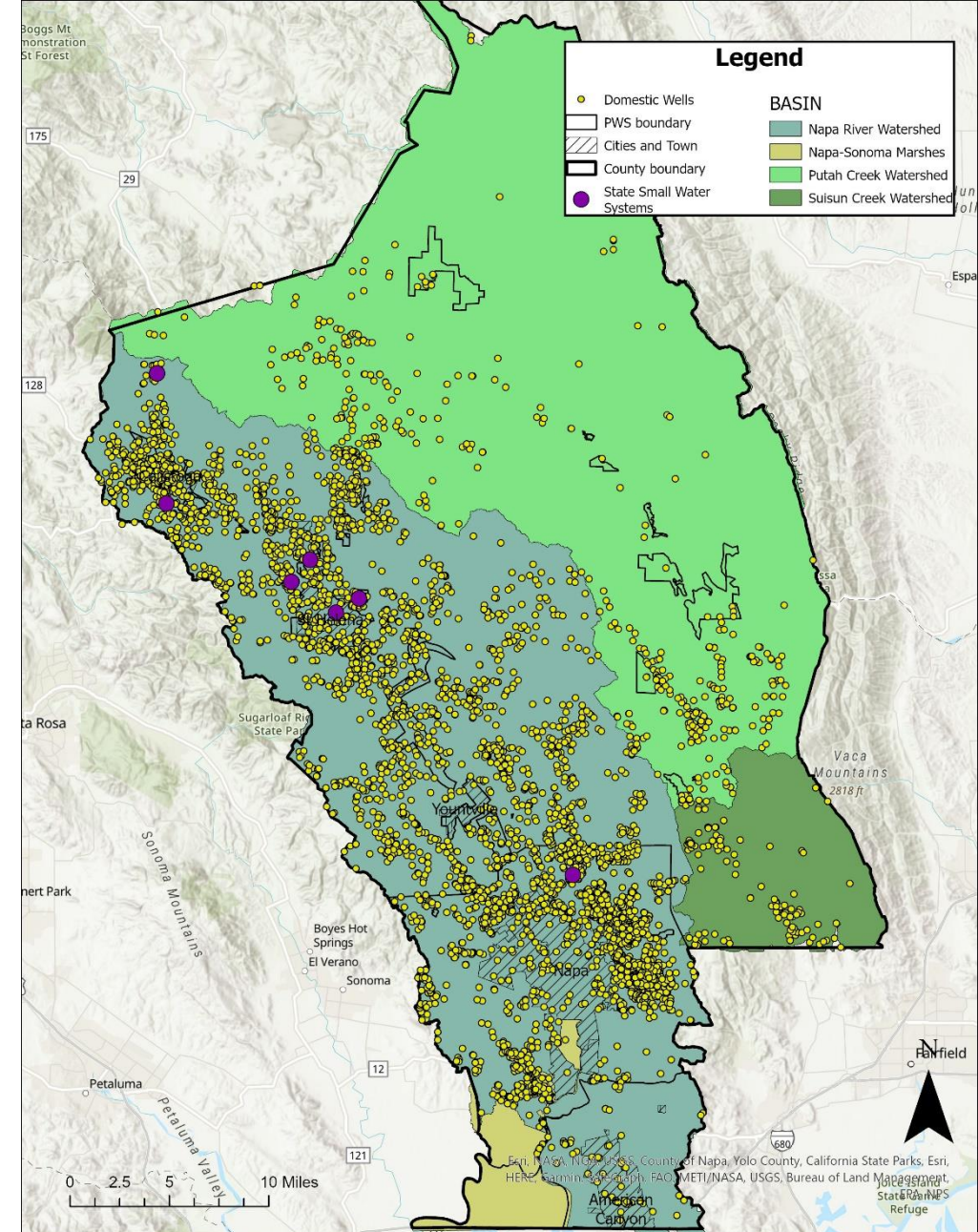


County at a Glance

4 major basins

- ~138,000 residents across county
- ~133,000 residents within Napa River Watershed
- High concentration of residential and agricultural wells in Napa Valley

Watershed	Domestic Wells	Total Wells
Napa River Watershed	4,800	12,013
Napa-Sonoma Marshes	47	108
Putah Creek	425	632
Suisun Creek	107	167
Total Wells	5,379	12,920

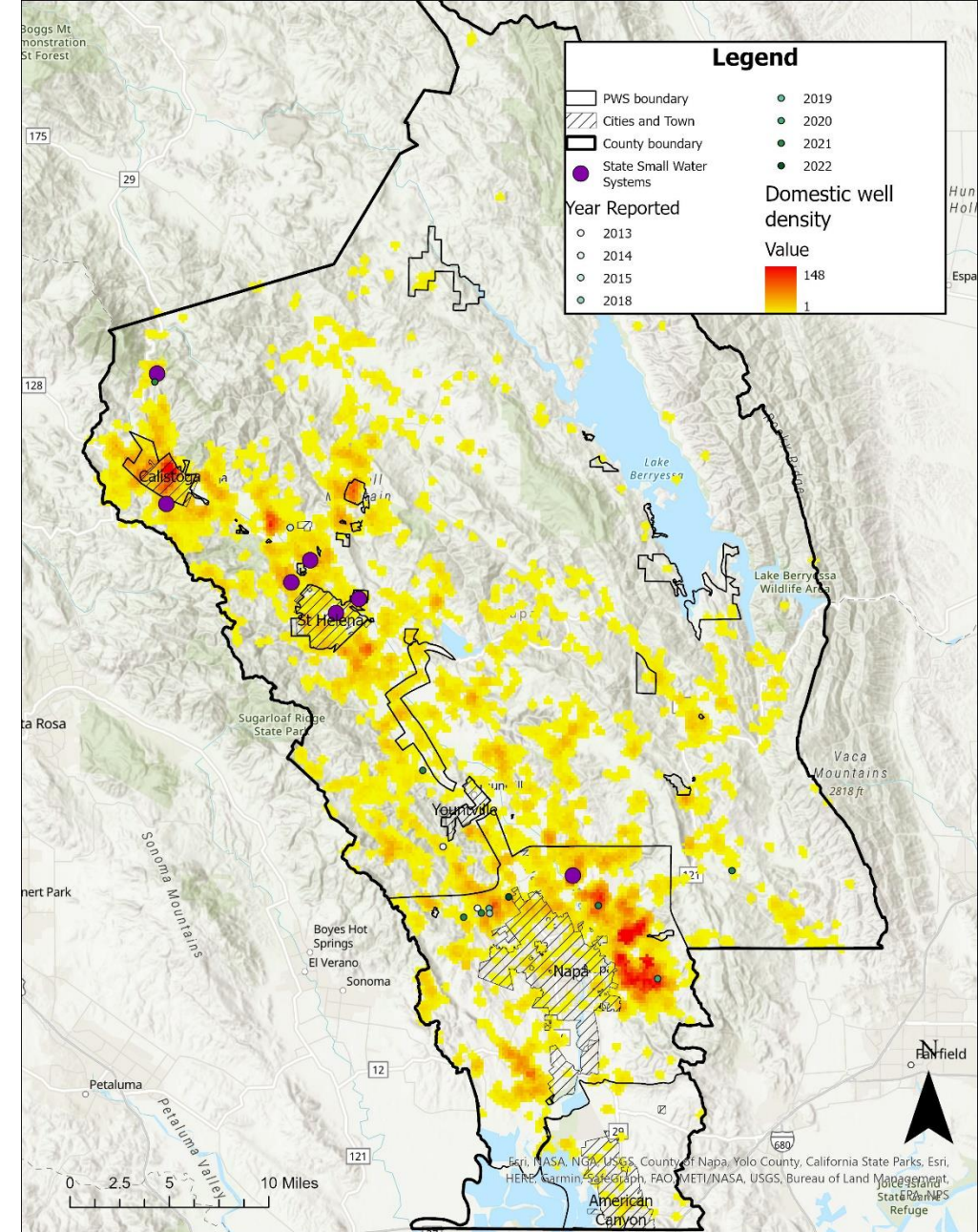


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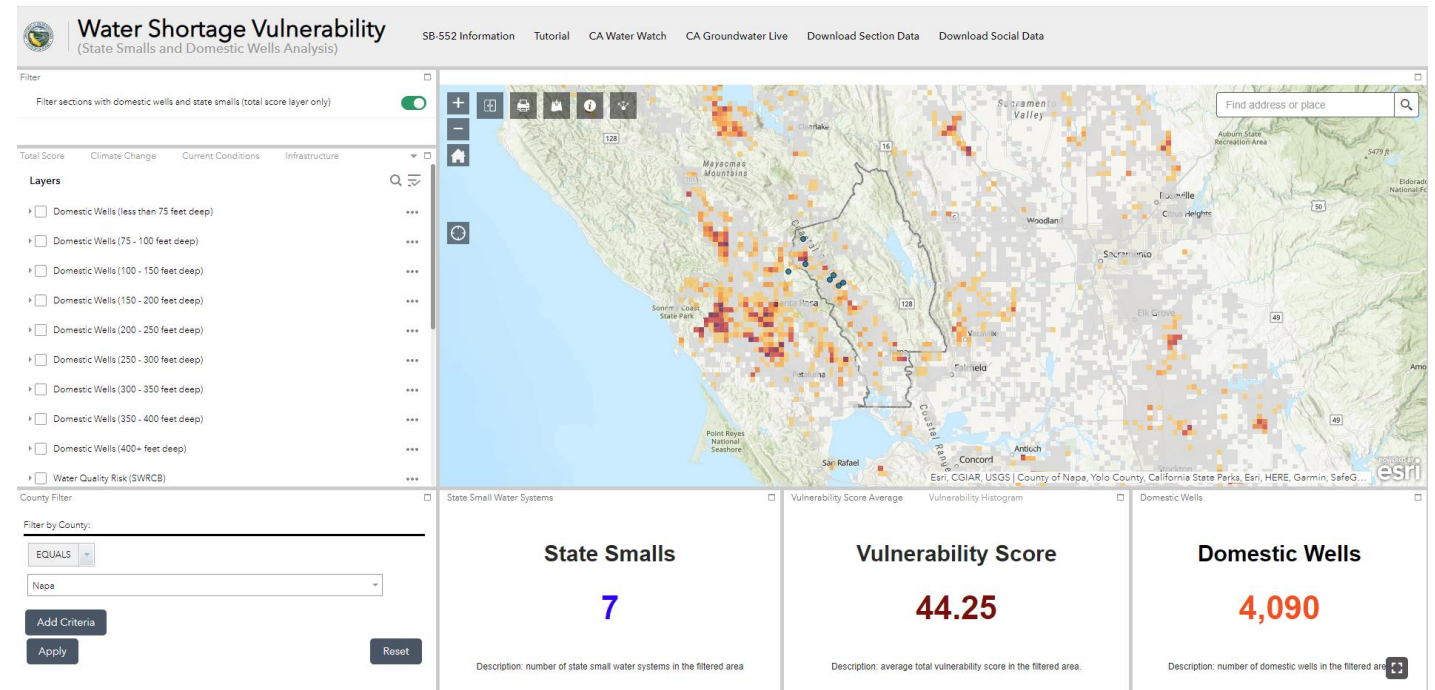


Proposed Approach



Conduct a quasi-multi-criteria decision analysis in GIS:

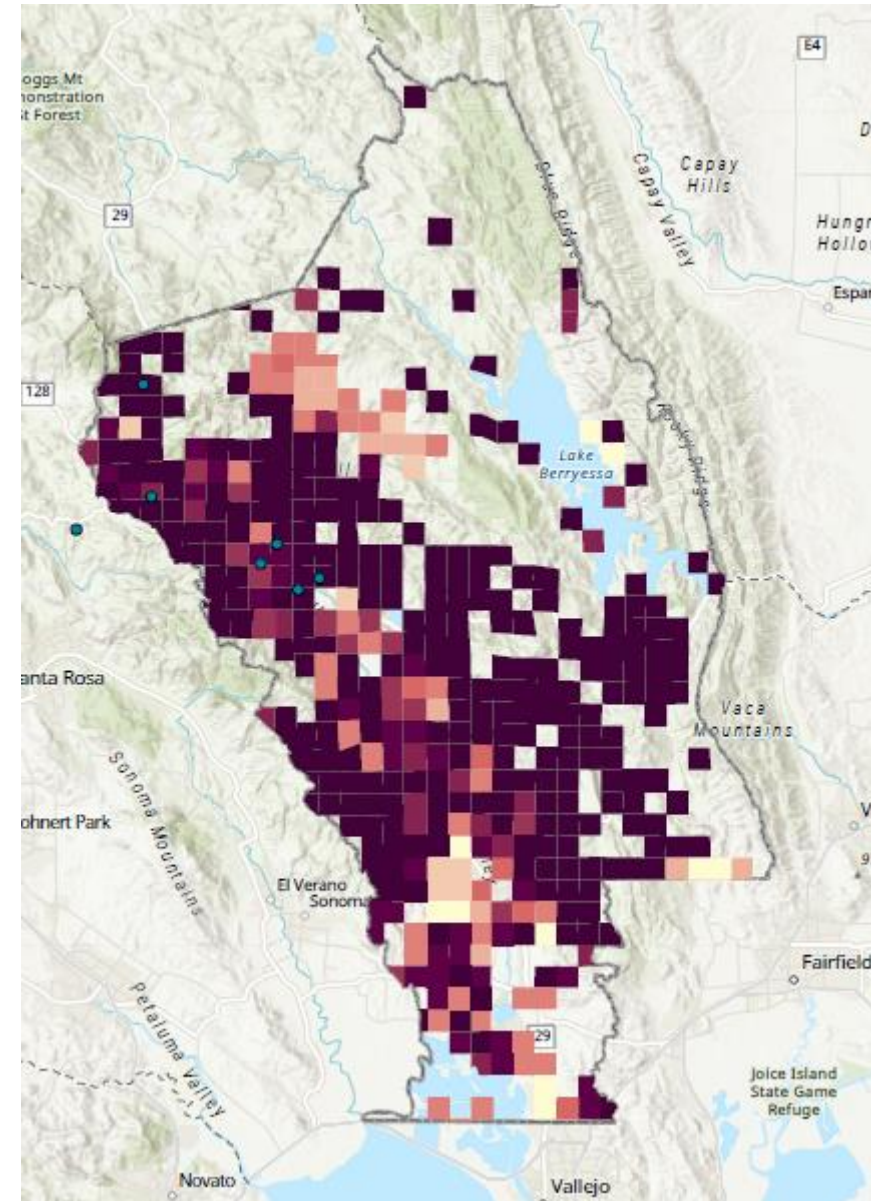
- DWR GIS layers that combine
 - Physical vulnerabilities
 - Social vulnerabilities
- County level data
 - State small water systems
 - Domestic wells
 - Public water system boundaries



DWR Physical Vulnerability

- Decided to use the full physical vulnerability layer
- Thoughtful weighting of various factors already included by County Drought Advisory Group

No.	Vulnerability Factor
1	Domestic Well Count
2	Temperature shift - Projected change in heat by mid-century
3	Wildfire risk - Projected severe or high severe risk
4	Sea Level Rise
5	Most recent water year's precipitation compared to historic average
6	Count of multiple dry years within the past five years
7	Fractured rock area- Communities in fractured rock areas
8	Current Wildfire Risk (CAL FIRE)
9	Water quality index - Likelihood that groundwater likely accessed by domestic wells may contain concentrations of constituents above regulatory levels
10	Subsidence presence - Record of subsidence
11	Over drafted basin - Critically over drafted groundwater basin
12	Declining groundwater levels
13	Irrigated agriculture - Presence of irrigated agriculture
14	Reported household outages on domestic wells - Presence of domestic wells running dry
15	(Alluvial Basin only) Dry well susceptibility - Estimated likelihood of domestic well(s) running dry
16	(Fractured Rock Area-only) – High density of domestic wells

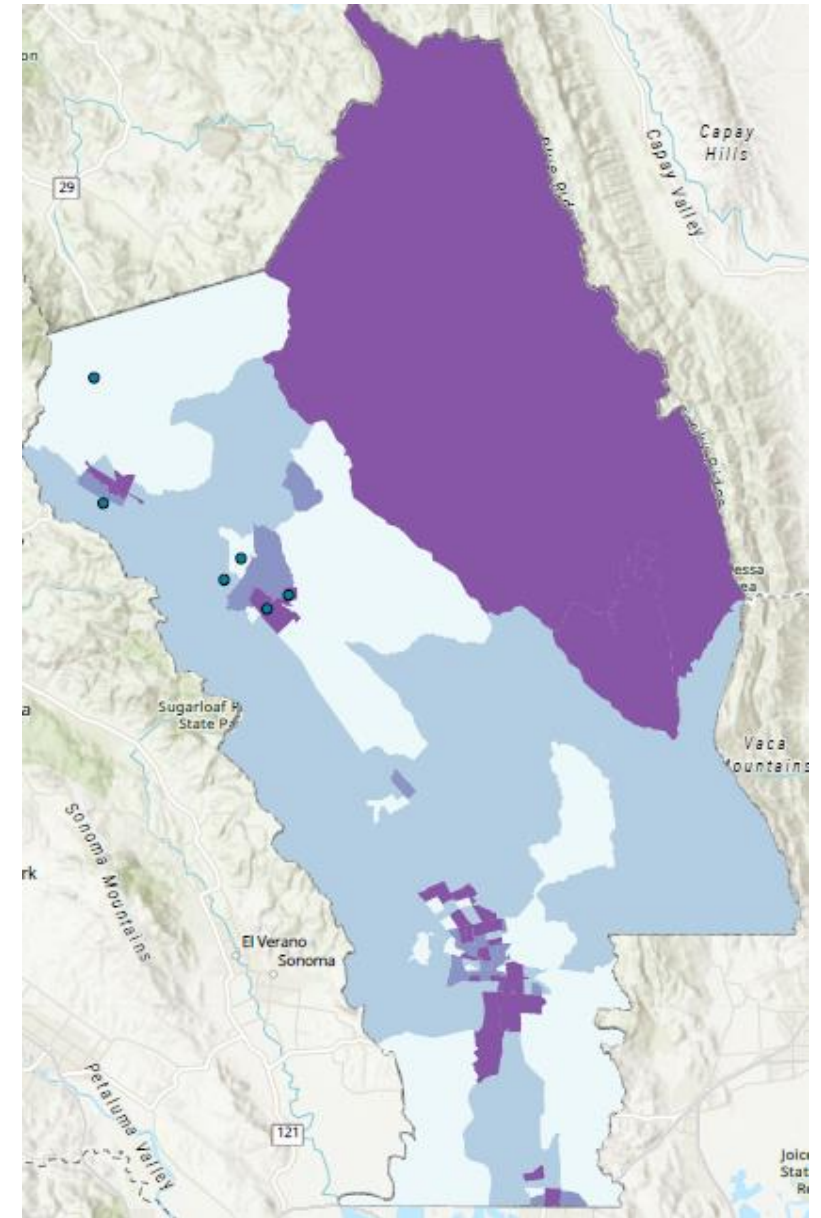


Source: DWR Draft County Drought Resilience Plan Guidebook - Dec 2022

DWR Social Vulnerability

- Decided to use the full social vulnerability layer
- Each vulnerability factor weighted equally

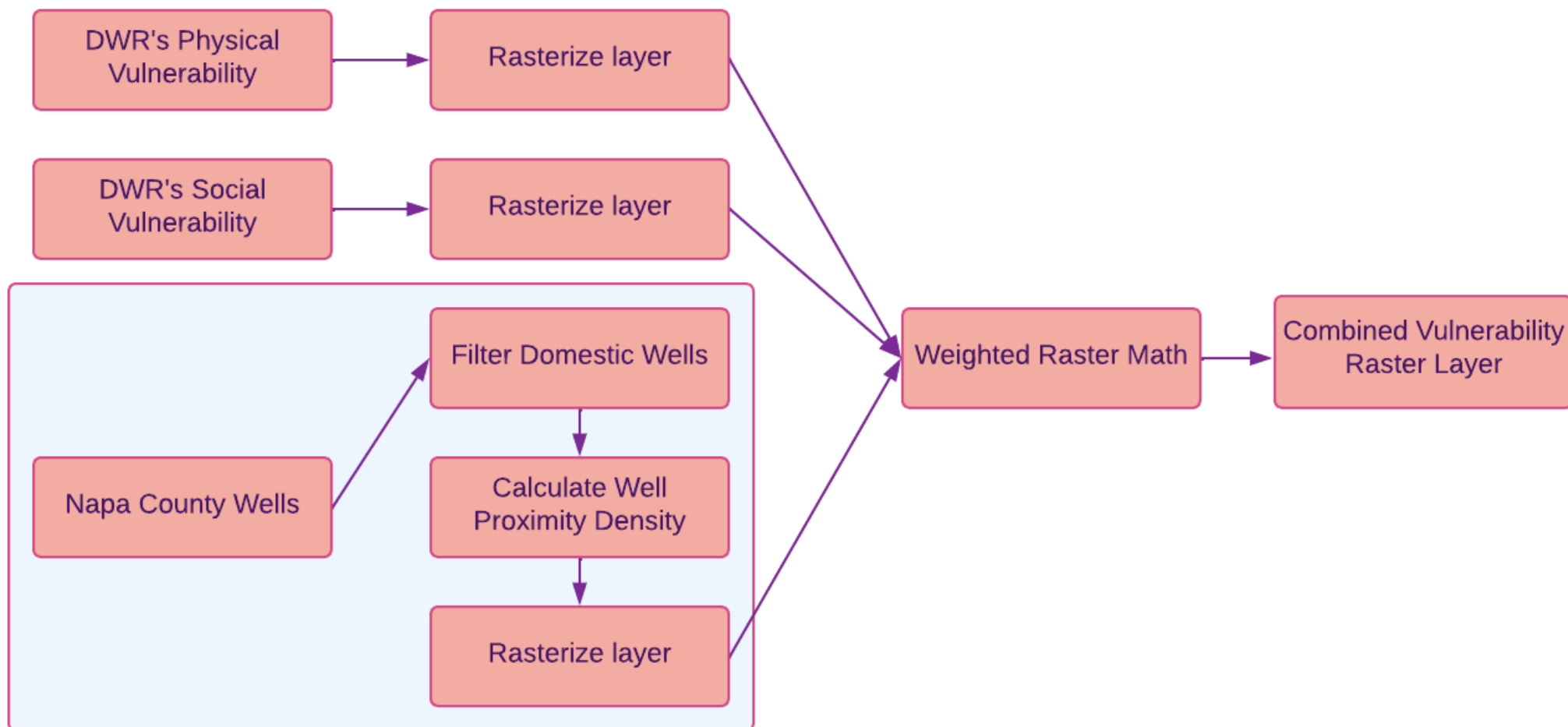
Socio- Economic Status	Household Composition and Language	Housing and Transportation
<ul style="list-style-type: none"> • Median household income • Per capita income • Percent under poverty level 	<ul style="list-style-type: none"> • Percent 65 years and older • Percent under 5 years old • Percent single parent households • Percent of unemployment among employable age • Percent without a high school degree among those over 25 years • Percent of population where English is a second language 	<ul style="list-style-type: none"> • Percent of households with no vehicle • Percent living in group quarters • Percent renters • Percent living in mobile homes



Source: DWR Draft County Drought Resilience Plan Guidebook - Dec 2022

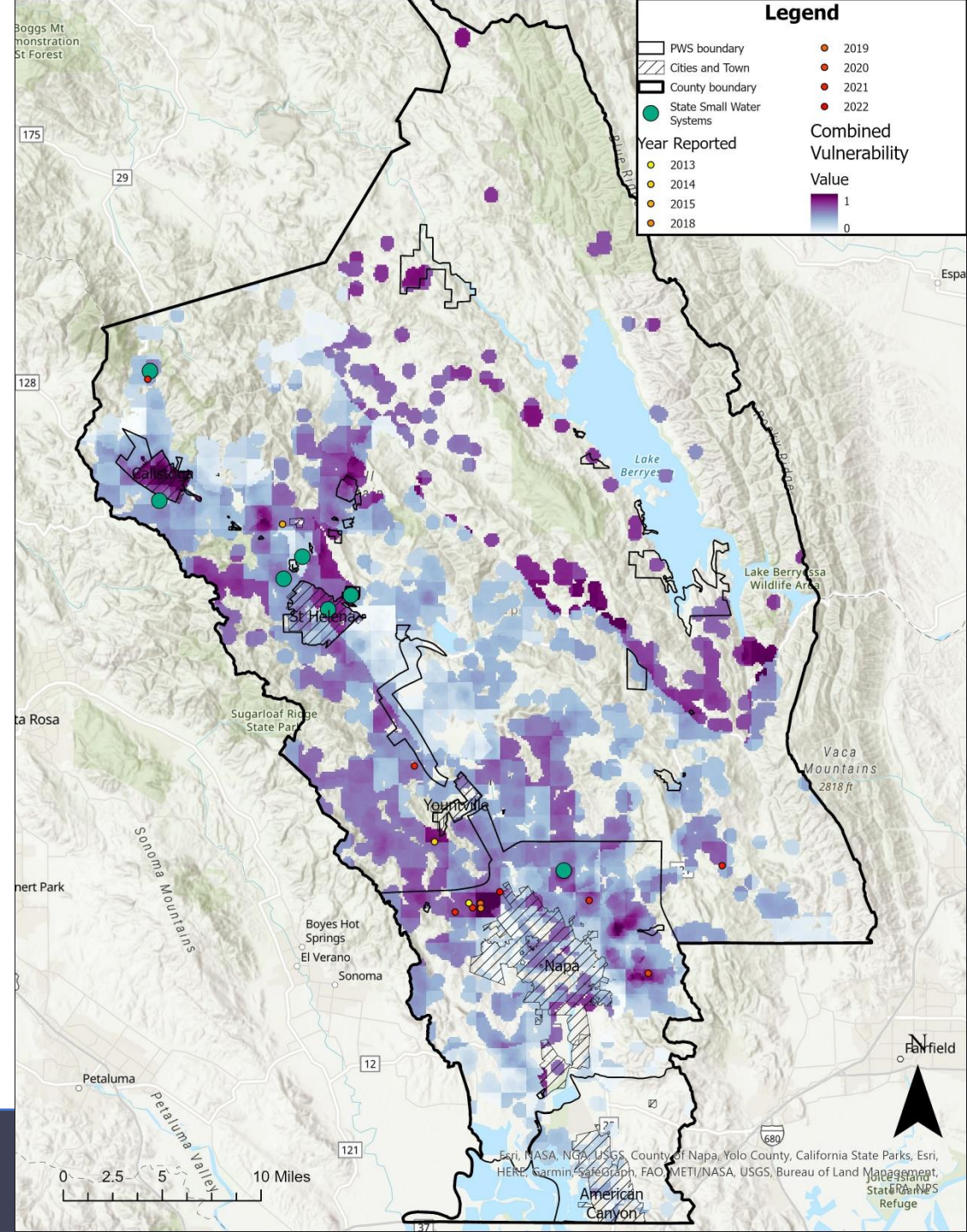


Weighted Multi-criteria Analysis



Final Layer

- Each layer weighted equally
- Regions of higher risk are shown in purple and darker blue
 - Warrant attention for more immediate planning
- Some usual suspects:
 - Milliken-Sarco Tulocay region east of Napa
 - NW Napa (previous dry wells reported)





Future Action

Ad hoc DWSTF

- Discussion if physical and social factors are suitable for Napa?
- Discussion of raster layer weights – equal at the moment
- Discussion of short-term and medium-term solutions
- Discussion of long-term options
 - Interties, expansion of recycled water pipelines, etc.

Happy to take any questions

Brendan.McGovern@countyofnapa.org