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DOMESTIC WELL INVENTORY AND MONITORING WELL INSTALLATION PROJECT

Chowchilla and Madera Subbasins

March 21, 2021



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Presentation Outline

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- **Project background**
- **Domestic well inventory**
- **Stakeholder outreach**
- **Refinement to assessment of potential domestic well impacts**
- **Assessing additional monitoring needs**
- **Monitoring well construction and instrumentation**

Project Background

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- Proposition 68 Grant funding through DWR
- Motivations:
 - Avoid significant and unreasonable adverse impacts to beneficial users
 - GSPs include domestic well mitigation plans

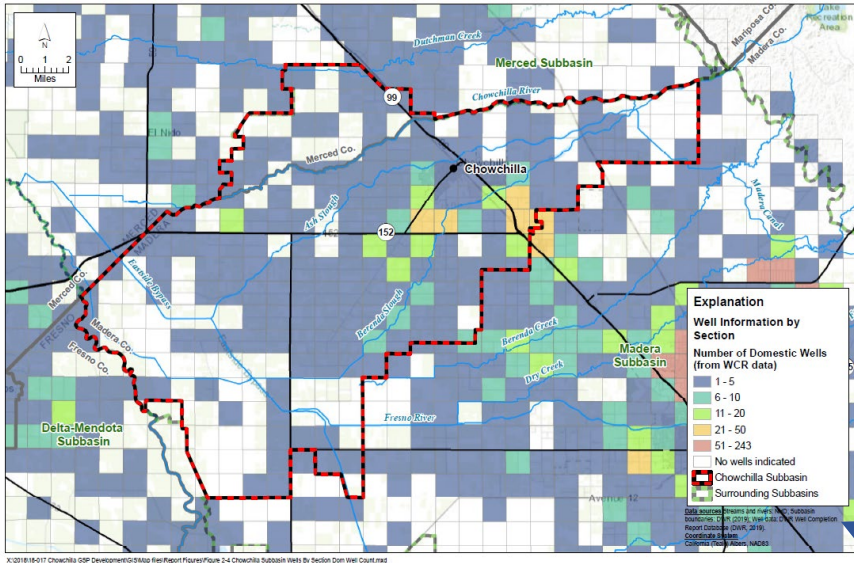


FIGURE 2-4
Map of Well Information by Section:
Number of Domestic Wells (from WCR data)
Chowchilla Subbasin
Groundwater Sustainability Plan

**Chowchilla Subbasin
domestic wells by section
(from GSP)**

- Need for improved understanding of locations, density, and construction of active domestic wells
- Identify and address additional domestic well monitoring needs with dedicated MWs

**Madera Subbasin
domestic wells by section
(from GSP)**

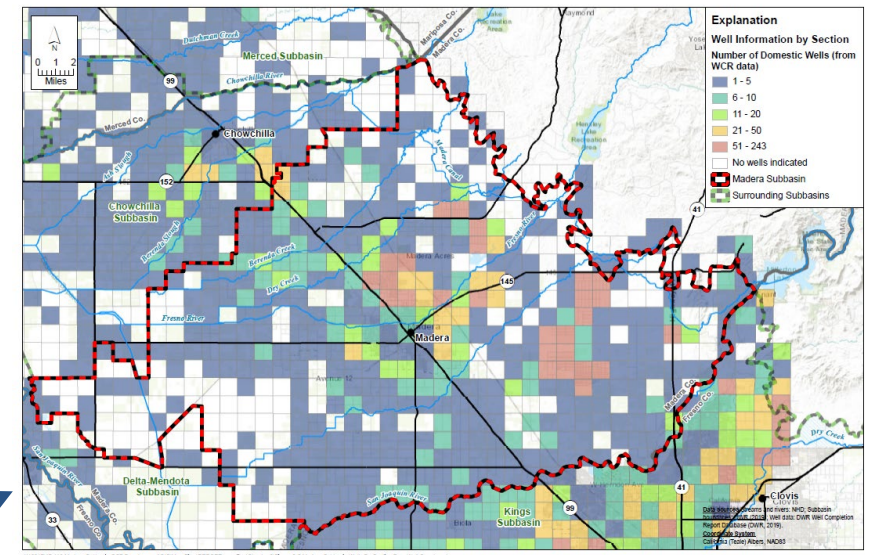


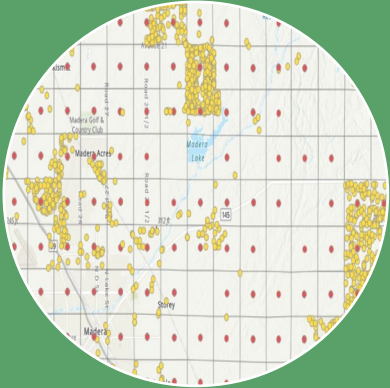
FIGURE 2-5
Map of Well Information by Section:
Number of Domestic Wells (from WCR data)
Madera Subbasin
Groundwater Sustainability Plan



Domestic Well Inventory

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Key datasets available for inventorying domestic wells



DWR Well Completion Report Database

A circular inset showing a screenshot of a database table with multiple columns and rows of text, representing well permit data.

County Well Permit Databases

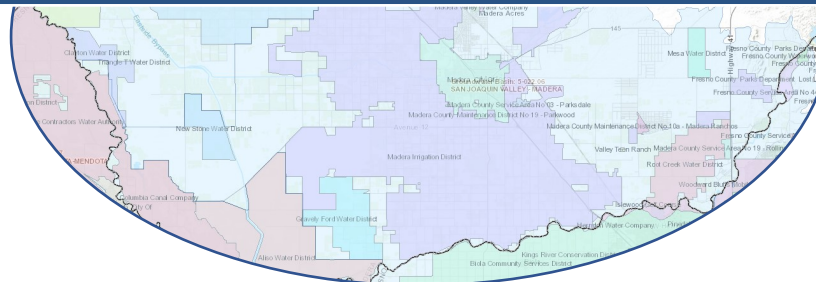


County Assessor Parcel Dataset



Census Information

Compare with areas served by Public Water Systems (PWS Boundaries)



Characteristics of key datasets available for inventorying domestic wells

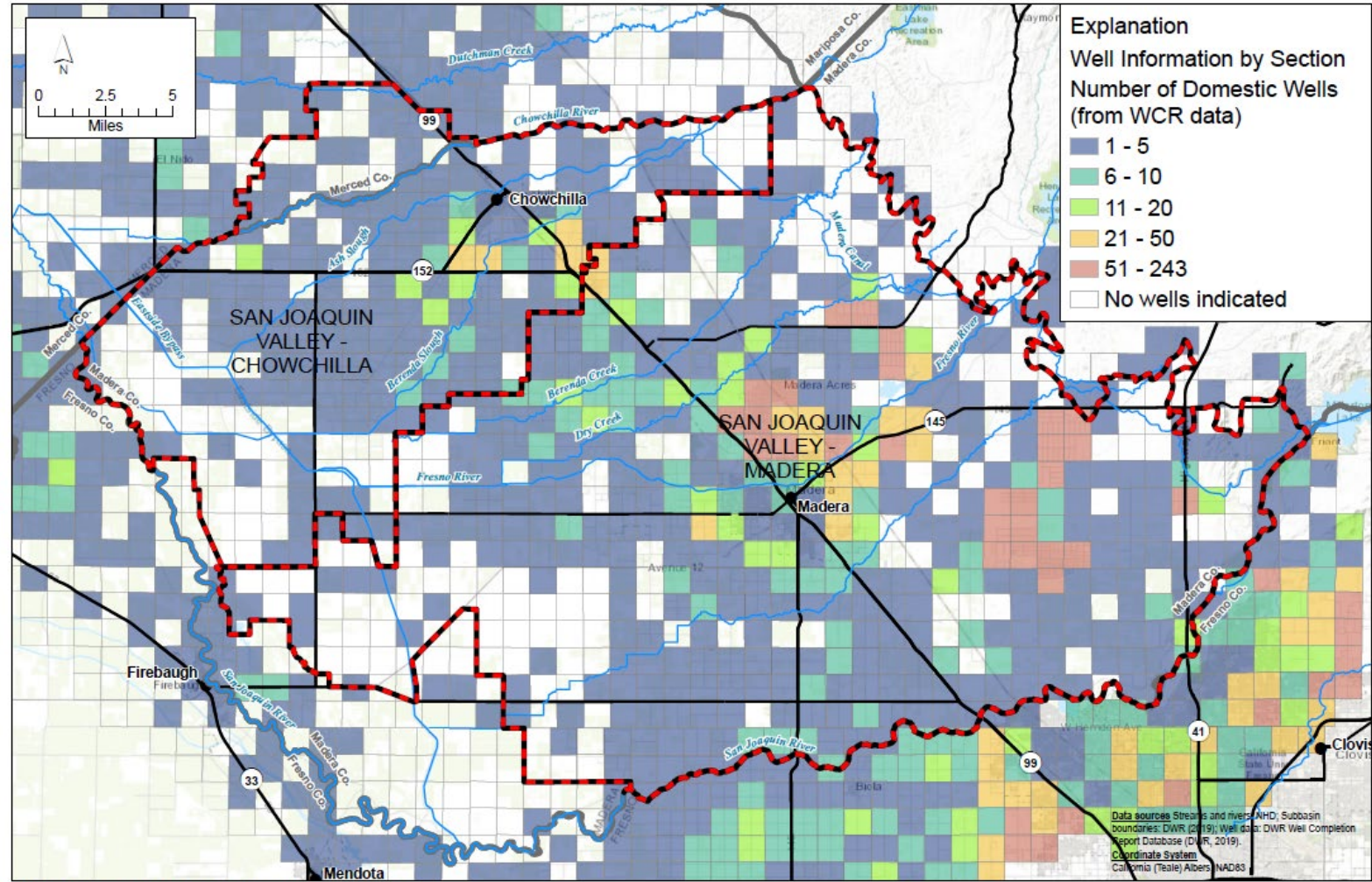
Domestic Well Inventory

Data Source	Historical Well Presence	Well Status (active)	Location Accuracy	Construction (depth, screens)
DWR Well Completion Report Database	★ Since early 1900s	No	Variable (some only to PLSS section)	★ Usually included
County Well Permit Database	★ Since 1990s (Mad=1990, Mer=1998)	No	By APN (not all match parcel GIS data)	No (only seal depth)
County Parcel Data	Inferred from Use/Dwelling Code	No	By APN	No
Census Information	Inferred from # Homes	No	By Census Block	No



Preview of Well Completion Report Data: Domestic Wells Since 1970

**Domestic
Well
Inventory**



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**Map of Well Information by Section:
Number of Domestic Wells (from WCR data)**

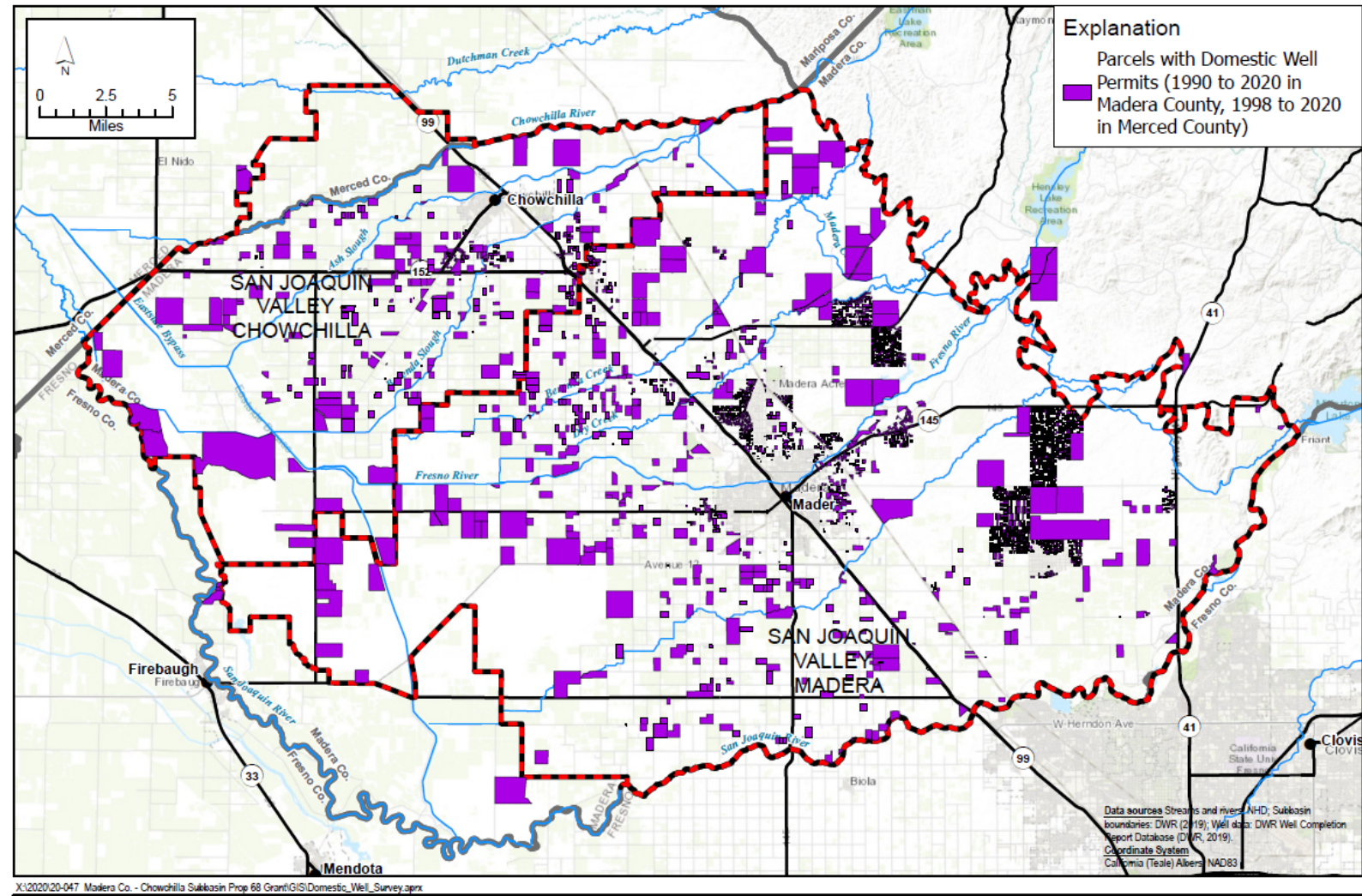
*Madera and Chowchilla Subbasins
Groundwater Sustainability Plan*



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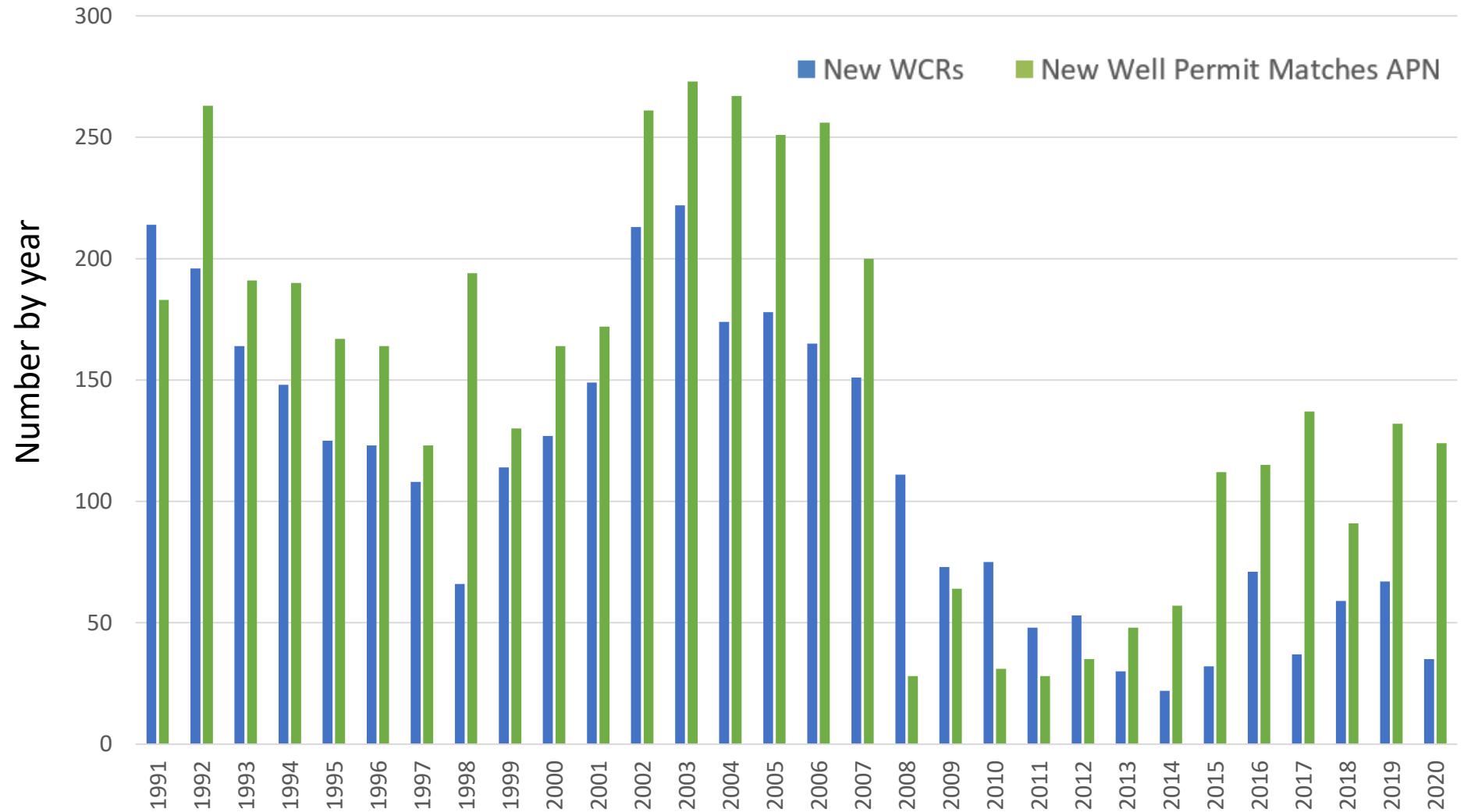
Preview of Well Permit Data: Domestic Wells (Madera County=since 1990; Merced=since 1998)

Domestic Well Inventory



Preview of Comparisons: Domestic Well WCRs vs Permits

WCRs and County Permits by Year in Madera County Portion of Madera and Chowchilla Subbasins - New Domestic Wells

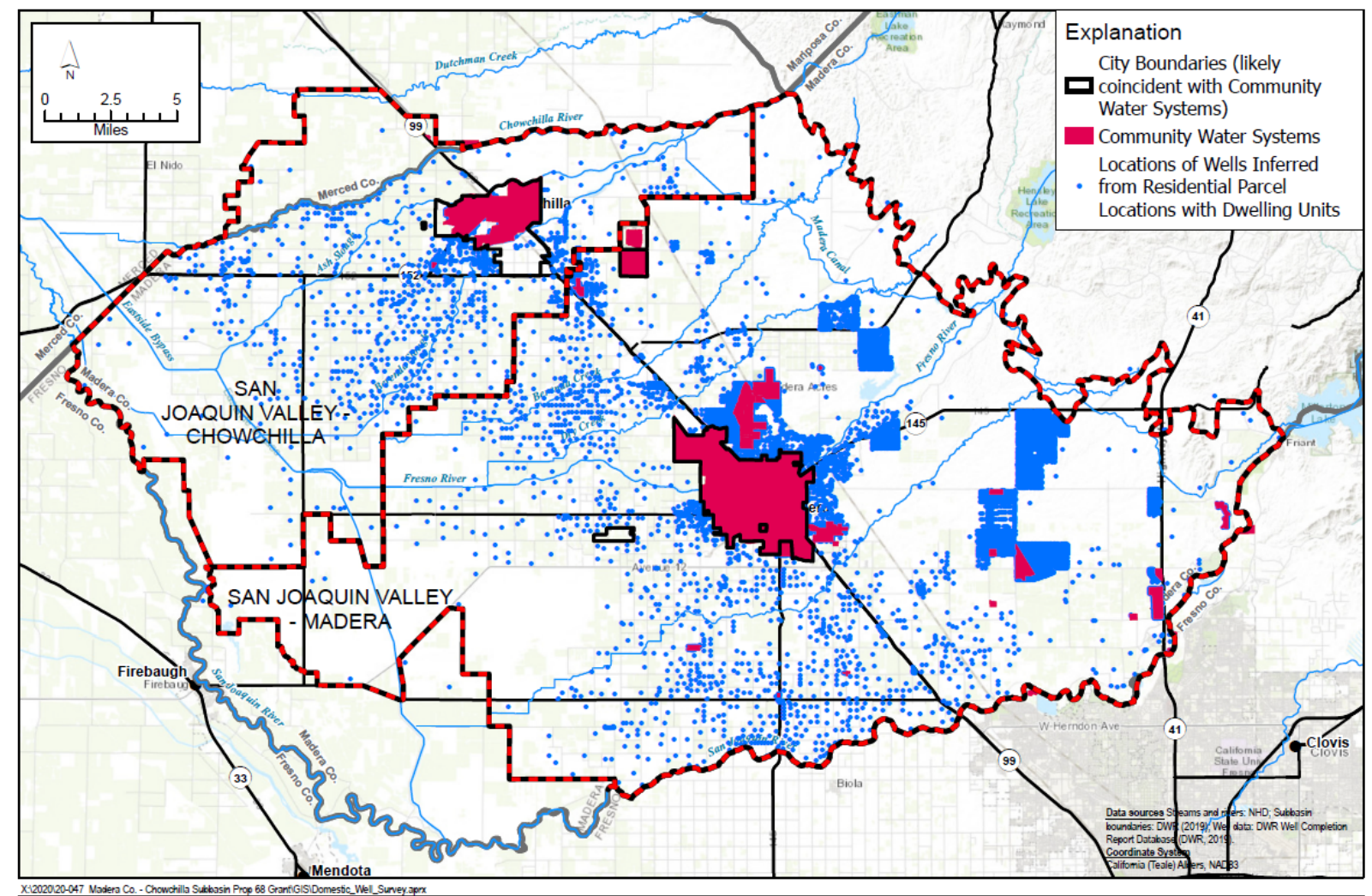


**Domestic
Well
Inventory**



Preview of Potential Inferred Domestic Well Locations from Parcel Data

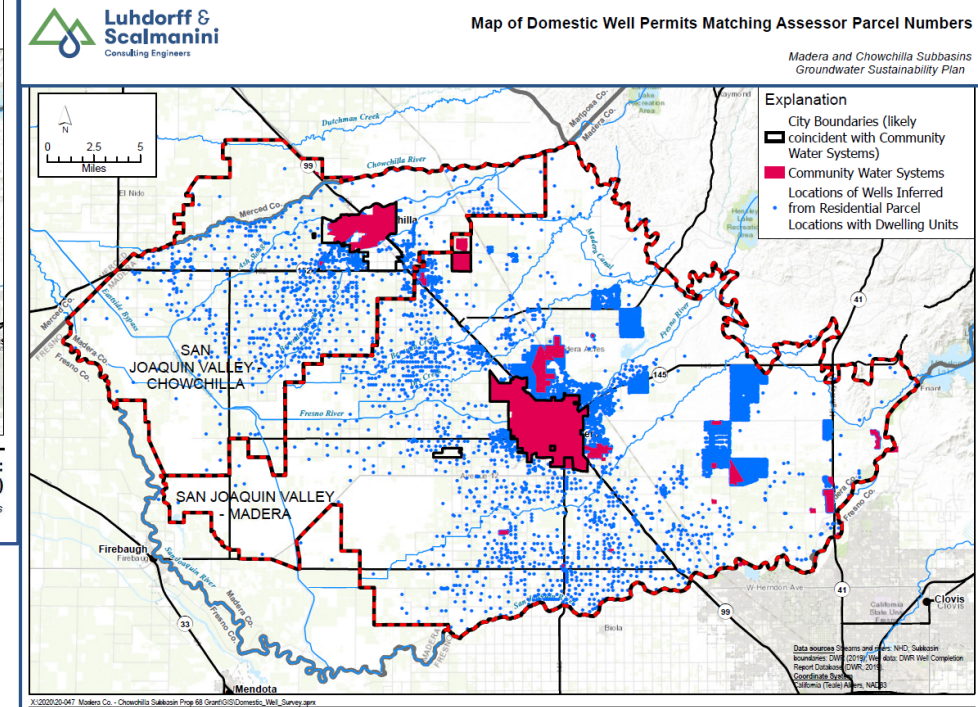
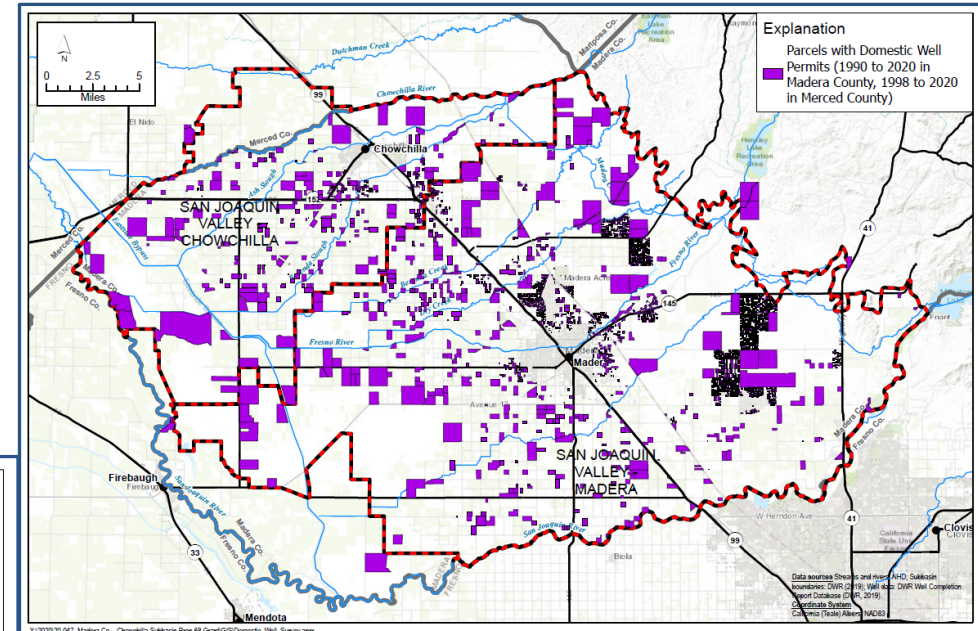
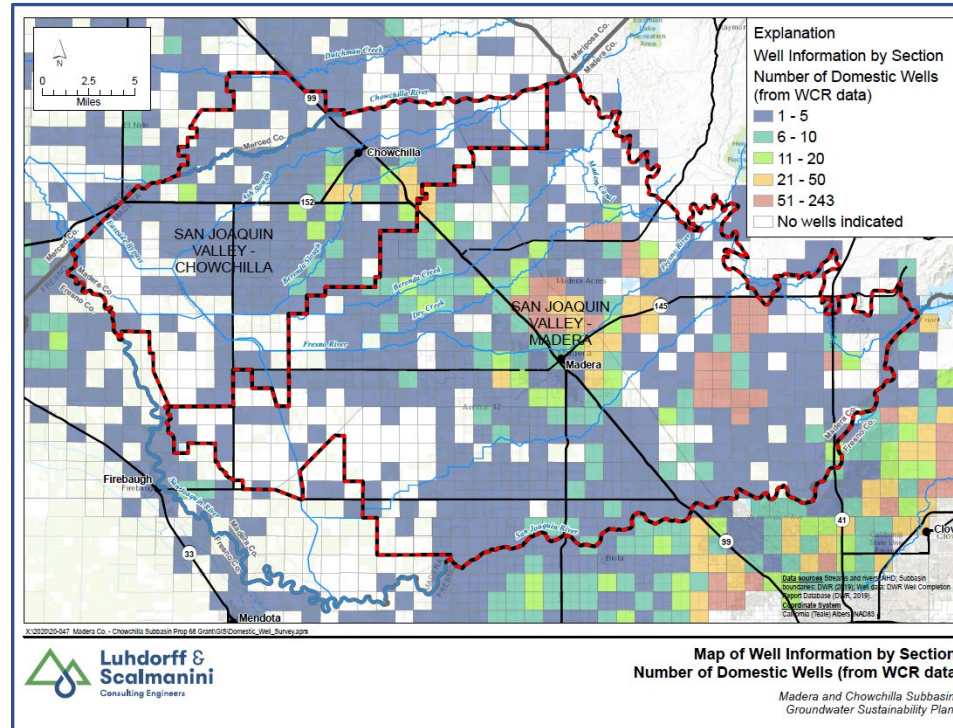
Domestic Well Inventory



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Each of these tells a part of the story

Domestic Well Inventory



Outreach

Potential Limited Outreach Efforts to Supplement County/GSA Outreach

- Exact type/form of outreach still being evaluated but may include:
 - Distribution of preliminary inventory findings for feedback (especially seeking local review of domestic well locations and public water system boundaries)
 - Additional targeted outreach through meetings, surveys, or mailers
 - Discussions with local stakeholders regarding potential barriers to well registration/participation in domestic well mitigation program
- Coordinated, if possible, with other Subbasin outreach efforts (e.g., SALC, Recharge Study, Nitrate Management Zone)
- Scope of outreach to be refined/determined based on review of initial well inventory findings
- Technical experts from Madera/Chowchilla Subbasins have met to discuss domestic well mitigation as well as potential process for registering wells

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Refined Analysis of Potential Impacts

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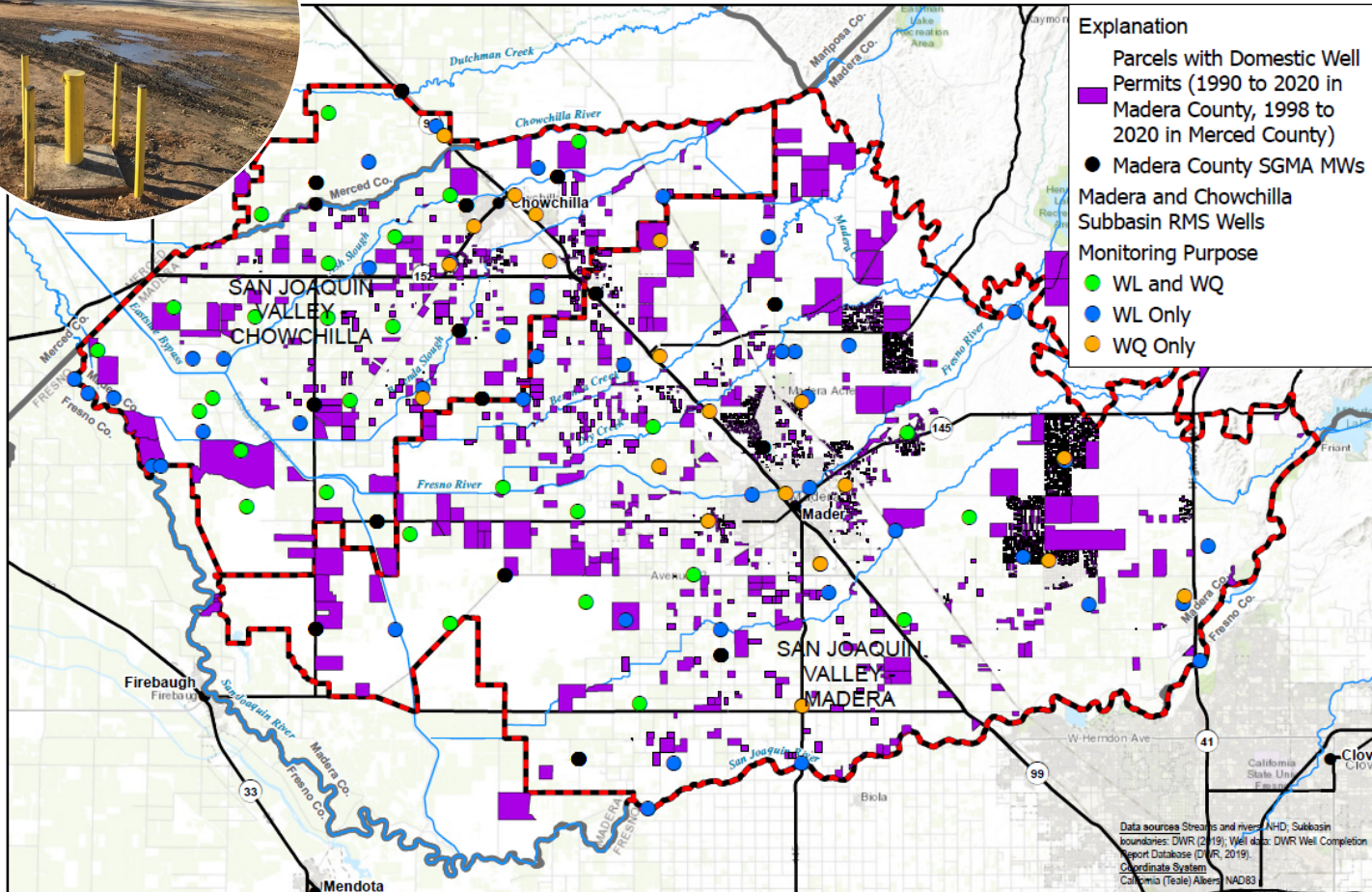
- Preliminary domestic well impacts analysis included in GSP
- GSP Comments received on potential domestic well impacts and estimates of number of wells that may go dry in the future
- Additional datasets and information from this Domestic Well Inventory grant
- GSP analysis will be refined and updated as part of the current study, especially relative to estimates of the future number of domestic wells that may go dry
- Will provide input to funding procurement for the domestic well mitigation program

Primary Goals of Well Inventory

- Refine estimate of total number of domestic wells
- Refine estimate of total number of domestic wells to be impacted (dewatered) in the next 5 to 20 years during GSP Implementation
- Refine estimated cost of domestic well mitigation program (e.g., well deepening, well replacement)
- Provide basis for selection of nested monitoring well sites
- Provide baseline domestic well inventory database for ongoing future updates and refinements

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Assessing Additional Monitoring Needs



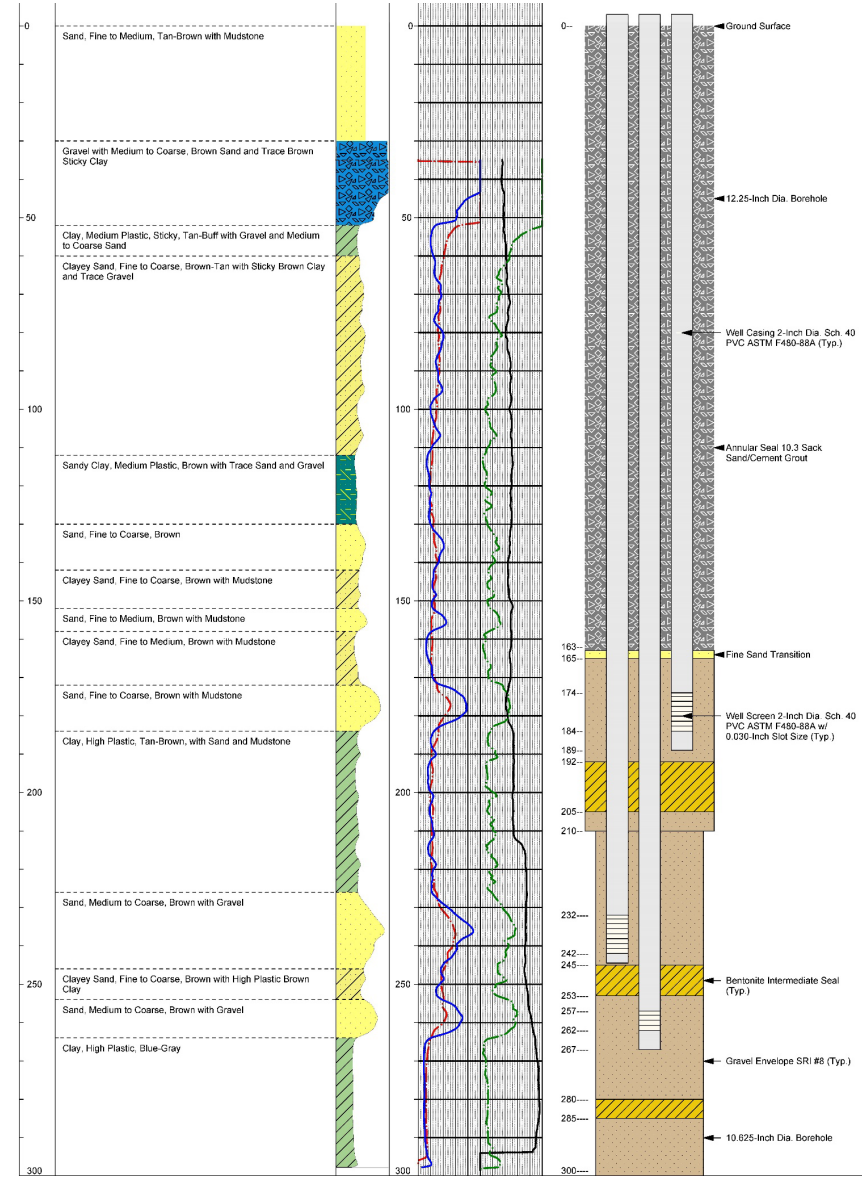
Identifying where additional groundwater monitoring in relation to domestic wells is needed

- Review sufficiency of existing monitoring network
- Evaluate areas of high domestic well density
- Evaluate areas with potential to experience GW impacts

Monitoring Well Construction and Instrumentation

- Test hole drilling to 800 feet at three locations in Chowchilla Subbasin and two locations in Madera Subbasin
- Lithologic and geophysical logging of each test hole
- Construction of up to three wells at each location screened in different depth zones
- Measurement of groundwater levels and collection of groundwater quality samples from each well
- Install instrumentation for long-term water level monitoring; surveying

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Schedule

Tentative Schedule for Remaining Work:

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- Complete Domestic Well Inventory Analyses – March to July 2021
- Planning for Nested Monitoring Well Installation – May to August 2021
- Field Work for Test Hole Drilling and Monitoring Well Installation – August to October 2021
- Well Sampling, Instrumentation, and Surveying – November/December 2021
- Reporting – January to March 2022

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Thank You!



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