COLUSA SUBBASIN

Colusa Subbasin GSP Revisions

Joint Technical Advisory Committee Meeting

January 12, 2024

Agenda

1. Recap of DWR Consultation Meeting #1 (12/19/23)
2. Proposed Revisions: Overdraft
3. Proposed Approach: Projects and Management Actions
4. Proposed Revisions: Subsidence *(If Time)*
5. Next Steps and Timeline

Recap of DWR Consultation Meeting #1 (12/19/23)

Deficiencies As Outlined in DWR's Review Letter

1. **Overdraft**: "The GSP does not include a reasonable assessment of overdraft conditions and reasonable means to mitigate overdraft."
2. **Groundwater Levels**: "The GSP does not establish SMC for chronic lowering of groundwater levels in a manner substantially compliant with the GSP regulations."
3. **Subsidence**: The GSP does not establish SMC for land subsidence in a manner substantially compliant with the GSP regulations.

Our discussions are focused only on these deficiencies and the efforts needed to resolve these sufficiently.

Takeaways from Meeting

- DWR's main concerns, priorities:
  - Existing conditions don't indicate the subbasin is on track to reach sustainability (DWR focused on plans to address/mitigate existing conditions).
  - Undesirable results to GW users and land users need to be more clearly defined and justified (DWR senses that those conditions are happening now).
- Potential GSP revision approaches raised by Colusa Team seem conceptually aligned with DWR's expectations, but:
  - DWR believes that more immediate plans for projects and management actions (PMAs) are needed to mitigate subsidence, overdraft, and groundwater level decline.
  - Actions are warranted immediately.
- If groundwater level SMC are below pre-SGMA levels, wells impacted are the responsibility of the GSAs.

Key Needs to Address Deficiencies

Focus Today

- PMAs: DWR's main concern and focus, all other deficiencies tie into these.
  - PMAs to sufficiently address overdraft.
  - PMAs to address domestic well impacts (e.g., municipal connections, well mitigation) until sustainability is reached.
  - PMAs to address and mitigate subsidence.
- Overdraft: Revise based on more recent empirical data

Focus in Future Meetings

- GWL:
  - Rephrase/revise URs and MTs to justify why those represent unreasonable conditions for domestic wells, GDEs.
  - Clarify relationship between GWL SMC and subsidence, if revised GWL SMC are lower than pre-SGMA levels.
- Subsidence:
  - Revise SMC, monitoring
    - Use InSAR
    - No long-term subsidence past 2042
  - Evaluate effects of subsidence on critical infrastructure
  - Rephrase/revise URs and MTs to justify why those represent unreasonable conditions for facilities, structures, etc.

Proposed Revisions: Overdraft

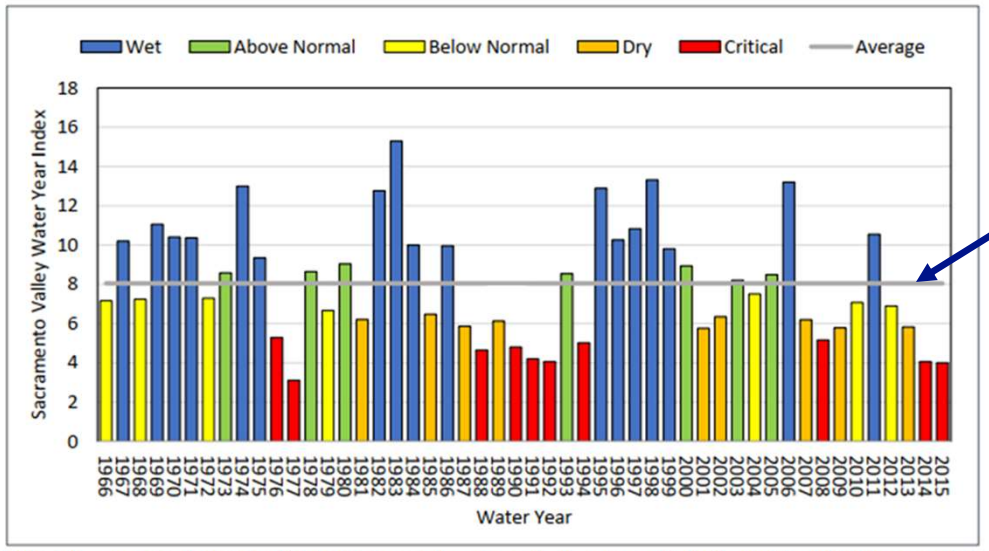
SGMA Regulations Related to Overdraft

- 23 CCR § 354.18.(b)(5):
  If overdraft conditions occur […] include a quantification of overdraft over a period of years during which water year and water supply conditions approximate average conditions.

- 23 CCR § 354.44.(b)(2):
  If overdraft conditions are identified […] describe projects or management actions, including a quantification of demand reduction or other methods, for the mitigation of overdraft.

Average Water Year and Water Supply Conditions

- **Proposed current overdraft period: 2016-2021**
  - Average water year conditions the same as 1966-2015 (GSP 50-Year long-term average hydrologic period)
  - Average water supply within 6% of 1990-2015 average



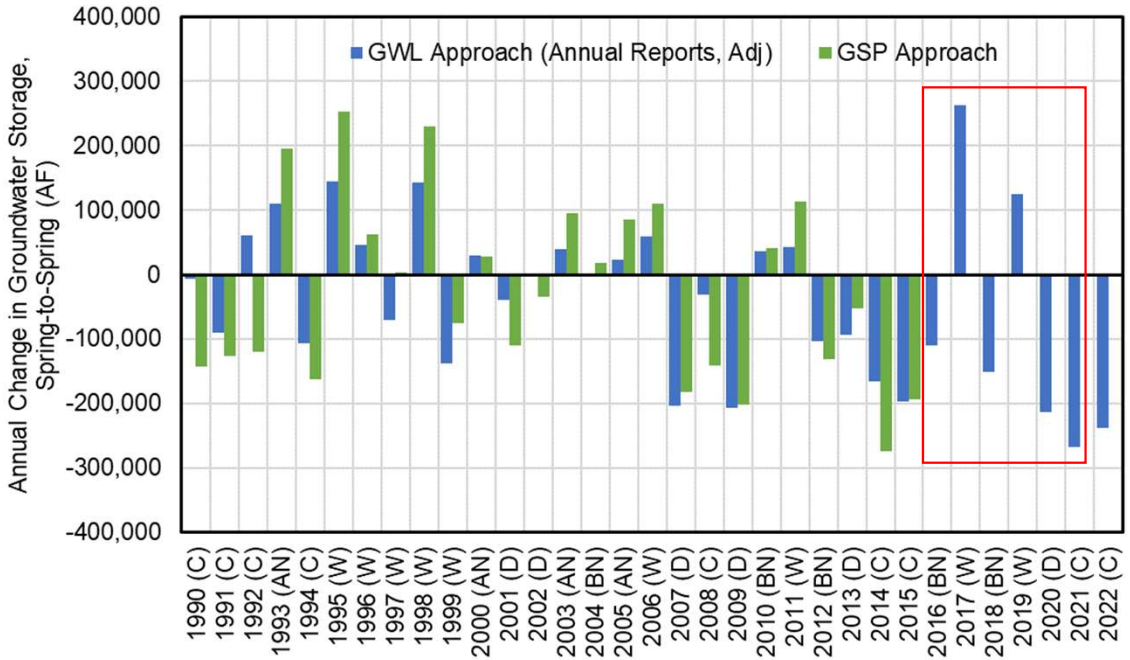
Notes: The average index is 8.1, which is the same as the average for the entire period of record from 1906 through 2019.

Figure 3-38. Sacramento Valley Water Year Index and Water Year Types for a 50-year Period from 1966 to 2015

Period (Years)	Avg. Sac. Valley Water Year Index	Avg. Water Supply (Diversions, AF/yr)	Comment
1966-2015 (50 yr)	8.0	*Not available* *(GSP water budgets began 1990)*	GSP 50-Year long-term average hydrologic period
1990-2015 (25 yr)	7.6	1,168,000 AF/yr	GSP historical water budget period
2016-2021 (6 yr)	8.0	1,238,000 AF/yr	Closest to the 1966-2015 average of periods ending in 2021 (prior to initial GSP submittal)

Proposed Revision to Current Overdraft Estimate

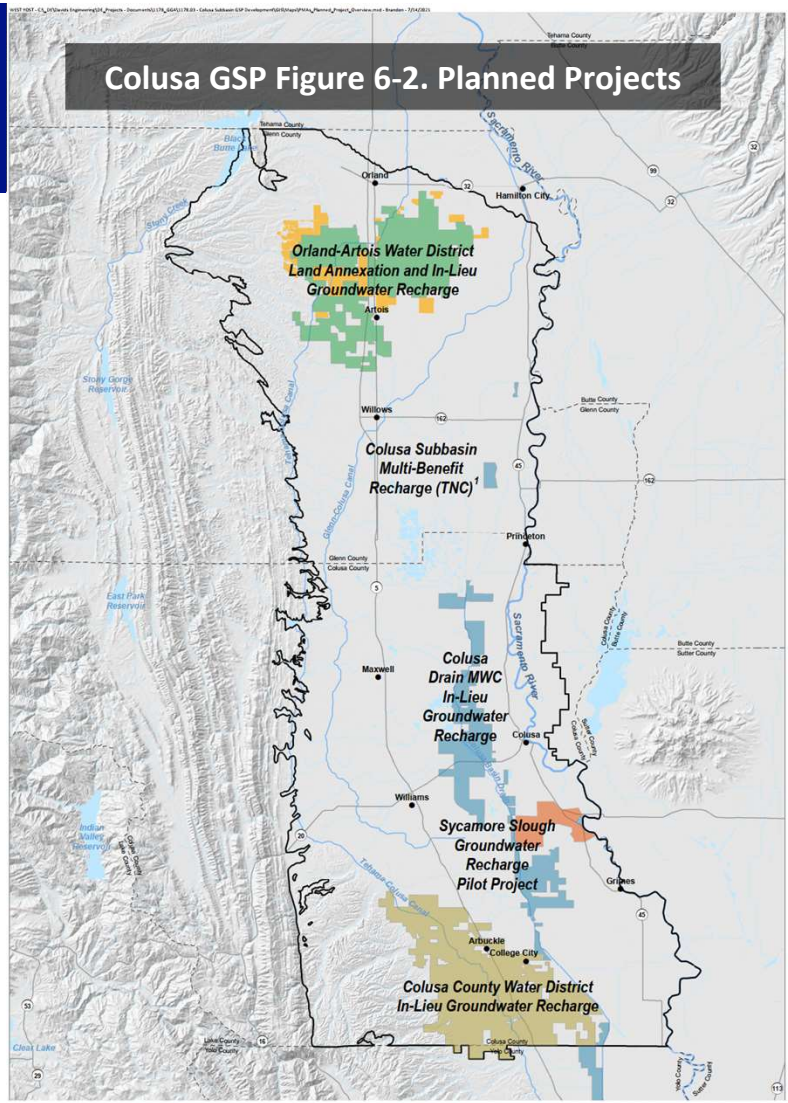
- **<u>Propose re-evaluating overdraft via change in GW storage</u>** (based on changes in GWL, *see blue bars to right*)
- Avg. spring-to-spring change in GW storage (GWL Approach):
  - 1990-2015 (26 yr): -28,000 AF/yr
    - Equals GSP Approach 1990-2015 avg. (*see green bars to right*)
  - **<u>2016-2021 (6 yr): -59,000 AF/yr</u>**
    - Proposed revision to current overdraft estimate



Proposed Approach: Projects and Management Actions

Key Needs and Revisions

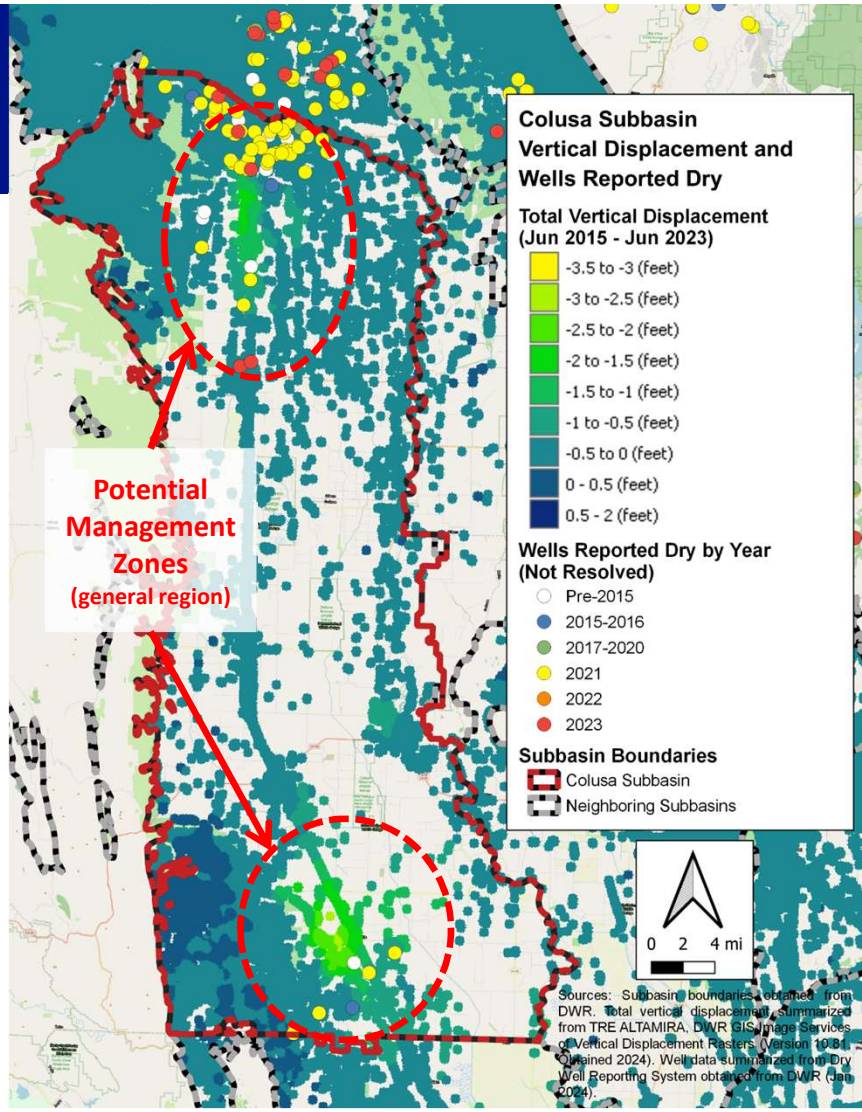
- **Need PMAs to address overdraft**
  - Planned/Ongoing Projects can offset the revised overdraft
    - Average Annual Benefits = 91 TAF/yr
    - Revised Current Overdraft = -59 TAF/yr
  - Issues and <u>proposed revisions</u>:
    - Timeline and benefits not clear to DWR
    - <u>Add specificity to Planned/Ongoing Projects</u>
    - <u>Add strategy for project backstops</u>
      - Potential Projects → Planned Projects if Planned Projects not sufficient
        (assess annually and every 5 years)



Key Needs and Revisions

- **Need PMAs to address domestic well impacts**
  (e.g., municipal connections, well mitigation)
  - Heard from DWR: If groundwater level SMC are below pre-SGMA levels, wells impacted are the responsibility of the GSAs.
  - Add strategy to mitigate domestic well impacts, with initial focus potentially in “management zones.”

- **Need PMAs to address subsidence**
  - Add strategy to mitigate subsidence, with initial focus potentially in “management zones.”



Revisions (Summarized)

Projects

Coordinate with GSAs, Proponents

- Add specificity to Planned/Ongoing Projects
  - Clarify implementation timeline, support for estimated benefits
- Add strategy for project backstops
  - Potential Projects → Planned Projects

Management Actions

GSA Decisions Needed

- Add strategies for mitigating adverse groundwater conditions
  - Management actions for mitigation of domestic well impacts until sustainability is reached
  - Management actions for mitigation of subsidence

Management Actions: DWR Takeaways and GSA Decisions

- DWR is seeking more immediate plans for PMAs to mitigate subsidence, overdraft, and groundwater level impacts to domestic wells.
  - Domestic Well Mitigation Program
  - Demand Reduction or Management (Range of options, action levels)
- GSA Decision Points:
  - What PMAs will be prioritized and how? (Prioritization criteria? Phasing?)
  - Where will PMAs be advanced? (Subbasin-wide? GSA-wide? “Management Zones”?)
  - Who will be responsible for advancing, implementing PMAs? (GSAs? Member agencies? Voluntary vs. compulsory?)
  - When will PMAs be advanced, and by how much? (Specified timeline? Phases? Triggers?)
  - How will PMAs be funded/financed?

Options for Developing Management Actions
(Domestic Well Mitigation, Demand Management/Reduction)

	Option	Advantages	Drawbacks
	"Do Nothing Approach": Do not plan for management actions.	• No change to status quo • Lowest effort/cost	• DWR likely to not approve • SWRCB intervention

Recommended Approach	**"Formal Agreement Approach":** GSAs formally agree now to develop and implement management actions by some specified future date, according to specific terms and conditions (e.g., develop and sign an MOU(s)).	• Very likely to satisfy DWR (approved in other GSPs, but plan to discuss further with DWR on 01/22)
		• Binding commitment from the GSAs
		• Provides more time to:
		  • Work through legal, financial, operational, etc. implications
		  • Clarify structure, phasing, funding/financing options
		  • Engage with member agencies, stakeholders
			• More costly than the "Do Nothing Approach"
			• Tight timeline to get MOU(s) in place by April 2024

	"Fully Develop Approach": Develop management actions to the point they are ready, or nearly ready, for implementation by the time the revised GSP is submitted (April 2024).	• Will satisfy DWR with highest level of certainty. • Implementation likely to benefit local conditions fastest.	• Very tight timeline constraints (large effort, big decisions, engagement by April 2024) • Subject to higher uncertainty • Legal, financial, operational risks

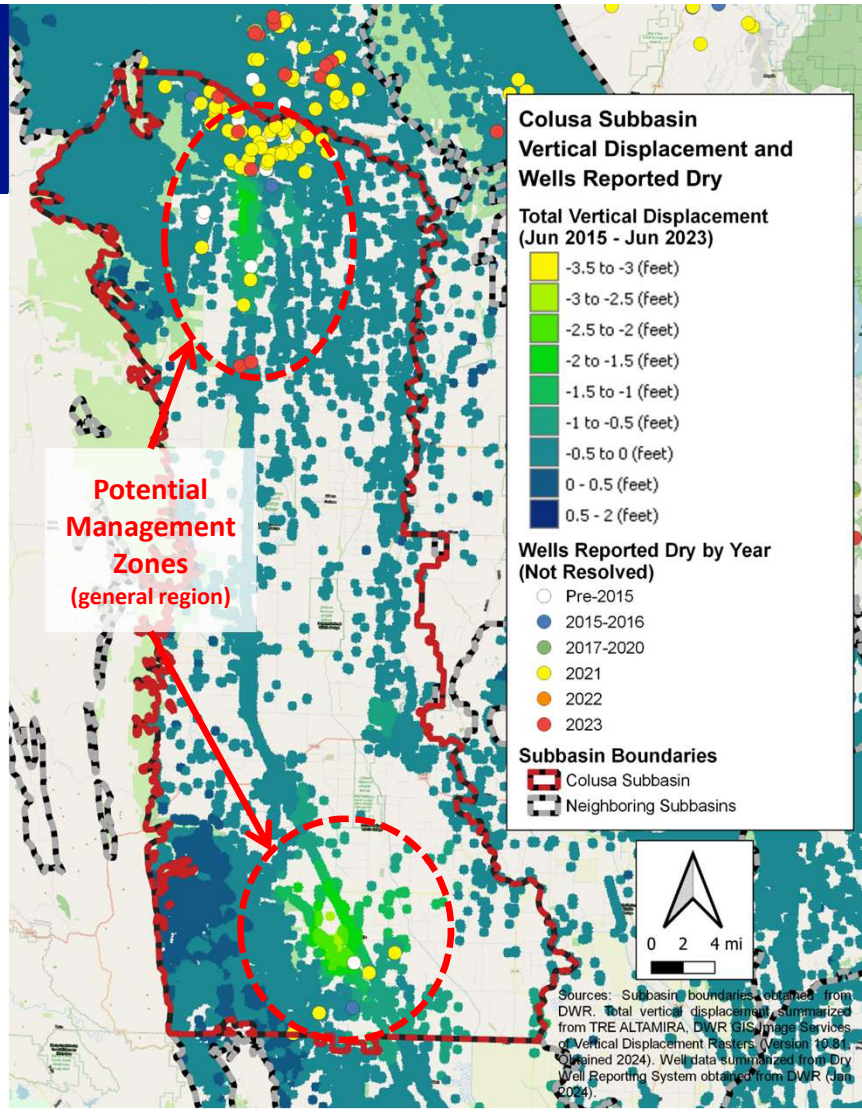
Proposed Approach for PMA Revisions

- **Projects**
  - Add specificity to Planned/Ongoing Projects
    - Work with proponents to clarify implementation timeline, benefits
  - Add strategy for project backstops
    - Work with proponents to identify Potential Projects → Planned Projects
    - Propose prioritization, triggers for implementing if and as needed (if desired)

- **Management Actions**
  - Propose, refine, and agree to:
    - "Formal agreement" (e.g., MOU) to develop and implement programs to mitigate adverse conditions by selected date in 2024/2025
      - Domestic well mitigation
      - Demand management/reduction
    - General criteria for programs, such as:
      - Potential program measures/actions (range of options)
      - Proportionate responsibility/funding mechanisms
      - Program organizational structure, development, and implementation

Proposed Approach for PMA Revisions

- Concepts to agree on:
  - Proposed approach for revising:
    - Projects (add specificity/backstops)
    - Management Actions (“Formal Agreement Approach”)
  - Area(s) of focus for PMA implementation (i.e., “Management Zones”)
  - “Triggers” for implementing new projects, if desired

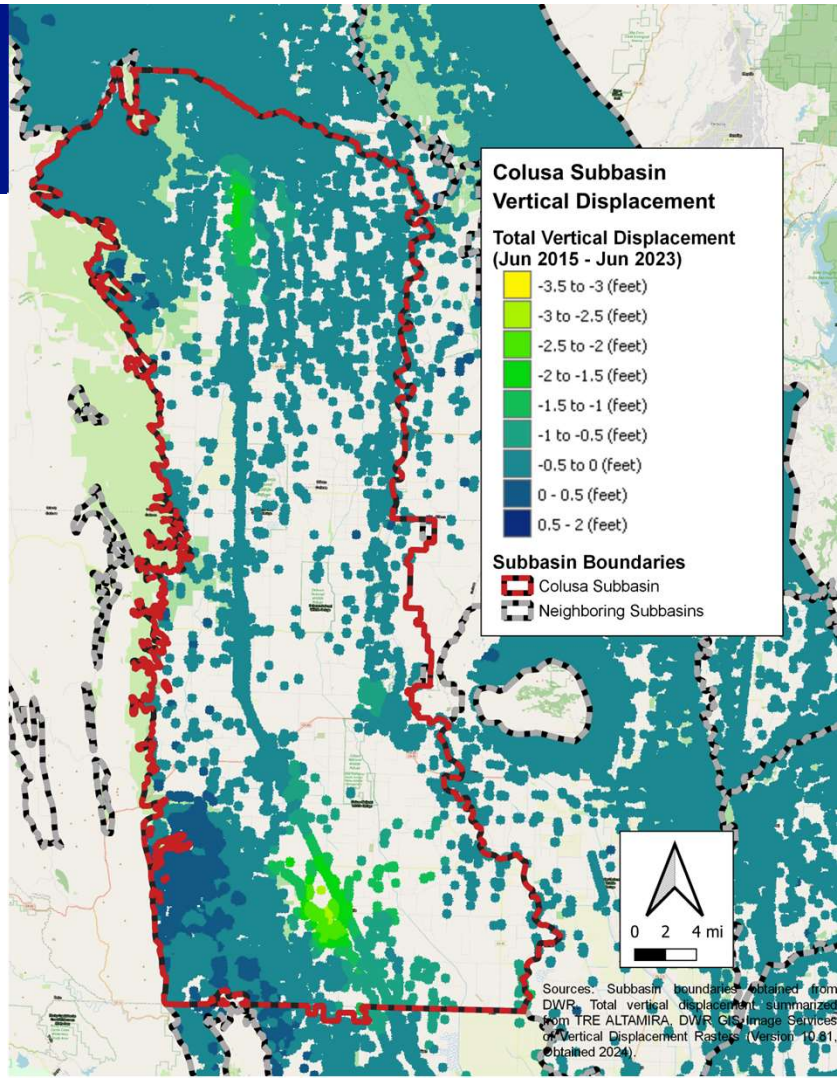


Proposed Revisions: Subsidence

Subsidence Monitoring and SMC Basis

- Currently based on Sacramento Valley Benchmark Network (last surveyed 2017)
- **Recommended revisions, from DWR discussion**:
  - Revise monitoring and SMC based on InSAR*, until such a time as the benchmark network is surveyed
  - Revise SMC to clarify SGMA requirement of no subsidence past 2042
- Evaluate effects of subsidence on critical infrastructure ("Infrastructure Impacts Analysis")
  - Identify critical infrastructure (TCC, I-5, others?)
  - Collect any available data regarding subsidence impacts to critical infrastructure

* InSAR = **In**terferometric **S**ynthetic **A**perture **R**adar



Next Steps and Timeline

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- DWR Consultation Meeting #2 on 01/22
  - Propose revisions to overdraft, PMAs and raise questions
  - Receive feedback from DWR on acceptability
  - *Schedule subsequent DWR meetings*
- CGA/GGA Joint Board Meeting at end of January
  - Propose revisions to overdraft, PMAs based on Joint TAC discussions and DWR feedback
  - Receive approval for approach
- Joint TAC Meeting on 02/09
  - Provide technical details and resources to support PMA revisions, GSA decisions
  - Discuss SMC revisions (subsidence, groundwater levels)