



Demand Management Working Group Meeting #2

September 25, 2024



- 8:30 Welcome and round-robin introductions
- 8:35 Agenda review and participation
- 8:40 Meeting 1 Recap and WG Activities Timeline
- 8:55 Info Requests Follow-Up and Next Steps
- 9:15 Focus Discussion Topic: Sustainable Yield
- 9:40 Draft Demand Management Program Outline
- 9:55 Next Steps and Wrap Up
- 10:00 Adjourn

Agenda

Participation Procedures

- Contribute
- Make room for others
- All thoughts have value
- Ask questions of one another
- Not consensus-seeking
- Consider those listening in (state name, one voice at a time)

- Meeting 1 and Updates
- Overall WG Activities Timeline
- Today's Meeting Objectives

Meeting 1 Recap
and WG Activities
Timeline

Meeting 1 Recap and Updates

- Topics Covered: role/responsibilities, general background, criteria for success, knowns and unknowns, and opinions on topics of importance
- Sept 16 District Board meeting, included LSCE presentation re: polygon approach
- Commission Ad Hoc members drafted initial scope of work

Reminder: meeting materials on website

tehamacountywater.org/demand-management-ad-hoc-working-group/

Demand Management Programs | Ad Hoc and Working Group Meeting Framework / Timeline

1. Form Groups & Prepare

- Formation & Planning
- Defining Goals, Objectives, and Priorities

Mtg 1: Above items plus criteria and info requests

Mtg 2: Program Outline and WG Input

2. Gather Info and Generate Ideas

- Information Collection and Analyses/ Assessments
- Identify Management Strategies

Mtg 2: Info Requests Follow-Up, Assessing Sustainable Yield

Mtg 3: Applying revised polygon approach

3. Explore and Package Ideas

- Build Out Specific Elements and Strategies
- Outreach Coordination

4. Refine

- Vet and refine program elements and strategies

5. "Finalize" and Implement

- Finalize elements for Ad Hoc recommendations
- Identify considerations and opportunities to improve implementation feasibility



GSA Boards Review/Consider for Approval

Jan 2026:
RB, Ant, LM

Jan 2027:
Corning

Info Requests Follow-Up

Pulled from Meeting 1 Discussion
and Draft Work Scope

	Information Request	Source / Status
Current and predicted conditions	Areas of declining groundwater levels, change in storage, water quality concerns, etc.	Calculated per basin and initial polygons Revising polygon approach for more accurate/ manageable areas
Groundwater wells' information	<u># of domestic wells and irrigation wells (per polygon)</u>	Significantly inaccurate; well registration data will help (summer 2025)
	Wells' location, construction details, etc. for monitoring water demand (monitoring network)	Exists for monitoring network; will continue to improve
Water demand (land and water use)	<u>Crop type, water source, irrigation methods</u> Acreage under production and irrigation (per polygon)	Have some land/water use data, but not entirely accurate. Well registration data will help (summer '25)
	<u>Evapotranspiration</u>	LandIQ, OpenET
Water supply	Available surface water (volumes, delivery history, reliability)	Yes, for Corning WD; rough estimates for others
	Recharge sites (status and estimated yield)	Have existing projects, several sites identified; LSCE feasibility studies underway
Water budget	<u>Estimated overdraft (per polygon)</u>	Have rough estimates; revising polygon approach first
	<u>Safe yield (per polygon)</u> <u>Demand reduction goal (per polygon)</u>	revising polygon approach first

**Underline = identified as priority info need; working on getting more accurate data*

	Information Request	Source / Status
GSPs' Sustainable Management Criteria	Sustainability goal, measurable objectives, minimum thresholds, undesirables results, etc. (<u>per polygon</u>)	Defined at basin level in GSPs. May be refined per revised polygons
Management & Water Rights	FCWCD's authorities as a water district and as a GSA	Defined per water code as a water district; per SGMA as a GSA
	Identify areas with surface water rights; current zoning	Exists for monitoring network; will continue to improve
	<u>Example compensation policies</u> (e.g., fallowing, dry-farming)	Ongoing research/compile examples for discussion

**Underline = identified as priority info need; working on getting more accurate data*

Discussion: Refining polygon
approach to assess safe yield

(Refer to LSCE 9/16 presentation to Board)

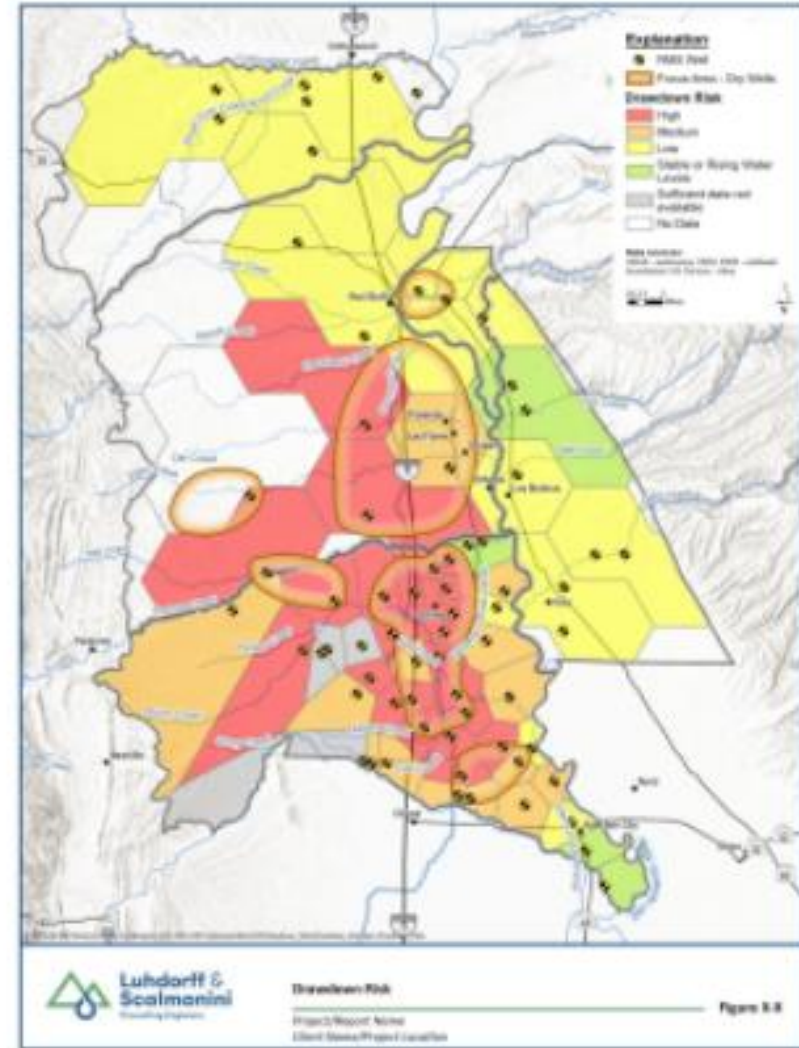
Focus Topic :
Sustainable
Yield

Pros and Cons of the Hexagonal Grid



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- Use of the Hexagonal Grid
 - Pros of the Grid:
 - Characterizes groundwater changes throughout the subbasin
 - Can be used to calculate Safe Yield within each hexagon, providing higher resolution GW storage analysis
 - Allows for the incorporation of distributed pumping
 - Provides for streamlined analysis
 - Cons of the Grid:
 - GW use within each polygon is evenly distributed, so areas with greater GW pumping may see similar safe yield values than areas with little GW use
 - Hexagons may be too big (~25 sq. mi area) – small number of RMS Wells
 - Reliant on small well network; wells have short data sets

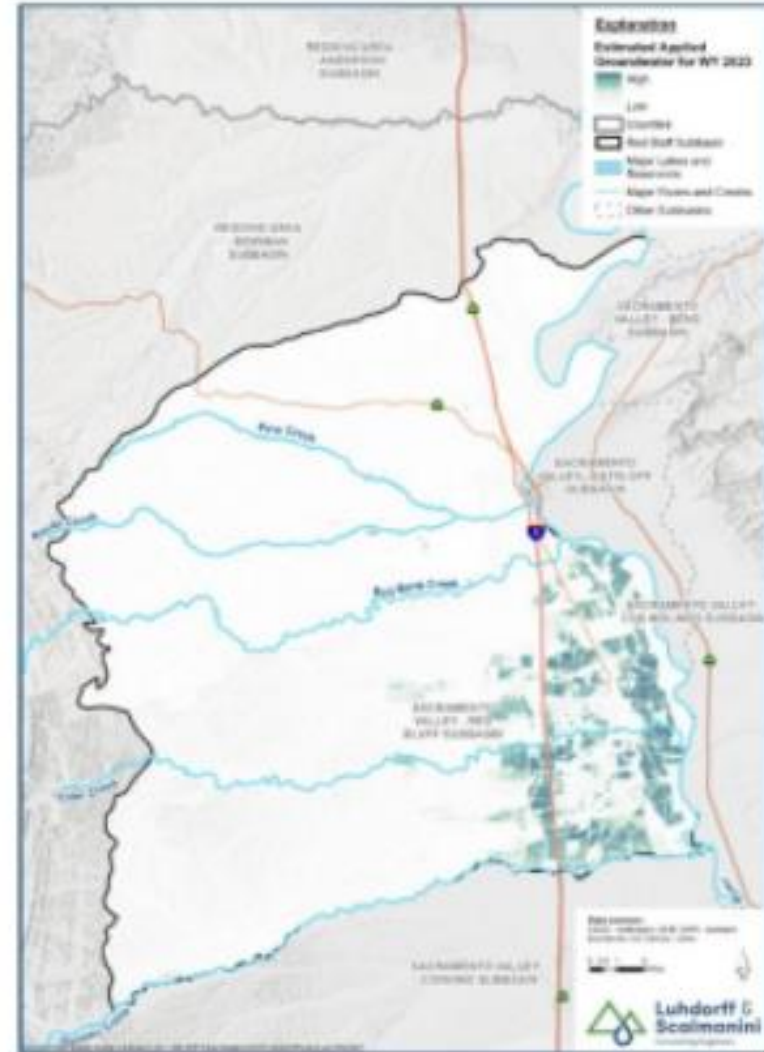


Possible Improvements to the Grid



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- Improvements to the grid:
 - Well network
 - Add more wells to the RMS Network, especially in areas with no wells
 - Redistribute a greater number of wells in areas of greater pumping (vice versa for areas of low pumping)
 - Align with land use to identify pumping hot spots
 - Smaller hexagonal areas (<25 sq. mi)
 - Increase number of hexagons in grid
 - Higher accuracy of storage and safe yield calculations across subbasin



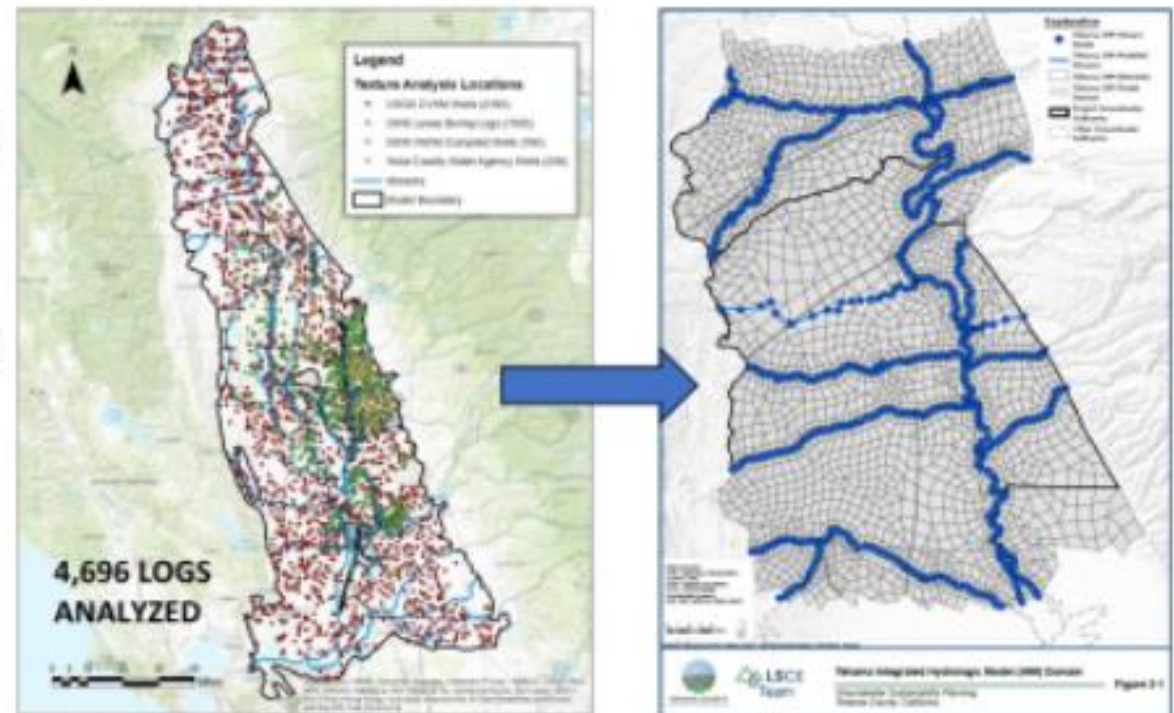
Alternative to the Current Grid



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The Tehama Integrated Hydrogeologic Model (TIHM)

- Used to estimate GW pumping, GW uptake, change in storage, and cumulative change in storage for WY 1990 through WY 2019
- Numerical flow model used to estimate surface water and groundwater movement and storage across the entire subbasin.
- Was developed for the purpose of conducting sustainability analysis in the subbasin
- Used foundational elements of DRW's SVSim regional model and adapted for local application



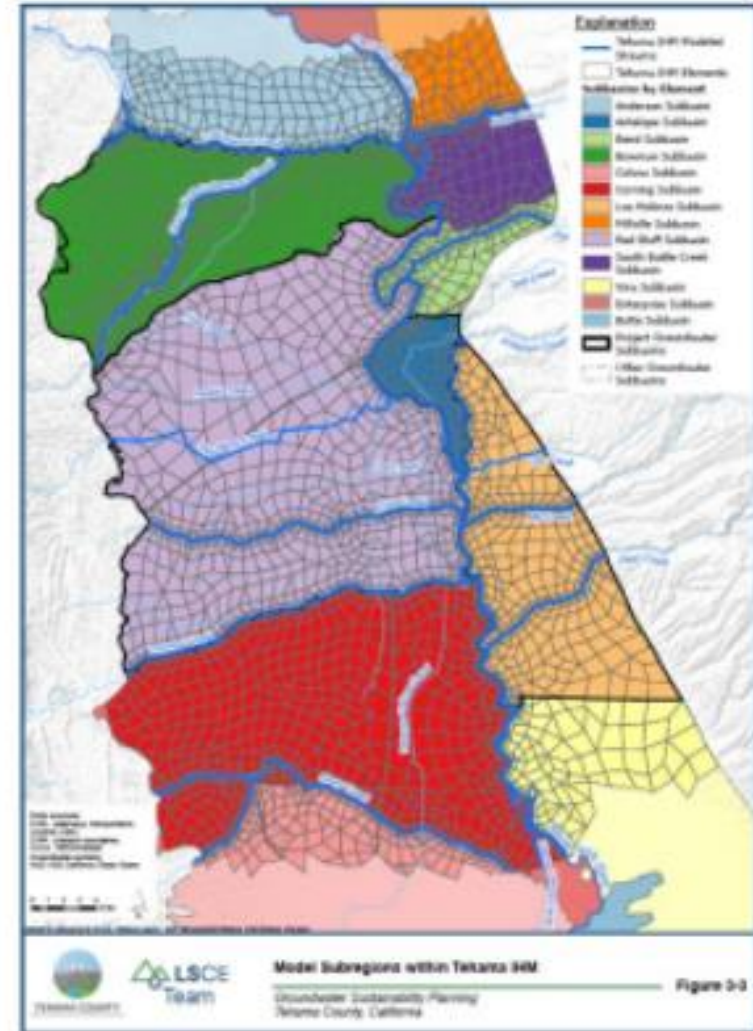
Pros and Cons of the TIHM



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- Pros of the TIHM:
 - Characterizes groundwater changes throughout the subbasin
 - Utilizes data compiled from multiple sources over a 30+ year period.
 - Evaluate climate change
 - Project and Management Action Comparisons
- Cons of the TIHM:
 - Model needs updating (current through 2020)
 - Expensive to Update (GSP Implementation Funding available)



Demand Management Summary



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- Proposed Workflow:
 - Develop Change in Storage and Safe Yield Per Area (Polygon/Hexagon)
 - Utilize Groundwater Levels
 - Aquifer Parameters
 - Area of Interest (polygon/hexagon)
 - Estimate groundwater demand (utilizing OpenET from Annual Reports)
 - Evaluate Results
 - Possible Grid modification
 - Refine areas based on Pumping Centers (Open ET/LandIQ)
 - Incorporate groundwater level and Pumping data over a 10-year period



Demand Management Program Outline

- Draft Outline
- Potential Working Group Input and Priorities

Demand Management Program Content

1. Introduction and Objectives
2. Current Groundwater Use
3. Demand Management Strategies
(water use efficiency, incentive programs, alternatives water sources, recharge incentives, conservation)
4. Groundwater Allocation and Permitting
5. Monitoring and Enforcement
6. Economic Considerations
7. Public Engagement and Stakeholder Involvement
8. Adaptive and Contingency Planning
9. Timeline and Milestones
10. Conclusions

Program Content	WG Priority/ Involvement	Potential WG Input
1.Introduction and Objectives	Low: Already discussed, Quick inform per discussion	•Confirm objectives
2.Current Groundwater Use Assessment	Medium: discuss specific elements as warranted	•Refine how a polygon approach to assessing safe yield could be developed (this will be touched on next Wed at the GC meeting)
3.Demand Management Strategies <ol style="list-style-type: none"> 1. Water Use Efficiency 2. Incentive Programs 3. Alternative Water Sources 4. Incentives for Recharge 5. Conservation 	High: Very important to discuss and document ideas/outcomes	<ul style="list-style-type: none"> •Description of the strategy •Benefits •Concerns/Drawbacks/Risks •Assumptions/Uncertainties •Estimated costs and potential funding mechanisms •Probability of success (low, high, medium) •Implementation considerations (short-term or long-term, permitting, partnerships, etc.)
4.Groundwater Allocation and Permitting	High: Very important to discuss and document ideas/outcomes	•Ideas on a process for “fair” groundwater allocation
5.Monitoring and Enforcement	Medium: discuss specific elements as warranted	<ul style="list-style-type: none"> •Confirm priority monitoring needs/approaches •Generate ideas for successful enforcement

Program Content	WG Priority/ Involvement	Potential WG Input
6.Economic Considerations	High: occurring in tandem when considering demand management strategies, etc.	<ul style="list-style-type: none"> •Important issues that should be included in the economic considerations •Scale of economic impacts
7.Public Engagement and Stakeholder Involvement	Medium: Should be building this list along the way and conducting in parallel	<ul style="list-style-type: none"> •Ideas for improving O&E related to the demand management program
8.Adaptive and Contingency Planning	Medium-High: Should discuss while still focussing discussion on the actual demand management strategies	<ul style="list-style-type: none"> •Ideas for adaptive and contingency strategies
9.Timeline and Milestones	Medium: most important to consider timing and alignment with the Corning program	<ul style="list-style-type: none"> •Confirm major milestones •Alignment w/ the Corning Subbasin demand management program
10.Conclusions	Low: Should be building this along the way	<ul style="list-style-type: none"> •Confirm key conclusions

- Action Items and Next Steps
- Upcoming meetings
 - Corning Subbasin Advisory Board | Oct 2
 - ~~Commission | Oct 9~~
 - FCWCD Board | Oct 21
 - Next WG Meeting | Oct 23

Next Steps and
Wrap Up
Thank you!