

UPDATES ON SUBBASINS

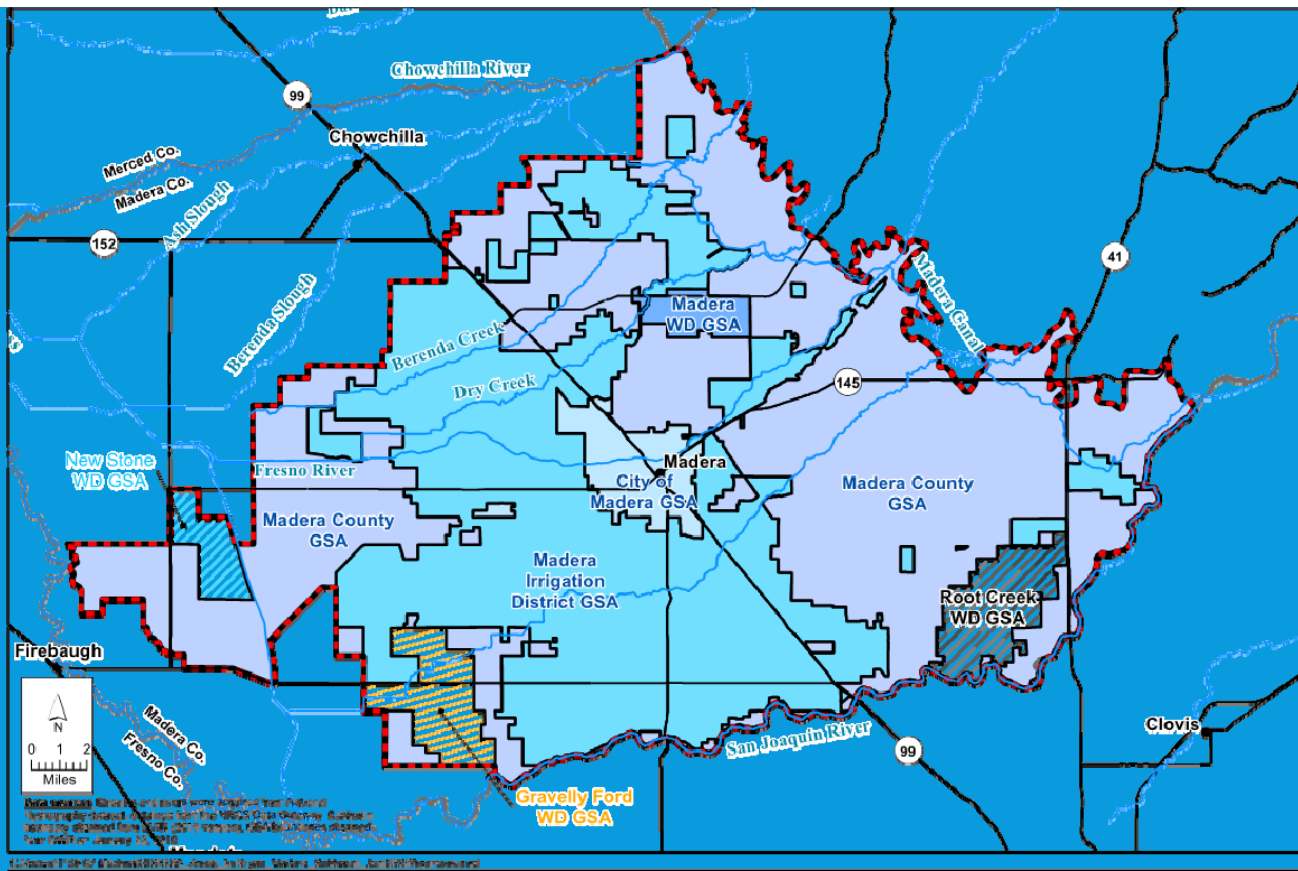
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September 3, 2019



Madera Subbasin: 7 GSAs preparing 4 GSPs



Total Subbasin

~ 348,000 ac

~ 216,000 ac irrigated

Madera County GSA

~180,000 ac

~85,000 ac irrigated

- Significant acres are 'non-irrigated' (unique to County GSA)

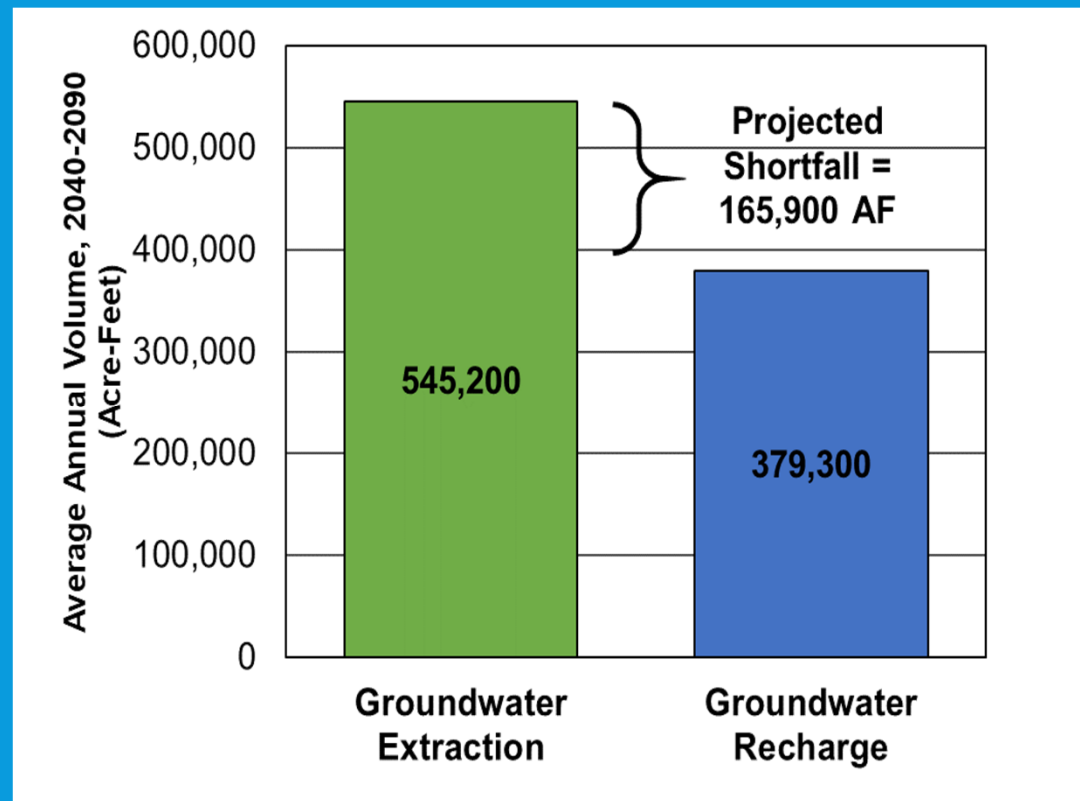
Madera subbasin “consumptive use” [a.K.A. Evapotranspiration of applied water (ETAW)]

- Irrigated ag dominates
- Significant shift in crop types
- Average ETAW has increased
 - 1989 = 1.75 af/ac
 - 2015 = 2.13 af/ac
- Urban use is minor
 - City of Madera ~ 4,500 af/yr
 - Rural residential ~ 18,200 af/yr

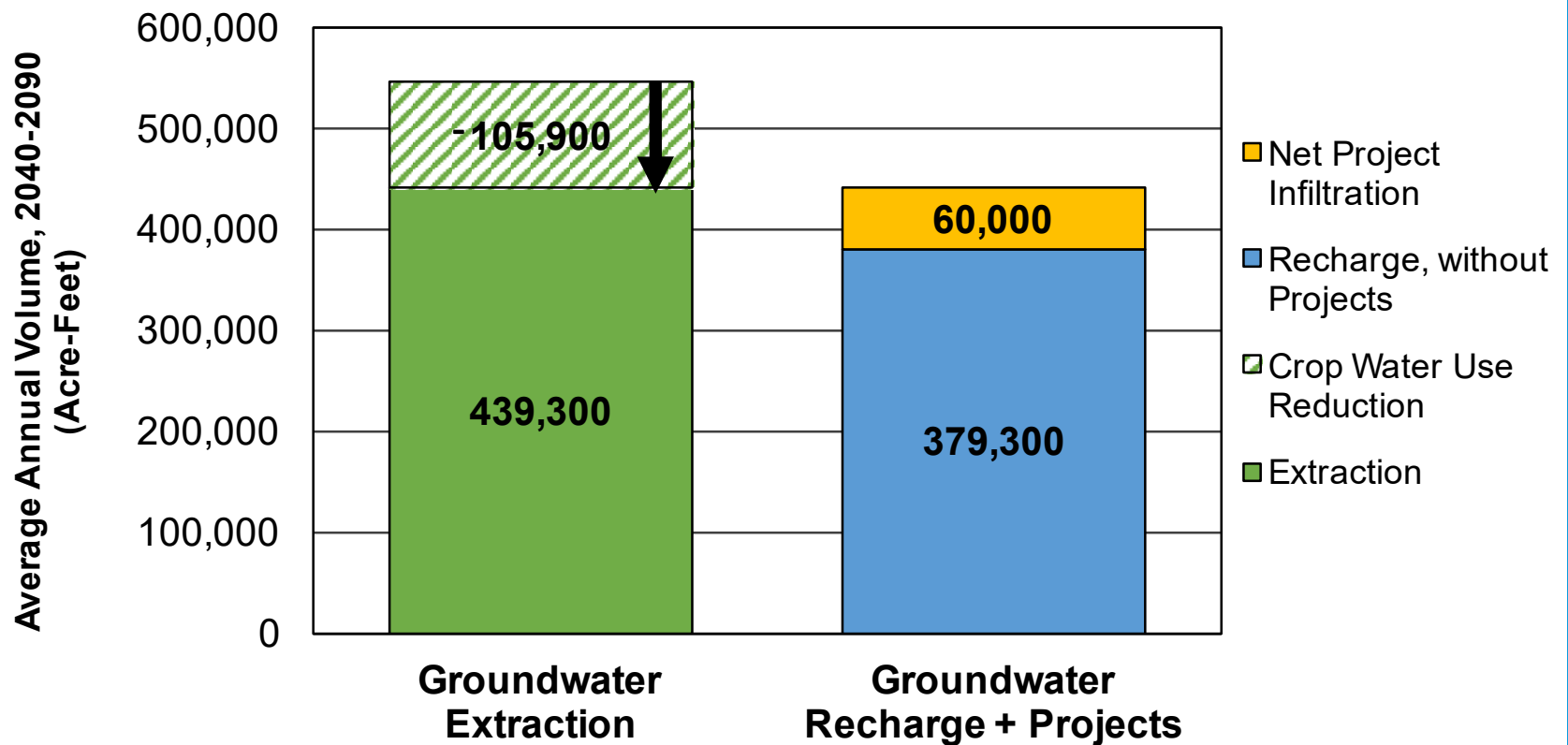
Land Use	Crop Area (acres)	
	1989	2015
Citrus and Subtropical	6,071	4,512
Corn	5,266	6,963
Grain and Hay Crops	5,548	9,118
Grapes	69,562	67,489
Idle	32,783	4,198
Miscellaneous Field, Truck, Decid.	27,480	12,943
Almonds	21,797	75,006
Pistachios	14,169	27,189
Walnuts	1,180	1,157
Pasture and Alfalfa	30,069	7,581
Total	213,924	216,158

Madera Subbasin Joint GSP

- Prepared by 4 of 7 GSAs representing 95% of the acres
- Solving a projected 165,900 af/year overdraft in the future
- Available for public comment until November 11, 2019
- www.maderacountywater.com/maps/madera-subbasin/



Joint GSP details solutions to solve the projected overdraft



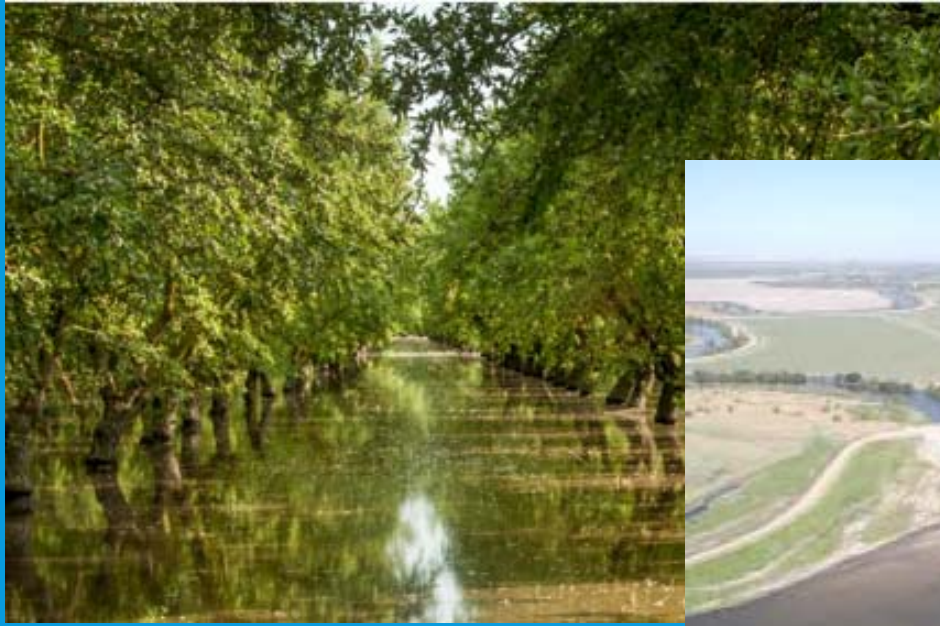
Madera County GSA: Actions detailed in the Joint GSP

Type	Max Rate and frequency	Estimated Avg. Annual Benefit
(Values in acre-feet)		
Recharge along Bypass	30,000 - 40,000 35% of years	10,000 to 15,000
Recharge in east area	20,000 15%-30% of years	5,000 to 7,000
Irrigate with surface water in east area	3,000 – 10,000 60%-70% of years	3,000 to 5,000
Demand reduction	Steady-annual decrease in consumption to 2040	Increase ~5,000/yr (additive) to ~90,000/yr

Sustainability is based on:

- Significant reduction in demand
- Recharge where feasible (likely with only localized benefits)
- High cost and likely impact to County economy

Projects



Projects

- Potential sources of water:
 - CVP Section 215 water
 - Purchased water from others (CVP, water rights)
 - Pursue new water right
- Locations for direct or in-lieu recharge:
 - East area with water conveyed via Madera Canal and MID/CWD laterals
 - West area with water diverted from Chowchilla Bypass, delivered to bottom-end of MID/CWD laterals, or via streams
- Methods: recharge ponds, Flood-MAR, dry-wells, in-lieu irrigation

Projects

- Pros
 - Supplements native groundwater
 - Offsets small portion of demand reduction
- Cons
 - Requires significant infrastructure that does not yet exist
 - Supplies are intermittent
 - Benefits may be limited to certain areas in the GSAs

Demand Reduction



Demand reduction

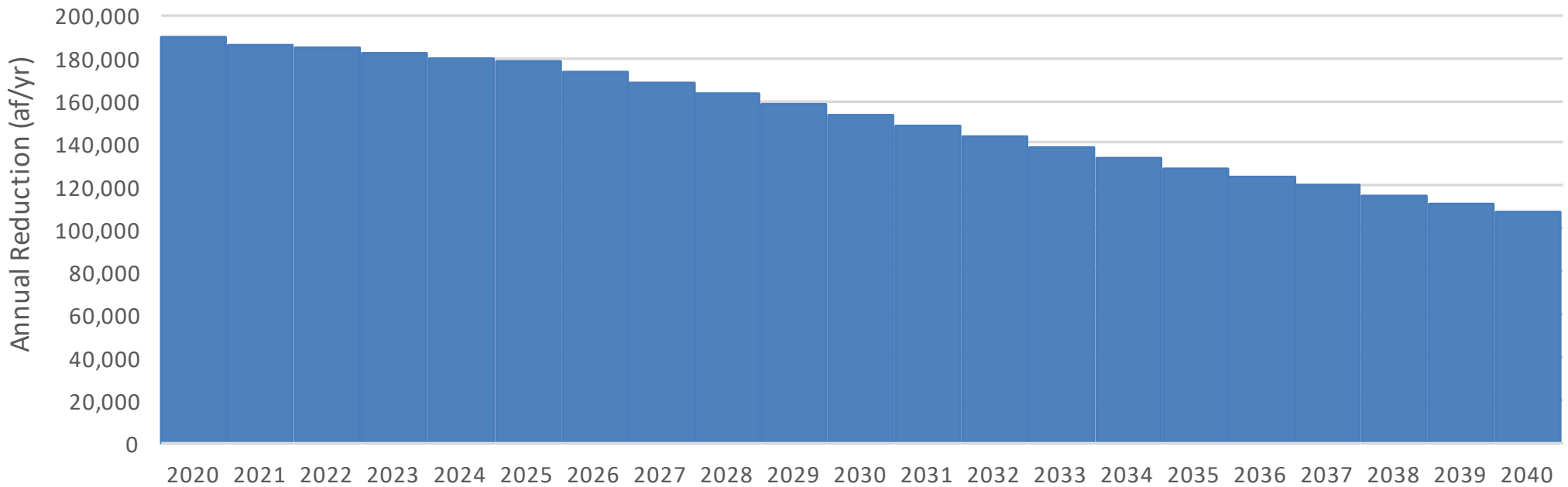
- Relevant regulatory sections
- §354.44(2) If overdraft conditions are identified...the Plan shall describe projects or management actions, including a quantification of demand reduction or other methods, for the mitigation of overdraft.
- §354.26 (b) The description of undesirable results shall include the following:
 - (3) Potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results.

County GSA demand reduction considerations

- How it is actually reduced is a County GSA-managed policy that must consider County economics, grower economics, drinking water needs, water rights, equity, and implementability
- County GSA recognizes landowners need to understand change at a parcel-level
- These details are not shown in the GSP – only described generally to show intent of GSA
- Other GSAs in subbasin need to agree with County GSA plan – since our actions impact groundwater levels throughout the basin

Example of anticipated affect on pumping quantities

Anticipated Annual Pumping in Madera County GSA
w/in Madera Subbasin without any 'projects' (af/yr)



Current Options for Demand Reduction

(These can be combined and modified over time)

- Strategy #1: Allocations at the parcel level
(May 17 and May 23, 2019 meetings)
- Strategy #2: Water markets
(October 19 and November 16, 2019 meetings at FB)
- Strategy #3: Easements
 - 1 year rental
 - 5-10 year rental
 - In perpetuity

Things to consider

- Administrative/regulatory burden for grower
- Administrative burden for County GSA
- Individual economics
- County GSA economics
- County economics
- Flexibility and adaptability of approach to modify to assure GSA reduction targets are met

Potential near-term groundwater impacts

- GSAs need time to transition and complete projects and actions – which will lower groundwater levels during implementation
- Planned mitigation for impacts can address concerns of lowered groundwater levels during implementation



GSA's are considering a mitigation program for impacted drinking water wells

- 2020/2021: Details developed with stakeholder input
- Possible mitigation actions
 - Replace/lower existing well
 - Connect to community water system
- Possible types of support
 - Low interest loans
 - Grants
- Likely will require well owners to sign up for program

5-year plan

- [insert the modified table showing calendar year]

Madera County GSA current activities

- Water supplies
 - Reclamation contract
 - DWR FloodMAR investigation
- Monitoring, Recording and Reporting
 - Satellite-based analysis for ET baseline
 - Database RFP
 - GSA management and administration funding
- Implementation efforts
 - WaterSmart grant investigating groundwater trading
 - GSA implementation funding

Discussion