GROUNDWATER SUSTAINABILITY PLANS UPDATE: CHOWCHILLA SUBBASIN

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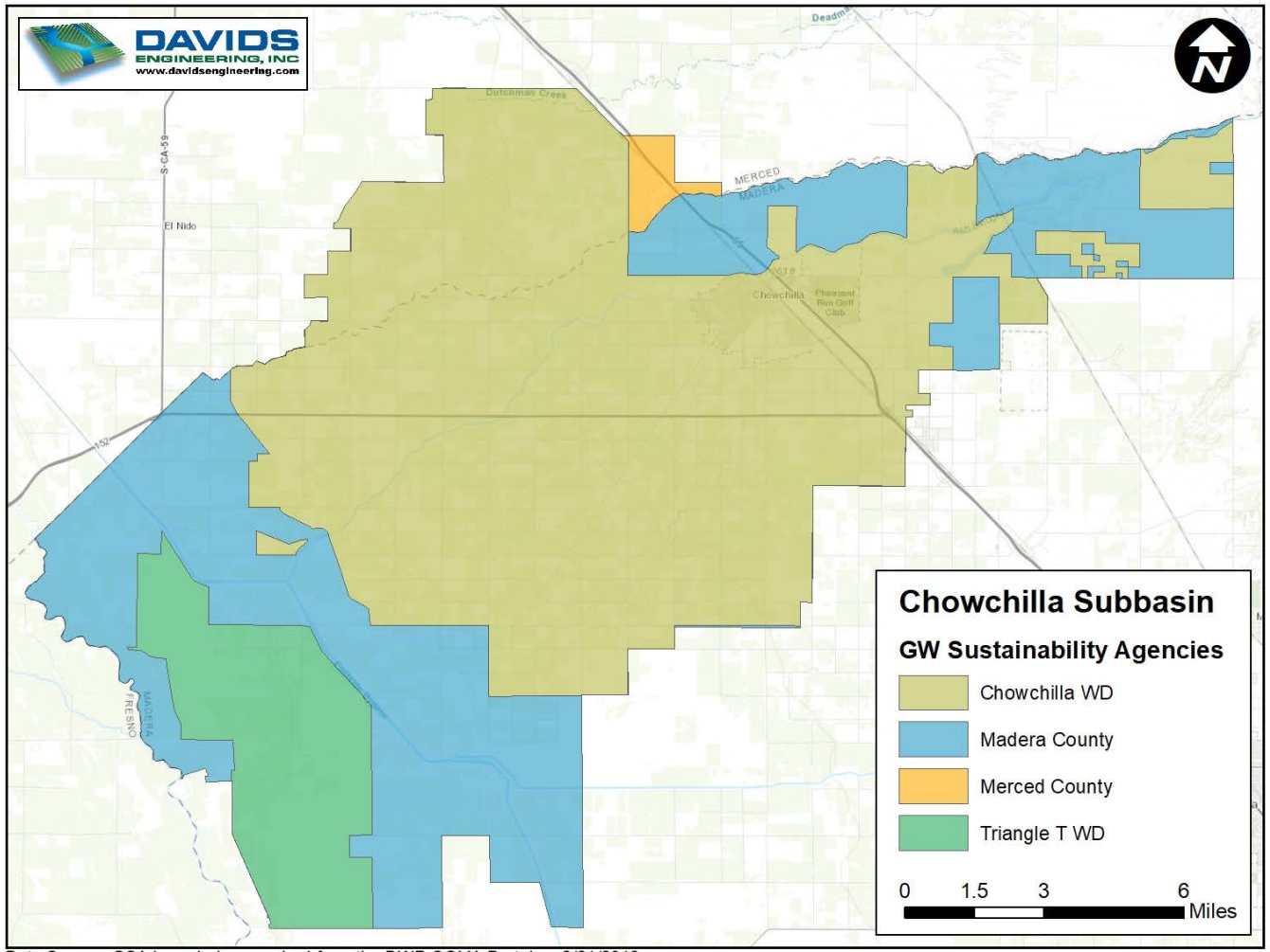
Chowchilla Subbasin: 4 GSAs preparing 1 GSP

See Chapter 1 for Agency Descriptions



Data Source: GSA boundaries acquired from the DWR SGMA Portal on 2/21/2018.

Total Subbasin

~ 146,000 ac

~ 123,000 ac irrigated

Madera County GSA

~45,000 ac

~37,000 ac irrigated

- Divided into:
  - 'East' 11,400 ac/7,500 ac
  - 'West' 31,200 ac/27,400 ac

Chowchilla Subbasin subregions relate to proposed projects and actions

GSA	Subregion	Acres
Chowchilla Water District GSA	Chowchilla Water District GSA	85,200
Madera County GSA	Madera County GSA – East	11,400
	Madera County GSA – West	31,200
Merced County GSA	Sierra Vista Mutual Water Company	3,800
Triangle T WD GSA	Triangle T Water District GSA	14,700
	Total	146,300

Chowchilla subbasin "consumptive use"
[a.K.A. Evapotranspiration of applied water (ETAW)]

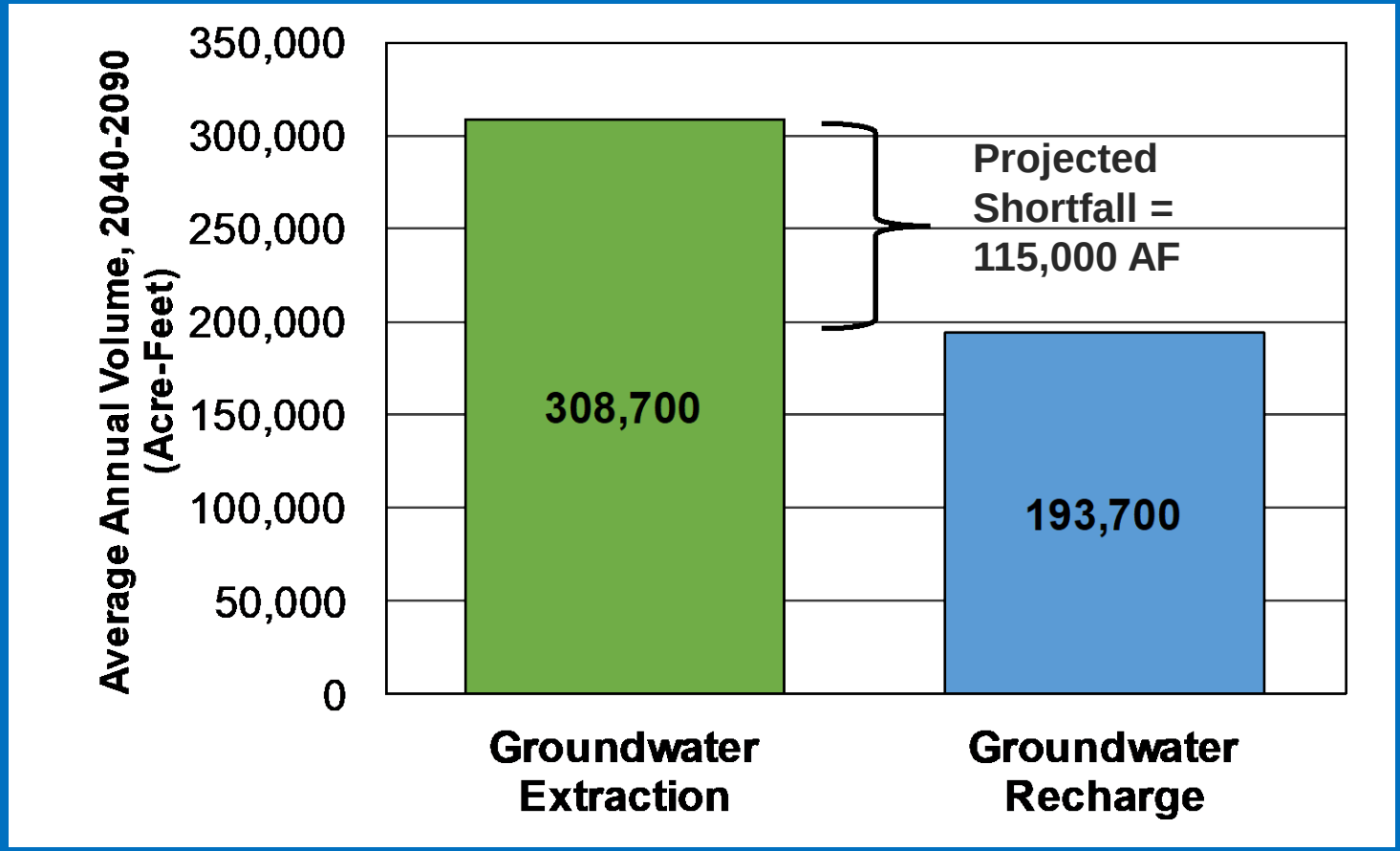
See Chapter 2 for more on land use

- Irrigated ag dominates
- Significant shift in crop types
- Average ETAW has increased
  - 1989 = 1.97 af/ac
  - 2015 = 2.66 af/ac
- Urban use is minor
  - City of Chowchilla ~ 2,500 af/yr
  - Rural residential ~ 7,200 af/yr

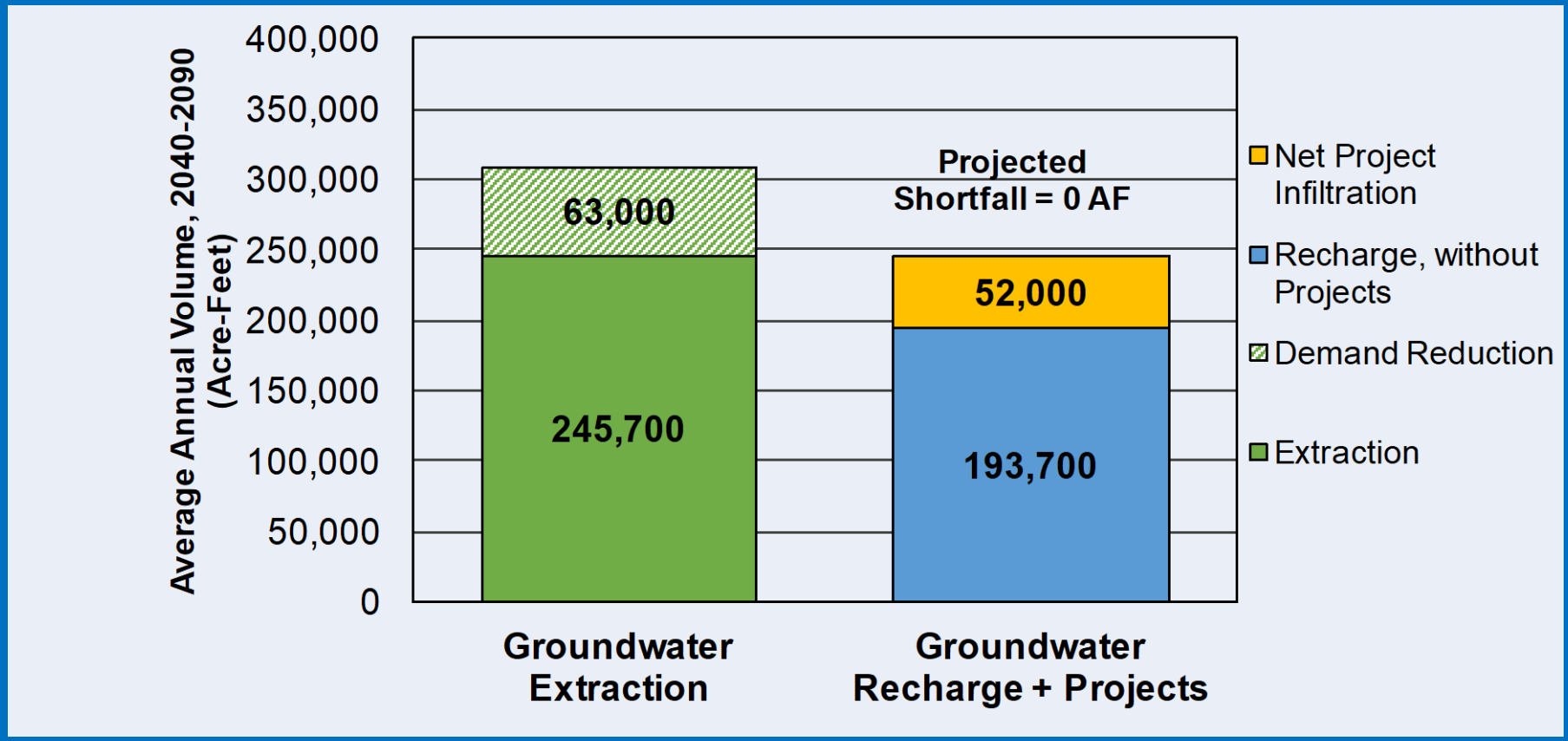
Land Use	Crop Area (acres)	
	1989	2015
Citrus and Subtropical	59	130
Corn	10,439	18,117
Grain and Hay Crops	4,590	5,805
Grapes	8,023	10,934
Idle	19,511	1,085
Miscellaneous Field, Truck, Deciduous	26,964	5,358
Almonds	12,337	53,489
Pistachios	1,970	9,041
Walnuts	229	955
Pasture and Alfalfa	35,012	19,435
Total	**119,134**	**124,350**

Chowchilla Subbasin GSP
Projected shortage without SGMA

- Prepared by 4 GSAs representing the entire basin
- Solving a projected 115,000 af/year overdraft in the future
- Available for public comment until November 11, 2019
- https://www.maderacountywater.com/chowchilla-subbasin/



GSP details solutions to solve the projected overdraft



Crop Water Use Reduction Program: Madera County East 11,300 af, Madera County West 16,250 af, TTWD 1,700 af. Remaining crop water use reduction due to permanent recharge basins replacing irrigated area and increased use of surface water in lieu of groundwater.

Madera County GSA: Actions detailed in the GSP

See Chapter 4 for projects

Type	Max Rate and frequency	Estimated Avg. Annual Benefit
(Values in acre-feet)		
Recharge along Bypass	70,000 - 80,000 35% of years	20,000 to 25,000
Recharge in east area	8,000 15%-30% of years	1,000 to 2,000
Irrigate with surface water in east area	1,500 – 4,000 60%-70% of years	1,000 to 2,000
Demand reduction	Steady-annual decrease in consumption to 2040	Increase ~1,400/yr (additive) to ~28,000/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

Demand Reduction

See Chapter 4 for County GSA Demand Reduction

- Madera County plans to gradually phase-in demand management between now and 2040.
- Starting in 2020 and continuing through 2025, average annual groundwater pumping will be reduced by 2% (of the total demand reduction amount) per year, for a total cumulative reduction of 10% by 2025.
- Groundwater pumping will be reduced by 6% per year starting in 2026 and continuing through 2040.
- However, if Madera County GSA project yields are lower than initially estimated, Madera County GSA will increase the level of demand management.

Things to consider

See Appendix 3C for Economic Analysis of Immediate Demand

- 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

See Chapter 4 for Setting of MTs and MOs

- 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

Groundwater impacts would be much greater without the GSP actions

- Without the GSP:
  - Groundwater levels would drop another 150 to 200 feet by 2090
  - ~ 100+ ft would occur during 2020 to 2040
- With the GSP:
  - Groundwater levels may temporarily drop between 2020 and 2040, but would recover and stabilize at current levels or even better by 2040 and into the future
  - For each subbasin, 2020 to 2040 levels could be:
    - Chowchilla ~ 50 ft lower than current (or ~ 15 ft lower than recent lows)
    - Madera ~ 30 ft lower than current (or ~ 20 ft lower than recent lows)

GSAs are considering a mitigation program for impacted drinking water wells

See Appendix 3D for Economic Analysis of Immediate Demand Reduction

- 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

Madera County GSA Layers of Costs

See Chapter 5 for County GSA Admin Costs

- Flood Control Agency serves two subbasins
- County GSA Fee – Admin and Planning
- County GSA Project Fee – Permitting, Water Purchases and Infrastructure

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

5-year plan

Draft Madera County GSAs "First 5" Implementation Summary for Madera Subbasin and Chowchilla Subbasin

Category	2019	2020	2021	2022	2023	2024	2025
GSP	Write GSPs for Madera Subbasin, Chowchilla Subbasin and Delta Mendota Subbasins; Hold meetings/workshops for input	Submit GSPs by Jan 31, 2020 for three subbasins; Annual monitoring, data collection, analysis and preparation of State Report by April 1, 2020	Annual monitoring, data collection, analysis and preparation of State Report (on-going)	Annual monitoring, data collection, analysis and preparation of State Report (on-going)	Annual monitoring, data collection, analysis and preparation of State Report (on-going)	Annual monitoring, data collection, analysis and preparation of State Report (on-going)	Prepare 5-year GSP Update; Annual monitoring, data collection, analysis and preparation of State Report (on-going)
Financing & Revenue	1) Prop 218 Flood Agency funding proceeding (Fall 2019) 2) GSA administrative fee (Fall 2019) 3) Apply for grants (SALC, Prop 68)	1) Apply for grants 2) Prop 218 proceeding for domestic well mitigation	1) Apply for grants 2) Prop 218 proceeding for project and demand reduction financing 3) Establish enforcement fines related to parcel-based water use program	1) Apply for grants (on-going) 2) Adjust fees/fines as necessary (on-going)			
Studies	1) WaterSMART water market strategy exploration 2) Explore demand reduction approaches (gw extraction charge or parcel fee, allocations, water trading, innovation) 3) Design domestic well mitigation program 4) Assess funding opportunities for domestic well mitigation funding	1) Recharge project feasibility analysis 2) Land easement program development 3) Prepare parcel-based water use history (2020 use) 4) Initiate selected water assessment method 5) Complete WaterSMART water market strategy study 6) Prepare CVP 215 compliance documents	1) Complete recharge feasibility studies 2) Complete land easement program structure	1) Initiate and complete other studies as necessary (on-going)			
Projects	1) Work with DWR for recharge pilot program for dairies 2) Pursue CVP contract amendment	1) Work with DWR for recharge pilot program for dairies 2) CVP contract amendment 3) Acquire CVP 215 water or equivalent, as available	1) Work with DWR for recharge pilot program for dairies 2) CVP contract amendment 3) Acquire CVP 215 water or equivalent, as available	1) Pursue additional recharge projects per study findings (on-going) 2) Pursue CVP water (215, contract water, in-basin transfers, etc.) after contract amendment (on-going) 3) Acquire additional out-of-subbasin non-CVP supplies (on-going)			
	1) Demand reduction outreach and education	1) Continue design of domestic well mitigation program 2) Demand reduction outreach and education	1) Initiate domestic well mitigation program 2) Demand reduction outreach and education 3) Initiate land easement	1) Domestic well mitigation program (on-going) 2) Demand reduction outreach and education (on-going) 3) Land easement program (on-going) 4) Expand water market (on-going) 5) Parcel-based water use accounting (on-going)			

Discussion