
Merced Groundwater Sustainability Plan

Public Meeting – December 13, 2018

Image courtesy: Veronica Adrover/UC Merced





Welcome, Introductions, and Project Overview

Image courtesy: Veronica Adrover/UC Merced



Agenda

1. Welcome, Introductions, and Project Overview

1. Sustainable Groundwater Management Act and Groundwater Sustainability Plan
2. Current and Projected Groundwater Conditions
3. Groundwater in Franklin Area
4. Questions and Answers



2. Sustainable Management for the Merced Subbasin Groundwater

1. Reducing Water Use and Allocating Groundwater Pumping
2. Increasing Water Supplies and Groundwater Recharge
3. Discussion – Managing Groundwater for the Future

3. Wrap-up and Next Steps

Sustainable Groundwater Management Act and Groundwater Sustainability Plan

Common Abbreviations:

- SGMA = Sustainable Groundwater Management Act
- GSA = Groundwater Sustainability Agency
- GSP = Groundwater Sustainability Plan (developed and implemented by GSAs)

Guidelines for Successful Meetings

- Creativity is encouraged.
 - Think outside the box and welcome new ideas.
 - Build on the ideas of others to improve results.
 - Disagreements are problems to be solved rather than battles to be won.
- Efficiency is important.
 - Participate fully, without distractions.
 - Respect time constraints and be succinct.
 - Let one person speak at a time.
- Civility is required.
 - Treat one another with courtesy and respect.
 - Be honest, fair, and as candid as possible.
 - Be respectful of all viewpoints

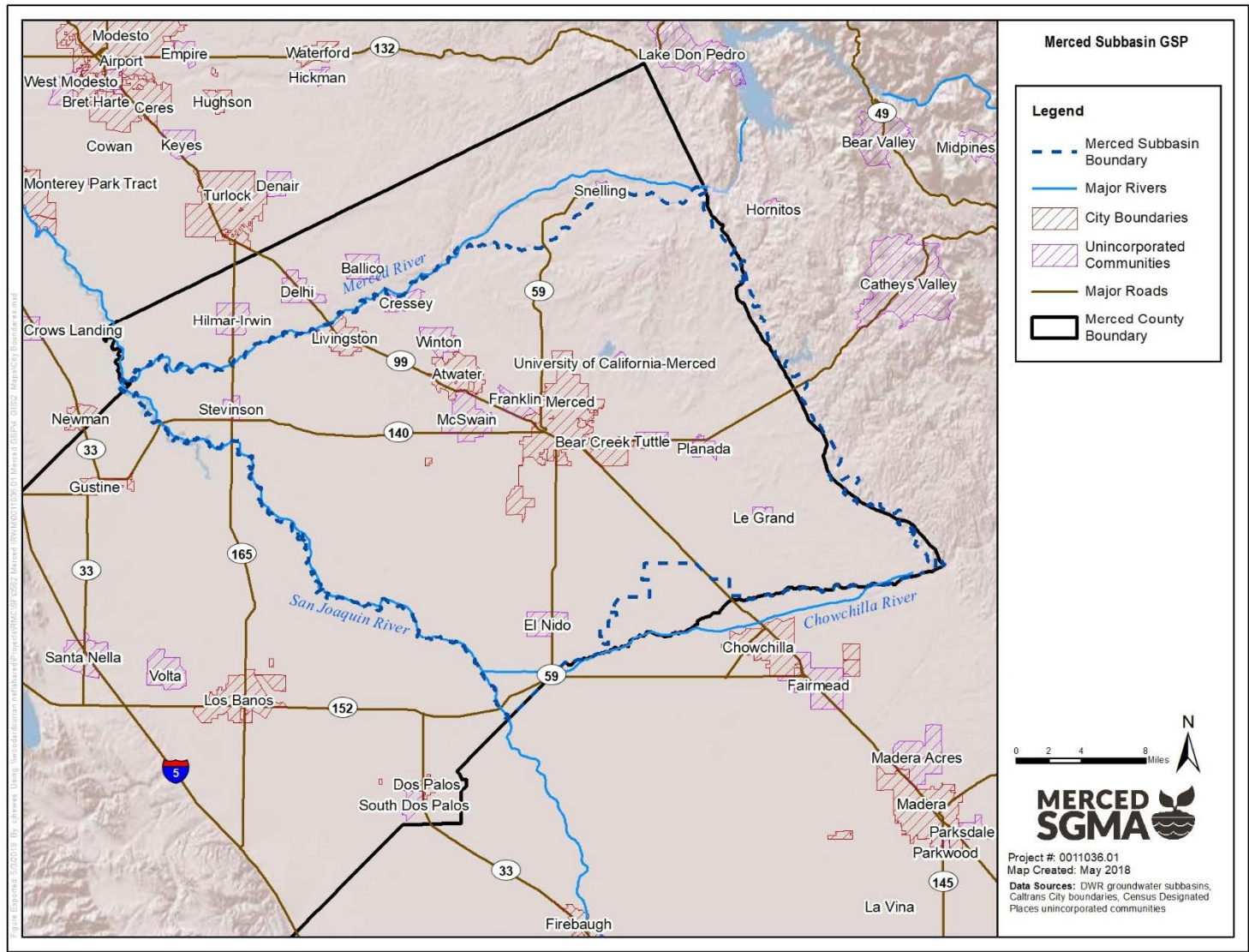


Sustainable Groundwater Management Act and Groundwater Sustainability Plan

Image courtesy: Veronica Adrover/UC Merced

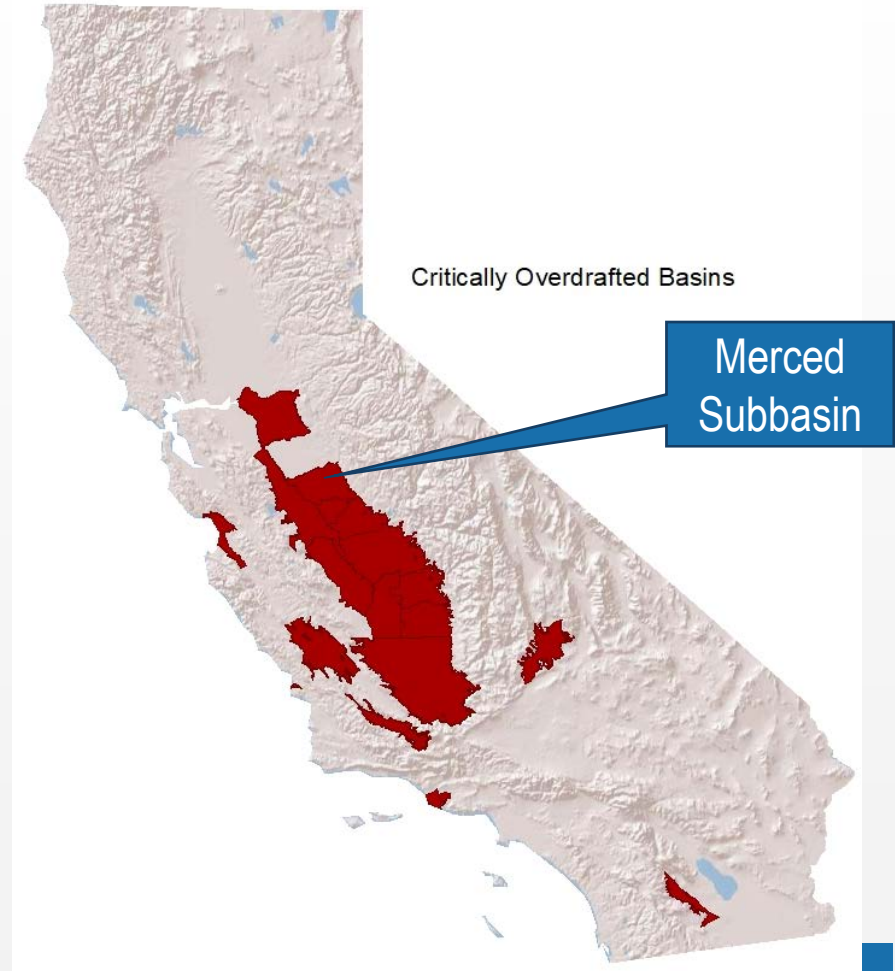


Merced Subbasin Boundaries



Sustainable Groundwater Management Act and Groundwater Sustainability Plan

- The Merced Subbasin was identified by the State as a “**critically overdrafted**” basin
 - Critical overdraft means that “continuation of present water management practices would probably result in significant adverse overdraft-related environmental, social, or economic impacts.”



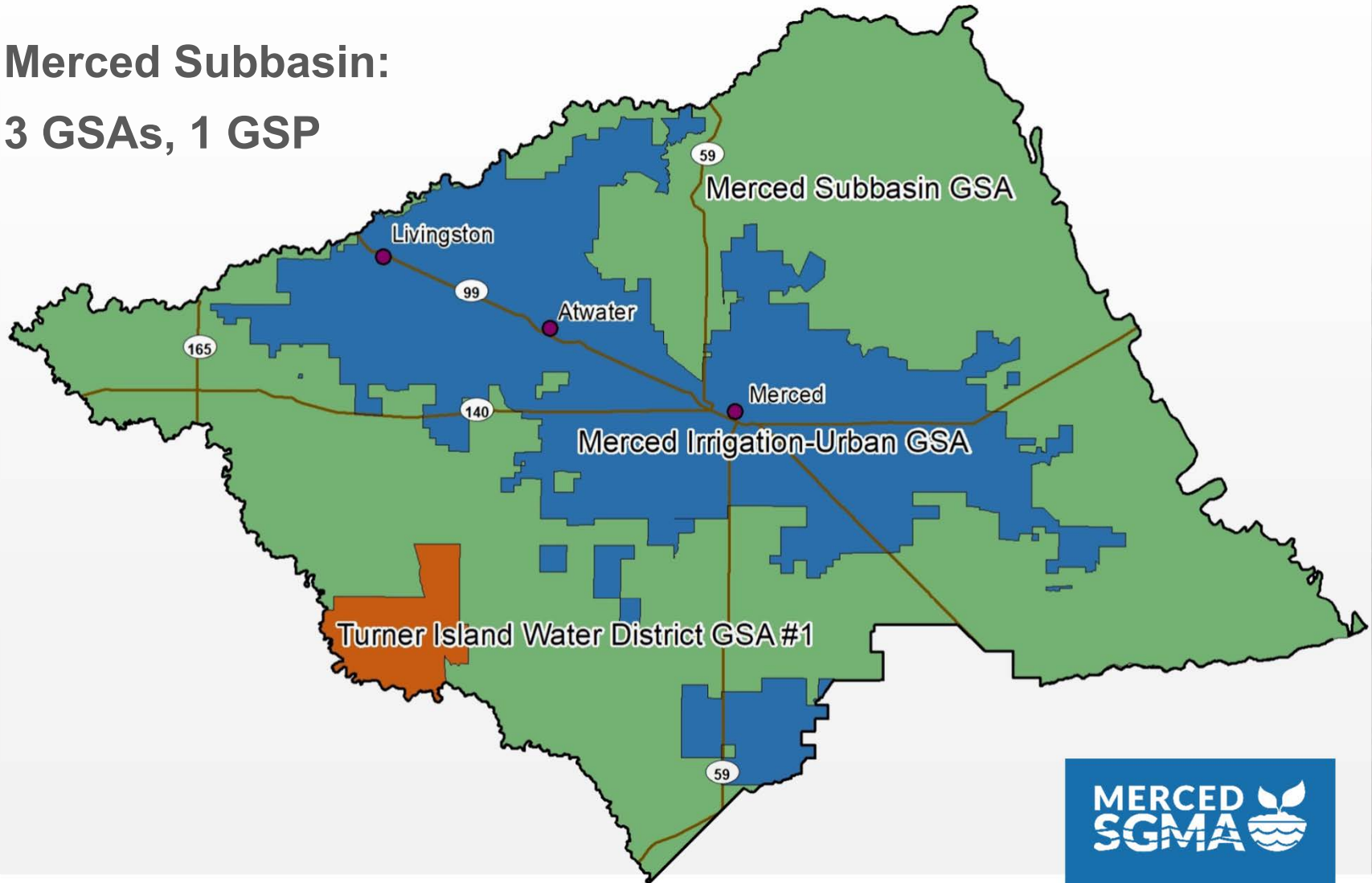
Sustainable Groundwater Management Act and Groundwater Sustainability Plan

The Sustainable Groundwater Management Act was passed in 2014 and requires the following:

- Groundwater Sustainability Agencies (GSAs) must be formed
- A Groundwater Sustainability Plan (GSP) must be prepared and submitted by
 - **January 2020 for critically overdrafted basins**
 - January 2022 for remaining high and medium priority basins
- GSPs must include measurable objectives and milestones in increments of five years to achieve sustainability within 20 years of GSP adoption
- GSP development must be open and transparent, with stakeholder and public input

Sustainable Groundwater Management Act and Groundwater Sustainability Plan

Merced Subbasin:
3 GSAs, 1 GSP



Sustainable Groundwater Management Act and Groundwater Sustainability Plan

Groundwater Sustainability Agencies:

- Merced Irrigation-Urban Groundwater Sustainability Agency
- Merced Subbasin Groundwater Sustainability Agency
- Turner Island Water District Groundwater Sustainability Agency

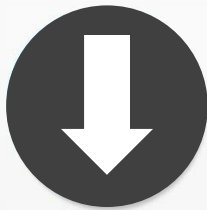
Groundwater Sustainability Plan:

- Woodard & Curran, Inc. (Consultant Team)

SGMA Focuses on Halting Overdraft While Protecting Basin Health

- **SGMA has two main focus areas:**

- Halt the overdraft by “balancing the water budget” (basin inputs = basin outputs)
- Establish objectives for six “sustainability indicators”



Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply



Significant and unreasonable degraded water quality



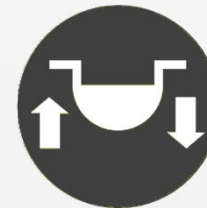
Significant and unreasonable reduction of groundwater storage



Significant and unreasonable land subsidence



Significant and unreasonable seawater intrusion



Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water

Merced GSP Outreach Structure

- *GSA Leadership* – Overall authority for decision-making, GSP development, and implementation
- *Coordinating Committee* – Advise on plan development and make recommendations to decision-makers
- *Stakeholder Committee* – Represent diverse stakeholders in basin and provide input to inform plan development
- *Public workshops* – Building awareness and understanding; emphasis on engagement of DACs





Current and Projected Groundwater Conditions

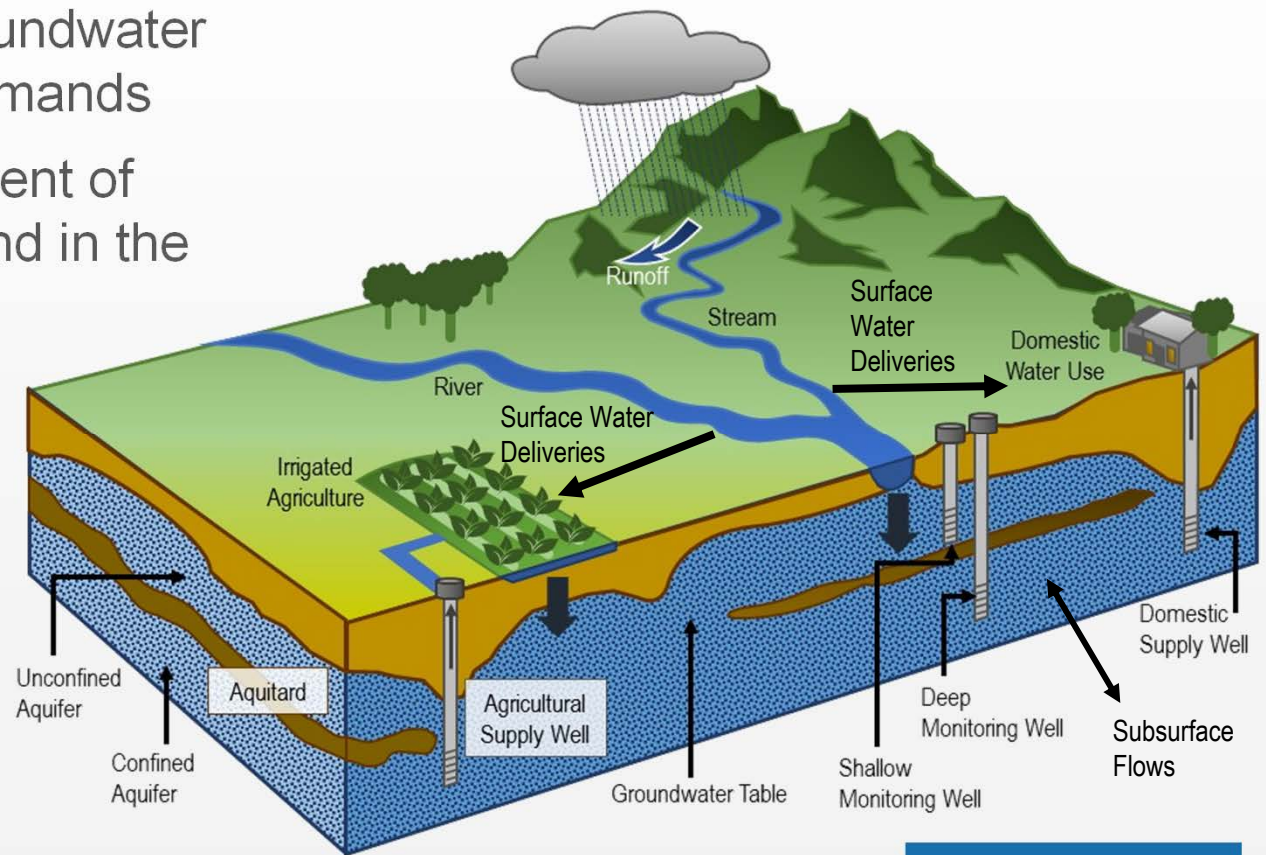
Image courtesy: Veronica Adrover/UC Merced



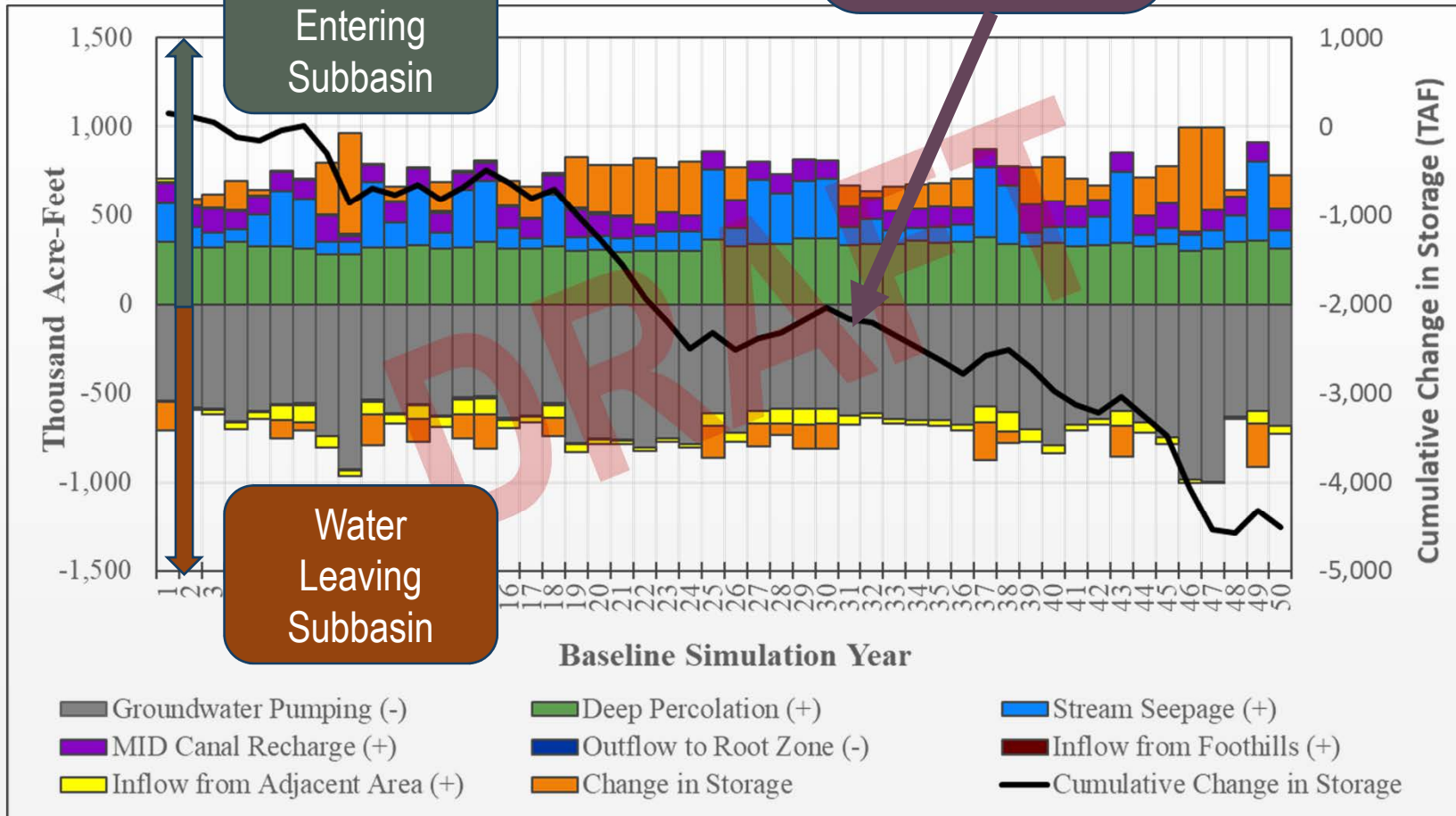
Historical and Projected Water Budgets

Summarize Basin Conditions

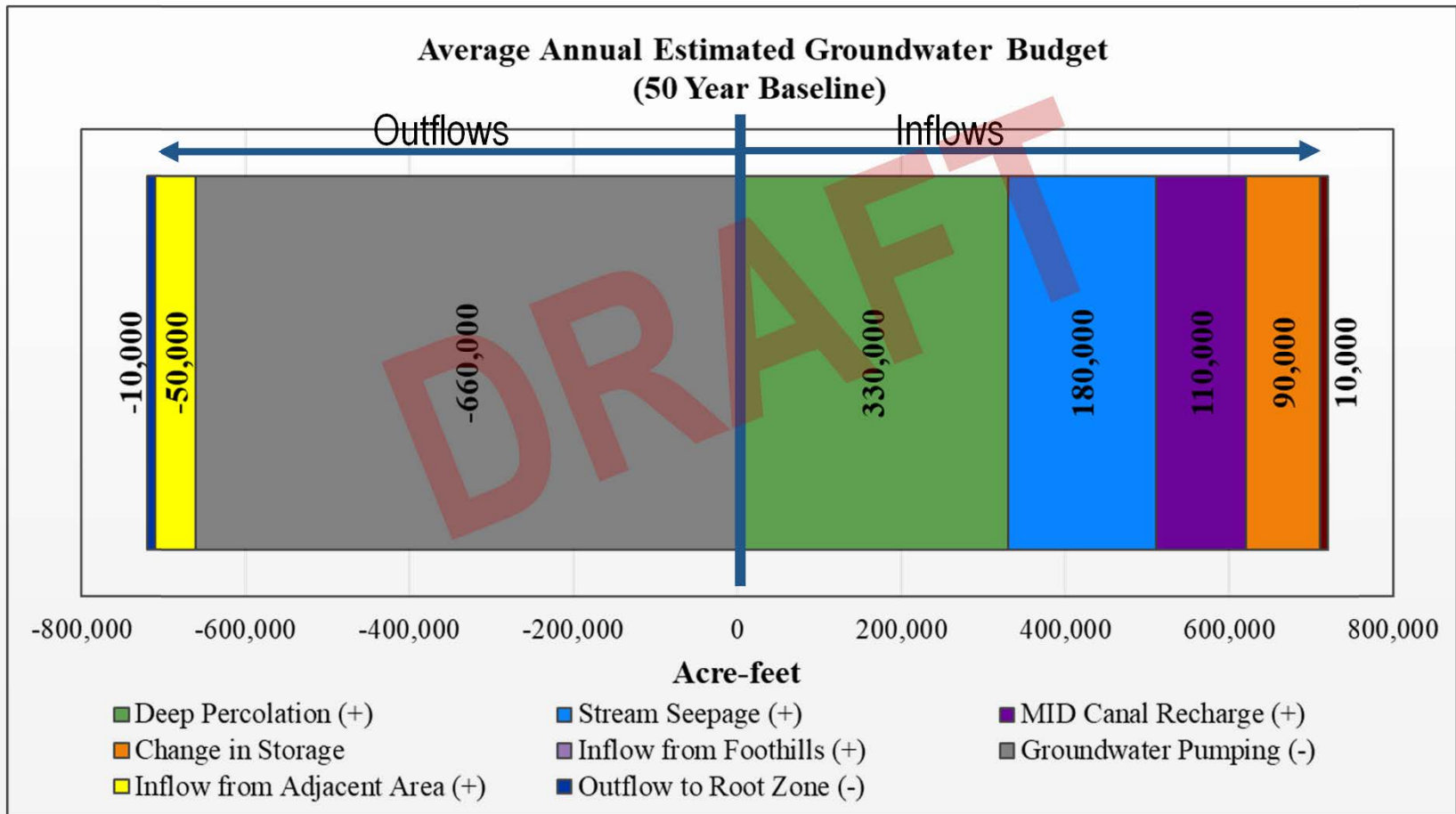
- Inputs and outputs – surface and groundwater supplies and demands
- Estimate the extent of overdraft now and in the future



The Groundwater Model Shows How Much Water Flows Into and Out of the Groundwater Basin



The Groundwater Model Estimates Projected Flows Into and Out of the Groundwater Basin



Groundwater in Franklin-Beachwood Area

Overview of groundwater supplies, uses, and challenges in Franklin-Beachwood SDAC

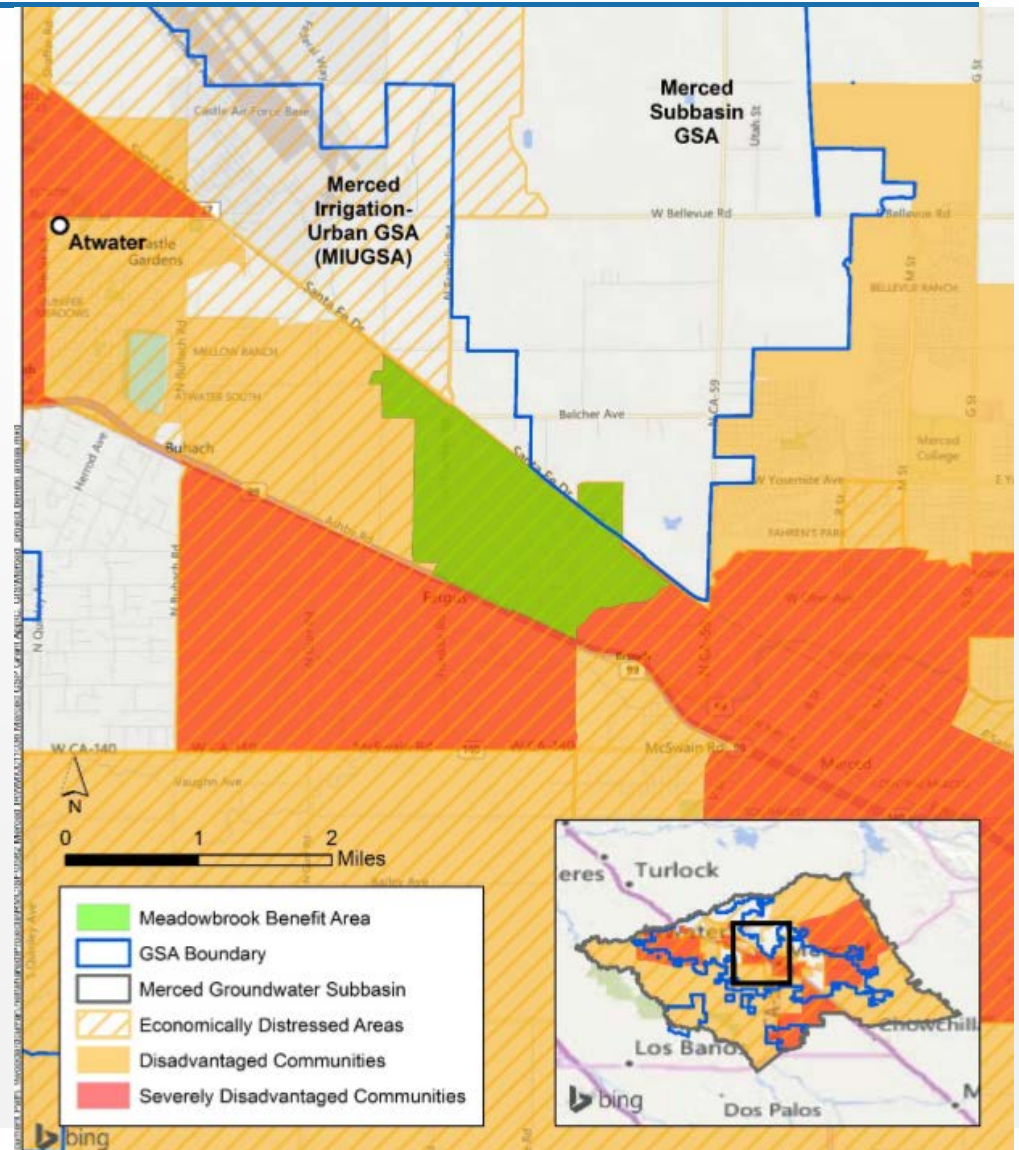
- **Groundwater use and supplies:**
 - Area relies entirely on groundwater
 - Meadowbrook Water Company serves 1,700 connections using 3 wells
- **Land uses:**
 - Agricultural land and dairy farms
 - Increasing subdivision development
- **Challenges:**
 - **Flooding is a recurring concern:**
 - Black Rascal Flood Control Project proposed in Merced Integrated Regional Water Management Plan (feasibility completed, project needs funding)
 - **Supply reliability issues:**
 - Meadowbrook has limited supply options
 - Unpredictable groundwater flow during drought
 - Deepest well does not have a storage tank
 - In case of drought, operation is not constant



Photo credit: Beachwood-Franklin Community for Improvement Facebook page

Groundwater in Franklin-Beachwood Area

- **Planned project to improve groundwater management:** Meadowbrook Water System Intertie Feasibility Study
- **Project goal:** Identify a feasible alternative for an emergency intertie for the Meadowbrook Water System, which serves Franklin-Beachwood
- **Benefits:** Improve public health through improved fire protection, water security during drought, & reduced need for additional emergency supplies that may be costly or low quality



Discussion & Questions

- Questions and discussion about what SGMA requires and the agencies preparing the Groundwater Sustainability Plan?
- Questions and discussion about the Merced Subbasin groundwater conditions? What thoughts do you have about current or future conditions?
- Other questions or comments?



Sustainable Management for the Merced Subbasin Groundwater

Image courtesy: Veronica Adrover/UC Merced

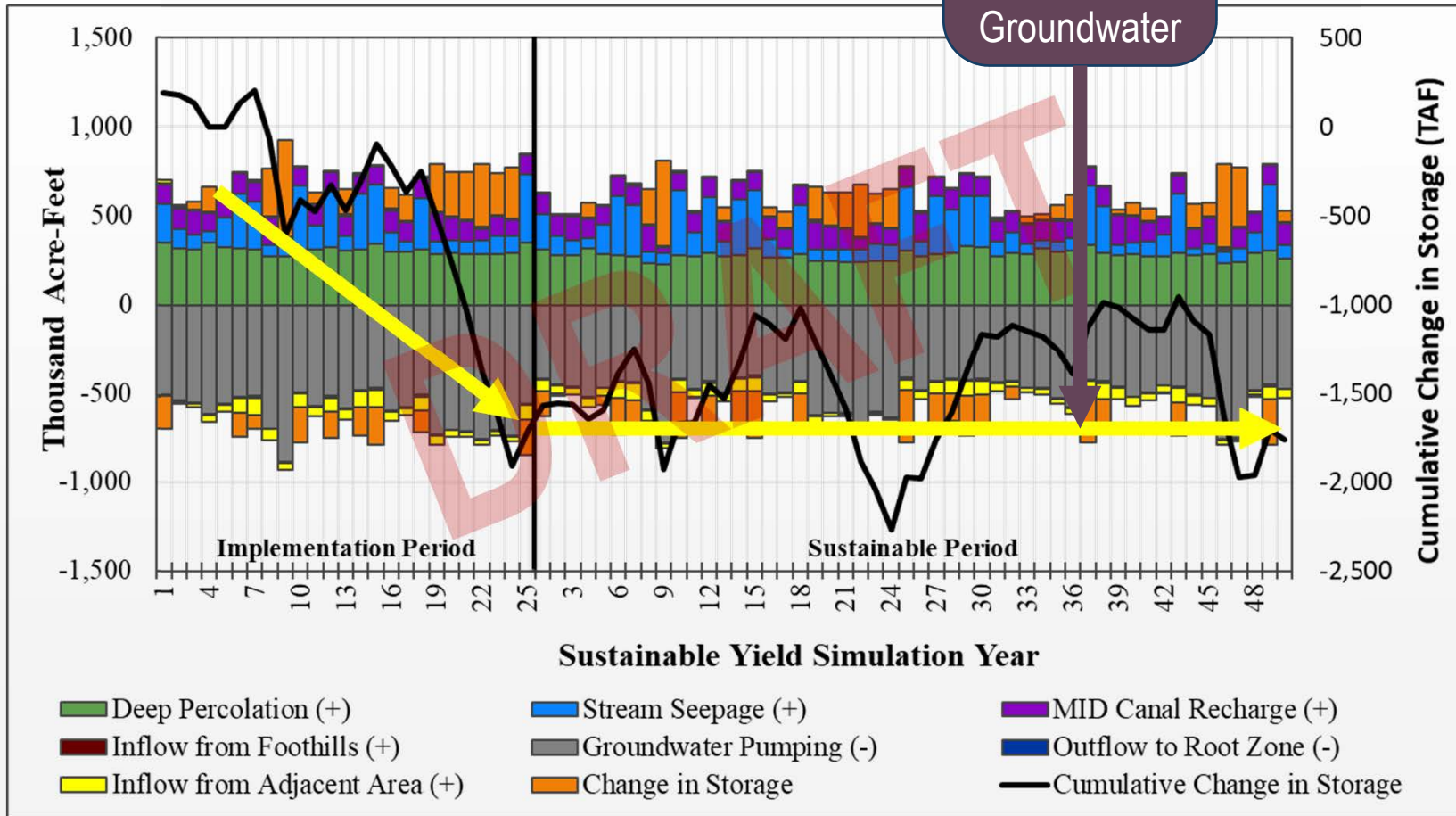


Going from Water Budgets to Quantifying Sustainable Yield

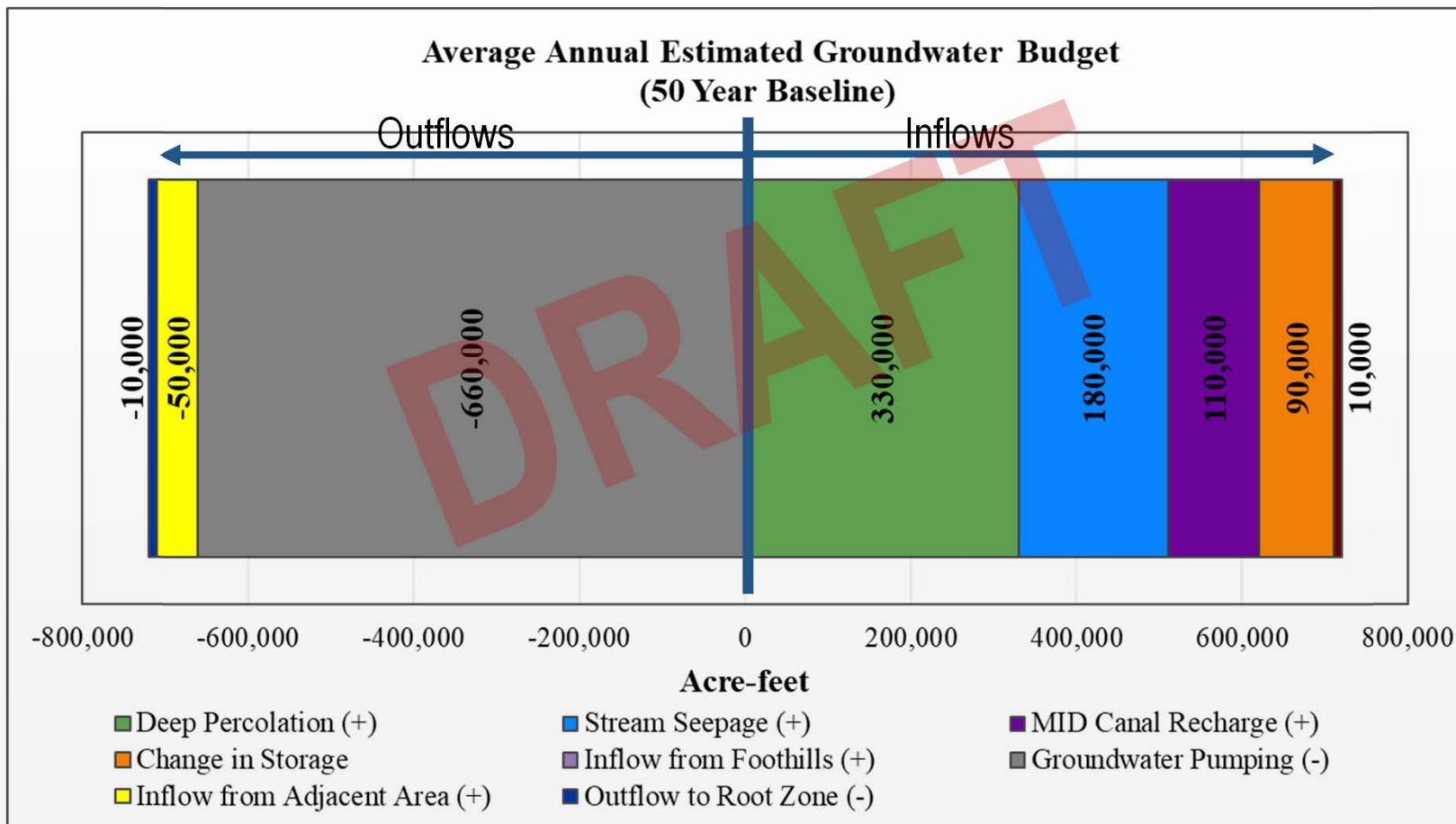
- What is sustainable yield?
 - Per SGMA, sustainable yield is “the maximum quantity of water, calculated over a base period representative of long-term conditions in the basin and including any temporary surplus, that can be withdrawn annually from a groundwater supply without causing an undesirable result.”
- How do we develop this?
 - Can be developed using a groundwater model, modifying conditions to balance out the change in stored groundwater over time

Sustainable Yield Tells Us How Much Groundwater Can Be Sustainably Pumped Each Year

No Long-Term Change in Amount of Stored Groundwater



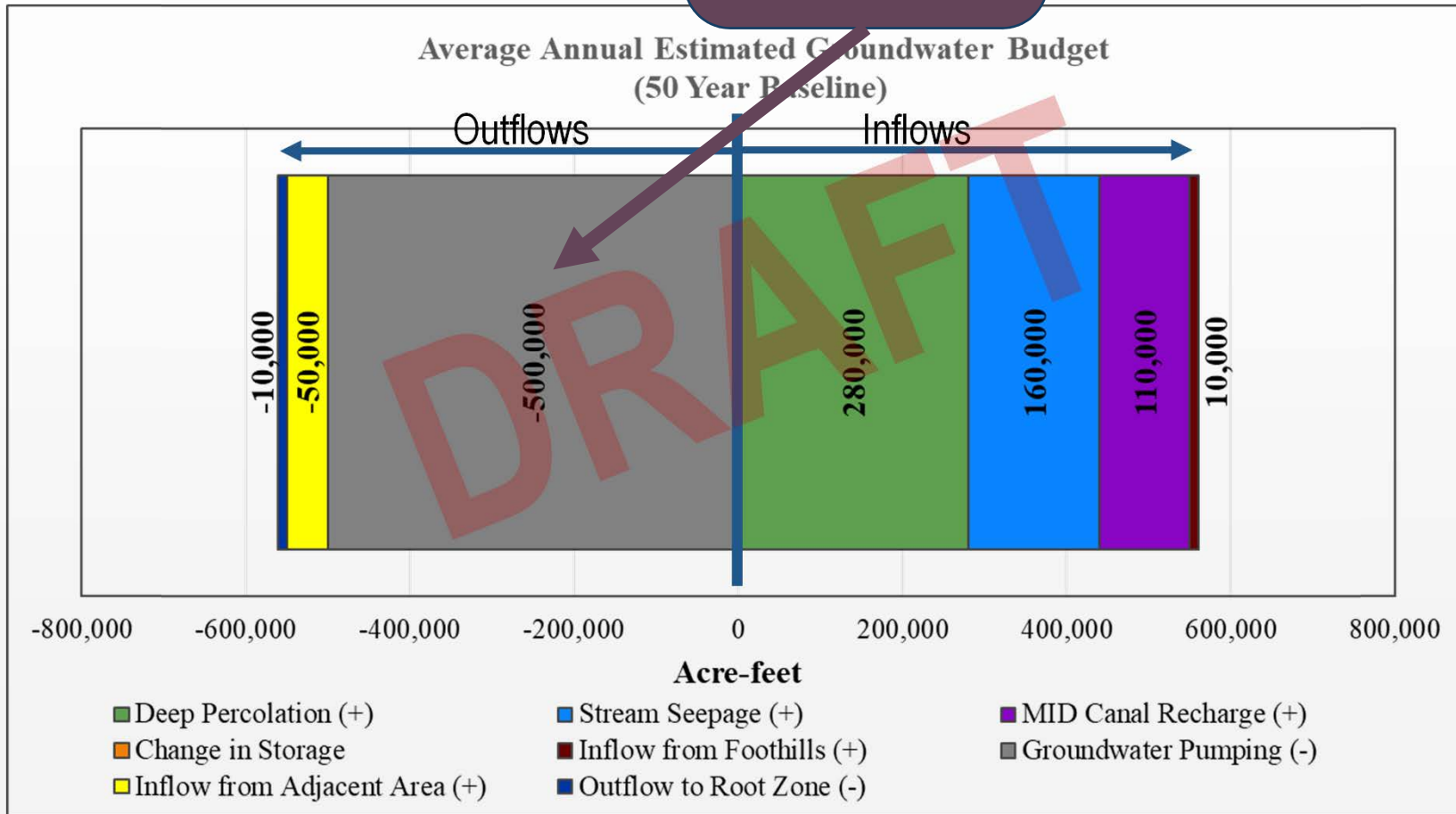
The Groundwater Model Estimates Projected Flows Into and Out of the Groundwater Basin



Sustainable Yield Tells Us How Much Groundwater Can Be Sustainably Pumped Each Year

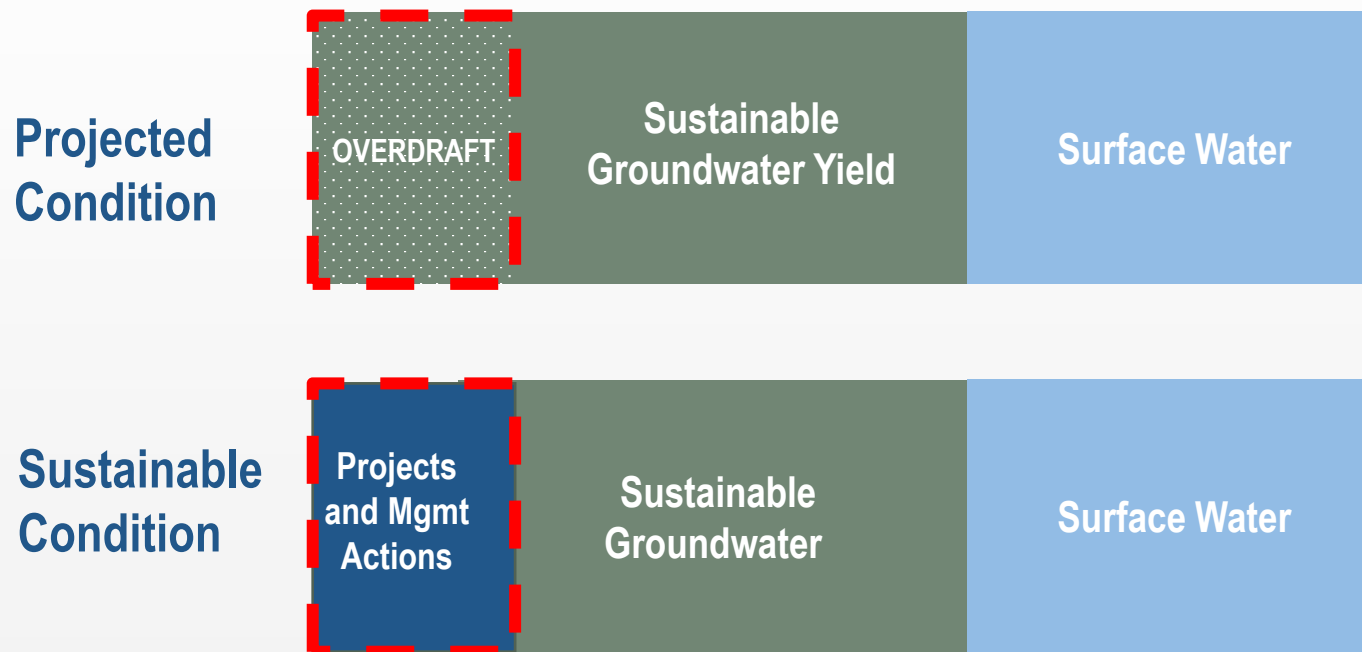
Amount of Groundwater that can be Sustainably Pumped Each Year

Groundwater



Our Goal is to Halt Overdraft While Minimizing Required Reductions in Overall Water Use

Merced Subbasin Total Water Use



What Does this Involve?

WHAT?

1. Reduce Groundwater Pumping

2. Reduce Demand and Increase Available Supply

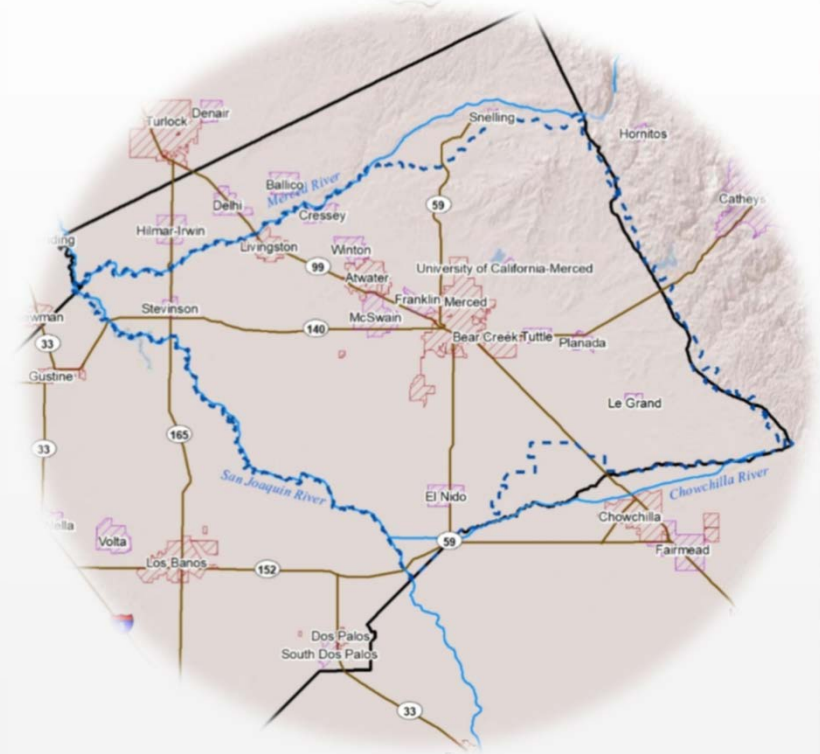
HOW?

Develop groundwater allocation strategy that respects water rights and reduces pumping

Identify projects and management actions to reduce demand and increase supply

An “Allocation Strategy” is Simply an Approach to Share Available Groundwater Sustainably

- If, on average, we can pump 500,000 AFY sustainably as a subbasin, how much can cities and water suppliers pump? How much can private landowners pump?
- What does this mean in terms of additional water supplies needed?



Projects and Management Actions will be Considered to Provide Additional Water

Groundwater recharge projects: increase stored groundwater to allow increased pumping for participating agencies

Surface water projects: increase availability of surface water to meet water demands (e.g., flood/stormwater management)

Projects to reduce demand: decrease water use to reduce need for water beyond available groundwater and surface water (e.g., improved water use efficiency)

Example: Recharge Basins



Photo Courtesy of Leadership Counsel

Example: Farm Fallowing to Reduce Demand



Land in San Felipe Ranch on Lone Tree Road, Merced. The ranch has fallowed 300 acres due to drought and pumping from neighboring ranches.

Photo credit: Merced Sunstar

Example: Conservation



Save Our Water  **REBATES**

[Claim Your Rebate](#) [About the Program](#)

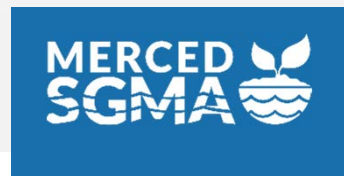
TURF REPLACEMENT REBATE Program Overview

REPLACE YOUR TURF GRASS AND RECEIVE A REBATE OF UP TO \$2,000!

 **SUBMIT YOUR TURF REPLACEMENT APPLICATION**

PROGRAM LINKS

The Department of Water Resources (DWR) has a rebate program for removing turf and replacing it with landscapes that require little water at California single-family residences to



Discussion: Managing Groundwater for the Future

- **What do you see as the most important issues related to groundwater pumping and water use?**
 - For residents and businesses?
 - For agriculture?
- **How can the GSP help address groundwater quality issues?**
- **How can groundwater pumping be allocated fairly across the basin for all users?**
- **What projects and actions could increase groundwater recharge and available water supplies?**

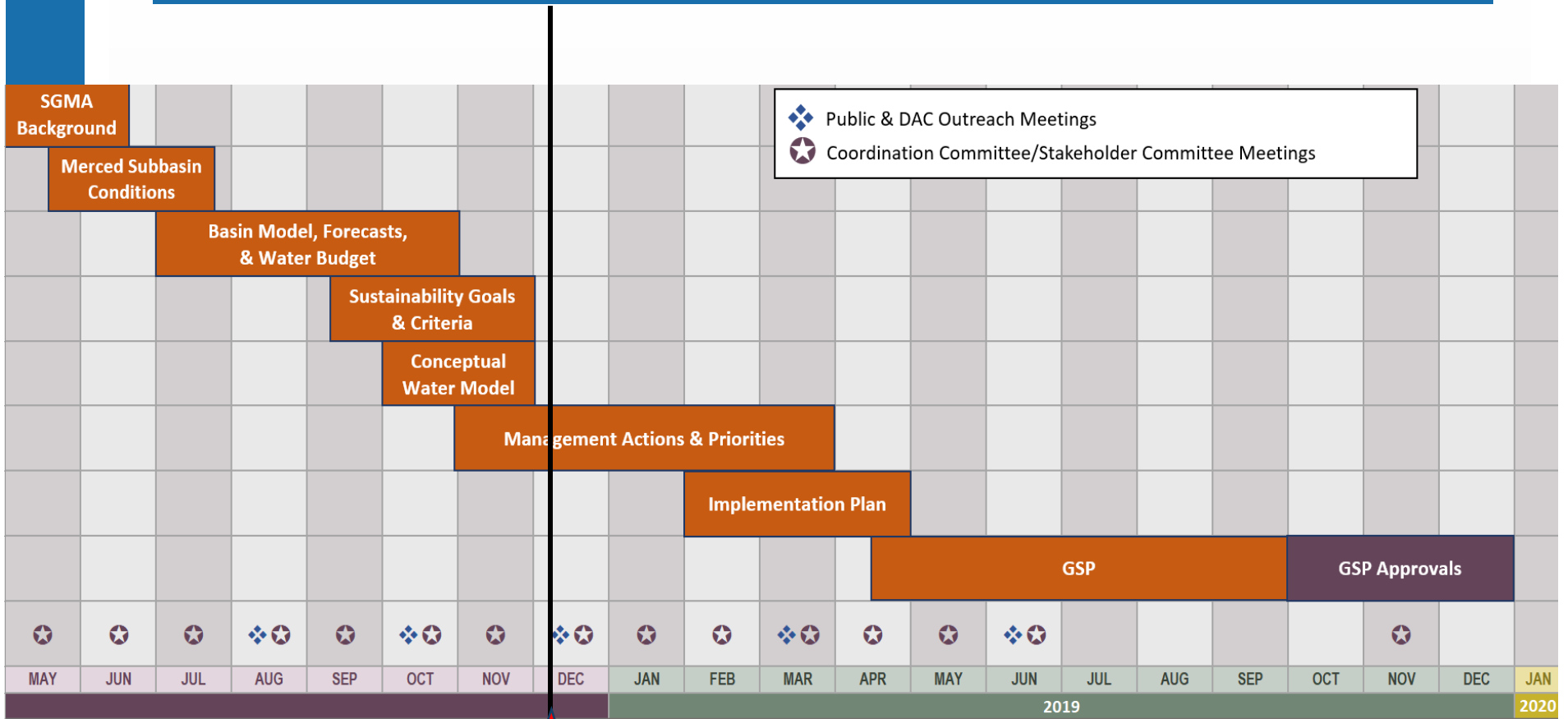



Wrap-up and Next Steps

Image courtesy: Veronica Adrover/UC Merced



Timeline



 **We Are Here**



Ways to Stay Involved

- Stakeholder Committee and Coordinating Committee meetings
 - Fourth Monday of the month
 - Castle Conference Center, 1900 Airdrome Entry, Atwater, CA

- Merced SGMA Website
 - www.mercedsgma.org

- More (general) information resources:
 - CA DWR Groundwater Website:
<https://water.ca.gov/Programs/Groundwater-Management>
 - California Water Boards:
https://www.waterboards.ca.gov/water_issues/programs/gmp/sgma.html



Thank You!

Image courtesy: Veronica Adrover/UC Merced

