Merced Groundwater Sustainability Plan

Public Meeting – December 4, 2018

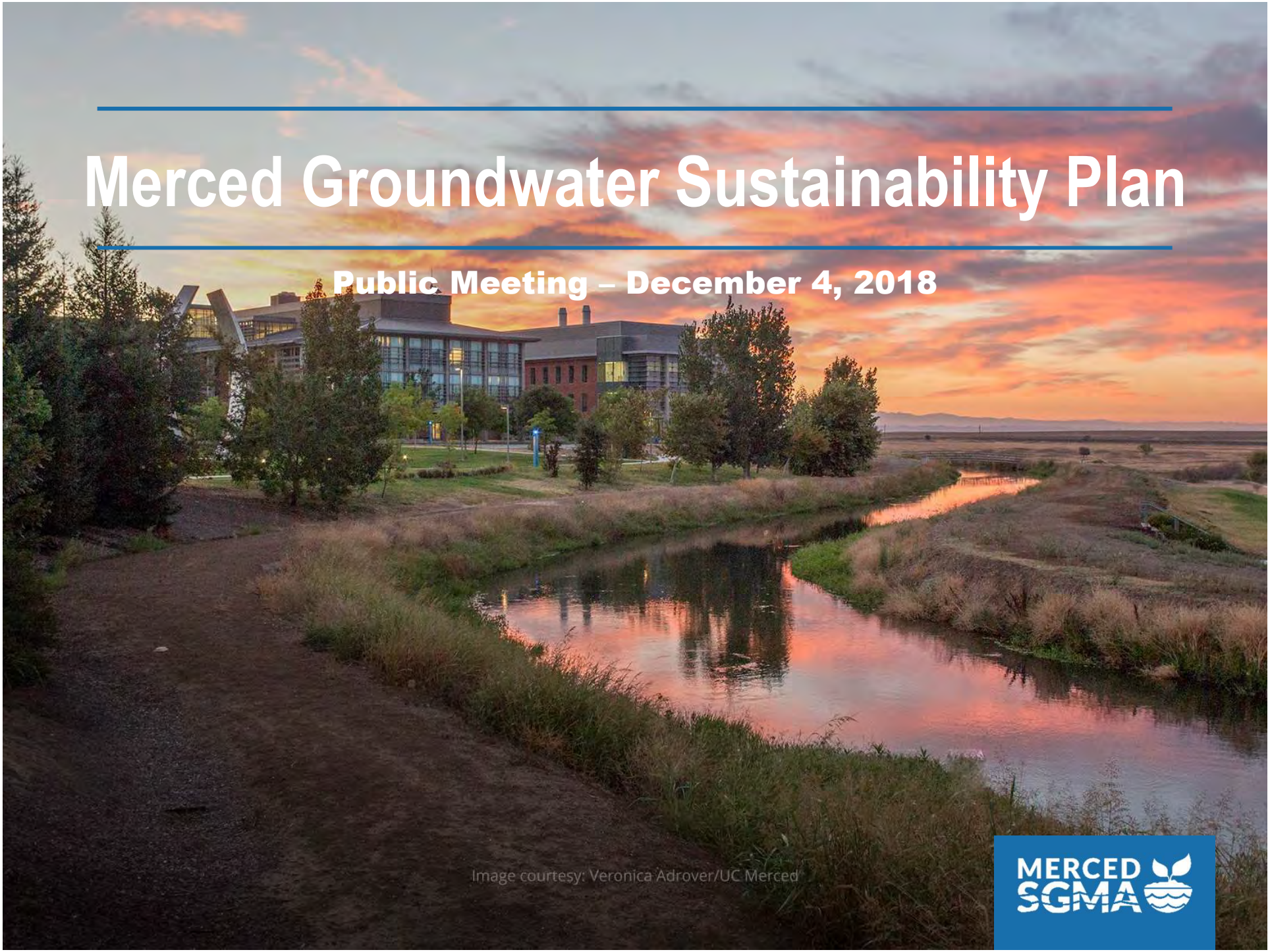

Image courtesy: Veronica Adrover/UC Merced

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Welcome, Introductions, and Project Overview

Image courtesy: Veronica Adrover/UC Merced

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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 Planada 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

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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)

Image courtesy: Veronica Adrover/UC Merced

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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

Image courtesy: Veronica Adrover/UC Merced

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Sustainable Groundwater Management Act and Groundwater Sustainability Plan

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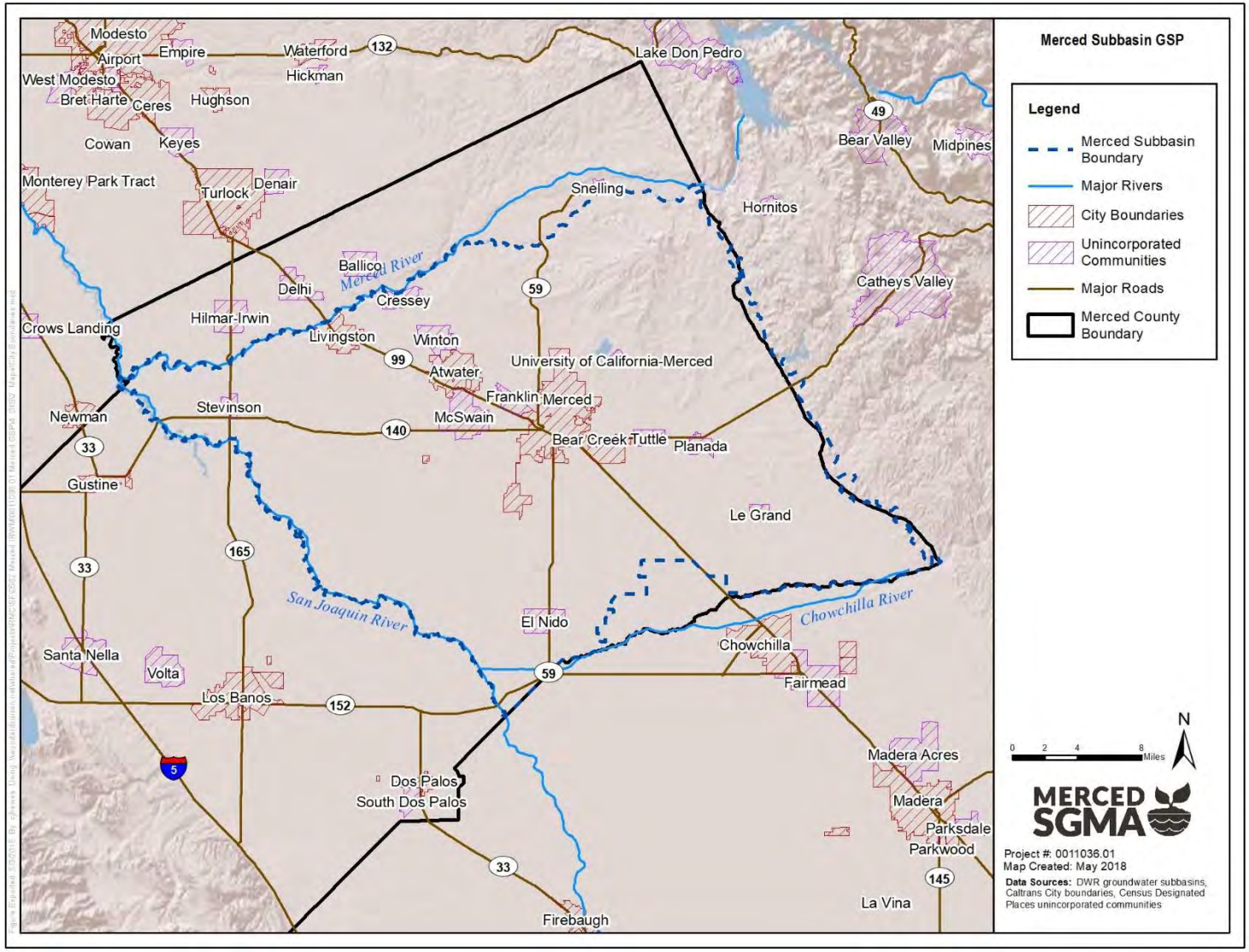
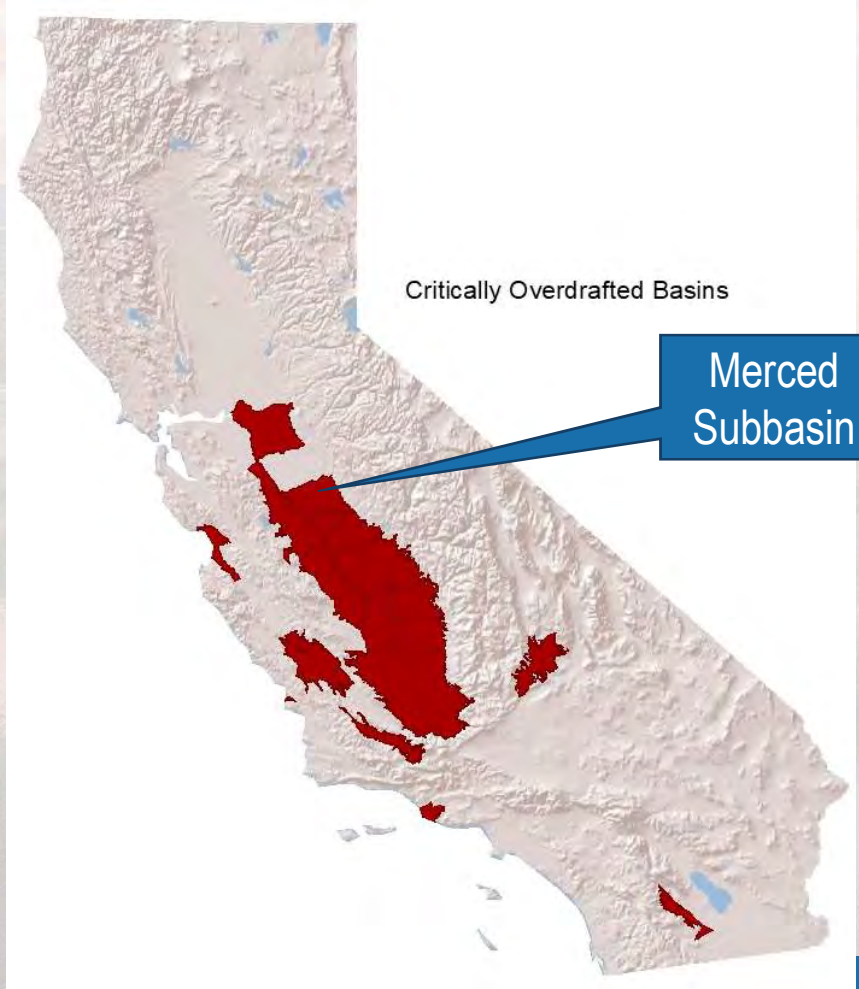
Merced Subbasin Boundaries



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."'



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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

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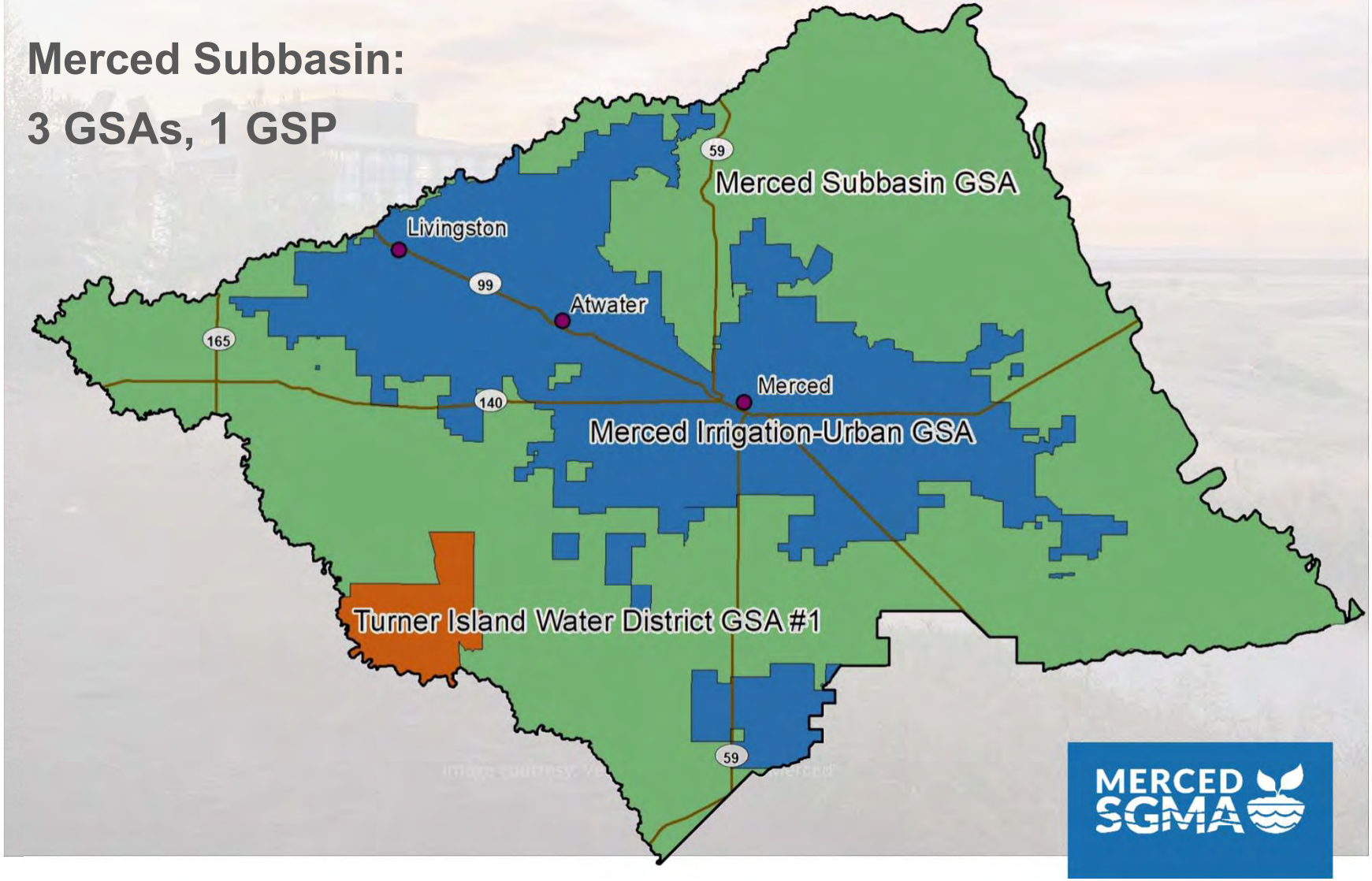
Sustainable Groundwater Management Act and Groundwater Sustainability Plan

Merced Subbasin:

3 GSAs, 1 GSP



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Sustainable Groundwater Management Act and Groundwater Sustainability Plan

Groundwater Sustainability Agencies:

- Merced Irrigation-Urban Groundwater Sustainability Agency
  - **Hicham ElTal**
- Merced Subbasin Groundwater Sustainability Agency
  - **Bob Kelley**
- Turner Island Water District Groundwater Sustainability Agency
  - **Larry Harris**

Groundwater Sustainability Plan:

- Woodard & Curran, Inc. (Consultant Team)
  - **Alyson Watson**

Image courtesy: Veronica Adrover/UC Merced

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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

Image courtesy: Veronica Adrover/UC Merced

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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

Image courtesy: Veronica Adrover/UC Merced

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Current and Projected Groundwater Conditions

Image courtesy: Veronica Adrover/UC Merced

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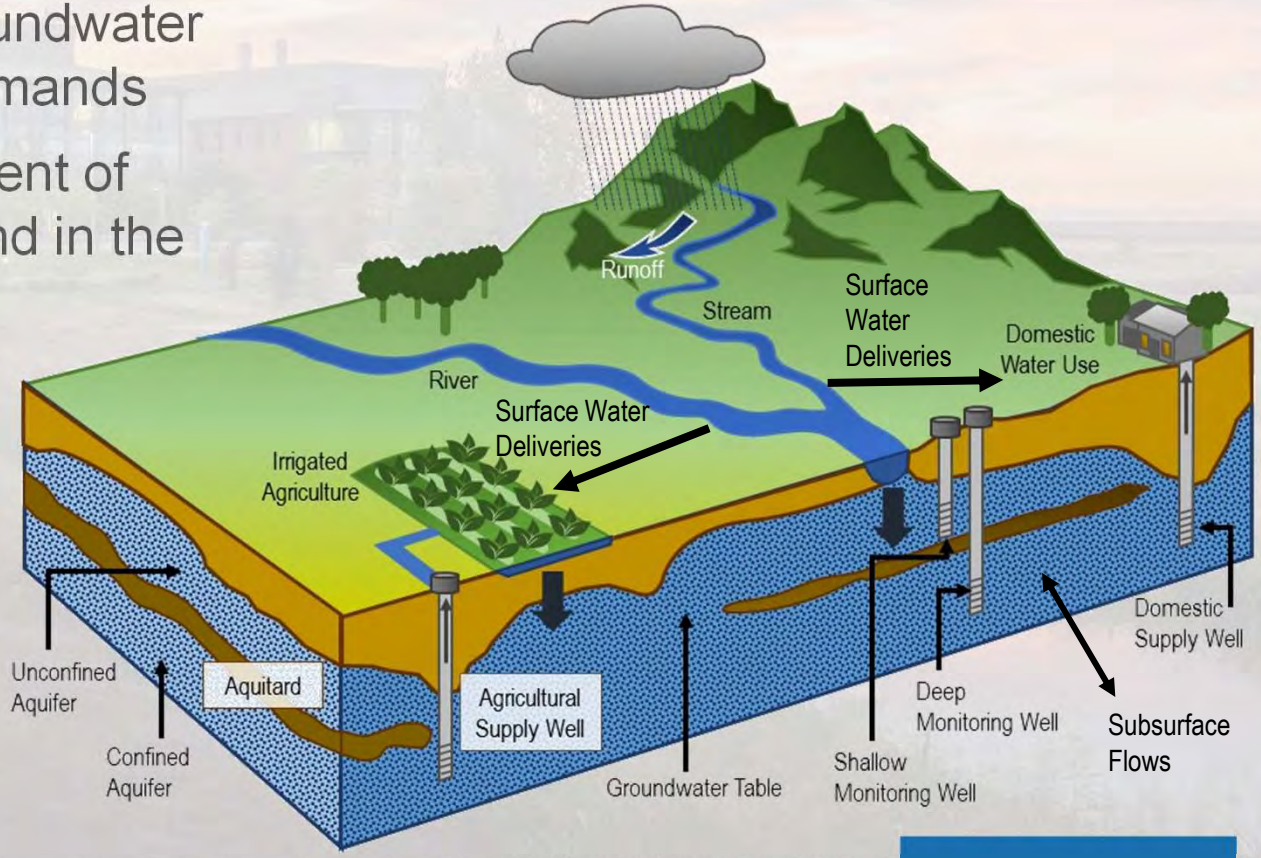
Historical and Projected Water Budgets Summarize Basin Conditions

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



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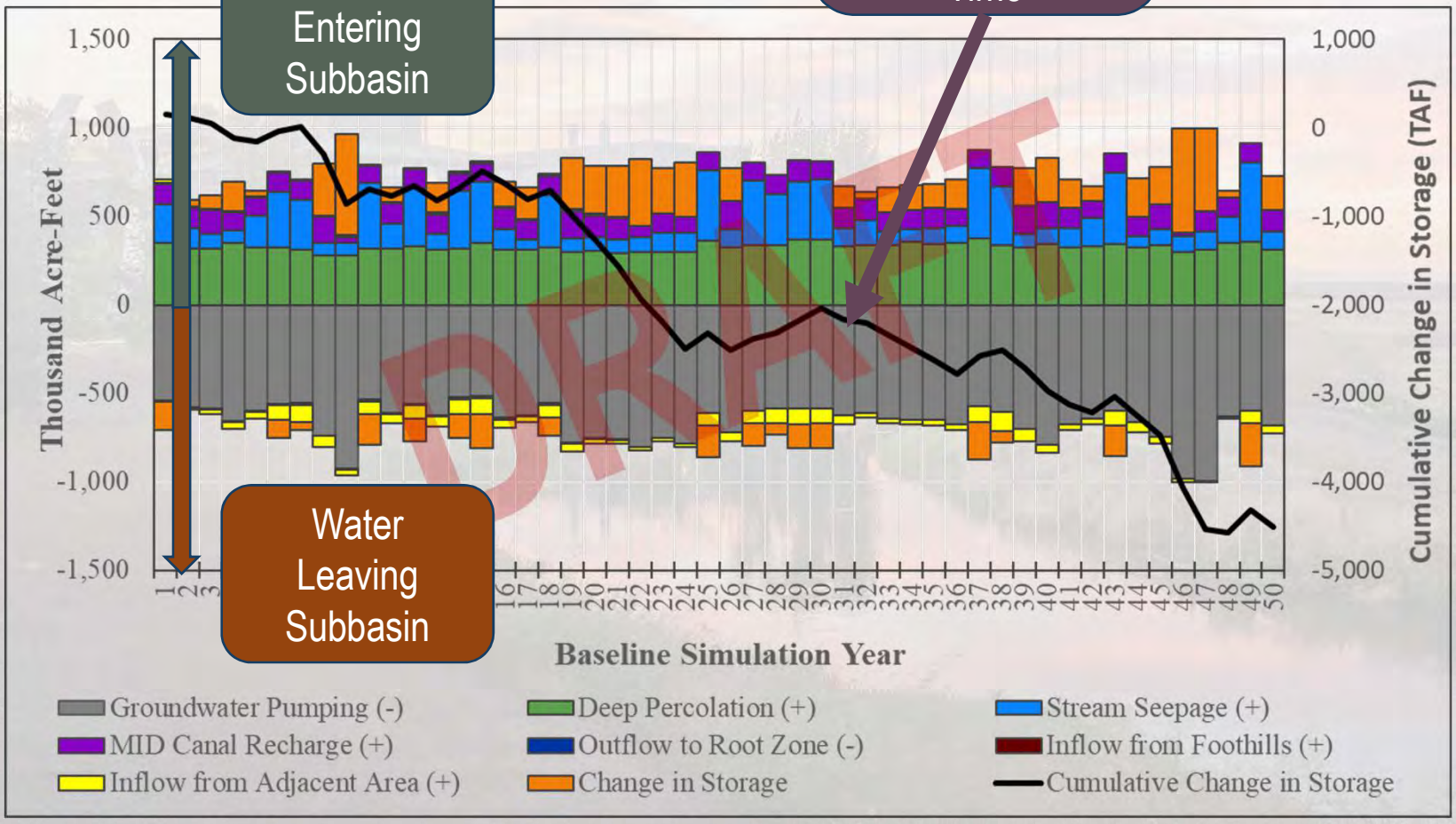
The Groundwater Model E lows Into and Out of the Groun in



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

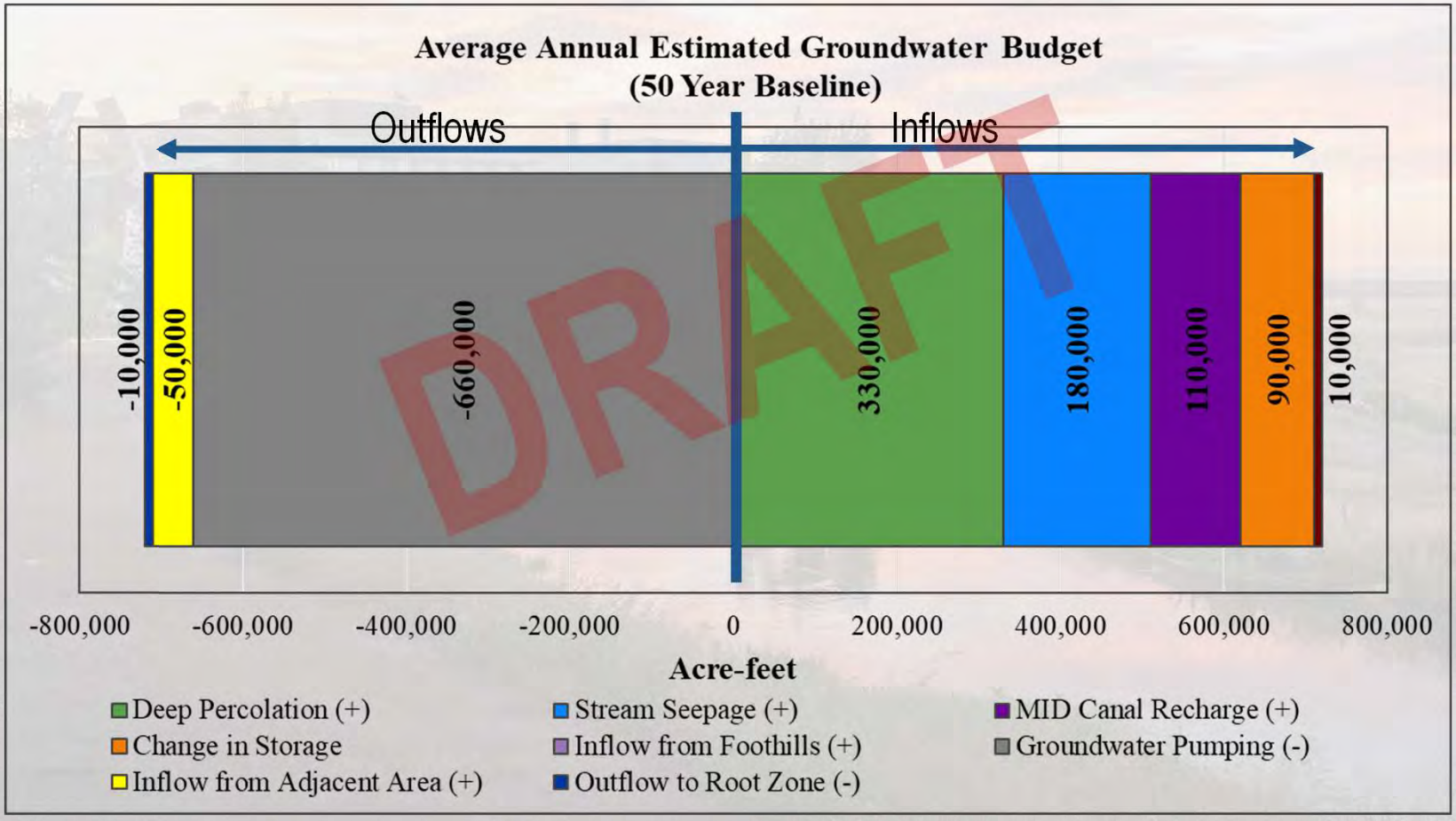

Image courtesy: Veronica Adrover/UC Merced

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Groundwater in Planada Area

- Overview of groundwater supplies, uses, and challenges in Planada area
- Recent activities to improve groundwater management

Photo credits: Waymarking.com (top), United Way (bottom)

Image courtesy: Veronica Adrover/UC Merced

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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?

Image courtesy: Veronica Adrover/UC Merced

Sustainable Management for the Merced Subbasin Groundwater

Image courtesy: Veronica Adrover/UC Merced

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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

Image courtesy: Veronica Adrover/UC Merced

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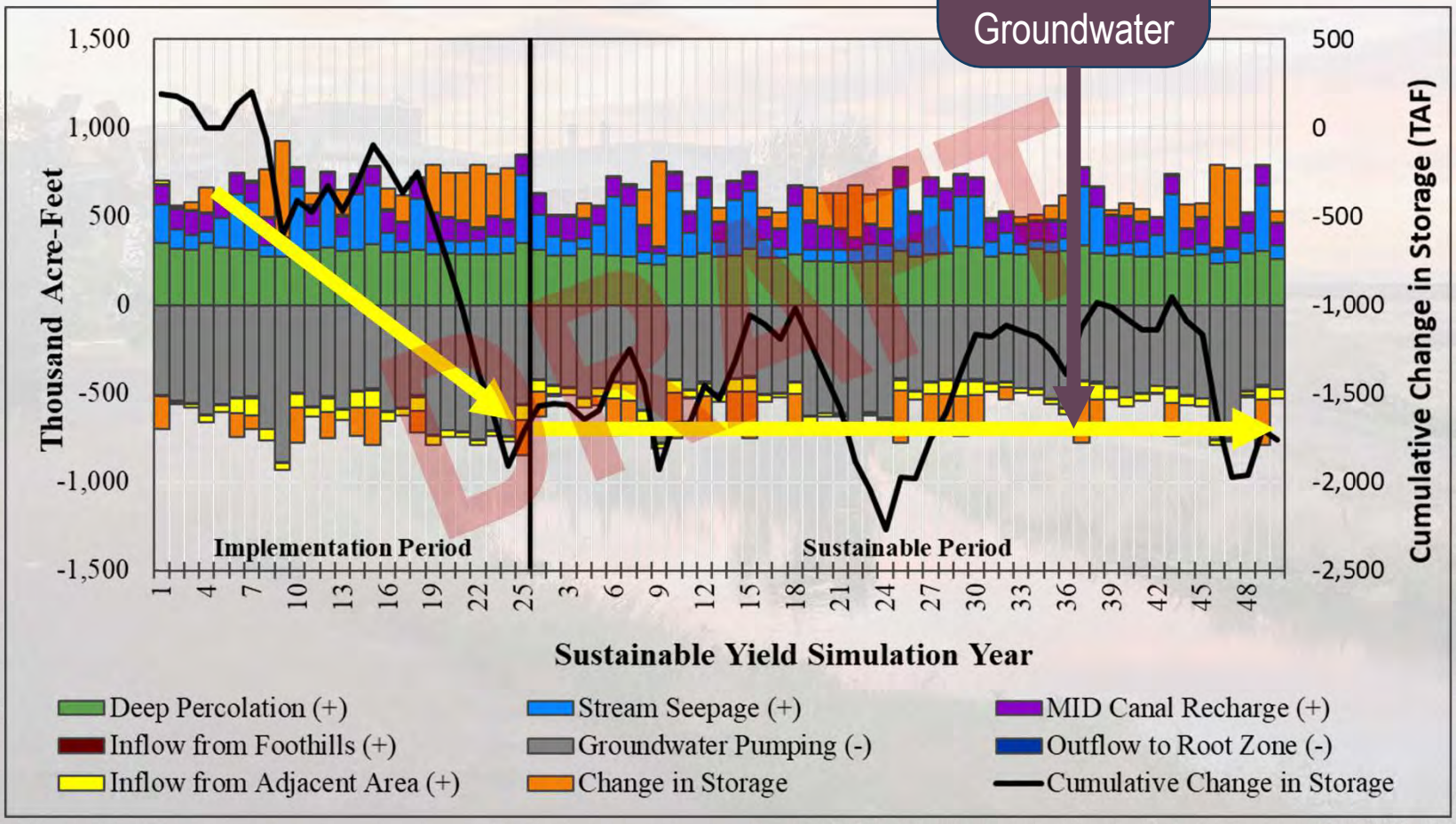
Sustainable Yield Tells Us How M ndwater Can Be Sustainably Pumped Eac



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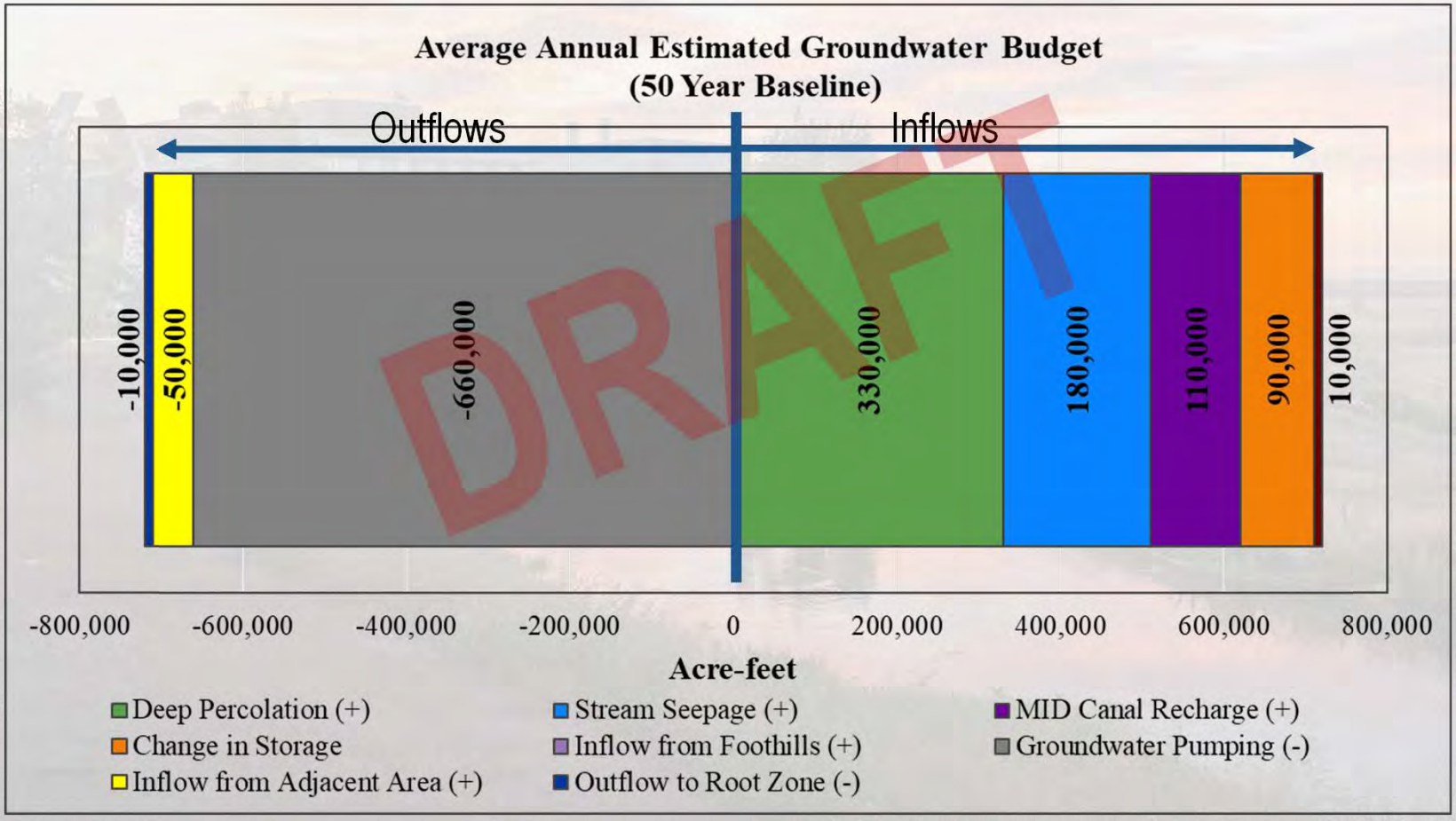
The Groundwater Model Estimates **Projected** Flows Into and Out of the Groundwater Basin



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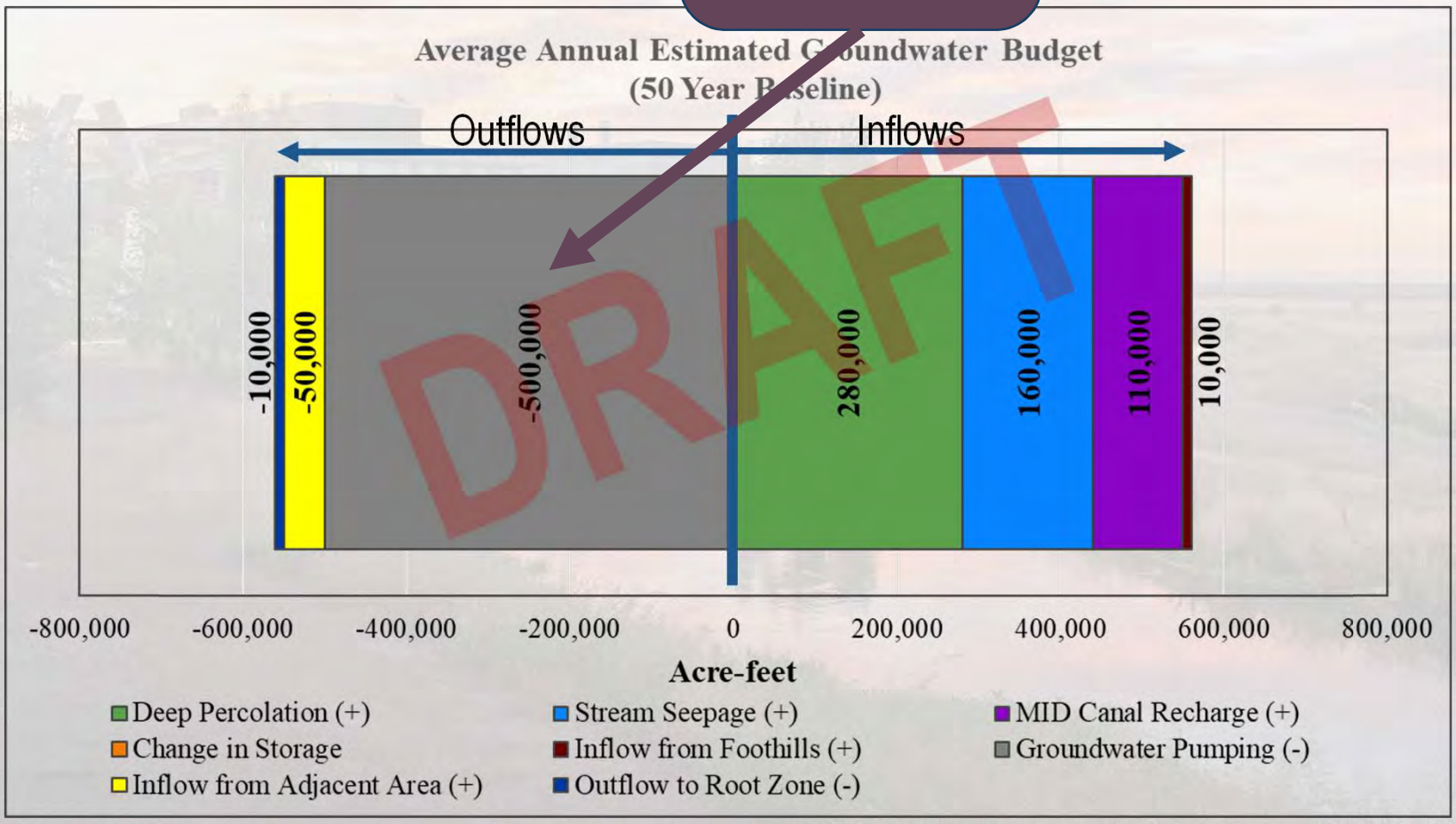
Sustainable Yield Tells U… Groundwater Can Be **Sustainably** Pu… Year

Amount of Groundwater that can be Sustainably Pumped Each Year



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

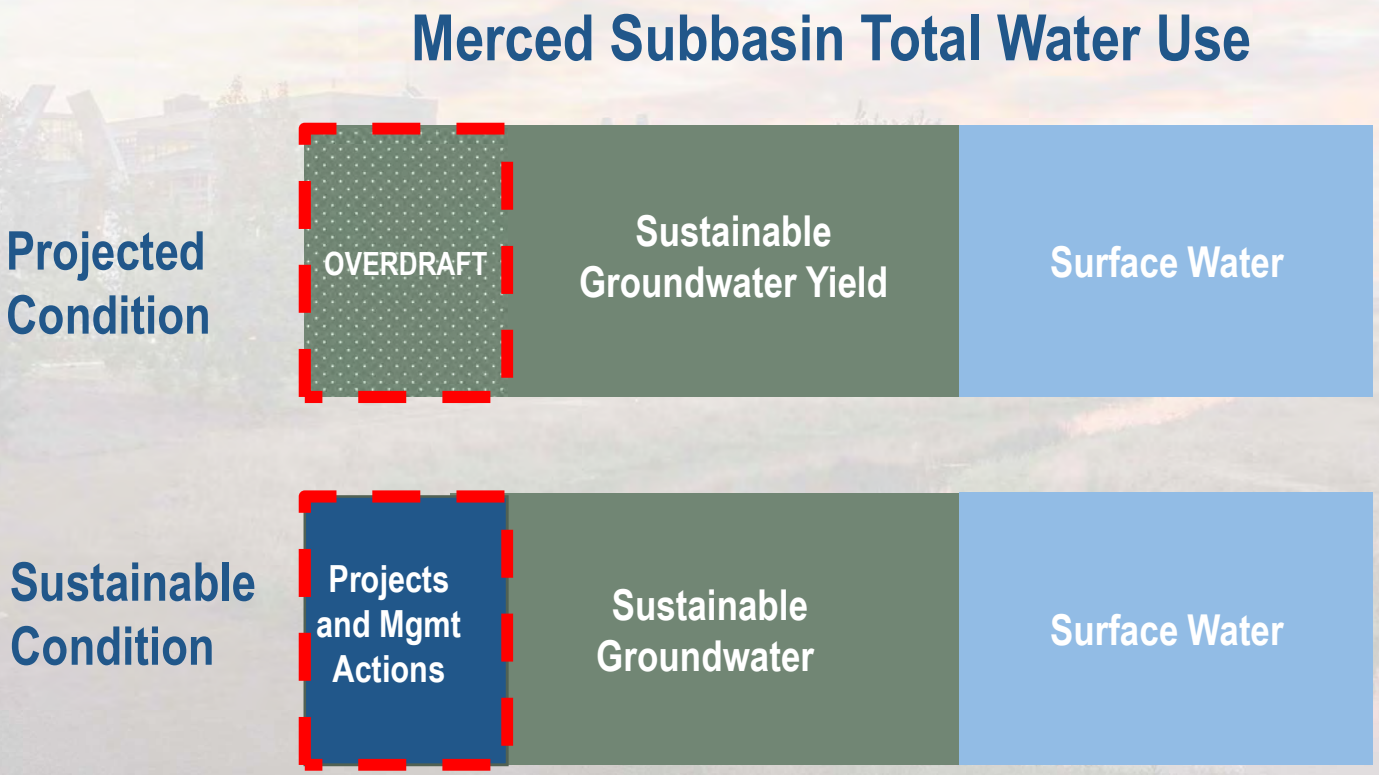

Image courtesy: Veronica Adrover/UC Merced

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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

Image courtesy: Veronica Adrover/UC Merced

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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?

Image courtesy: Veronica Adrover/UC Merced

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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)

Image courtesy: Veronica Adrover/UC Merced

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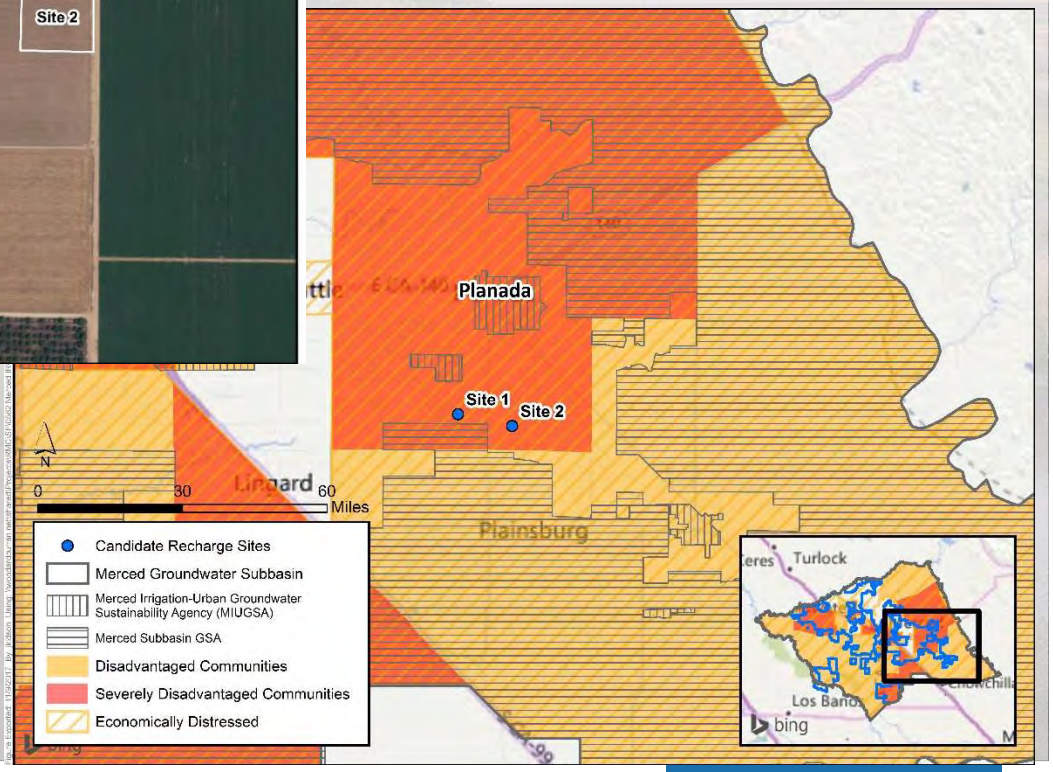
Example: Recharge Basins

Photo Courtesy of Leadership Counsel

Image courtesy: Veronica Adrover/UC Merced

Planada Groundwater Recharge Basin Pilot Project



Example: Multi-Benefit Floodplain Restoration

San Joaquin River Reach 4B Floodplain Restoration Project to improve flood protection.
Photo credit: Daniel Nylen

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

Image courtesy: Veronica Adrover/UC Merced

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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?**

Image courtesy: Veronica Adrover/UC Merced

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Wrap-up and Next Steps

Image courtesy: Veronica Adrover/UC Merced

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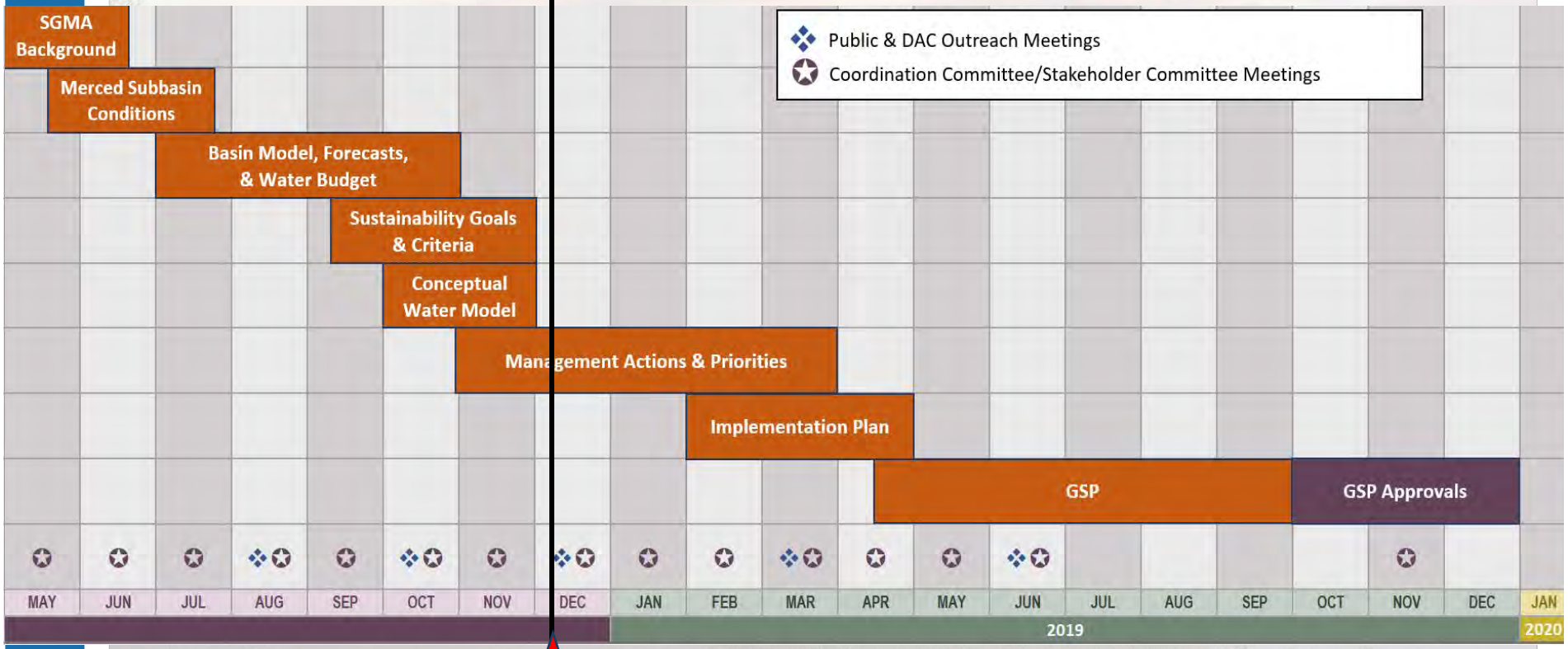
Timeline



We Are Here

Image courtesy: Veronica Adrover/UC Merced

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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

Image courtesy: Veronica Adrover/UC Merced

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Thank You!

Image courtesy: Veronica Adrover/UC Merced

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