GSP Adoption Hearings

Merced Irrigation-Urban GSA
Merced Subbain GSA
Turner Island Water District GSA-1

City Council Meeting
December 2, 2019

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

SGMA Background

Image courtesy: Veronica Adrover/UC Merced

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Sustainable Groundwater Management Act Overview

- Merced Groundwater Subbasin is in a state of critical overdraft
- SGMA requires a Groundwater Sustainability Plan (GSP) by **Jan 1, 2020** for sustainable groundwater management of the basin within a 20-year timeframe

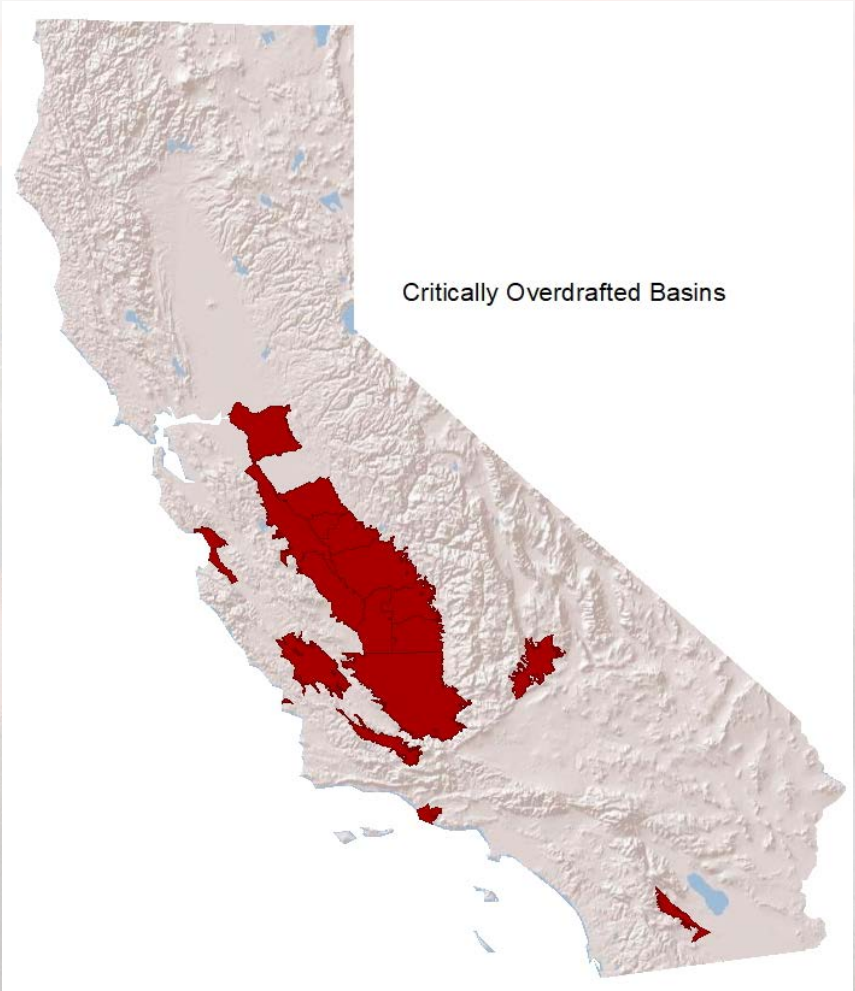
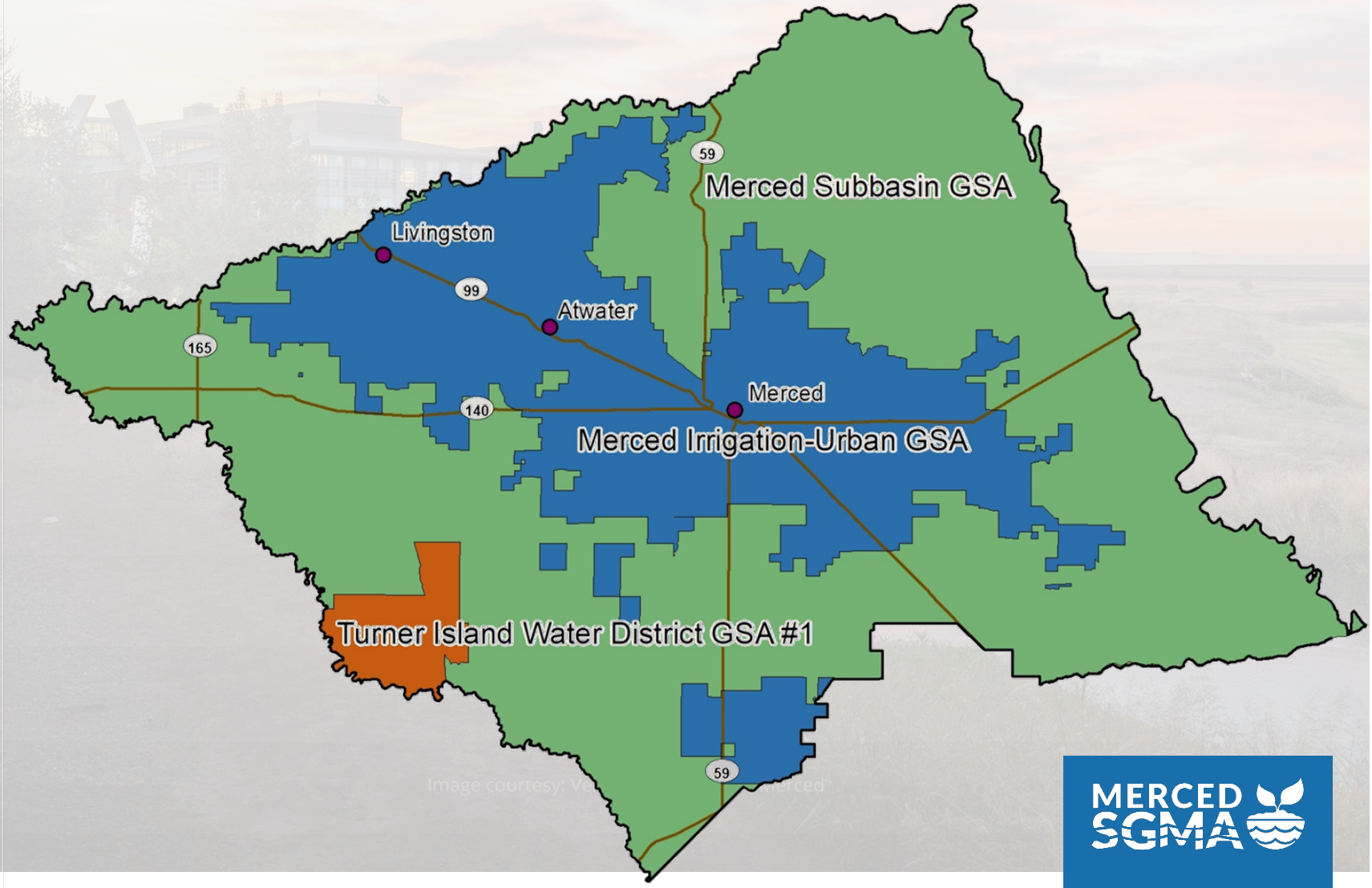


Image courtesy: Veronica

Three GSAs Prepared One Groundwater Sustainability Plan for the Merced Subbasin



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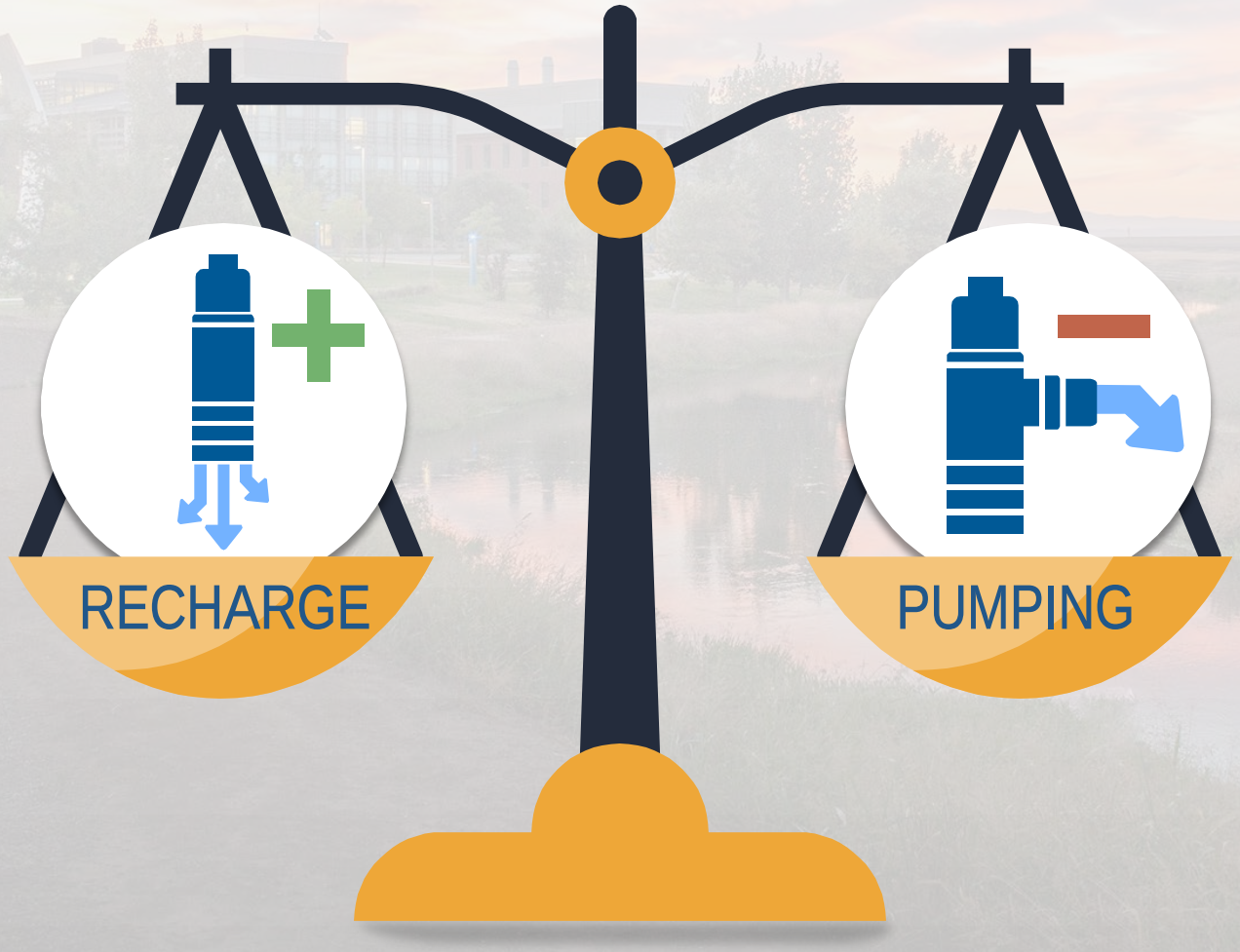
The ultimate goal of the GSP is to put the basin on a path toward sustainable groundwater management – where pumping is balanced by recharge over the long term



Key Elements of GSP

- Sustainability Goal
- Hydrogeologic Conceptual Model
- Water Budgets (Historical, Current, Projected, Sustainable)
- Sustainable Management Criteria based on consideration of sustainability indicators to avoid undesirable results
- Monitoring network and data management
- Projects and management actions to achieve sustainability by 2040

Image courtesy: Veronica Adrover/UC Merced

SGMA Requires Consideration of 6 Sustainability Indicators

- Chronic Lowering of Groundwater Levels
- Reduction in Groundwater Storage
- Seawater Intrusion
- Degraded Water Quality
- Land Subsidence
- Depletion of Interconnected Surface Water

Image courtesy: Veronica Adrover/UC Merced

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Establishing Sustainable Management Criteria for the Basin

For each indicator, the GSP must:

1. Define undesirable results for the basin ("significant and unreasonable" negative impacts) and determine if they could occur
2. Set sustainable management criteria that are intended to prevent undesirable results from occurring.
   - Minimum Thresholds
   - Measurable Objectives
   - Interim Milestones
3. Establish a monitoring network

Image courtesy: Veronica Adrover/UC Merced

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Development of Merced GSP

Image courtesy: Veronica Adrover/UC Merced

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Public Engagement Occurred Throughout GSP Development

- Implemented Stakeholder Engagement Plan with Planning Roadmap
- 19 Coordinating Committee meetings (monthly since March 2018)
- 15 Stakeholder Committee Meetings (monthly since May 2018)
- 5 public workshops – Coordinated with SHE/LC, translation services available. Notices in English and Spanish, press releases and notices in Merced Sun-Star
- Bi-monthly coordination calls with Leadership Counsel and Self-Help Enterprises
- Mercedsgma.org provided meeting and GSP development information
- Periodic articles provided to Farm Bureau, EMRCD, and Merced Chamber

Regulations a Key Driver for GSP Timeline

- SGMA regulations require a GSP be adopted and submitted to DWR by January 31, 2020 to avoid state intervention
- This regulatory deadline drove GSP development process
- Plan is first effort to characterize groundwater management:
  - Extent of overdraft
  - Potential impacts
  - Data gaps and information needs
  - Groundwater allocation
  - Projects to improve conditions
- Implementation plan will refine information and actions
- Plan adapts through updates every 5 years

Image courtesy: Veronica Adrover/UC Merced

GSP Underwent Public Review

- Published on Website **July 19**
- Executive Summary, GSP (375pp), Appendices
- 30-day public comment period closed on **August 19**
- Comments received in writing and at Sept 18 Joint GSA Boards Meeting
- After Sept 18 meeting and October 28 Coordinating Committee meeting, GSA board members and staff gave direction to consultant team in preparing response to comments and Final GSP

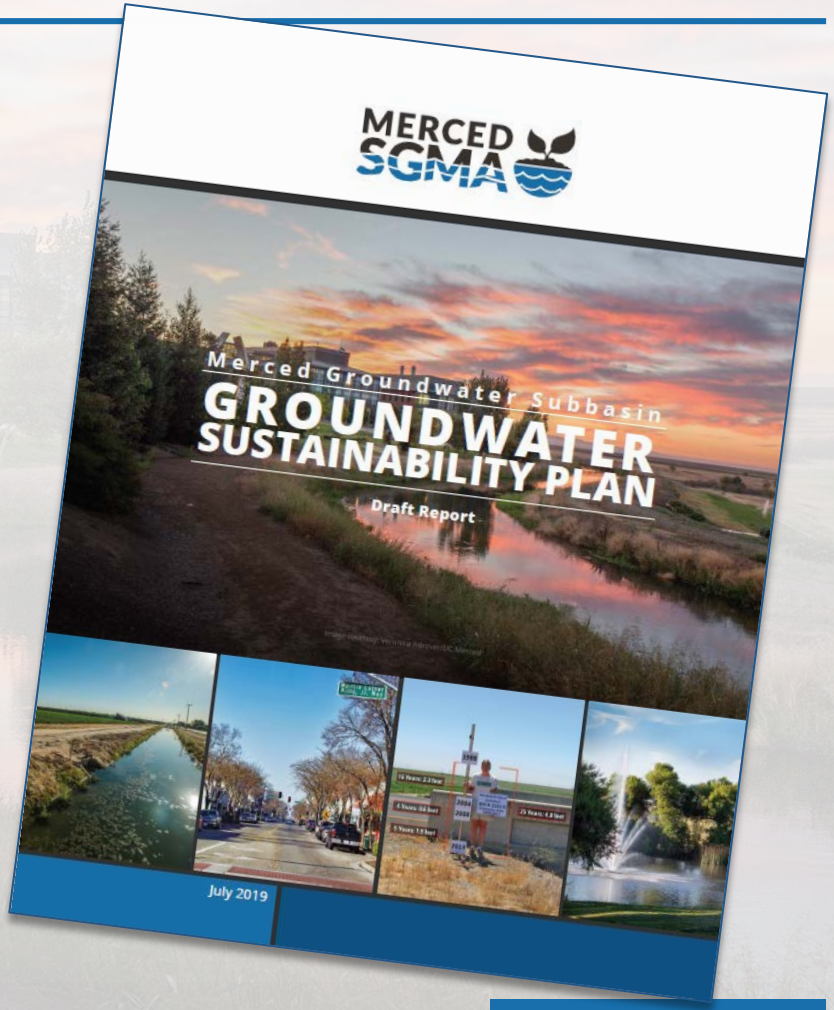

Photo courtesy: Veronica Adrover/UC Merced

GSP Overview

Image courtesy: Veronica Adrover/UC Merced

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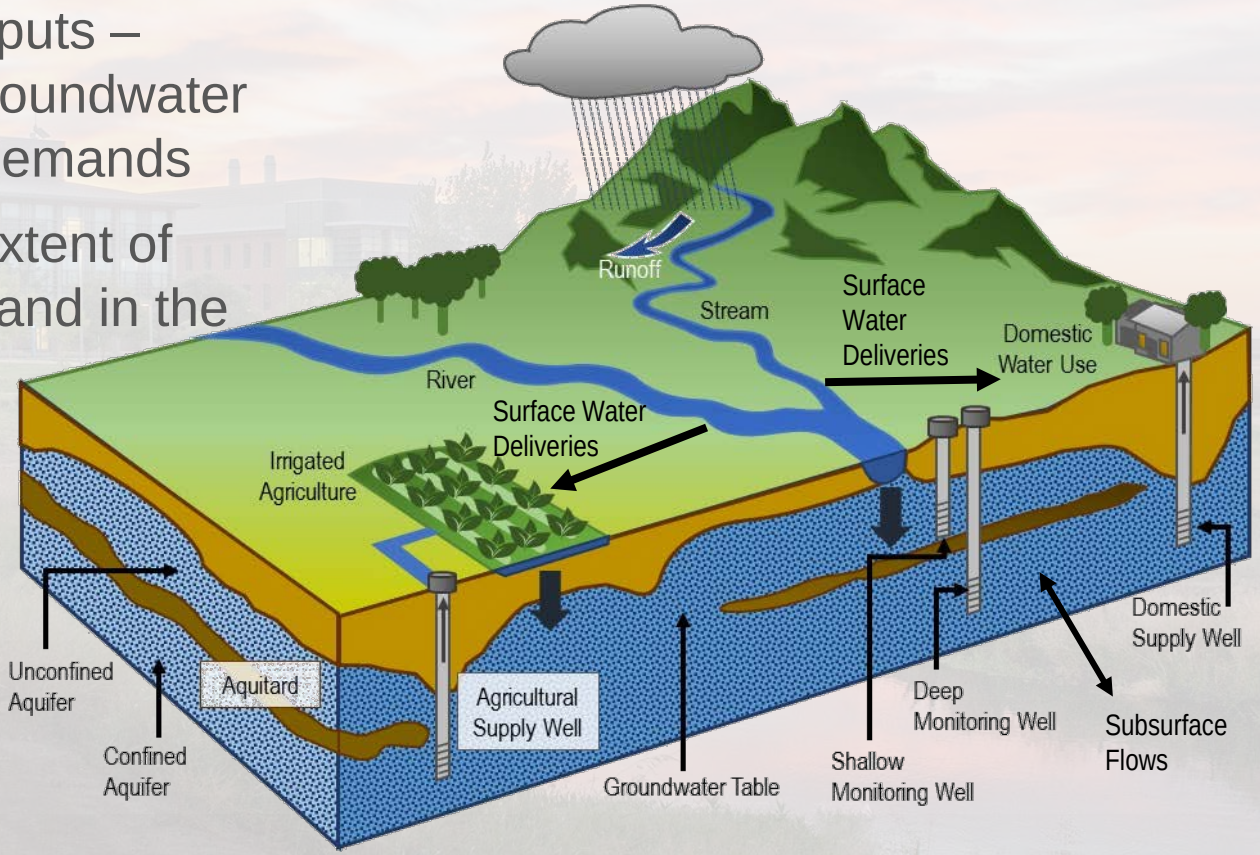
Historical and Projected Water Budgets Summarize Basin Conditions

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



- Historical conditions water budget shows an annual average rate of overdraft of 192,000 acre-feet per year (AFY) over Water Years 1996 through 2015.

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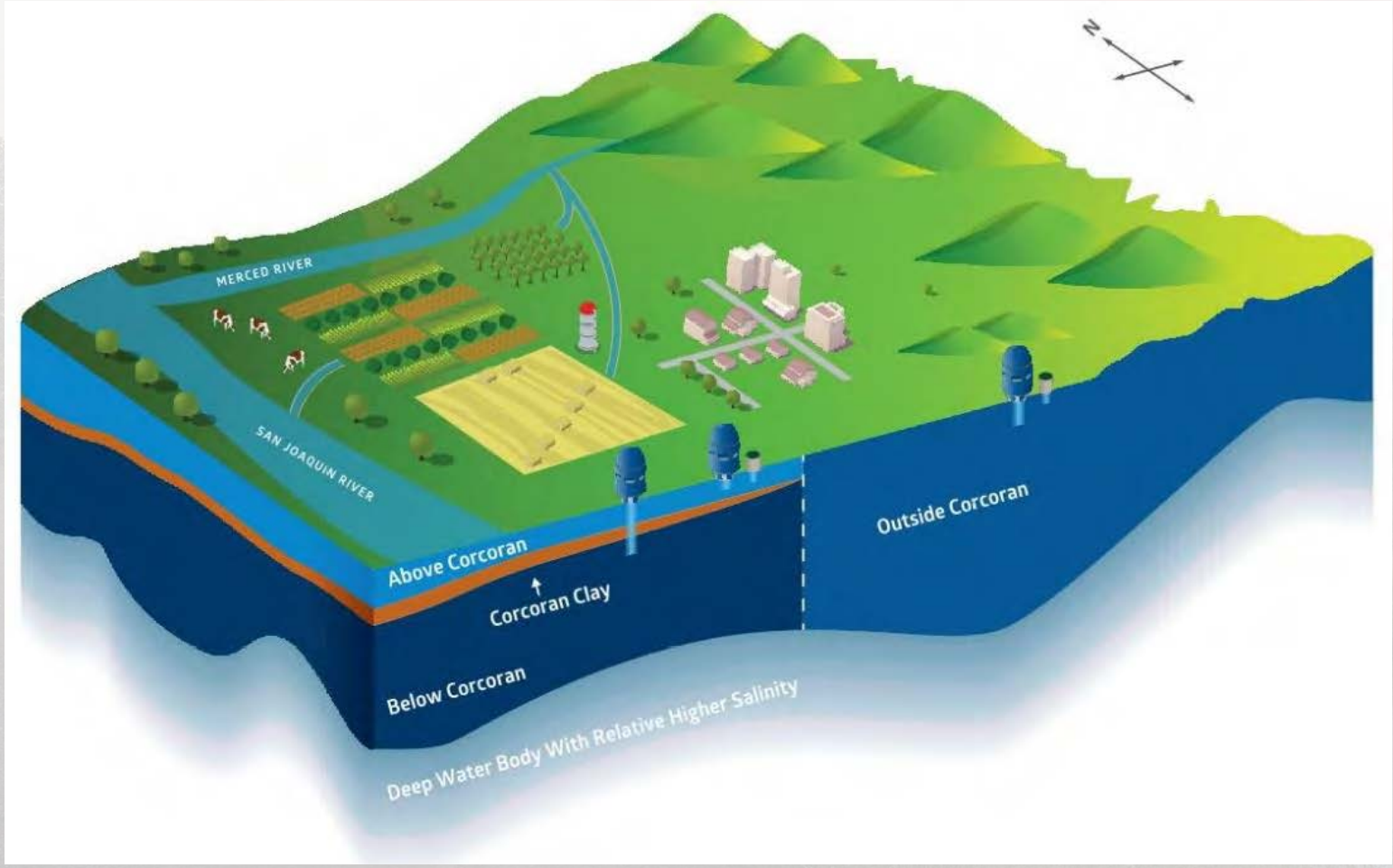
3D Illustration of Merced Subbasin Principal Aquifers and Aquitard



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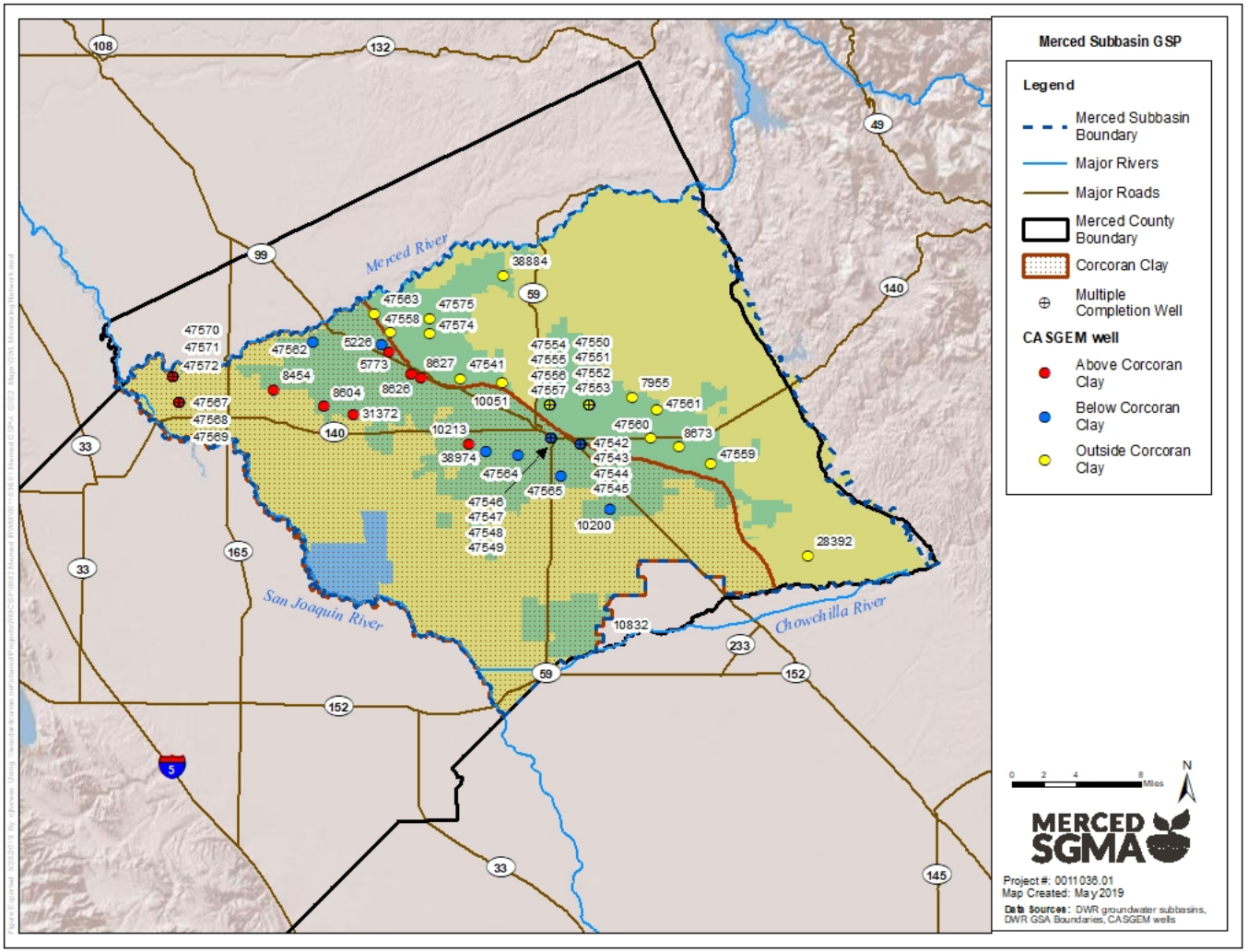
Representative wells will monitor water levels, water quality, and subsidence



GSP Establishes Sustainable Management Criteria for the Subbasin

Sustainability Indicator	Minimum Threshold (MT)	Measurable Objective	Undesirable Result
Groundwater Levels	Depth of shallowest well in a 2-mile radius of each representative well or minimum pre-January 1, 2015, elevation	Projected average future groundwater level under sustainable yield modeling simulation	Greater than 25% of representative wells fall below MT in 2 consecutive wet, above normal, or below normal years
Groundwater Storage	N/A - not expected to occur in the Subbasin due to the significant volumes of freshwater in storage		
Sea Water Intrusion	N/A - not present and not expected to occur due to the distance between the Subbasin and the Pacific Ocean (and Sacramento-San Joaquin Delta)		
Degraded Water Quality	1,000 mg/L TDS	500 mg/L TDS	At least 25% representative wells exceed MT for 2 consecutive years
Land Subsidence	-0.75 ft/year	-0.25 ft/year	Exceedance of MT at 3 or more representative sites for 2 consecutive years
Depletions of Interconnected Surface Waters	Groundwater levels used as a proxy for this sustainability indicator		

Sustainable Yield = How much can be sustainably pumped

- **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?**
  - We have estimated this using a groundwater model, modifying conditions to balance out the change in stored groundwater over time
- There are two sustainability indicators deemed not applicable to the Merced Subbasin. Undesirable results related to significant and unreasonable **depletions of groundwater storage** are not present and not likely to occur in the Subbasin, since historical reductions have been insignificant relative to the total volume of freshwater water storage in the Subbasin. **Seawater intrusion** is not an applicable sustainability indicator because seawater intrusion is not present and is not likely to occur due to the distance between the Subbasin and the Pacific Ocean (and Sacramento-San Joaquin Delta).

Image courtesy: Veronica Adrover/UC Merced

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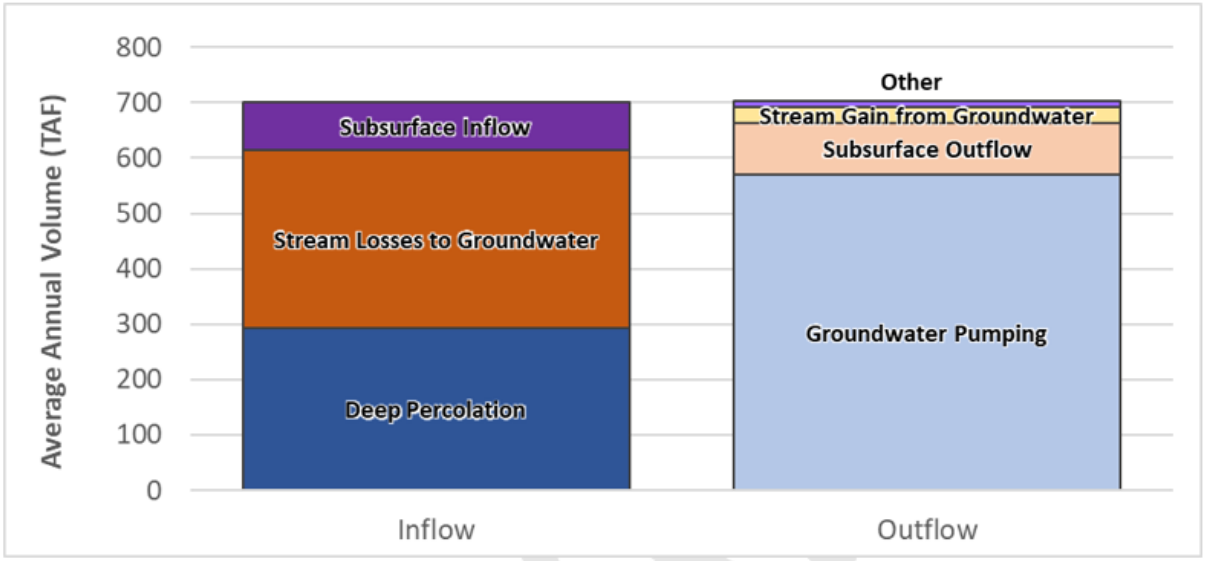
GSP Estimates Sustainable Yield

- Net change in storage over long term = zero
- Sustainable yield estimate: 570,000 AFY
- Assumes projected conditions for land use and population growth with reductions in basin pumping to result in no net change in storage over the long term

Figure ES-6: Groundwater Water Budget under Sustainable Groundwater Management Conditions Long-Term (50-Year) Average Annual

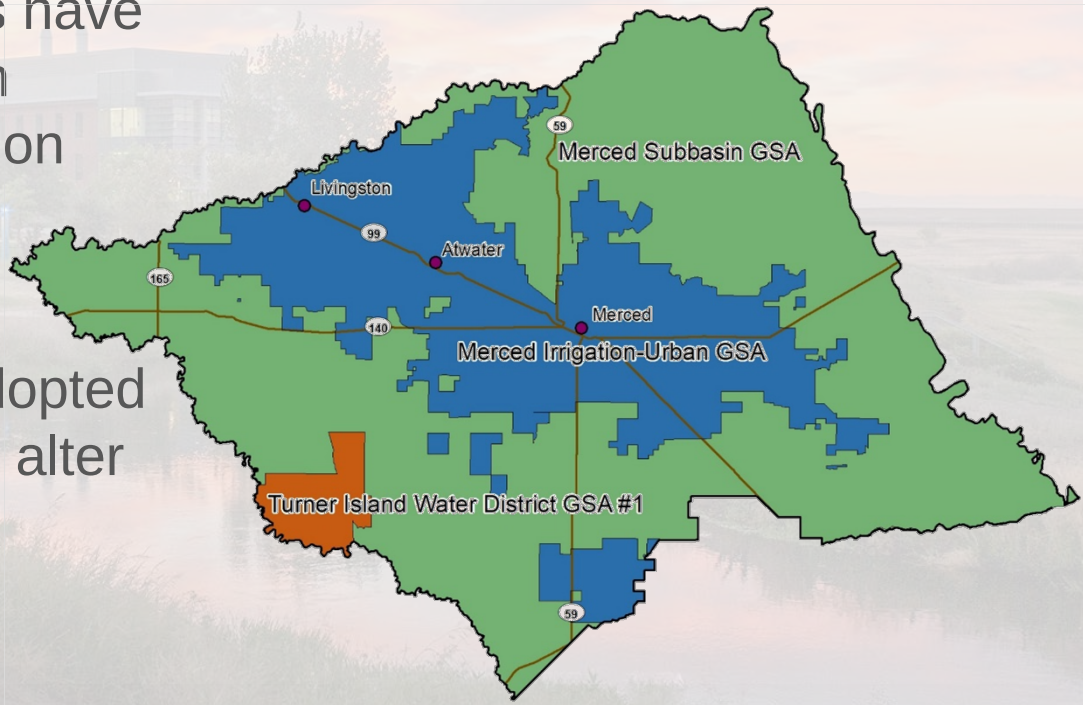


Apportion Estimates of Sustainable Yield

- Between Overlying and Appropriative users if based on historical use

An “Allocation Framework” is a way to Share the Basin’s Sustainable Yield

- Under SGMA, GSAs have authority to establish groundwater extraction allocations
- SGMA and GSPs adopted under SGMA cannot alter water rights



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Water Allocation Framework is still being Developed

- Merced GSP contains an explanation that GSAs intend to allocate water to each GSA but have not yet reached agreement on allocations or how they will be implemented
- Merced GSP estimates of basin-wide sustainable yield and developed supply for illustrative purposes
- **The Sustainable Yield of Native Groundwater available for allocation to groundwater users would be approximately:**

  - **Sustainable Yield: ~570,000 AFY**
  - **Developed Supply Reaching Basin: ~130,000 AFY**
  - **“Native Groundwater” Available for Allocation: ~440,000 AFY**

Image courtesy: Veronica Adrover/UC Merced

Within each GSA, major groundwater users will have an allocation

Cities

Will be allocated a % of their historical use and will work with customers to reduce water use as needed

Agricultural Users
Agricultural Districts

Ag users will likely get a pumping allocation based on acreage (e.g. AF/irrigated acre)

De Minimus Users

(Well owners that pump 2 af/yr or less for domestic use)
Cannot require metering.

Image courtesy: Veronica Adrover/UC Merced

GSP Identifies Projects that 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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Next Steps in GSP Adoption Process

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For Consideration Today

- Adopt final Merced Subbasin GSP
- Authorize submittal of GSP to DWR by January 31, 2020

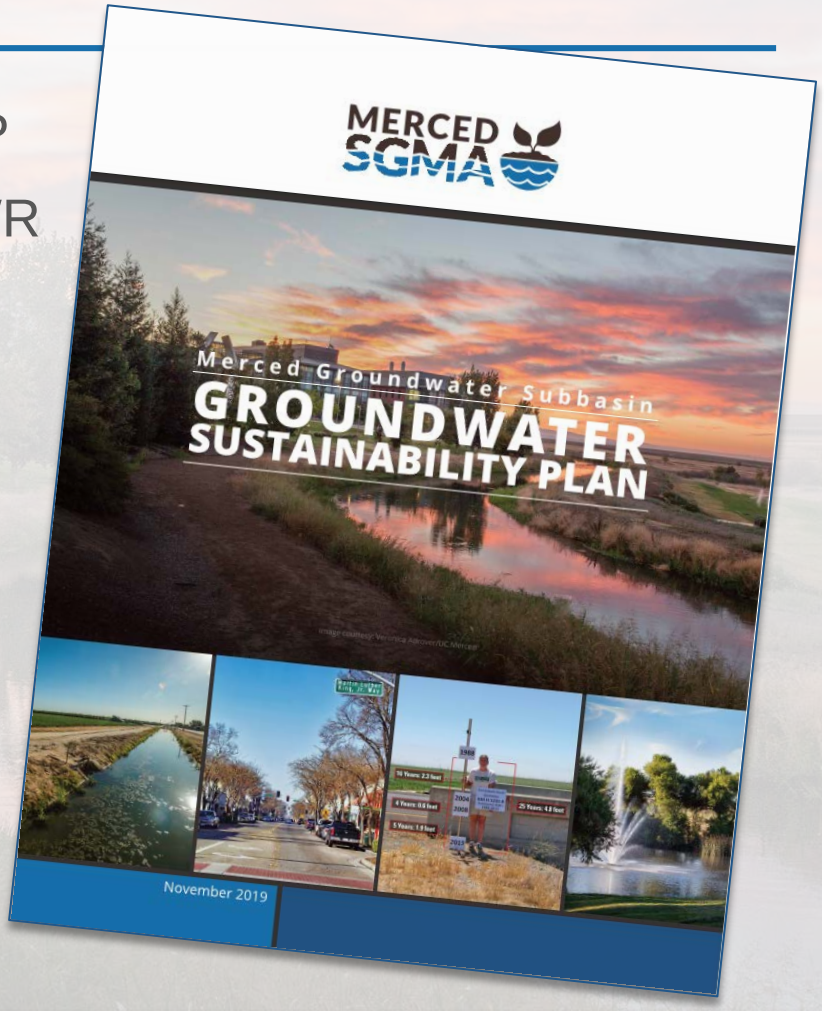

Image courtesy: Veronica Adrover/UC Merced

GSA Adoption Hearing Schedule

- Turner Island Water District GSA #1, November 19, 2019
- Merced Subbasin GSA, December 9, 2019
- Merced Irrigation-Urban GSA, December 11, 2019

Image courtesy: Veronica Adrover/UC Merced