GSP Stakeholder Committee

Stakeholder Committee Meeting – January 28, 2019

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Agenda

- Welcome, Introductions, and Agenda Review
- Flood-Managed Aquifer Recharge (Flood-MAR)
- Presentation by Woodard & Curran on GSP development
  - Next Steps in GSP Development
  - Water Allocation Frameworks
  - Other Updates
- Public Outreach Update
- Interbasin Coordination Update
- Public Comment on Items not on the Agenda
- Next Steps and Next Meeting

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Stakeholder Committee Meeting Agreements

Guidelines for successful meetings

- Civility is required.
  - Treat one another with courtesy and respect for the personal integrity, values, motivations, and intentions of each member.
  - Be honest, fair, and as candid as possible.
  - Personal attacks and stereotyping are not acceptable.
- 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.
- Constructiveness is essential.
  - Take responsibility for the group as a whole and ask for what you need.
  - Enter commitments honestly, and keep them.
  - Delay will not be employed as a tactic to avoid an undesired result.

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Flood-Managed Aquifer Recharge (Flood-MAR)

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Next Steps in GSP Development

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

GSP Development

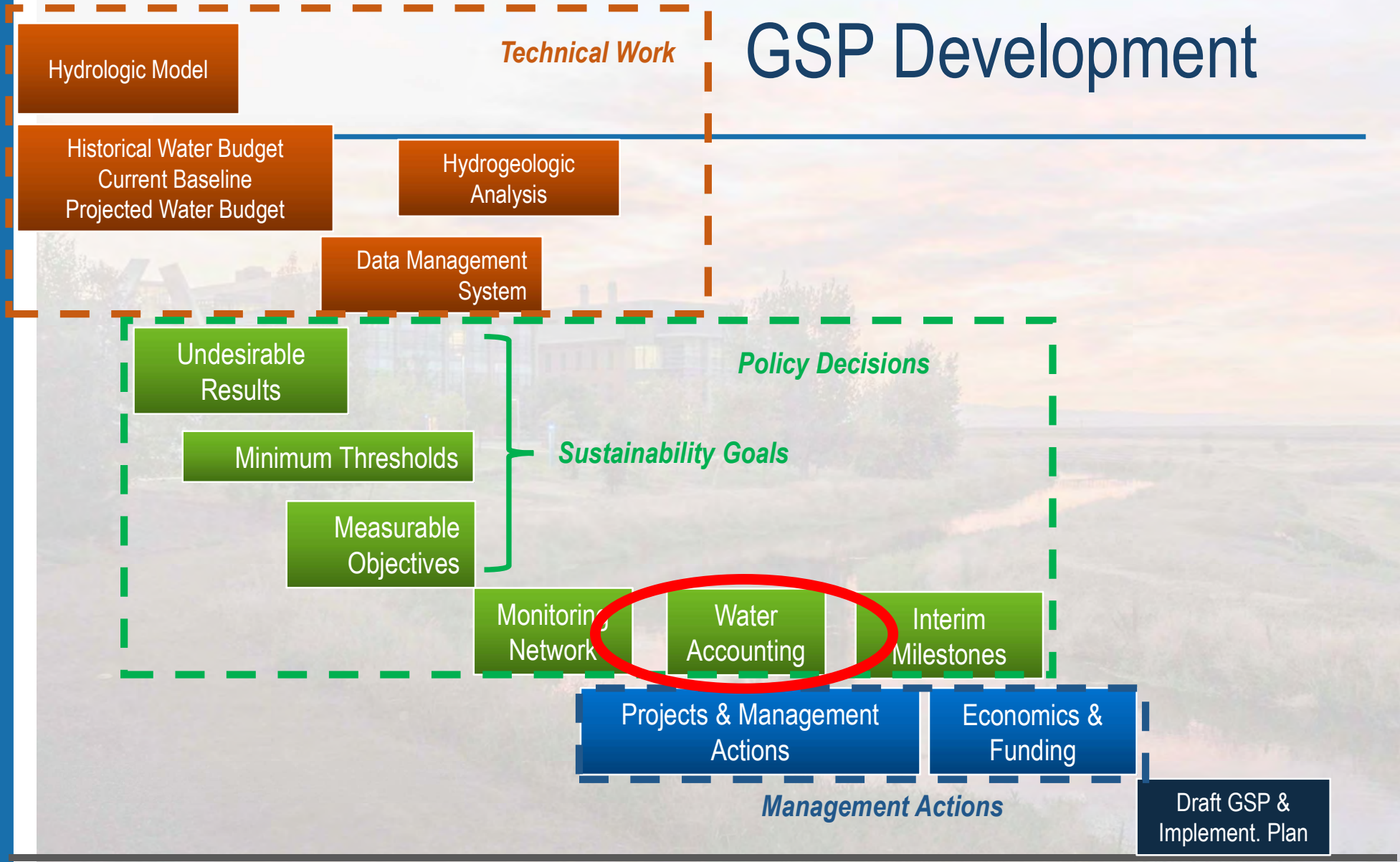


Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Water Allocation Framework

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Decision-Making Timeline

Focus for Today

November	December	January	February	March	April
• CC and SC discuss potential allocation frameworks	• CC recommends preliminary allocation frameworks to GSA Boards	• GSA Boards consider recommended allocation framework	• GSA Boards approve allocation framework		
• CC and SC consider values around approach to Ps&MAs	• CC and SC consider potential Ps&MAs to meet needs	• CC identifies recommended Ps&MAs	• CC considers changes to Ps&MAs	• CC recommends Ps&MAs to GSA Boards	• GSA Boards consider / approve Ps&MAs
		• CC and SC review benefits / impacts of Ps&MAs and make necessary adjustments	• CC considers changes to thresholds and objectives • CC considers need for management areas	• CC recommends thresholds, objectives, & management areas to GSA Boards	• GSA Boards consider / approve thresholds, objectives, & management areas

What are we trying to accomplish today?

- Provide input to CC on allocation approach, for the First Iteration 2020 GSP, for how the sustainable yield of the basin can be allocated
  - While we are talking a lot about allocations at the landowner level, the goal for this iteration is to allocate at the GSA level
  - Individual GSAs will determine allocations to meet subbasin level sustainability targets
  - Preliminary direction needs to be captured in the GSP with language explaining the data limitations and additional refinement needed
  - Need to move forward to make the 2020 deadline
- Allocations will need to be refined prior to implementation
  - Allocations are not expected to take effect within the first 10 years of GSP implementation
  - Additional information will be needed following the 2020 deadline to confirm, validate, and potentially refine modeling assumptions and allocations prior to implementation

MERCED SGMA

Conceptual GSP Implementation Timeline

Implementation will be phased over 20 years, with 5-yr updates.

2020	2025	2030	2035	2040
Monitoring and Reporting	**Preparation for Allocations and Low Capital Outlay Projects**	**Prepare for Sustainability**	**Implement Sustainable Operations**	
• Establish Monitoring Network • Install New Wells • Develop Metering Program • Extensive public outreach • Funded and smaller projects implemented	• GSAs conduct 5-year evaluation/update • Planning/ Design/ Construction for small to medium sized projects • Monitoring and reporting continues • Metering program continues • Outreach continues	• GSAs conduct 5-year evaluation/update • Planning/ Design/ Construction for larger projects begins • Monitoring and reporting continues • Outreach continues • Allocation program begins phase-in	• GSAs conduct 5-year evaluation/update • Project implementation completed • Allocations fully implemented/enforced	

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Follow up from SC/CC Dec 17 Discussion

- Historical baseline used 20 yr average 1995-2015. Analyze different date ranges for prescriptive period and historical use (5-year or 10-year periods, with/without droughts)
- Provide estimated acreage of irrigated and unirrigated lands Explore options for non-irrigated lands (unexercised overlying rights)
- Updating annual gw production data for CSDs and MWCs

Allocation Framework Discussion

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

Image courtesy: Ve[illegible]

MERCED SGMA

Groundwater Water Rights in Overdrafted Basins

Overlying (or "Correlative") Rights

"Overlying rights are used by the landowner for reasonable and beneficial uses on land they own overlying the subbasin from which the groundwater is pumped"

Prescriptive Rights

"…(a groundwater right acquired adversely by appropriators)…If a pumper extracts water for a non-overlying use from an overdrafted basin, the right may ripen into a prescriptive right if the basin overdraft is notorious and continuous for at least five years."

Source: *Groundwater Pumping and Allocations under California's Sustainable Groundwater Management Act*, Environmental Defense Fund, July 2018

MERCED SGMA

Rights to Groundwater Imported to a Subbasin

"Water for which a credit is derived is water from outside the watershed or water which is captured that would have been otherwise lost to the subbasin and which is recharged into the groundwater basin…Assuming no prescriptive rights have attached to imported water used to recharge a basin, the imported water generally belongs solely to the importer, who may extract (even if the basin is in overdraft) and use or export it without liability to other basin users…."

Source: *Groundwater Pumping and Allocations under California's Sustainable Groundwater Management Act*, Environmental Defense Fund, July 2018

MERCED SGMA

Groundwater pumped in Merced Subbasin comes out of one of these “buckets”, and we cannot double-count

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Merced GSP Allocation Methodology under Discussion

1. Determine **Sustainable Yield** of the Basin
2. Subtract groundwater originating from **Developed Supply** (seepage of developed/imported surface water) to obtain sustainable yield of native groundwater
3. Allocate Remaining Sustainable Yield to **Overlying Users** and **Appropriative Users** based on their proportional historical use
    a) Decide on historical period to use for determining proportional use
    b) Appropriative and Overlying Use allocated based on relative percent of historical use
        a) Appropriators allocated based on fraction of historical use among appropriators
        b) Overlying users allocated based on acres (allocation per acres) – need to determine allocation method for historically unirrigated acres
4. GSAs can modify implementation and allocation within GSA, but framework establishes basis for basin-wide management

MERCED SGMA

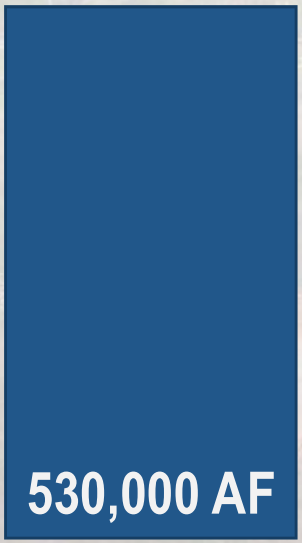
Numbers shown in the slides that follow are draft and are based on a basin-wide analysis looking at changes in overall storage without considering minimum thresholds and undesirable results. Future refinements will consider these effects and may result in adjustments to these estimates.

Image courtesy: Veronica Adrover/UC Merced

1. Determine Sustainable Yield of Basin

Estimated using MercedWRM simulations for projected basin conditions and reducing pumping until long-term average change in storage is zero. Includes native groundwater and imported water.

Sustainable Yield = long term average annual groundwater pumping sustainable without causing undesirable results



* Numbers shown are draft and are based on a basin-wide analysis looking at changes in overall storage without considering minimum thresholds and undesirable results. Future refinements will consider these effects and may result in adjustments to these estimates.

MERCED SGMA

2. Subtract Developed Seepage from Surface Water Supplies

Estimate seepage to groundwater of surface water supplies from MID and other surface water conveyors.

Sustainable Yield = long term average annual groundwater pumping sustainable without causing undesirable results

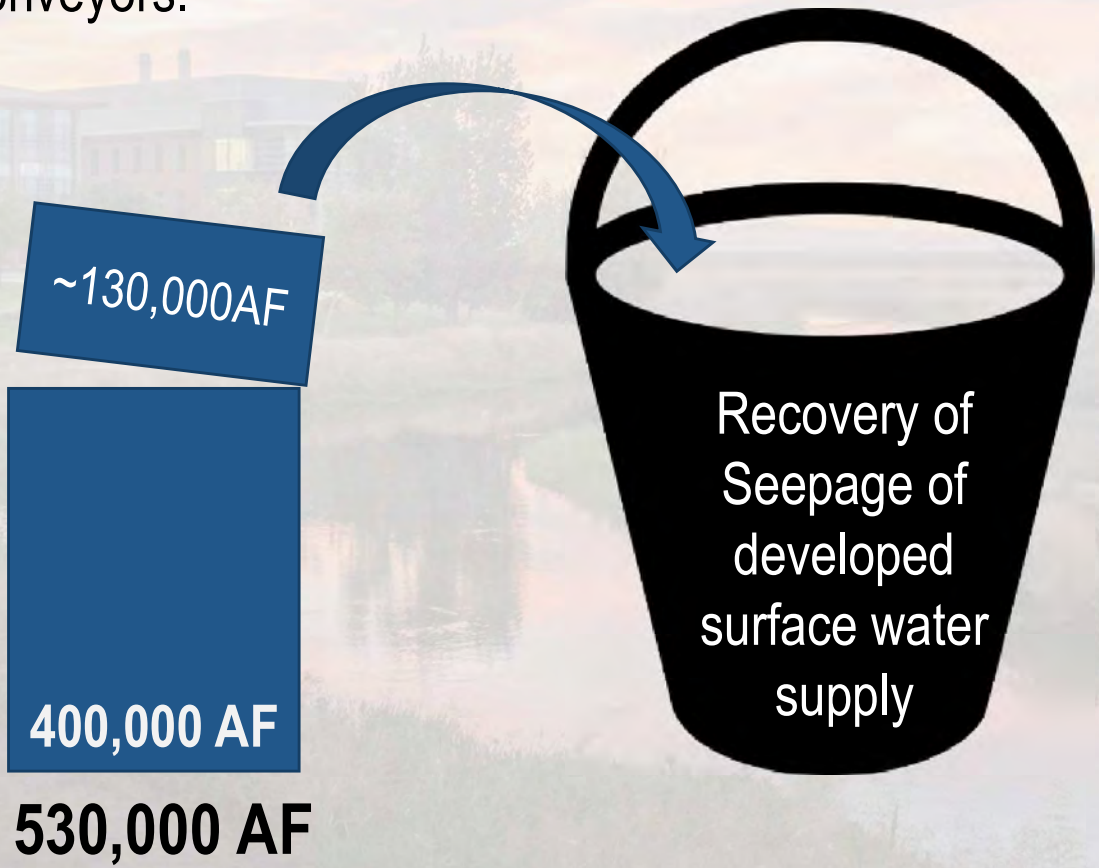


Image courtesy: Veronica Adrover/UC Merced

*Seepage estimates currently being refined.

MERCED SGMA

Proposed Methodology for Estimating Imported Supply Contributions to Groundwater Basin

- MID – has estimates of their conveyance seepage to the basin based on their Agricultural Water Management Plan and the difference between water imported and delivered
- The total MID unlined distribution system is 563 miles. It consists of unlined canal, creeks, and drains.
- SWD – has provided an estimate of their canal seepage
- For smaller surface water conveyors,
  - Request they provide documentation of losses;
  - Otherwise, seepage loss will be estimated based on volume of imported/developed surface water delivered and length of unlined canals.

Seepage credit = Volume delivered x loss factor (x%/mile unlined conveyance)

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

3. Apportion sustainable yield between overlying and appropriative users based on historical use

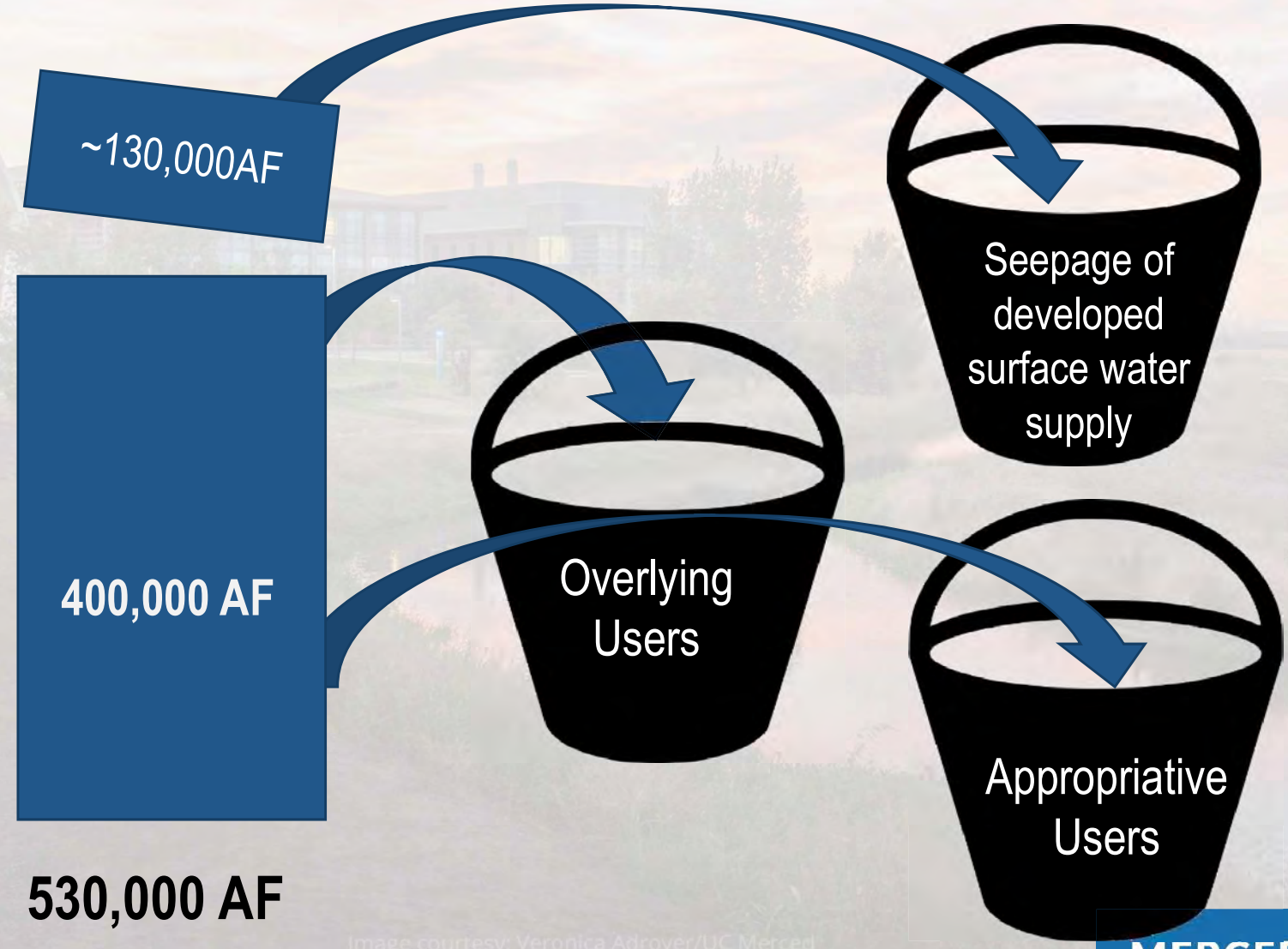


Image courtesy: Veronica Adrover/UC Merced

Proportion of historical use

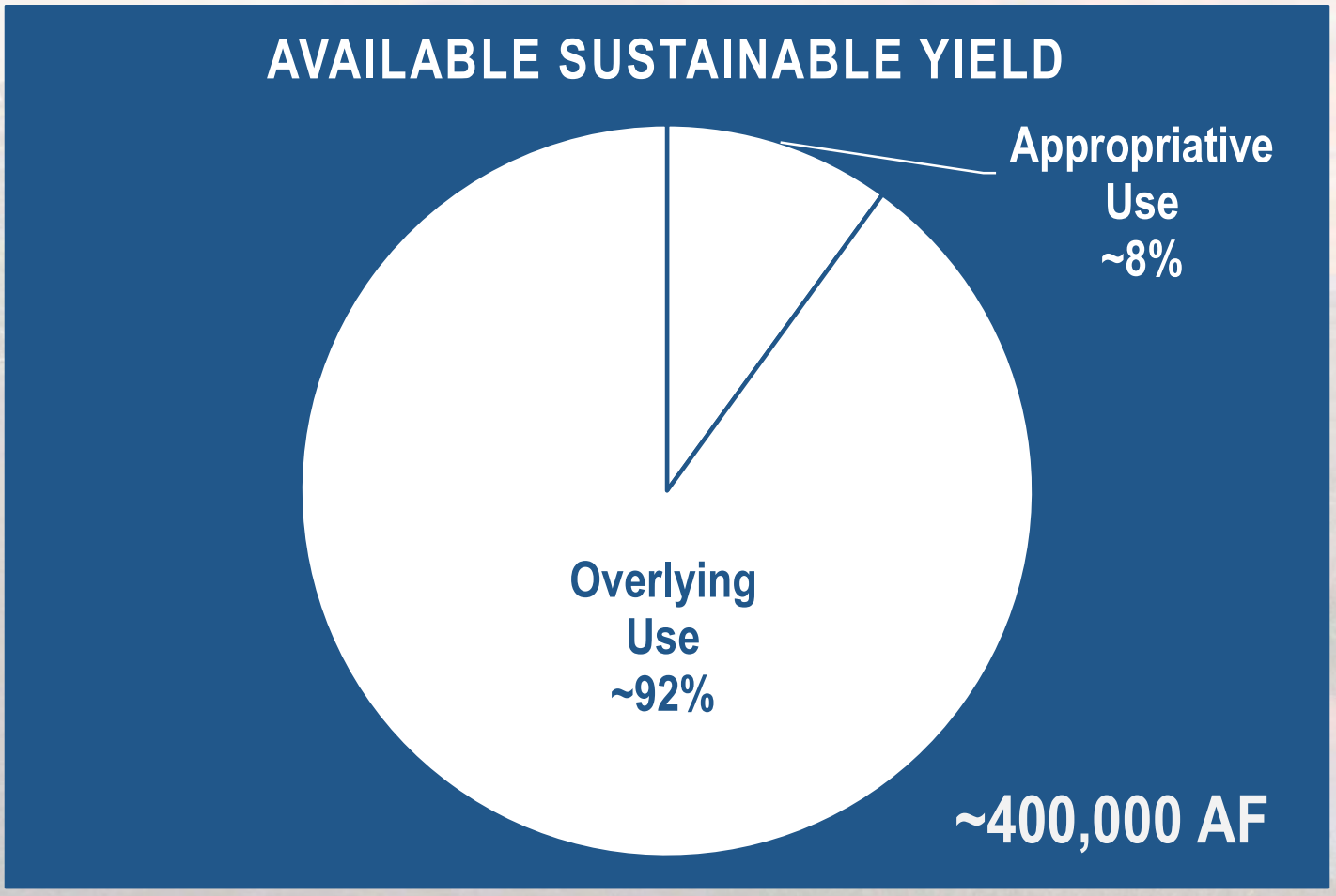


Image courtesy: Veronica Adrover/UC Merced

Analysis of different historical averaging periods

Year	Appropriative Pumping	Overlying Pumping	Total Pumping	Appropriative Pumping	Overlying Pumping	Total Pumping
20-Year Hist 1996-2015	44,000	527,000	571,000	8%	92%	100%
10-Year Hist 2006-2015	45,000	621,000	666,000	7%	93%	100%
5-Year Hist 2011-2015	45,000	674,000	719,000	6%	94%	100%
15-Year Hist (Exc. Drought) 1996-2010	43,000	478,000	521,000	8%	92%	100%
10-Year Hist (Exc. Drought) 2001-2010	44,000	505,000	549,000	8%	92%	100%
5-Year Hist (Exc. Drought) 2006-2010	44,000	569,000	613,000	7%	93%	100%

All units are in acre-feet per year

Appropriative Pumping is estimated based on Municipal Use

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Data Provided for Annual GW Production Data for Municipal and Ag Suppliers 1996-2015

Year	Black Rascal	Atwater	Livingston	Merced	Le Grand CSD	Meadowbrook	Planada	Winton	MID	SWD	MCWD	TIWD	LAWD	LTMWC
1996									x	x				
1997									x	x				
1998	x	x	x	x	x	x	x	x	x	x	x			
1999	x	x	x	x	x	x	x	x	x	x	x			
2000	x	x	x	x	x	x	x	x	x	x				
2001	x	x	x	x	x	x	x	x	x	x				
2002	x	x	x	x	x	x	x	x	x	x				
2003	x	x	x	x	x	x	x	x	x	x	x	x		
2004	x	x	x	x	x	x	x	x	x	x	x	x		
2005	x	x	x	x	x	x	x	x	x	x	x	x		
2006	x	x	x	x	x	x	x	x	x	x	x	x		
2007	x	x	x	x	x	x	x	x	x	x	x	x		
2008	x	x	x	x	x	x	x	x	x	x	x	x		
2009	x	x	x	x	x	x	x	x	x	x	x	x		
2010	x	x	x	x	x	x	x	x	x	x	x	x		
2011	x	x	x	x	x	x	x	x	x	x	x	x		
2012			x	x	x	x	x	x	x	x	x	x		
2013			x	x	x	x	x	x	x	x		x		
2014									x	x		x		
2015									x	x		x		

- Data includes municipal and district pumping and does not include private operations
- We have data gaps for multiple entities and are missing any records from Lone-Tree MWD and LeGrand-Athlone WD
- We are requesting additional data from all on this table

MERCED SGMA

4. GSAs can modify implementation and allocation within GSA, but framework establishes basis for basin-wide management

- Determine amount available for allocation:
  - Sustainable Yield: ~530,000AF
  - Imported Supply: ~130,000AF
  - **Base Allocations: ~400,000AF**
- Base allocations are split proportionally between appropriative and overlying users
  - Appropriative Allocation: ~30,000AF
  - Overlying Allocation: ~370,000AF
- Attribute allocations to each GSAs based on imported supplies, appropriative, and overlying users

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Illustration of Allocation based on different historical periods

	Historical Use			Estimated Allocation		
Basis for Allocation	**Appropriative Pumping**	**Overlying Pumping**	**Total Pumping**	**Appropriative Pumping**	**Overlying Pumping**	**Total Pumping**
20-Year Hist 1996-2015	44,000	527,000	571,000	31,000	369,000	400,000
10-Year Hist 2006-2015	45,000	621,000	666,000	27,000	373,000	400,000
5-Year Hist 2011-2015	45,000	674,000	719,000	25,000	375,000	400,000
15-Year Hist (Exc. Drought) 1996-2010	43,000	478,000	521,000	33,000	367,000	400,000
10-Year Hist (Exc. Drought) 2001-2010	44,000	505,000	549,000	32,000	368,000	400,000
5-Year Hist (Exc. Drought) 2006-2010	44,000	569,000	613,000	29,000	371,000	400,000

All units are in acre-feet per year

Appropriative Pumping is estimated based on Municipal Use

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Addressing Unirrigated Lands

- Landowners who are not pumping may have what is sometimes referred to in groundwater law as a dormant overlying right (also called “sleeping” right or an unexercised right). There is no standard practice in adjudications or guidance on how to address dormant overlying rights in a GSP allocation.
- Options can include attempting to quantify future rights to pump, or establishing a future process for allowing dormant overliers to start pumping (e.g. Mojave Adjudication)

Image courtesy: Veronica Adrover/UC Merced

Mojave Adjudication Follow Up

1. **How in Mojave do they determined the amount producers can have? (from CC)**

   They calculated a Base Annual Production (BAP) for each user based on their highest annual production 1986-1990. Each user has a right to a percentage of the annual safe yield of the basin based on their portion of the total aggregated BAP for all users. The WaterMaster determines the safe yield and allocations annually.

2. **What is the process for a new pumper to be added? (from SC)**

   New pumpers that want to pump more than 10AF/yr must file a request to be included in the judgment. The court responds within 30 days and if they are accepted, they are included in judgment and bound by its rules.

3. **What is the status of the lawsuit against the Cadiz Project? (from SC)**

   In November 2017, Conservation and health-safety groups filed lawsuit in federal court challenging the Trump administration's approval of the Cadiz water project which would pump and convey 16BG/yr of groundwater to urban districts in Southern California. Federal government moved to dismiss, but in June 2018 courts ruled suit could move forward.

Illustration of Partial Allocation Options

- Last month the group requested we analyze how different partial allocations to currently unirrigated land would effect the overall allocation to overlying users.
- We have limited land use data. Based on what we have:
  - Total supply available to overlying users ~370,000 acre-feet
  - Developed/Irrigated ~300,000 acres
  - Undeveloped: ~200,000 acres

	Developed Allocation (AF/Acre)	Undeveloped Allocation (AF/Acre)
Partial Allocation at 100%	0.70	0.70
Partial Allocation at 50%	0.90	0.45
Partial Allocation at 25%	1.00	0.25
Allocation only to currently irrigated/developed land	1.25	0.00

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Illustration of Land Use Distribution

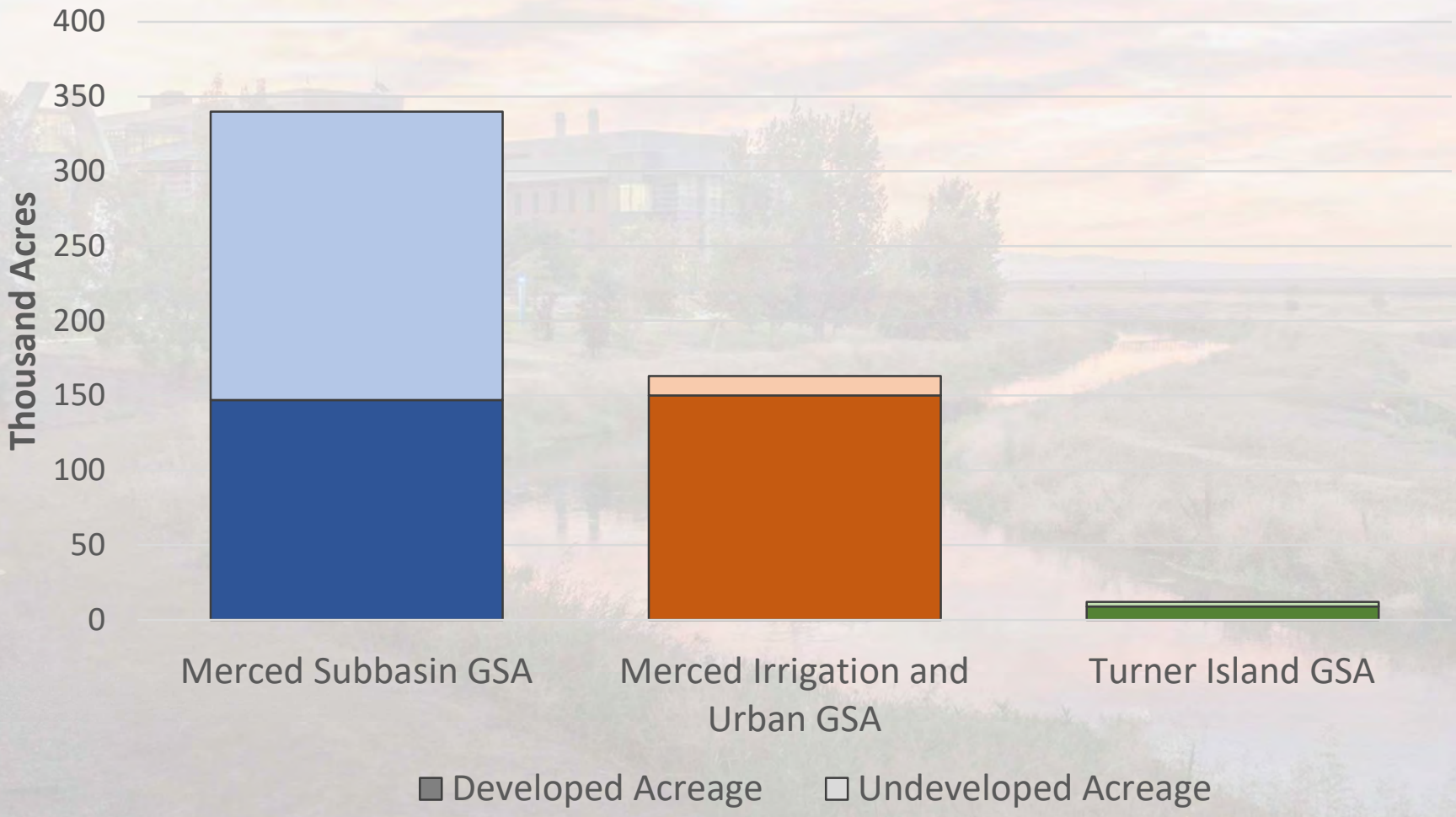
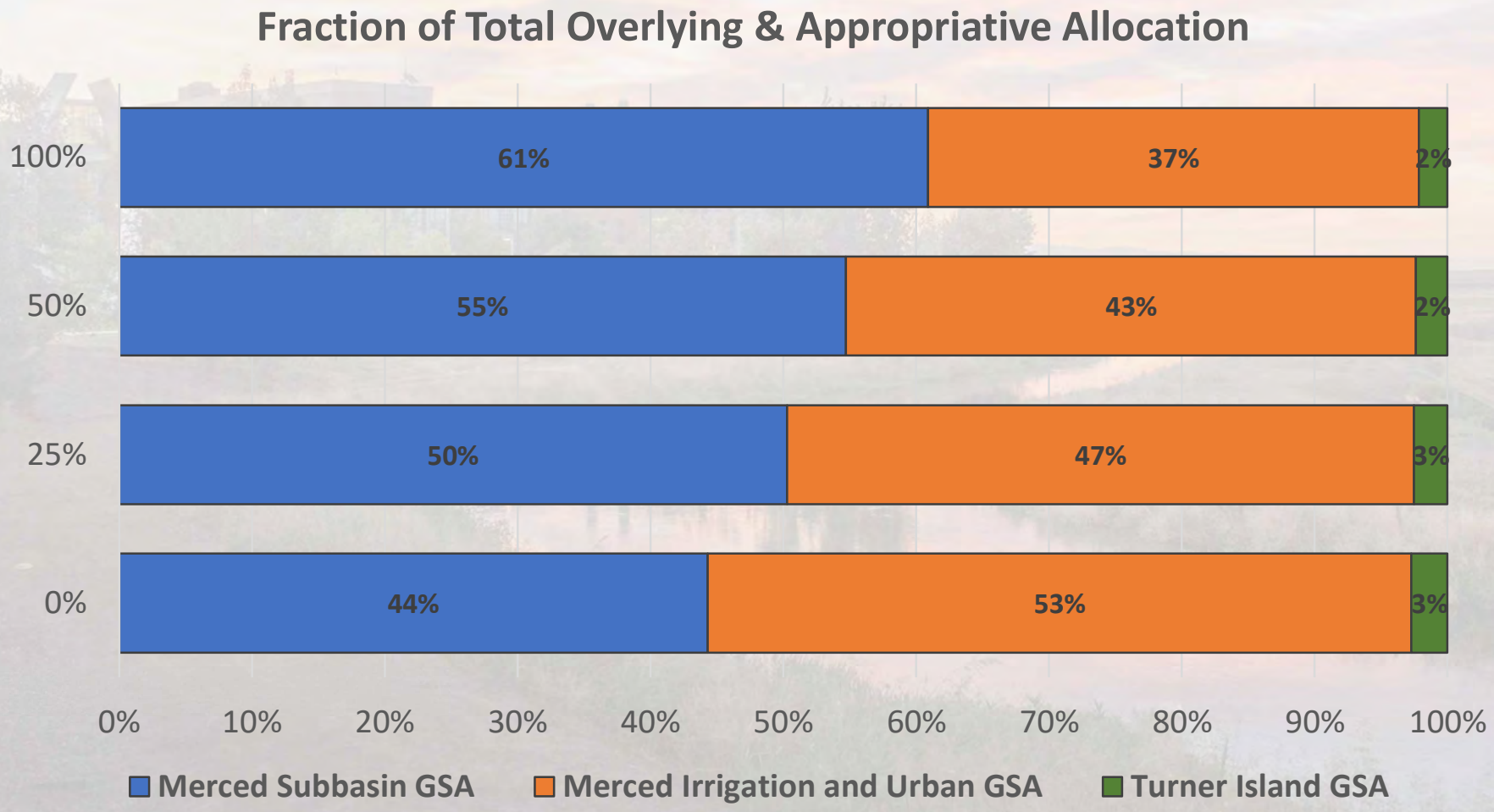


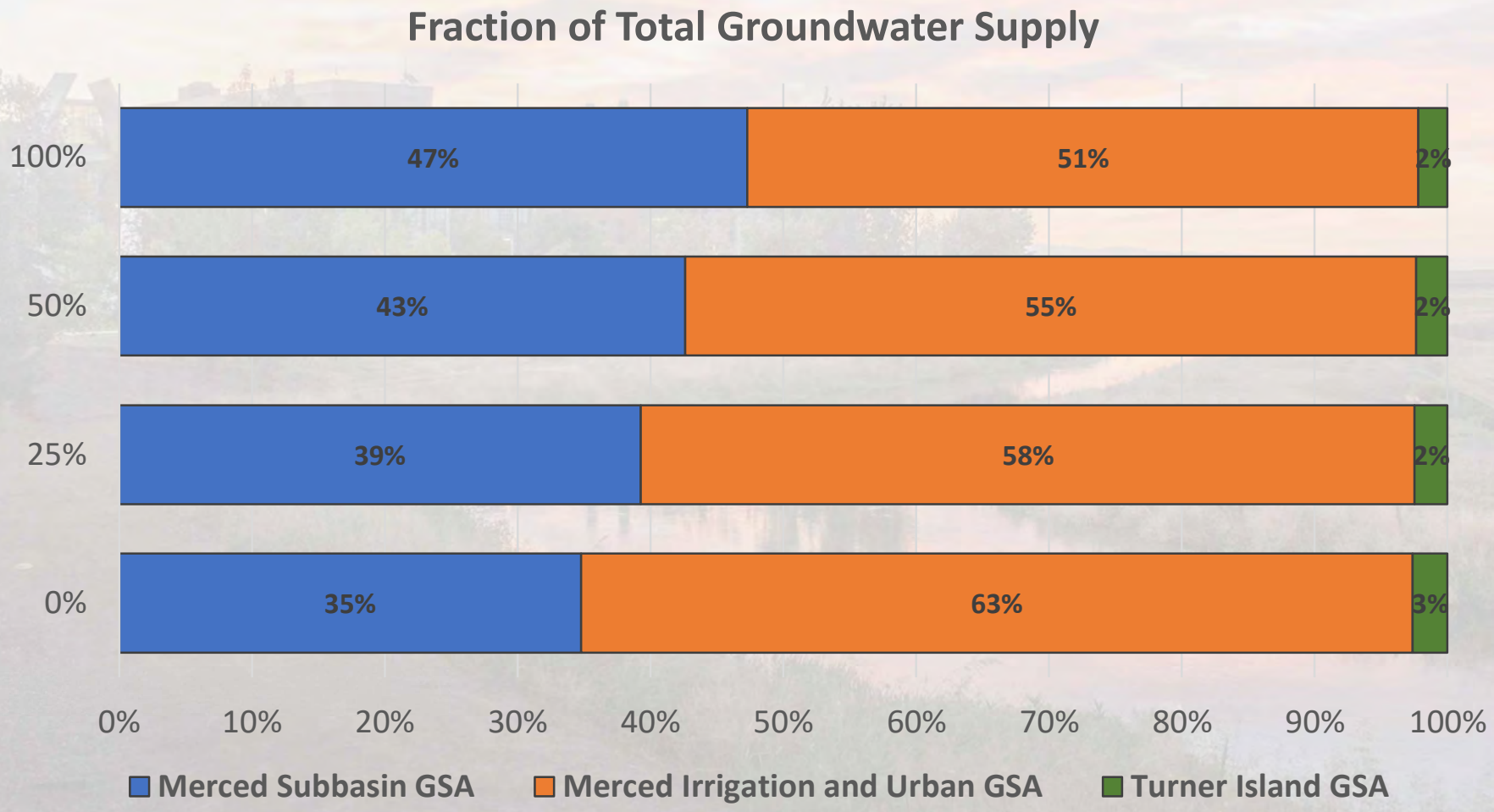
Image courtesy: Veronica Adrover/UC Merced

Draft Estimated Allocation by GSAs



**Allocation fractions include overlying and appropriative water use totaling approximately 400,000AFY. Does not include developed supplies

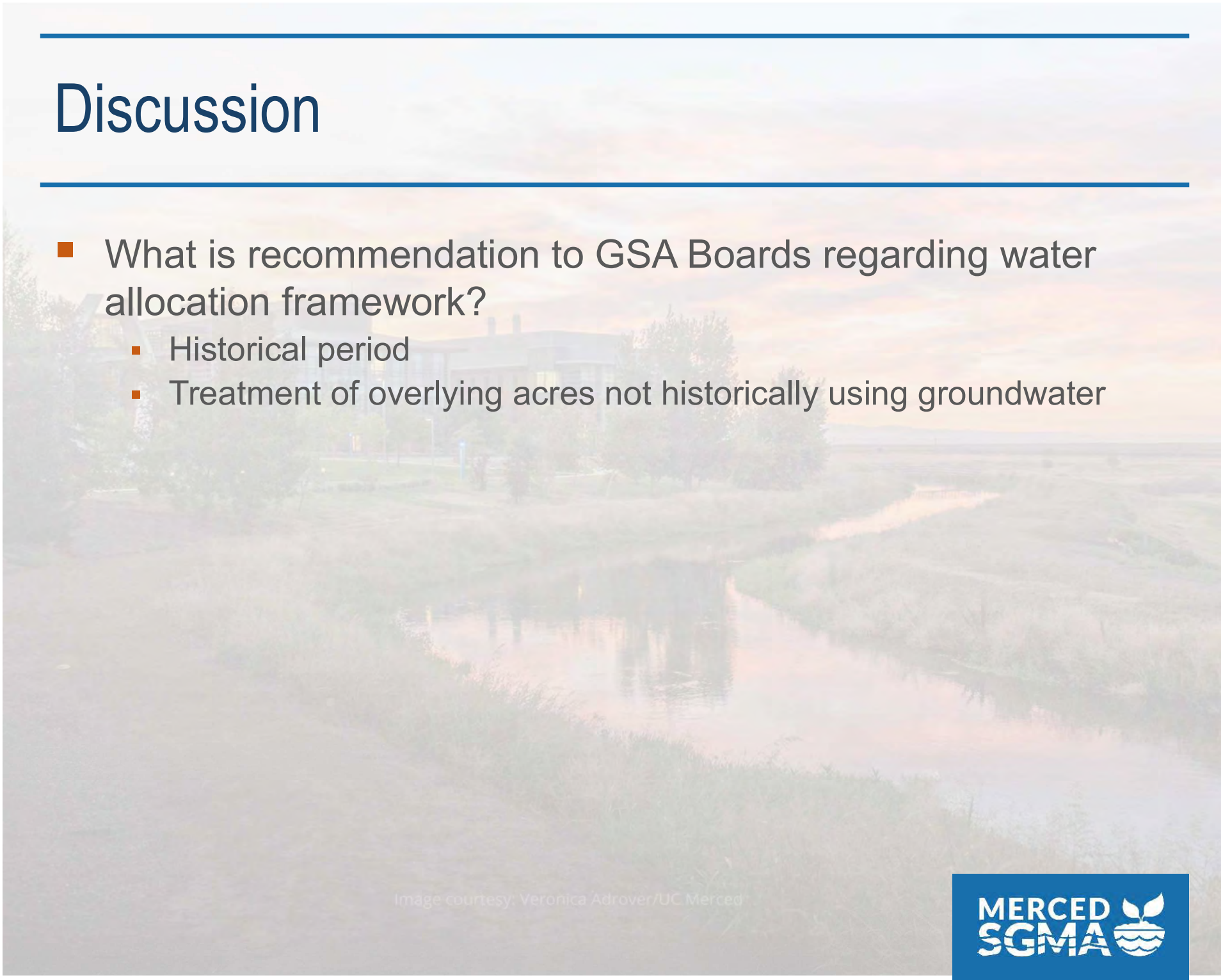
Draft Estimated Allocation by GSAs



**Allocation fractions include developed supply, overlying and appropriative water rights totaling approximately <u>530,000AFY</u>

Discussion

- What is recommendation to GSA Boards regarding water allocation framework?
  - Historical period
  - Treatment of overlying acres not historically using groundwater



Data Management System

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Data Management System

- W&C team has been working on a beta test link for Merced Data Management System.
- The link is now ready and is as follows: https://opti.woodardcurran.com/merced/

- Comments and questions can be directed via the “contact us” link at the bottom of the page
- A guideline is available on the login page

Note: This is a “beta” (test) version of the DMS. Data is being updated on an ongoing basis.

Image courtesy: Veronica Adrover/UC Merced

Other Updates

Image courtesy: Veronica Adrover/UC Merced

Projects & Management Actions: update on quantifying and comparing

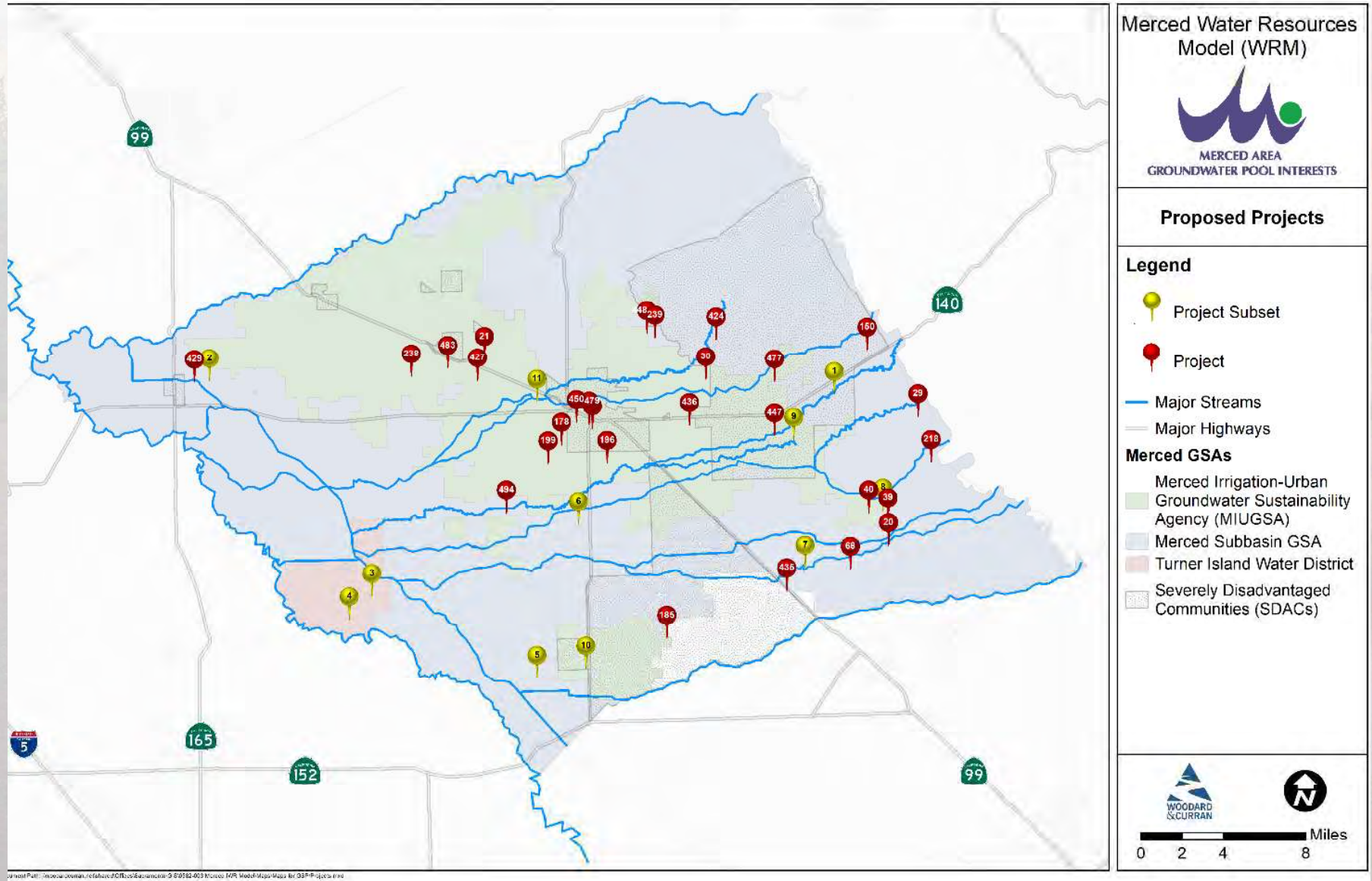
- Factors to be considered include benefits to water quality and supply, DACs, the environment, local economy, and **cost per acre foot.**
- Cost per acre foot takes into account the total costs of the project and the amount of water produced or saved depending on project type.

Cost per Acre Foot = **Capital Cost + (Annual O&M Cost x Estimated Project Life)** ÷ **(Annual Water Produced x Estimated Project Life)**

Image courtesy: Veronica Adrover/UC Merced

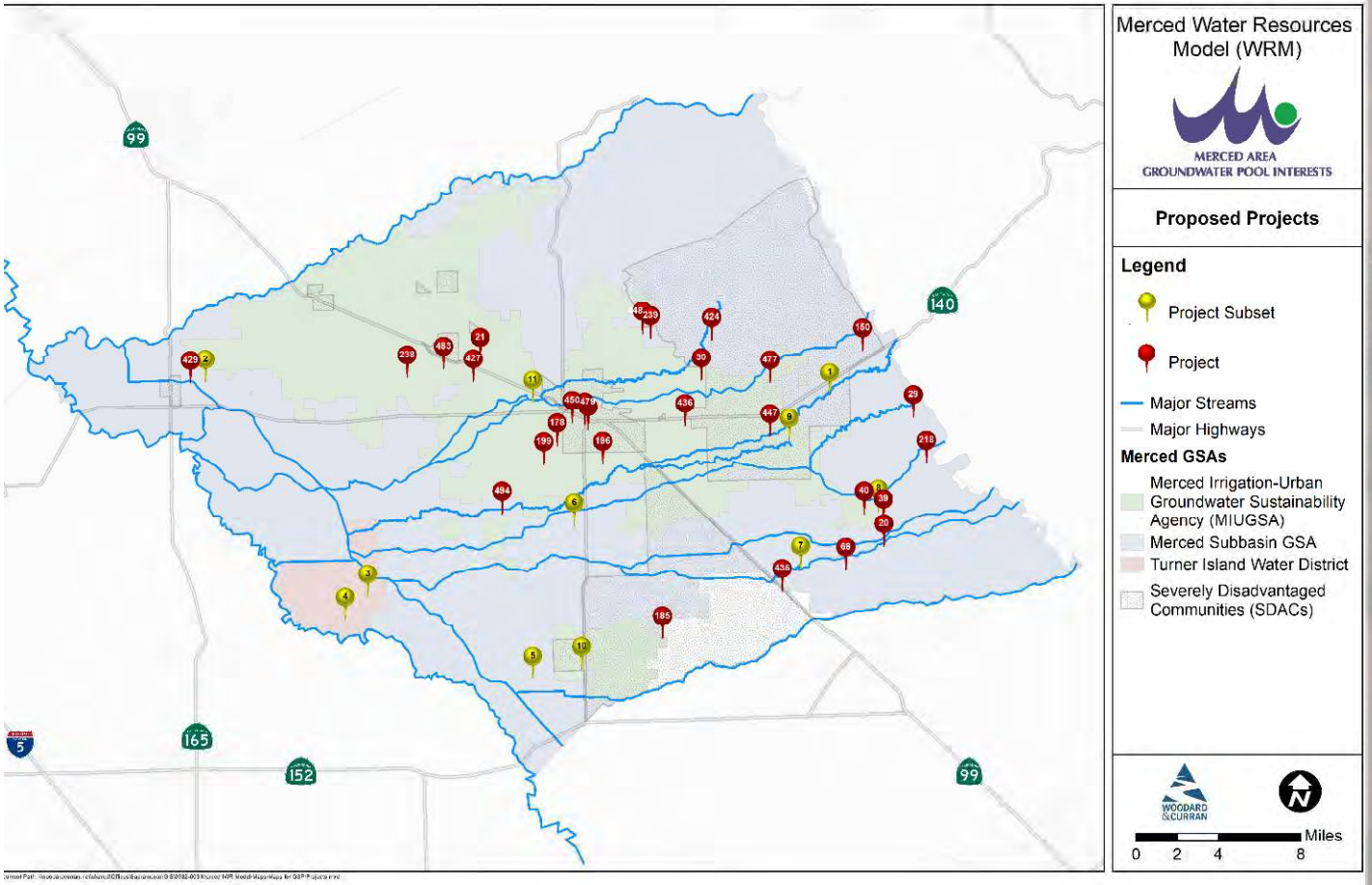
MERCED SGMA

Projects & Management Actions:
Currently 40 Projects on Draft List



Projects & Management Actions:

Projects provided by stakeholders and Prop 1 SDAC Projects Highlighted



#	Project Name
1	Super Connect
2	Brasil Recharge Project
3	TIWD Merced GSP Projects Reservoir
4	TIWD Merced GSP Projects Recharge
5	Merced I.D. to Lone Tree MWC conveyance canal
6	Vander Woude Dairy Offstream Temporary Storage
7	Go Big Super-Connect Conveyance Project
8	Marguerite Water Retention Facility
9	Planada Groundwater Recharge Basin Pilot Project (SDAC project)
10	El Nido Groundwater Monitoring Wells (SDAC project)
11	Meadowbrook Water System Intertie Feasibility Study (SDAC project)

Image courtesy: Veronica Adrover/UC Merced

Public Outreach Update

Image courtesy: Veronica Adrover/UC Merced

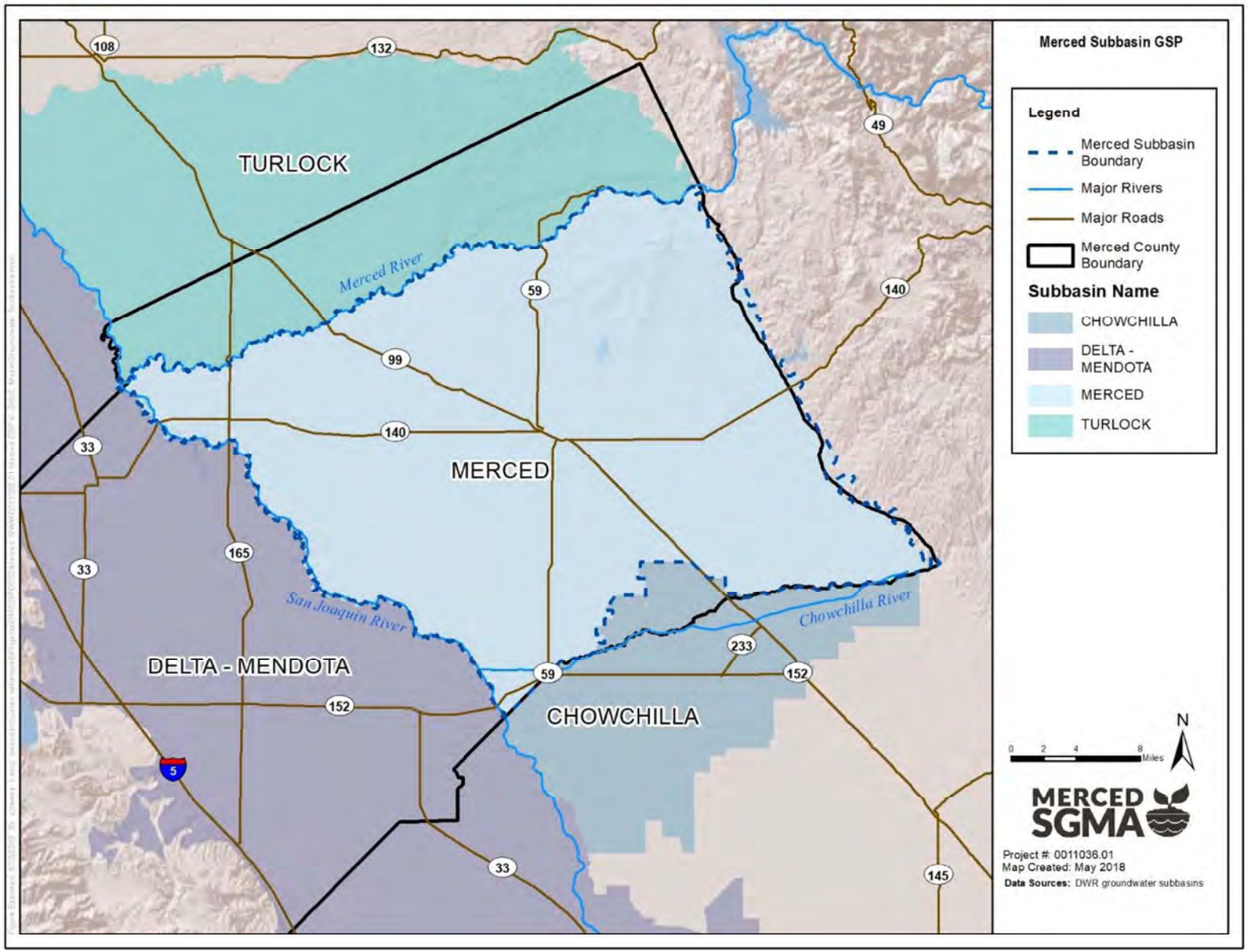
MERCED SGMA

Coordination With Neighboring Basins Update

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Coordination with Neighboring Basins



Questions/Comments from Public

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Next Steps

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

What's coming up next?

- GSP Development Items:
  - Water Budgets summary memo being provided for review and approval by GSAs
  - Complete allocation process updates
  - Assess projects and management actions

- Focus for February meeting
  - Projects and management actions

- Adjourn to next meeting (Adjourn to February 25th @ 9:30 AM, location Castle Airport)

Image courtesy: Veronica Adrover/UC Merced

GSP Stakeholder Committee

Stakeholder Committee Meeting – February 25, 2019

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA