GSP Coordinating Committee

Coordinating Committee Meeting – March 25, 2019

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

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Agenda

1. Call to order
2. Approval of minutes for February 25, 2019 meeting
3. Stakeholder Committee update
    1. Update from March 25 morning meeting
4. Presentation by Woodard & Curran on GSP development
    1. Water Allocation Frameworks
    2. Projects and Management Actions
    3. Climate Change Uncertainty Analysis
    4. Next Steps in GSP Development
    5. Other Updates

Image courtesy: Veronica Adrover/UC Merced

Agenda

5. Public Outreach Update
6. Coordination with Neighboring Basins
7. Long Term SWRCB Permits for Flood Water
8. Public Comment
9. Next Steps and Adjourn

Image courtesy: Veronica Adrover/UC Merced

Approval of Minutes

Image courtesy: Veronica Adrover/UC Merced

Stakeholder Committee Update

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

January	February	March	April	May
• CC and SC discuss potential allocation frameworks		• CC recommends allocation framework to GSA Boards	• GSA Boards approve allocation framework	
• CC and SC consider potential Ps&MAs to meet needs	• CC and SC consider potential Ps&MAs to meet needs	• CC identifies recommended Ps&MAs	• CC recommends Ps&MAs to GSA Boards	• GSA Boards consider / approve Ps&MAs

Image courtesy: Veronica Adrover/UC Merced

What are we trying to accomplish today?

- Goal: Agree on a recommended water allocation framework for the First Iteration 2020 GSP, for how the sustainable yield of the basin can be allocated at the GSA level
  - Individual GSAs will determine allocations to meet subbasin level sustainability targets
  - GSP text will need to explain the data limitations and additional refinements
  - Need to **move forward together to make the 2020 deadline**
- Allocations will need to be refined prior to implementation and 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 GSP MOU requires recommendations be reached by unanimous decision of the Coordinating Committee
- If we do not reach agreement together, then risk state intervention.

Image courtesy: Veronica Adrover/UC Merced

Conceptual GSP Implementation Timeline

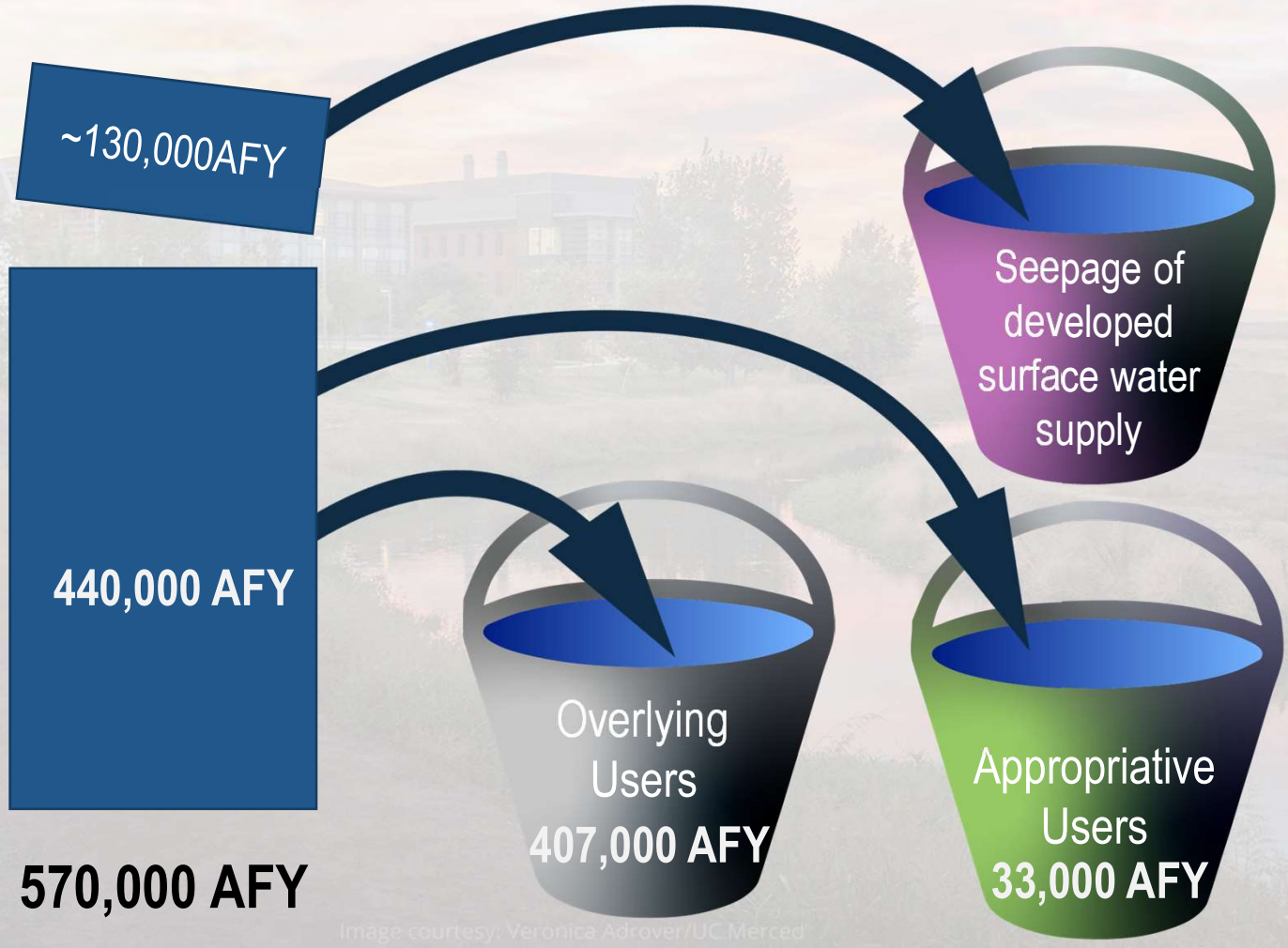
Implementation will be phased over 20 years, with 5-yr updates.

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	

Merced GSP Allocation Framework 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 sustainable yield of native groundwater to **Overlying Users** and **Appropriative Users** based on their proportional historical use
   a) Select averaging period for determining historical use
   b) Overlying users allocated based on acreage
   c) Appropriative users allocated based on fraction of historical use among appropriators
4. Use framework as basis for **basin-wide management and allocation to GSAs**. GSAs can modify the implementation and allocations within their GSA boundary.

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



*Numbers shown are draft and based on latest sustainable yield modeling run and described in Water Allocation Framework Update memo dated 3-18-19

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

- Determine amount available for allocation:
  - Sustainable Yield: ~570,000AF
  - Seepage of developed Supply: ~130,000AF
  - **"Native" GW Available for Allocation: ~440,000AF**
- Native gw sustainable yield is split proportionally between appropriative and overlying users
  - Overlying Allocation: ~407,000AF
  - Appropriative Allocation: ~33,000AF
- Attribute allocations to each GSAs based on seepage of developed supplies, appropriative users, and overlying users

*Numbers shown are draft and based on latest sustainable yield modeling run and described in Water Allocation Framework Update memo dated 3-18-19

Image courtesy Veronica Ackroyd/UC Merced

MERCED SGMA

Allocation to Undeveloped Lands

CC has discussed partial allocation to undeveloped lands from 0 to 100% of allocation to historically irrigated land.

Merced Subbasin Land Use

Classification	Merced Subbasin GSA	MIUGSA	TIWD	Total
Developed	173,000	138,000	9,000	320,000
Undeveloped[1]	125,000	5,000	3,000	133,000
Federal Lands, Exempt[2]	28,000	8,000	0	36,000
Total	**327,000**	**151,000**	**12,000**	**490,000**

Note: Values presented in acres
[1] Grazing lands and vacant parcels
[2] Federal government owned lands

Illustration of Partial Allocation Options

	Partial Allocation Fraction (AFY/acre)				
	0%	25%	50%	75%	100%
Developed Allocation	1.24	1.12	1.03	0.95	0.88
Undeveloped Allocation	0.00	0.28	0.51	0.71	0.88

Note: Values are rough estimates based on simplified assumptions for illustration purposes.

What is Recommendation to GSA Boards Regarding Water Allocation Framework?

- Agreement on overall framework?
  1. Determine sustainable yield
  2. Subtract developed supply to obtain sustainable yield of native gw
  3. Allocate native gw sustainable yield to Overlying Users and Appropriative Users based on proportion of historical use
  4. Use this framework to determine total allocations to each GSA. GSAs can modify implementation within their own boundaries.
- Confirm historical averaging period: 2006-2015
- Address future users
  - Agreement on range of partial allocations to be refined in future plan

Image courtesy: Veronica Adrover/UC Merced

CC Recommendation to GSA Boards

(to be finalized at CC meeting)

Once agreement reached, a motion should be made to approve the recommendations as captured on this slide to the GSA boards

Projects and Management Actions

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Conceptual GSP Implementation Timeline

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

2020 – 2025	2025 – 2030	2030 – 2035	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

Projects & Management Actions:

Working list of 50 projects by GSA

Benefiting GSA*	Number of Projects on List	Project Types
Merced Subbasin GSA (MSGSA)	15	Flood Control, Conveyance, Storage, Recharge, Monitoring, Regulatory
Merced Irrigation-Urban GSA (MIUGSA)	21	Conveyance, Recharge, Conservation, Monitoring, Storage, Channel Improvement, Flood Control, System Upgrades, Data Modeling, Water Quality, Recycled Water, Water Exchange
Turner Island Water District GSA1 (TIWD)	2	Storage, Recharge
Combined MIUGSA & MSGSA	6	Recharge, Flood Control, Storage, Conveyance
Basinwide Benefit (all GSAs)	6	Data Modeling, Conservation, Conveyance, Water Quality, Recharge

*Project beneficiaries to be determined as GSP moves forward. These GSA assignments are preliminary and based on project sponsor and available information to date.

Projects & Management Actions:

- **50 projects in draft list total = need to create short list**
- **Priorities identified from past meetings used as filter for short list include:**
  - Project addresses DACs
  - Project addresses white areas
  - Project identified as priority project by GSA
  - Project focuses on recharge
  - Project focuses on conveyance
  - Project to be implemented within first 5 years (esp. monitoring)
  - Project is beyond planning phase
  - Project already has funding
- Projects that achieve **1 of these priorities = 41 projects**
- Projects that achieve **at least 2 of these priorities = 19 projects**

Projects & Management Actions:
Draft Projects List Handout

- Handout contains:
  - Adjusted shortlist of priority projects
  - List of projects to be kept in running potential future projects list
- Updates to list since last meeting:
  - Existing known priorities used as filter for shortlist
  - Submitting entity for IRWMP projects identified
  - However, still limited information available for many projects
- Request to group: further input to assist in project prioritization for GSP

Image courtesy: Veronica Adrover/UC Merced

Projects & Management Actions:

Breakdown of current draft short list by GSA below. Contains 19 projects that meet at least 2 of the current list of priorities.

Benefiting GSA*	Number of Projects on List	Project Types Addressed
Merced Subbasin GSA (MSGSA)	8	Recharge, Storage, Conveyance
Merced Irrigation-Urban GSA (MIUGSA)	2	Recharge, Monitoring, Conservation, Conveyance
Turner Island Water District GSA1 (TIWD)	1	Recharge
Combined MIUGSA & MSGSA	2	Recharge, Flood Control
Basinwide Benefit (all GSAs)	6	Data Modeling, Conservation, Conveyance, Water Quality, Recharge

*Project beneficiaries to be determined as GSP moves forward. These GSA assignments are preliminary and based on project sponsor and available information to date.

Projects & Management Actions:
Categories in Current Short List

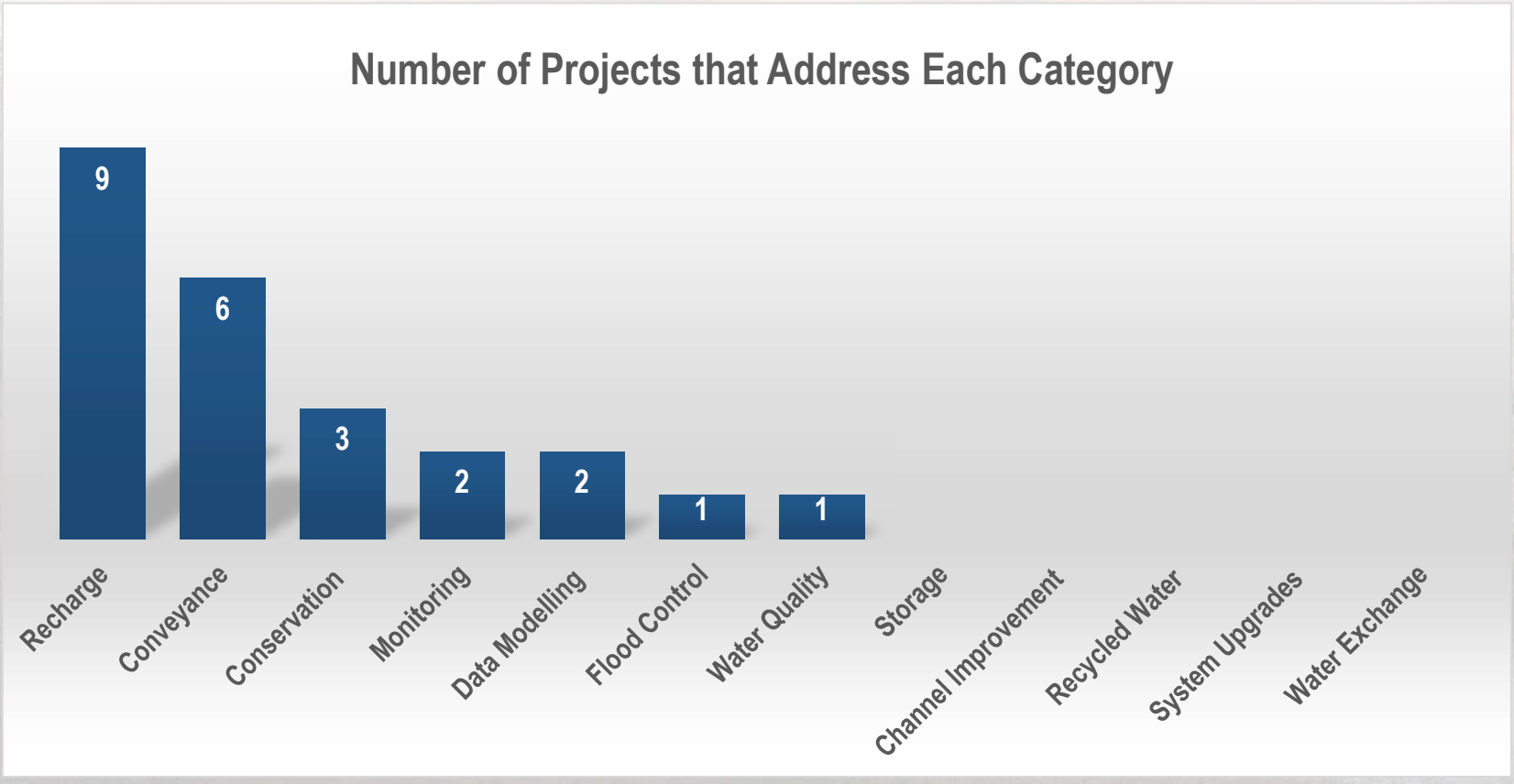
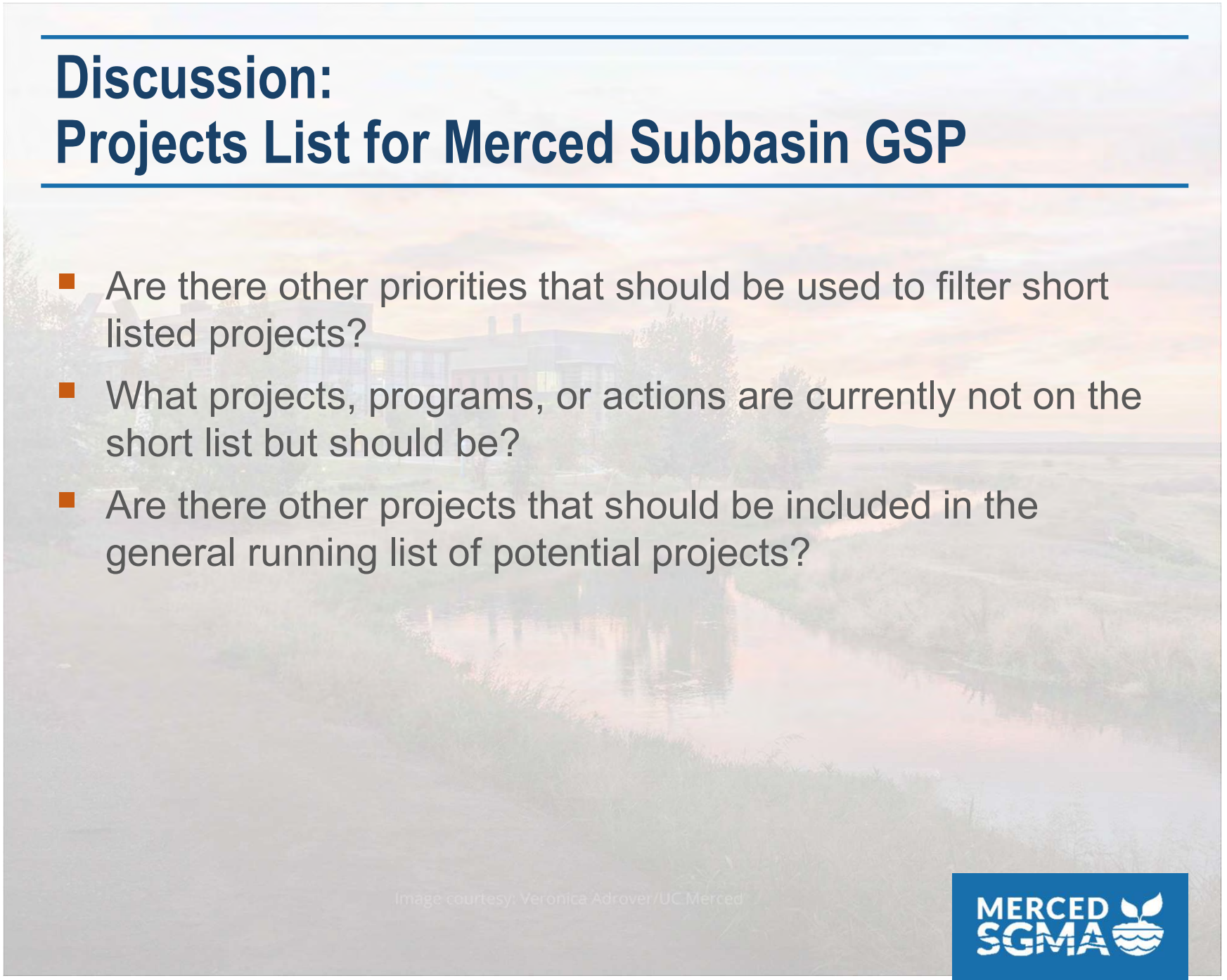


Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Discussion:
Projects List for Merced Subbasin GSP

- Are there other priorities that should be used to filter short listed projects?
- What projects, programs, or actions are currently not on the short list but should be?
- Are there other projects that should be included in the general running list of potential projects?



MERCED SGMA

Climate Change Uncertainty Analysis

Image courtesy: Veronica Adrover/UC Merced

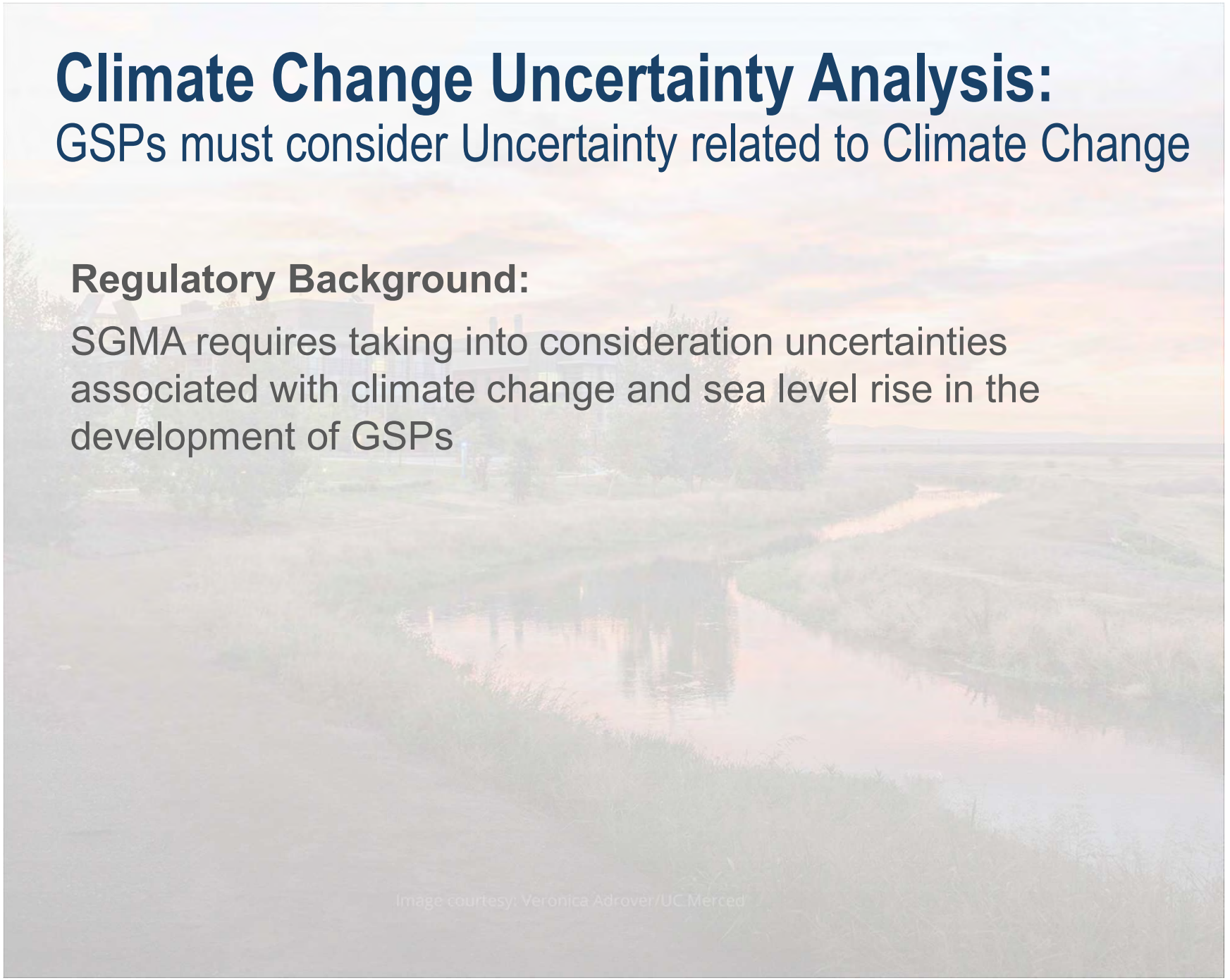
MERCED SGMA

Climate Change Uncertainty Analysis:

GSPs must consider Uncertainty related to Climate Change

Regulatory Background:

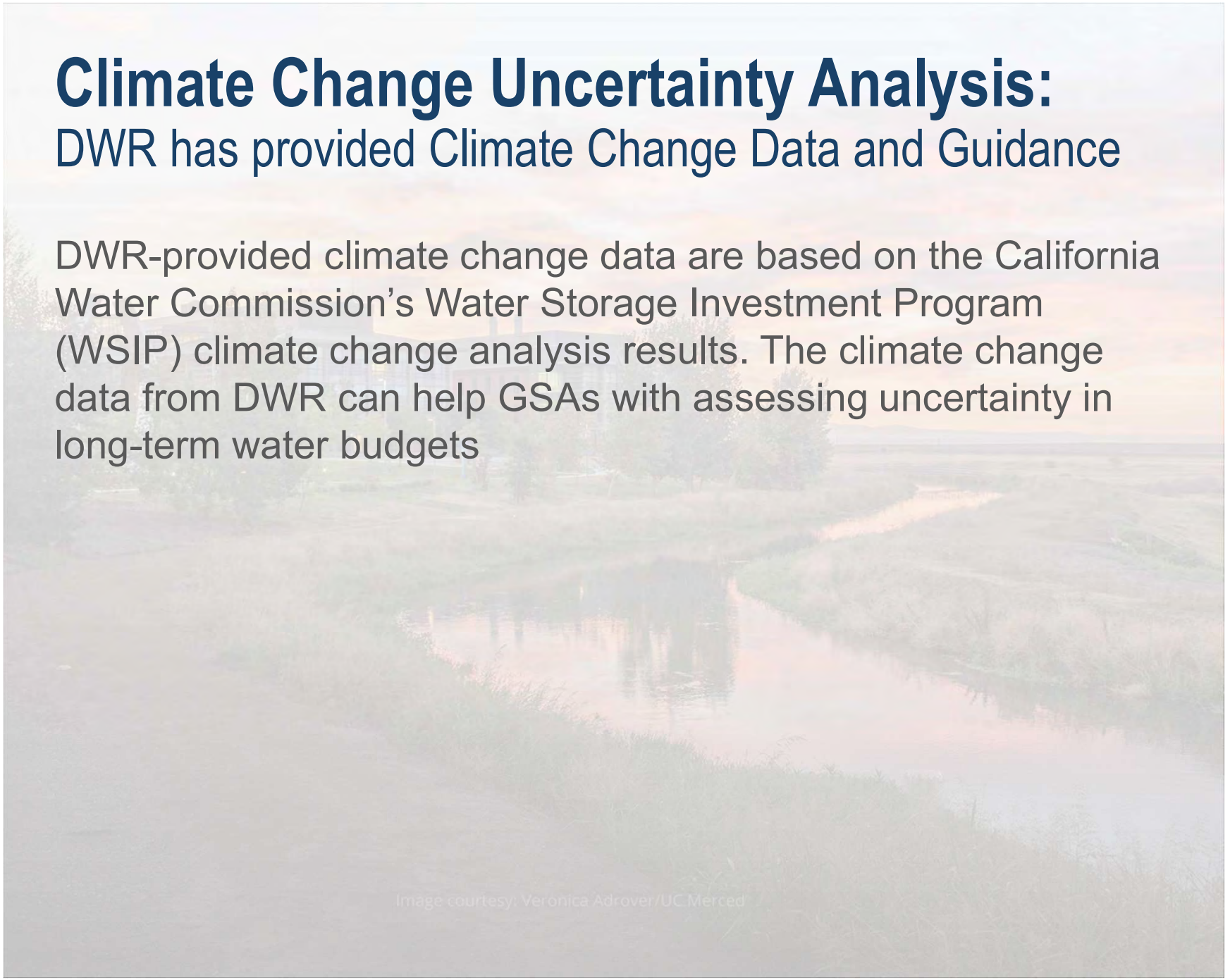
SGMA requires taking into consideration uncertainties associated with climate change and sea level rise in the development of GSPs



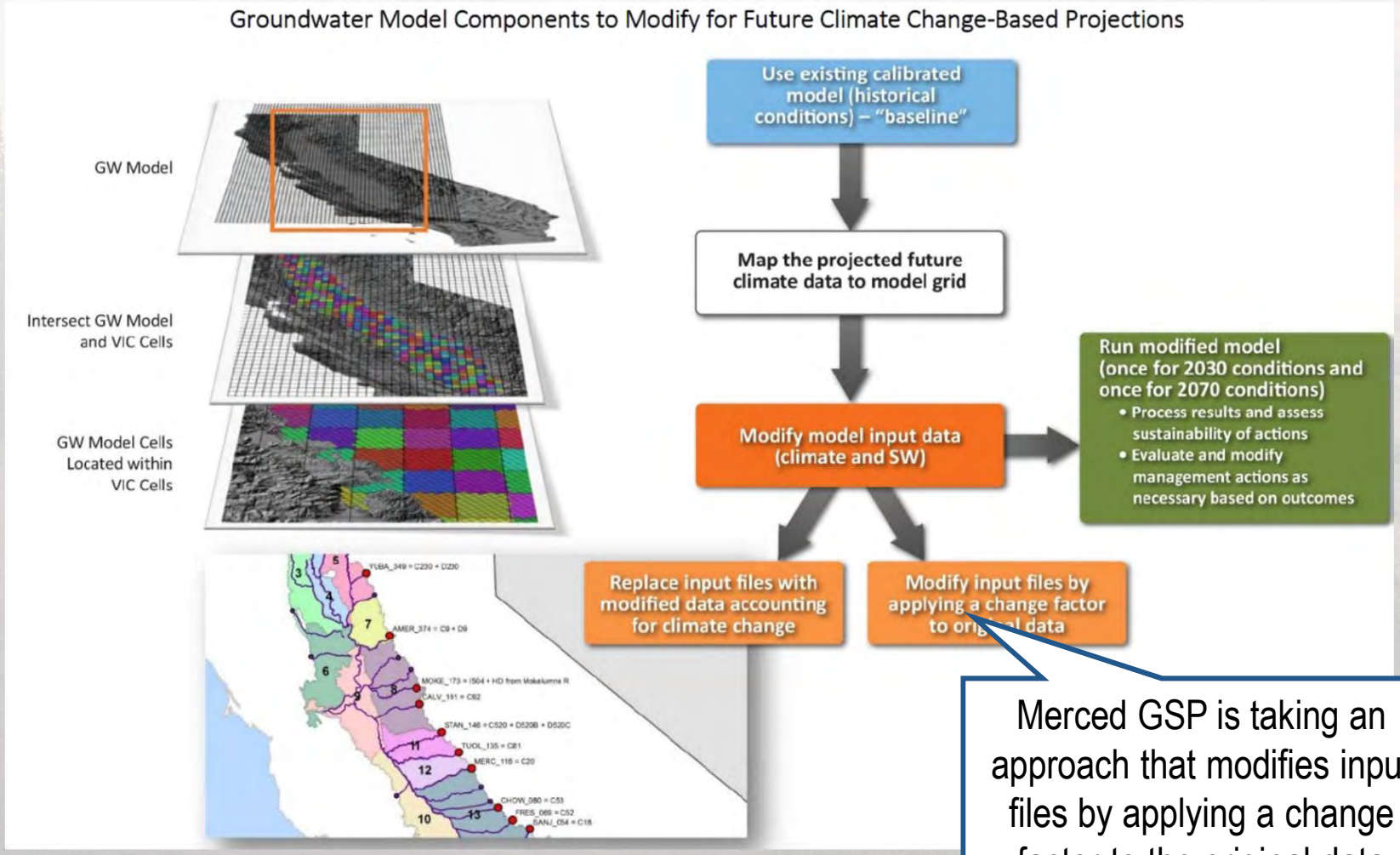
Climate Change Uncertainty Analysis:

DWR has provided Climate Change Data and Guidance

DWR-provided climate change data are based on the California Water Commission's Water Storage Investment Program (WSIP) climate change analysis results. The climate change data from DWR can help GSAs with assessing uncertainty in long-term water budgets



Climate Change Uncertainty Analysis:
Approach for Merced GSP Consistent with DWR Approach



Source: DWR Resource Guide, Climate Change Data and Guidance, July 2018

Climate Change Uncertainty Analysis:
Overview of Merced GSP Approach

- Projected Baseline and Sustainability Analysis *without* Climate Change Uncertainty
  - Includes variability in:
    - Long-term and seasonal hydrology
    - Agricultural land use and level of development
    - Population, urban growth, and urban water use conditions
    - Water Supply conditions and availability
  - This is the work conducted to-date and presented in the Water Budget Memo
- Projected Baseline *with* Climate Change Uncertainty
  - Modified Precipitation
  - Modified Crop ETa
  - Modified New Exchequer Releases
  - Modified Main Canal Deliveries
- Projected Sustainable Yield Analysis
  - Characterize uncertainty of Sustainable Yield due to climate change

Next Steps in GSP Development

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

GSP Development

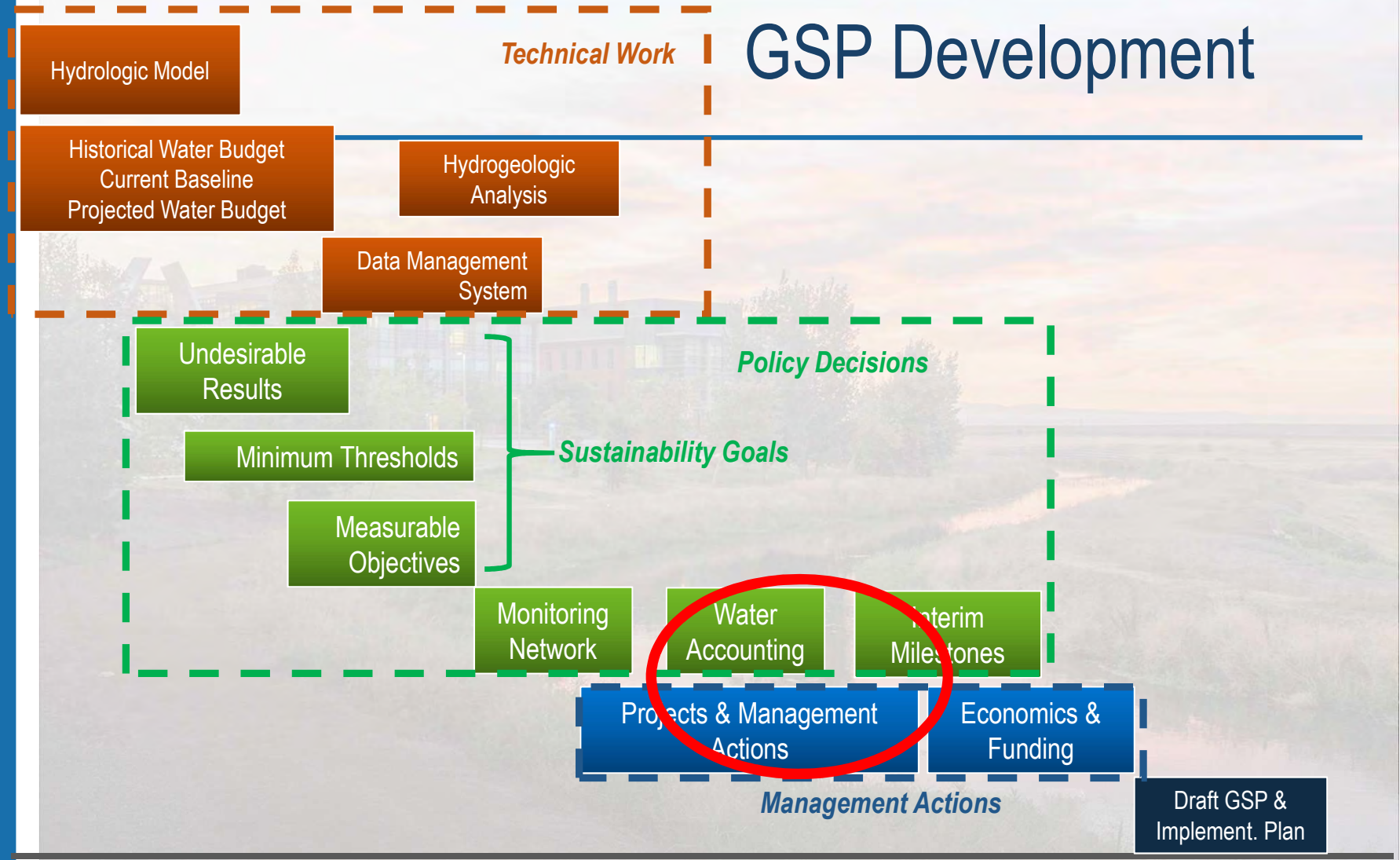


Image courtesy: Veronica Adrover/UC Merced

GSP Development:
Sections Review Schedule

#	Section	Admin Review Draft Sent Out	Deadline for Consolidated Comments (2 wks)	SC and CC Review Period	Relevant Mtg for Discussion	Final Public Draft Deadline (June mtg on 6/24)
1	**Plan Area and Authority**	29-Jun-18	20-Jul-18	N/A		**24-Jun-2019**
2	**Basin Setting**	(in sections, see below)				**24-Jun-2019**
2.1	*Hydrogeologic Conceptual Model*	6-Nov-18	30-Nov-18	N/A		
2.2	*Current and Historical Groundwater Conditions*	15-Mar-19	29-Mar-19	15-Apr - 29-Apr-19	22-Apr-19	
2.3	*Water Budget Information*	5-Mar-19	19-Mar-19	26-Mar - 9-Apr-19		
2.4	*Climate Change Analysis*	22-Apr-19	6-May-19	13-May - 27-May-19	27-May-19	
3	**Sustainable Management Criteria**	15-Apr-19	29-Apr-19	6-May - 20-May-19	22-Apr-19	**24-Jun-2019**
4	**DMS**	15-Mar-19	29-Mar-19	15-Apr - 29-Apr-19	22-Apr-19	**24-Jun-2019**
5	**Water Allocation Framework**	29-Apr-19	13-May-19	27-May - 10-Jun-19	24-Jun-19	**24-Jun-2019**
6	**Projects and Management Actions to Achieve Sustainability Goal**	15-Apr-19	29-Apr-19	6-May - 20-May-19	27-May-19	**24-Jun-2019**
7	**Plan Implementation**	6-May-19	20-May-19	27-May - 10-Jun-19	24-Jun-19	**24-Jun-2019**

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Other Updates

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Undesirable Results Definition

- "Significant and Unreasonable" negative impacts that can occur for each Sustainability Indicator
- Conditions that we do not want to occur
- Used to guide and justify GSP components
  - Monitoring Network
  - Minimum Threshold
  - Projects and Management Actions

Merced GSP Sustainability Goal

The sustainability goal for the Merced Subbasin is *to achieve sustainable groundwater management on a long-term average basis by increasing recharge and/or reducing groundwater pumping, while avoiding undesirable results.*

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Undesirable Results

- Chronic lowering of groundwater levels
  - Unusable and stranded groundwater extraction infrastructure
  - Reduced groundwater production
  - Increased pumping costs due to greater lift and deeper installation or construction of new wells
  - Shallow domestic wells going dry
- Reduction of groundwater storage
  - Not present and not likely to occur (Cumulative change in storage currently is ~0.3% per year; not reasonable to expect available gw storage would be exhausted to a significant and unreasonable extent within any foreseeable time period.)
- Seawater intrusion
  - Not present and not likely to occur (salinity being addressed as a minimum threshold under “degraded water quality”)

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Undesirable Results (cont.)

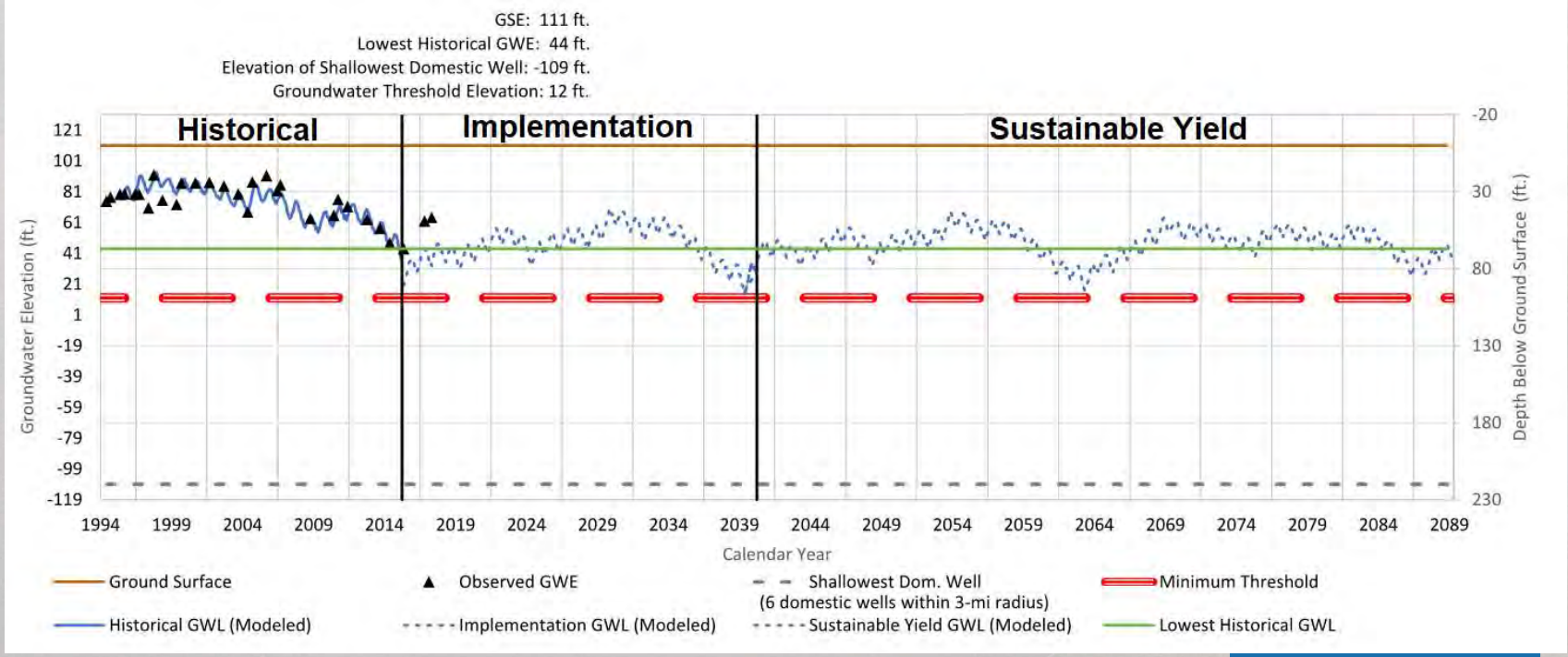
- Degraded water quality
  - Causal nexus between groundwater extractions and groundwater quality that causes significant and unreasonable reduction in the long-term viability of domestic, agricultural, municipal, or environmental uses
- Land Subsidence
  - Reduction in the viability of the use of infrastructure (e.g., roads and highways, flood control, canals, pipelines, utilities, public buildings, residential and commercial structures)
  - (note – measurable threshold to be based on groundwater levels)
- Depletions of interconnected surface water
  - Effects on operations of upstream reservoirs and/or reduction in the viability of agricultural, fishery, riparian habitat or recreational uses
  - (note – measurable threshold to be based on groundwater levels)

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Next steps on Undesirable Results under Sustainable Yield Scenario

- Generate hydrographs of sustainable yield scenario for monitoring locations
- Compare water level under sustainable yield to draft minimum threshold
- Define undesirable results in terms of minimum threshold for exceedance



Public Outreach Update

Image courtesy: Veronica Adrover/UC Merced

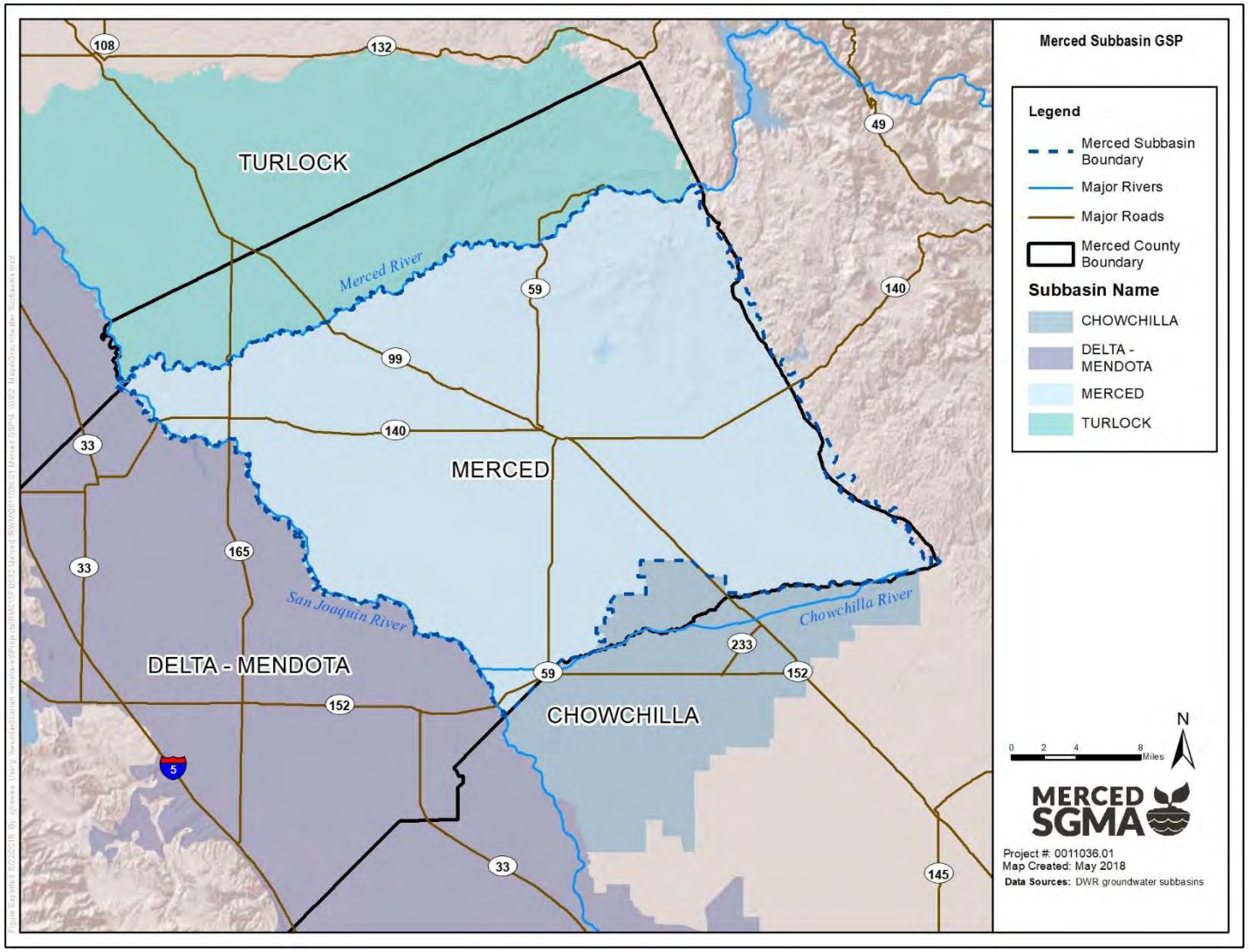
MERCED SGMA

Coordination With Neighboring Basins Update

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Coordination with Neighboring Basins



Long Term SWRCB Permits for Flood Water

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Questions/Comments from Public

Image courtesy: Veronica Adrover/UC Merced

Next Steps

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

What's coming up next?

- GSP Development Items:
  - Water Allocations Framework to be presented and reviewed for approval at GSA Board level
  - Review and assess projects and management actions

- Focus for April meeting
  - Projects and Management Actions
  - Minimum Thresholds and Measurable Objectives
  - Implementation planning

- Adjourn to next meeting: April 22nd, 1:30 PM at Castle Conference Center

Image courtesy: Veronica Adrover/UC Merced

GSP Coordinating Committee

Coordinating Committee Meeting – March 25, 2019

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

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA