MEETING AGENDA – Merced GSP

SUBJECT: Merced GSP Coordination Committee Meeting

DATE/TIME: February 22, 2021, 1:15 to 3:15 PM

LOCATION: Zoom https://us02web.zoom.us/j/87393098359
Dial-in number if not using web audio: 669 900 6833 Webinar ID: 873 9309 8359
If you're unable to click the "Join Zoom Meeting" link above and want to join on a computer, visit www.mercedsgma.com/meetings to find a clickable join link on the MercedSGMA website.

Due to the ongoing COVID-19 crisis, and as authorized by the Governor's Executive Order N-29-20, Coordination Committee will participate in this meeting offsite via video conference.

Please note: This meeting agenda also serves as notice for the Stakeholder Advisory Committee, members of which may also be in attendance and participate during the meeting.

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1. Call to Order and Welcome

2. Roll Call

   Representatives for Merced Groundwater Subbasin GSA, Merced Irrigation-Urban GSA, and Turner Island GSA-1

3. Consent Calendar

   Approval of December 1, 2020 Meeting Minutes

4. Public Comment
   Members of the public are invited to provide up to 3 min of public comment on any agenda item

5. Reports
   a. Coordination with neighboring basins
   b. GSA Reports - Updates from each GSA on activities they are undertaking in their own jurisdiction

6. Actions
   a. Stakeholder Advisory Committee Recommendation
      i. ACTION: Review the proposed membership for the Stakeholder Advisory Committee and make recommendation to GSA boards on committee membership.
   b. GSP Well Monitoring RFQ
      i. ACTION: Recommend GSA Boards select a firm to conduct GSP related well monitoring based on responses received to RFQ.

7. Discussion Items
   a. Data Gaps Plan (Prop 68 Planning Grant funded work) – Woodard & Curran will share the approach and schedule for Data Gaps Plan development along with the results of their initial assessment, and facilitate a discussion with the CC on priorities.
   b. Remote-sensing tool development (Prop 68 Planning Grant funded work) – Woodard & Curran will describe the approach and schedule for developing the tool and respond to CC questions.

c. Sustainability Criteria Approaches for Additional Representative Monitoring Wells

d. Prop 68 Implementation Grant – grant application was submitted on time. This item will briefly review projects submitted and timeline for DWR response.

8. Next steps and adjourn
   a. Confirm next meeting date

Next Regular Meeting
TBD
Meeting to be conducted virtually (subject to change)
Information also available online at mercedsgma.org

Action may be taken on any item

Note: The meeting will be offered with simultaneous Spanish language interpretation.

Nota: Esta reunión será ofrecida con interpretación simultánea al idioma español.

If you need disability-related modification or accommodation in order to participate in this meeting, please contact Woodard & Curran staff at 415.321.3400 at least 48 hours prior to the start of the meeting.

MEETING NOTES – Merced GSP

SUBJECT: Merced GSP Coordination Committee Meeting

DATE/TIME: February 22, 2021 at 1:15 – 3:15 PM

LOCATION: Online – Zoom Meeting

Coordination Committee Members In Attendance:

	Representative	GSA
☒	Hicham ElTal	Merced Irrigation-Urban GSA
☐	Stephanie Dietz	Merced Irrigation-Urban GSA
☒	Justin Vinson	Merced Irrigation-Urban GSA
☐	Daniel Chavez	Merced Irrigation-Urban GSA
☒	Ken Elwin (alternate)	Merced Irrigation-Urban GSA
☒	Eric Swenson	Merced Subbasin GSA
☒	Mike Gallo	Merced Subbasin GSA
☒	Nic Marchini	Merced Subbasin GSA
☒	George Park (alternate)	Merced Subbasin GSA
☒	Larry Harris	Turner Island Water District GSA #1
☐	Scott Skinner (alternate)	Turner Island Water District GSA #1

Meeting Notes

1. CALL TO ORDER AND WELCOME
    a. Samantha Salvia (Woodard & Curran) called the meeting to order.
2. ROLL CALL
    a. Coordination Committee members in attendance are shown in table above. The Committee had a quorum.
3. CONSENT CALENDAR
    a. Meeting notes from previous meeting (December 1, 2020) were approved.
4. PUBLIC COMMENT
    a. No public comments.
5. REPORTS
    a. <u>Coordination with neighboring basins</u>
        i. Hicham ElTal (MIUGSA) provided updates:
            1. There is an ongoing effort to schedule a coordination meeting between the Merced, Chowchilla, Delta-Mendota, and Madera Subbasins. This will be scheduled with GSA representatives soon.

2. Ongoing coordination is occurring with the Turlock Subbasin including about their water budget.

b. GSA Reports - Updates were provided from each GSA on activities they are undertaking in their own jurisdiction:

i. Merced Subbasin GSA – Lacey McBride shared that the MSGSA Board had a January meeting where proposed sustainability zones were discussed; more information is available on MSGSA website (https://www.co.merced.ca.us/2799/Merced-Subbasin-GSA). A Board workshop (2/24 at 2pm, open to the public) is upcoming to talk about goals and options for demand reductions.

1. Question (Hicham ElTal): What are the unique characteristics considered for identifying sustainability zones? Answer: Many factors, but they include hydrologic/hydrogeologic differences, land use, and jurisdictional boundaries.

ii. MIUGSA - Hicham ElTal shared that MIUGSA is administering various pieces of grant work (e.g. SDAC grants for well installations), the Meadowbrook Water System Intertie Feasibility Study is nearly complete, and MID is considering installing dry wells in the Planada area (recharge effort). MIUGSA is also working on setting policies related to the management framework discussed in GSP.

1. Request: Hicham ElTal requested that a standing agenda item be added to future CC meetings on current groundwater conditions, similar to updates that used to be provided at Merced Area Groundwater Pool Interest (MAGPI) meetings.

iii. TIWD GSA #1 - Larry Harris shared that now that monitoring/metering programs are completed, TIWD GSA #1 will be focusing on telemetry for some metering systems. Another focus in the next few months will be developing additional reservoirs for surface water storage.

6. ACTIONS

a. Stakeholder Advisory Committee Recommendation

i. Samantha Salvia (W&C) provided a brief background on the recent process for soliciting and reviewing applications for re-establishing the Stakeholder Advisory Committee during the GSP implementation process. 30 committee members were recommended by the GSA staff, with 5 alternates.

ii. Question: How long are the terms of the Stakeholder Advisory Committee? Answer: The application stated it should be considered a 2-year term.

iii. Question: If members were to drop from the Committee, is the list reviewed annually to fill vacant positions? Answer: In the past, when this happened, it was dealt with on an individual basis and often an alternate was filled in the position.

iv. Public Question: Is there an opportunity to still be a part of this committee? Answer: The application process has closed but Stakeholder Advisory Committee meetings are open to the public and have an option for public comment and input (as do Coordination Committee meetings).

v. Question: How many people on this list are representing disadvantaged communities and primarily drinking water interests? Answer: Multiple, some representatives include Planada, Livingston, and Winton.

vi. Question: What is the structure of the group? Answer: It is an advisory committee that will meet quarterly. There aren't any appointed positions or hierarchy – it provides input to the Coordination Committee.

vii. ACTION approved by CC: Recommend the GSA boards appoint the staff recommended applicants (shown on slide) to the Stakeholder Advisory Committee.

b. GSP Well Monitoring RFQ

i. Lacey McBride (MSGSA) provided a brief background on the GSP Well Monitoring Request for Qualifications (RFQ). Two submissions were received by the deadline. The GSAs coordinated the review of submissions and provided a recommendation of QK. Input was requested from the Coordination Committee on the amount of the contract and who would administer.

ii. Question: What kind of contract is this? Answer: This is up for discussion; a rate was provided in the RFQ response but a scope would need to be developed for each project. One thought is to have a Not to Exceed amount for a period longer than one year.

iii. Public Comment (Eric Swenson): "I would recommend that the Merced Subbasin administer the groundwater monitoring contract due to much of work being needed will be in the Merced Subbasin."

iv. Hicham ElTal noted that most monitoring currently is located in the MIUGSA portion of the Merced subbasin.

v. Mike Gallo (MSGSA) shared that during previous discussion he thought it made sense for contracting to go through MIUGSA so that one group pays and there's one bill, with a cost share separately on the backend (like with GSP development contracting).

vi. Lacey McBride (MSGSA) confirmed that all three GSAs will be involved from a technical standpoint of monitoring effort regardless of who is coordinating the administration of the contract.

vii. Garth Pecchenino (QK) agreed that a defined scope should be developed so a specific cost can be provided for purpose of contracting. Exact wells would need to be identified to develop read routing plan.

1. Hicham ElTal (MIUGSA) clarified that additional scope/budget should be considered for additional projects, such as installation/siting of a CIMIS station.

viii. Question: Do the GSAs do WQ monitoring at CASGEM wells? Answer: As described in the GSP, the GSAs review monitoring data collected by other monitoring programs. It could be part of the monitoring contract if identified as a need in the future.

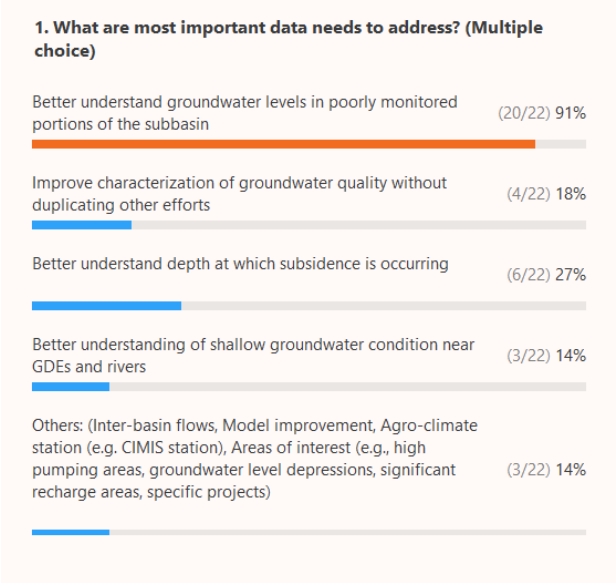
ix. ACTION approved by CC: Recommend GSAs select QK as consultant for monitoring work under SGMA for Merced Subbasin. Authorize MIUGSA to enter into an agreement with QK. Provide QK with initial budget of $10,000 to conduct spring monitoring.

7. DISCUSSION ITEMS

a. Data Gaps Plan (Prop 68 Planning Grant funded work)

i. Jim Blanke (W&C) shared the approach and schedule for Data Gaps Plan development along with the results of the initial assessment and facilitated a discussion with the CC on priorities, including polls (results shared in screenshots below).

ii.

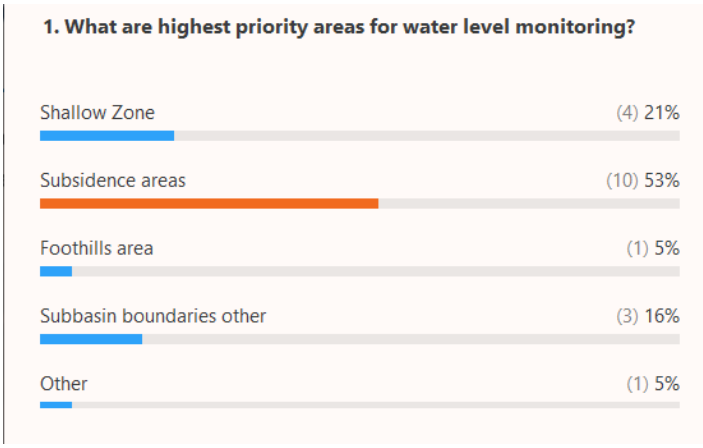


iii. Question from Amanda Monaco: A big data gap is where domestic wells are and how deep they are. Are the GSAs going to fill in this data gap? Answer: Work funded by IRWM is evaluating locations and depths of domestic wells in key areas of the Subbasin.

iv. Public Comment (Eric Swenson): "I believe that existing production wells should be used when possible to provide additional SWL (static water level) monitoring in zones with data gaps. Short screened monitor wells may not provide the data desired."

v. Hicham ElTal (MIUGSA) shared that other basins are looking at what Merced Subbasin is doing. If Merced were to install monitoring wells along the Merced River, the Turlock Subbasin would be interested and likely reciprocate with additional well installations. He also brought up that there's an issue about the location of the groundwater ridgeline (e.g. where it slopes to southwest San Joaquin River vs sloping to the Merced River).

vi.



vii. Hicham ElTal (MIUGSA) asked when a recommendation (e.g. the Data Gaps Plan) will be ready. Answer: A draft plan is expected to be presented at a public meeting in the April/May time period.

viii. Ken Elwin (MIUGSA) saw some empty locations in the map of monitoring well density in the Outside Corcoran Clay Principal Aquifer (UC Merced and another site) and suggested that some known wells could be available or useful to add to the monitoring network.

ix. Hicham ElTal (MIUGSA) shared that MID has a well near Fahrens Creek that may be able to be incorporated into the network.

x. George Park (MSGSA) said it would be useful to know what completion information and characteristics of wells would be ideal for identifying production wells that could be useful for filling data gaps, so well owners know what to look for in inventory.

1. Jim Blanke (W&C) responded that a key requirement is that wells need to be screened only in one aquifer.

b. Remote-sensing tool development (Prop 68 Planning Grant funded work)

i. Dominick Amador (W&C) described the approach and schedule for developing the tool, including a background on how crop evapotranspiration is estimated from remote sensing data, the various data products available, and the next analysis steps.

ii. Hicham ElTal (MIUGSA) shared that both METRIC and SEABAL depend on CIMIS data. The existing CIMIS station surrounding land use has changed and the station is no longer reliable.

iii. Public comment (Geoff Vanden Heuvel): "The GSA's that have adopted Land iQ like Semitropic, Lower Tule GSA, Pixley GSa all put in multiple weather stations to assure accuracy of the ETC data. It doesn't require all that much investment"

c. Sustainability Criteria Approaches for Additional Representative Monitoring Wells

i. At the December CC meeting, the CC requested that W&C return to the group with some information about potential approaches to use for setting sustainability criteria for wells that lack historical data. Chris Hewes (W&C) described two potential approaches.

ii. Question (Hicham ElTal): Will Sustainable Management Criteria methodology be part of the data gaps plan? Answer: No, but the Data Gaps plan can help inform the methodology and provide an opportunity to test the different methods in real world situations given the actual location of new wells.

iii. Public Comment (Eric Swenson): "Older domestic wells are typically those at highest risk of running out of water. New domestic wells not so much. Criteria in the Merced Subbasin should likely be by Sustainability Zone."

d. Prop 68 Implementation Grant

i. Samantha Salvia (W&C) provided a brief background on the grant application which was submitted on January 8, 2021 and seeks $5,000,000 in funding for two groundwater recharge related projects in the southern portion of the basin. Release of the draft funding list for Round 1 expected mid-March 2021, with final grant awards in May 2021.

8. Next steps and adjourn

a. Confirm next meeting date

i. Woodard & Curran will schedule an April 26 meeting from 1:15-3:15pm, shifting meetings to quarterly 4th Monday of January, April, July, and October.

b. Meeting adjourned at 3:26 PM

Next Regular Meeting
April 26 at 1:15-3:15 PM
Meeting to be conducted virtually (subject to change)
Information also available online at mercedsgma.org

Data Gaps Plan

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Purpose & Goal

- **Purpose –** Improve scientific understanding of subbasin to support ongoing basin management and policy making
- **Goal –** Develop a plan that identifies and ranks priority areas for the installation of monitoring wells or subsidence monitoring stations to support basin characterization and future GSP refinement.

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Data needs identified in GSP

- Better understand groundwater levels in poorly monitored portions of the subbasin
- Improve characterization of groundwater quality without duplicating other efforts
- Better understand depth at which subsidence is occurring
- Better understanding of shallow groundwater condition near GDEs and rivers
- Others
  - Inter-basin flows
  - Model improvement
  - Agro-climate station (e.g. CIMIS station)
  - Areas of interest (e.g., high pumping areas, groundwater level depressions, significant recharge areas, specific projects)

Image courtesy: Veronica Adrover/UC Merced

Data Gaps Plan Development – Process

1. Describe data gap areas
2. Use ranking and weighting methodology to prioritize different needs (e.g., groundwater levels, subsidence, interconnected surface water)
3. Prepare an Implementation Plan which lays out next steps for filling priority data gaps

Image courtesy: Veronica Adrover/UC Merced

Data Gaps Plan – Schedule

1. **Coordination Committee Meetings – Feb. 22**
   - Background, Prioritization, and Ranking Methodology
2. **Stakeholder Committee Meeting – March**
   - Background, Prioritization, and Ranking Methodology
3. **Public Meeting – April/May**
   - Present and Seek Input on Draft Plan
4. **Coordination Committee Meeting – May 24**
   - Present Final Data Gaps Plan

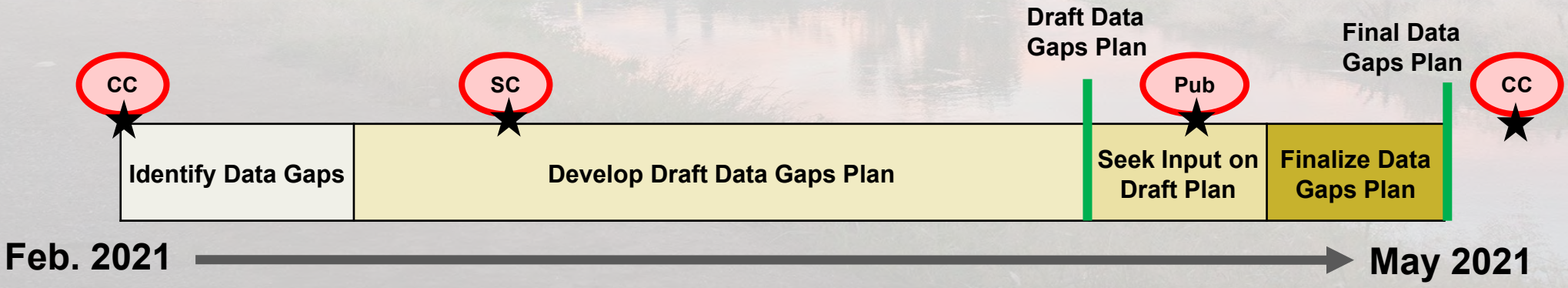


Image courtesy: Veronica Adrover/UC Merced

Data Gaps Plan – Description of Data Gap Areas

Image courtesy: Veronica Adrover/UC Merced

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Groundwater Levels

- DWR's ***Monitoring Networks and Identification of Data Gaps BMP*** provides multiple sources to guide monitoring network well density, ranging from 0.2-10 wells per 100 square miles.

DWR Guidance

Reference	Monitoring Well Density (wells per 100 miles²)
Heath (1976)	0.2 - 10
Sophocleous (1983)	6.3
Hopkins (1984)	4.0
Basins pumping more than 10,000 acre-feet/year per 100 miles²	
Basins pumping between 1,000 and 10,000 acre-feet/year per 100 miles²	2.0
Basins pumping between 250 and 1,000 acre-feet/year per 100 miles²	1.0
Basins pumping between 100 and 250 acre-feet/year per 100 miles²	0.7

Current Monitoring Network

	Above Corcoran Clay	Below Corcoran Clay	Outside Corcoran Clay	Total
Density (number of wells per 100 mi^2)	1.8	2.3	4.9	4.5

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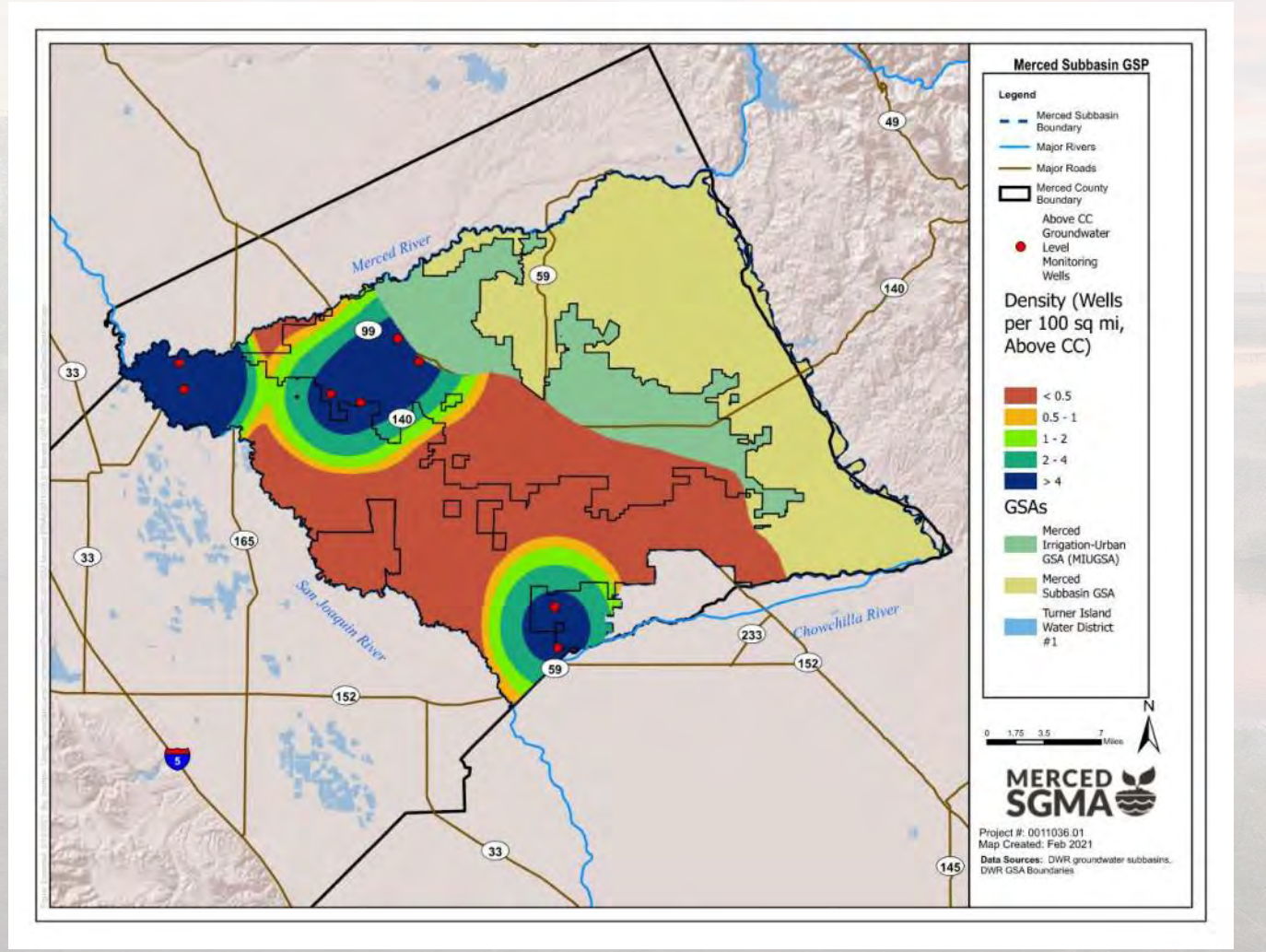
Groundwater Level Monitoring Network Density (Above CC)



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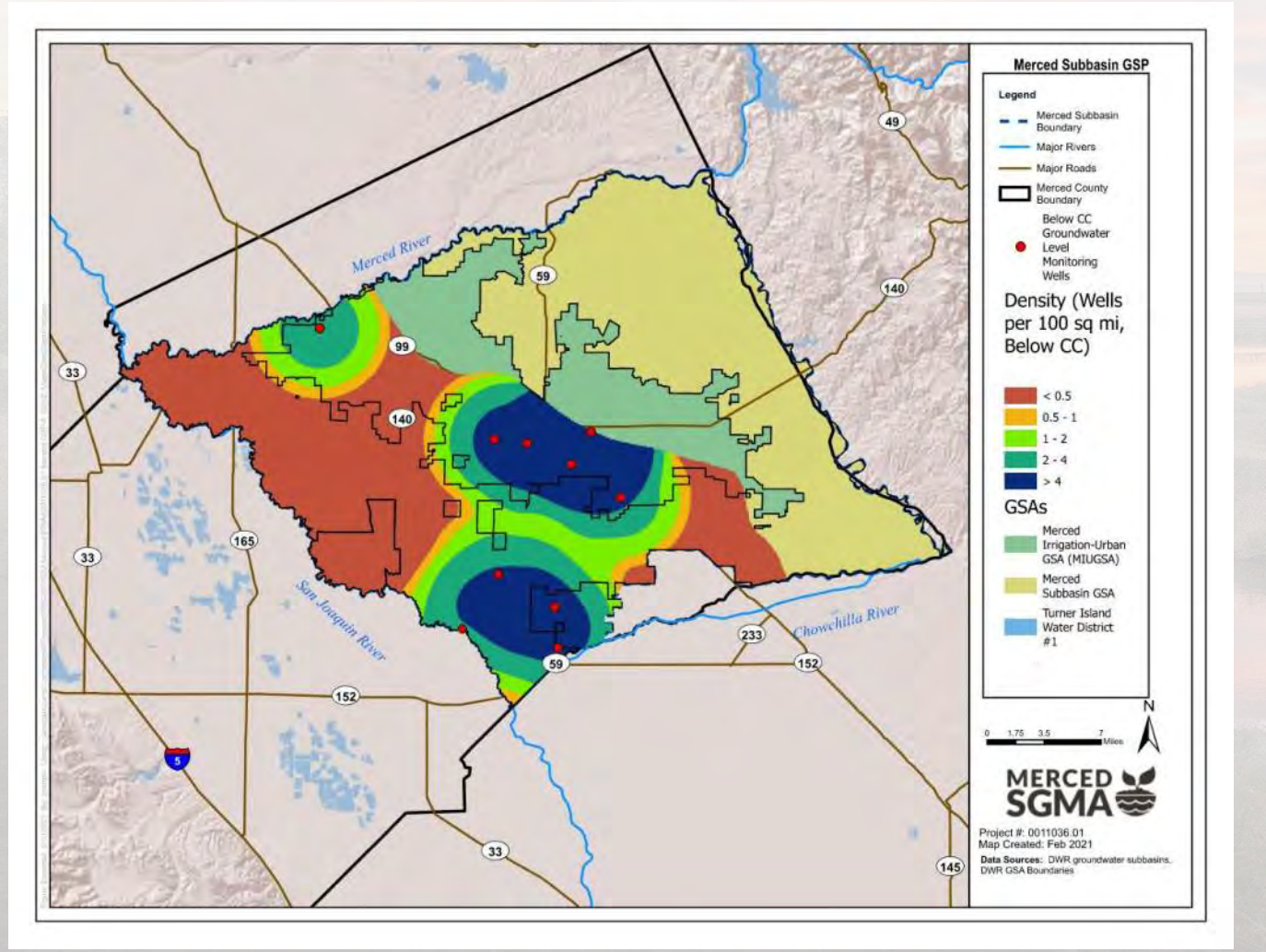
Groundwater Level Monitoring Network Density (Below CC)



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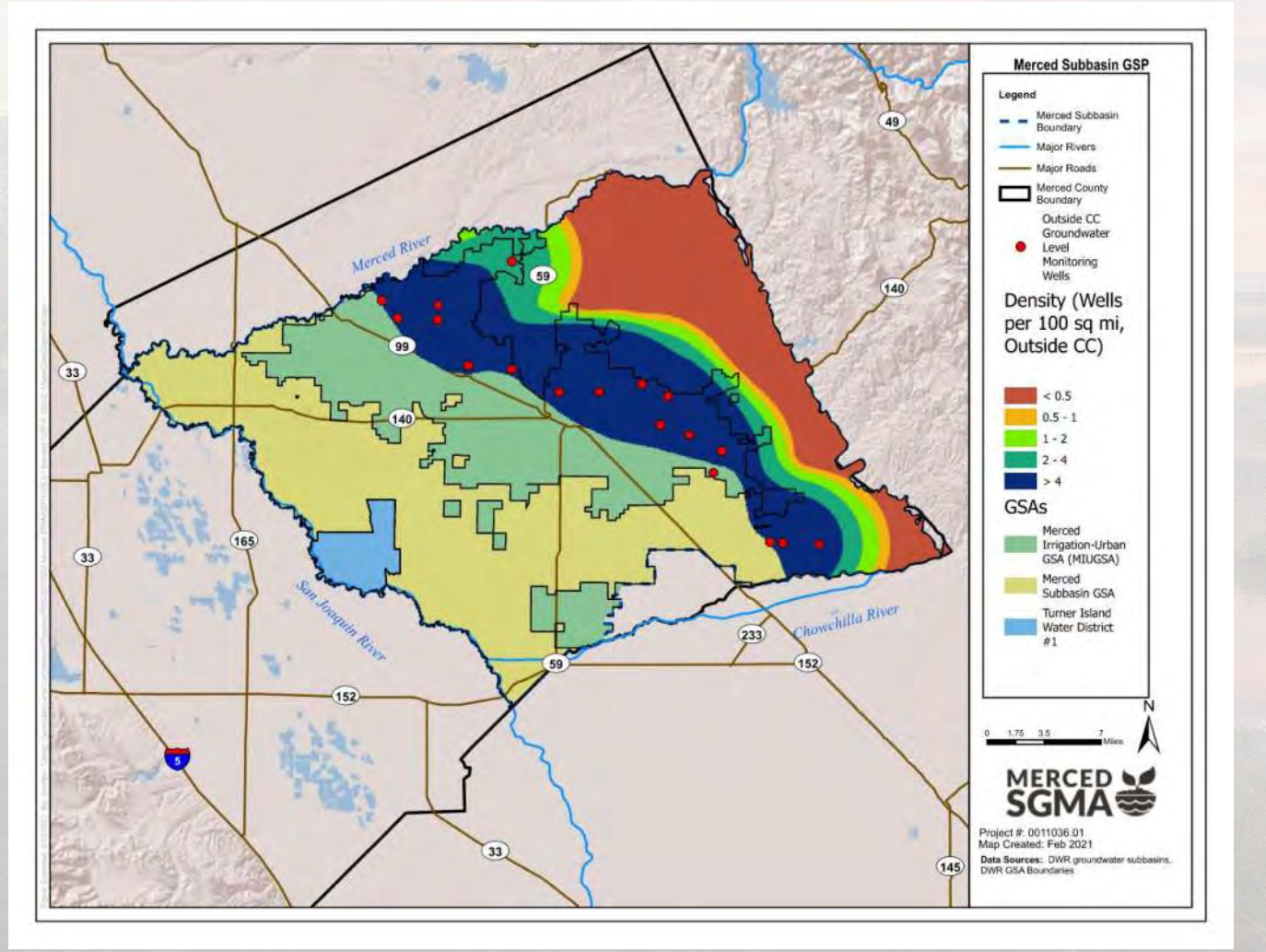
Groundwater Level Monitoring Network Density (Outside CC)



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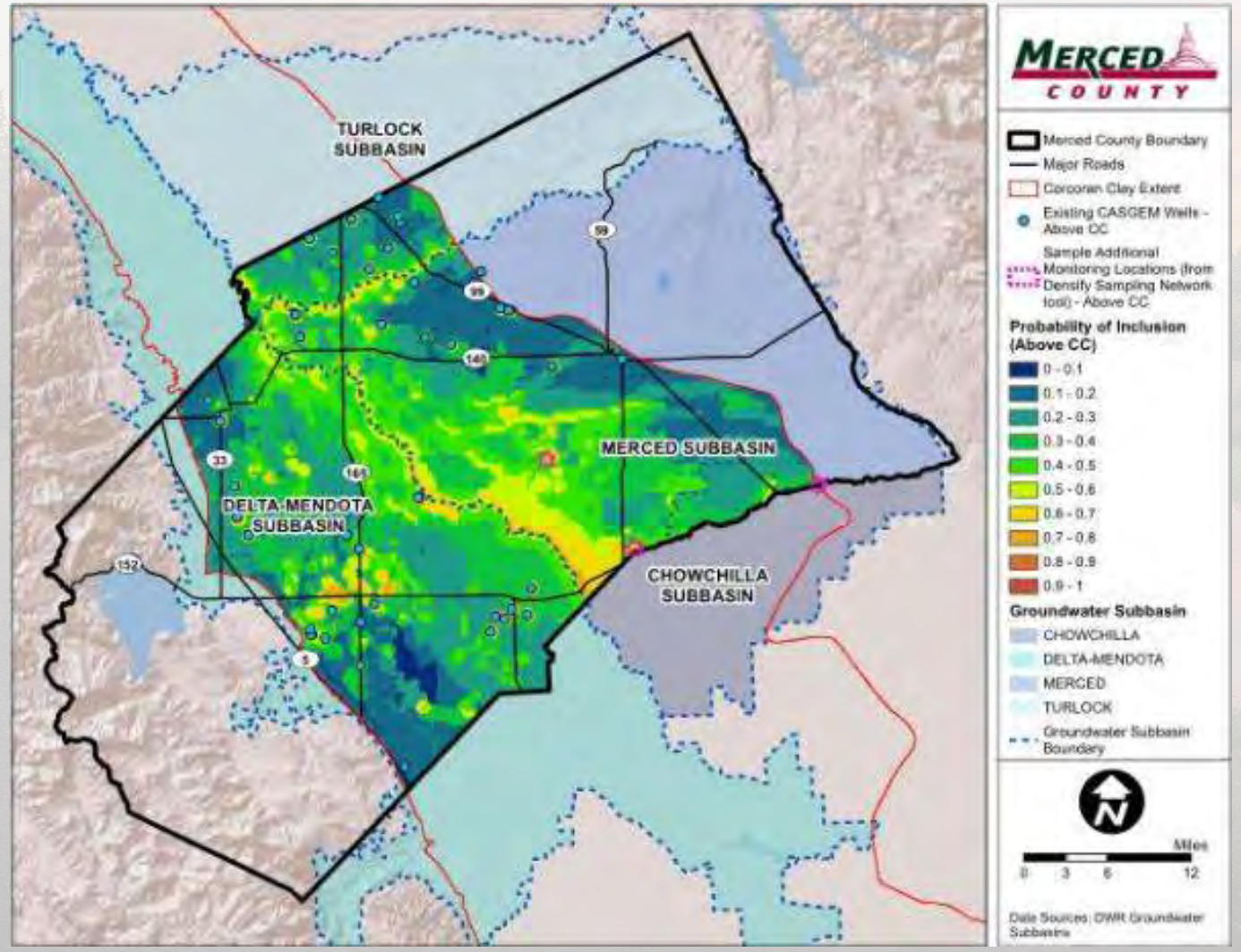
Groundwater Level Data Gap Approach

- Monitoring wells are expensive – prioritize use of existing facilities where possible
- Monitoring well siting can be challenging – flexibility is necessary on siting
- Funding or partnering opportunities can lead to wells in good areas rather than great areas
- Each facility that joins the network “changes the map.”
- Plan will be flexible and adaptable to guide efforts moving forward
- A number of folks in the basin have reached out to the GSAs with information about potential wells that could be added to network. The GSAs and Woodard & Curran are following up.

Image courtesy: Veronica Adrover/UC Merced

Groundwater Levels – Previous Data Gap Work (Merced County, 2018)



- Above Corcoran Clay
- Ranking of areas based on
  - Depth to water
  - Distance to rivers
  - Land use
  - Groundwater dependence
  - Water quality issues
  - Proximity to boundaries

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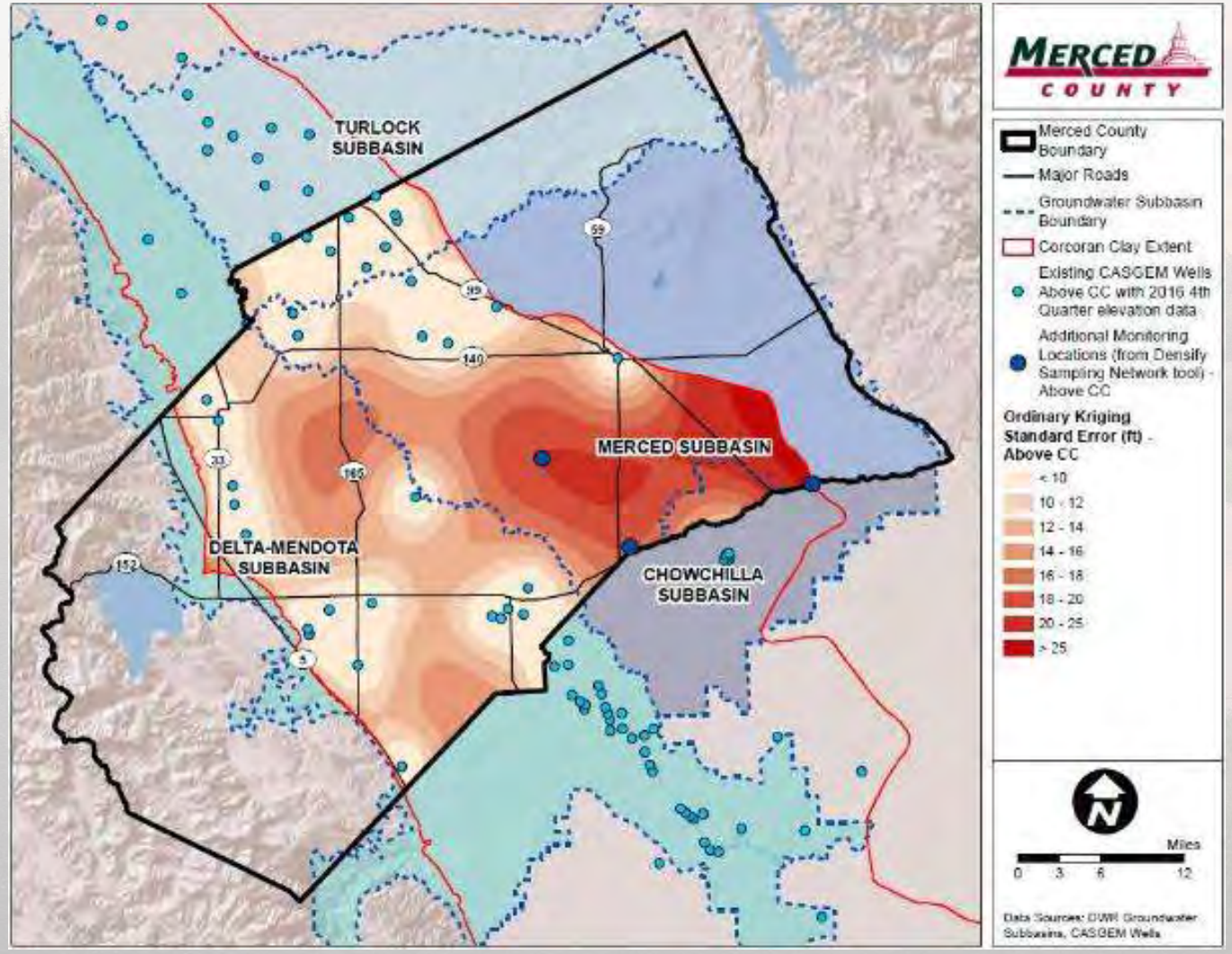
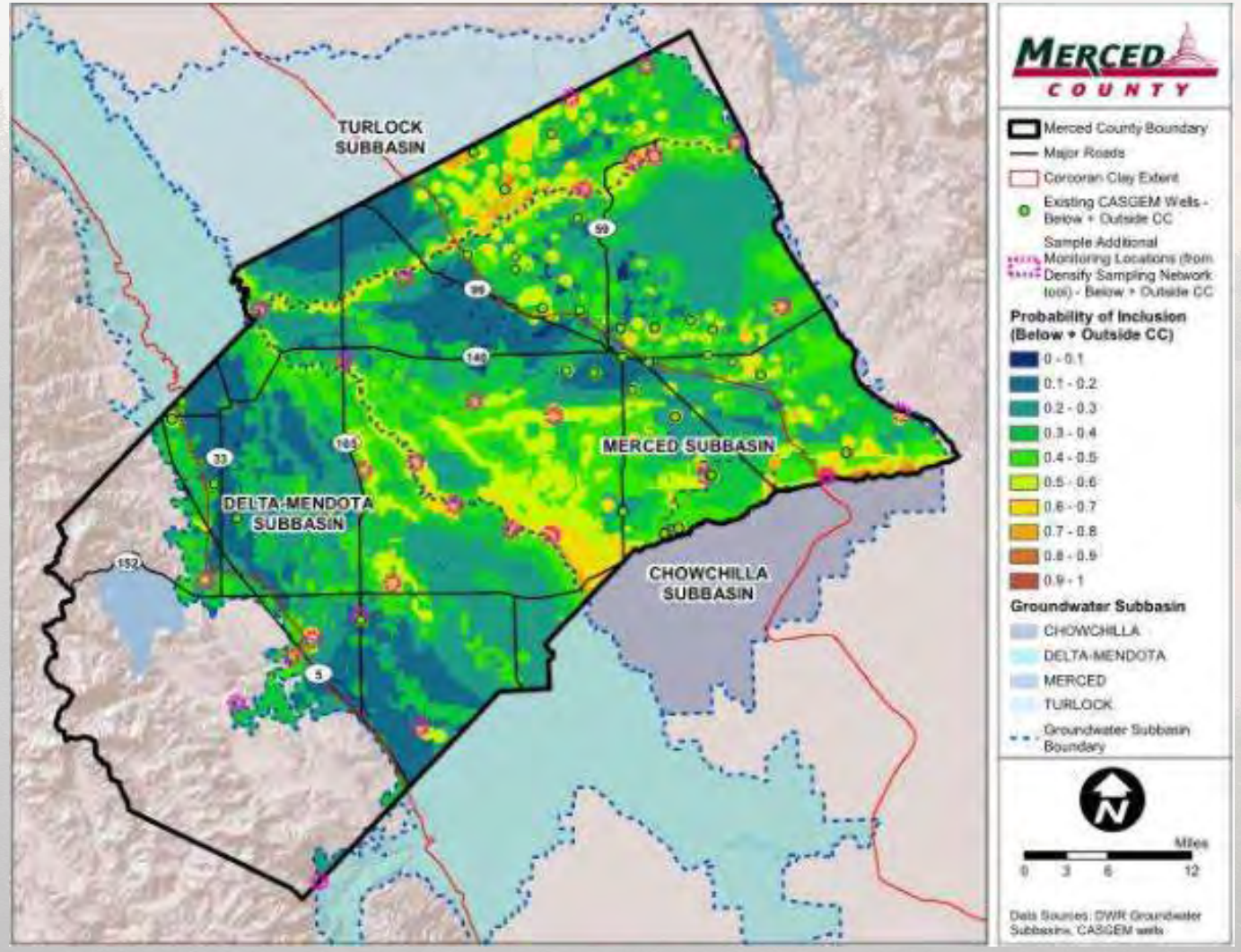
Groundwater Levels – Previous Data Gap Work (Merced County, 2018)



- Above Corcoran Clay
  - Uncertainty in interpolated groundwater estimates: ordinary kriging standard error

MERCED SGMA

Groundwater Levels – Previous Data Gap Work (Merced County, 2018)



- Below/Outside Corcoran Clay
- Ranking of areas based on
  - Depth to water
  - Land use
  - Groundwater dependence
  - Water quality issues
  - Subsidence
  - Proximity to boundaries

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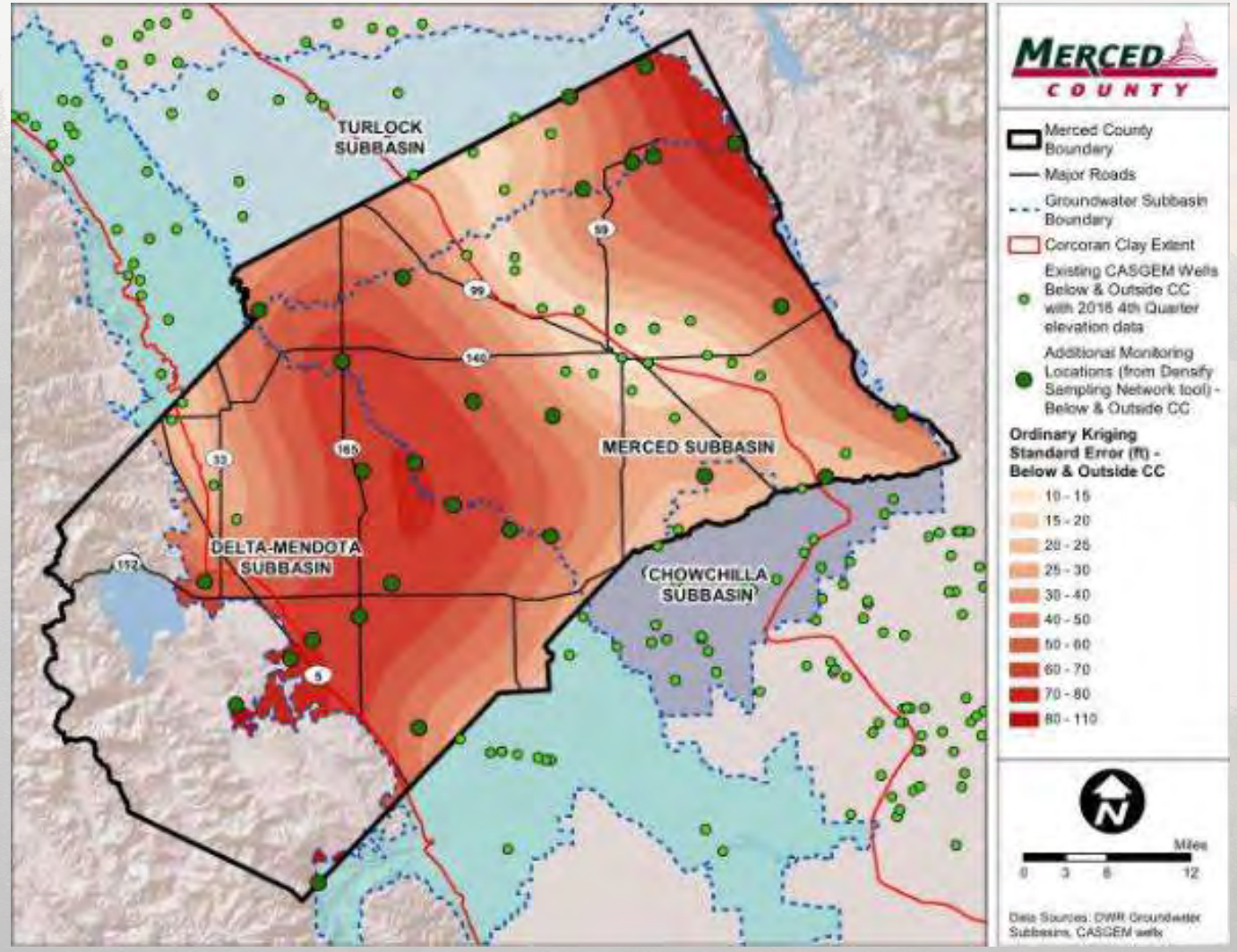
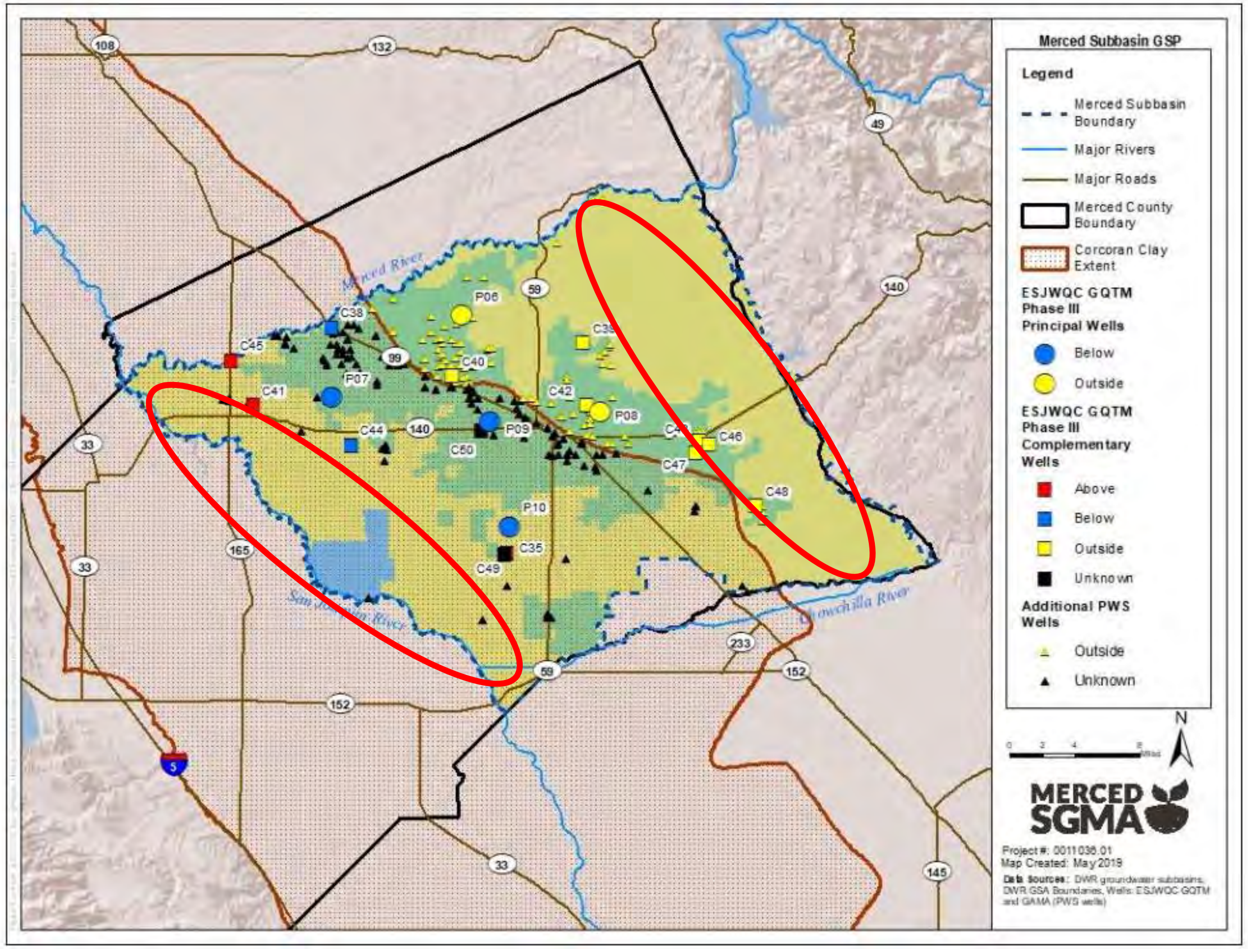
Groundwater Levels – Previous Data Gap Work (Merced County, 2018)



- Below/Outside Corcoran Clay
  - Uncertainty in interpolated groundwater estimates: ordinary kriging standard error

MERCED SGMA

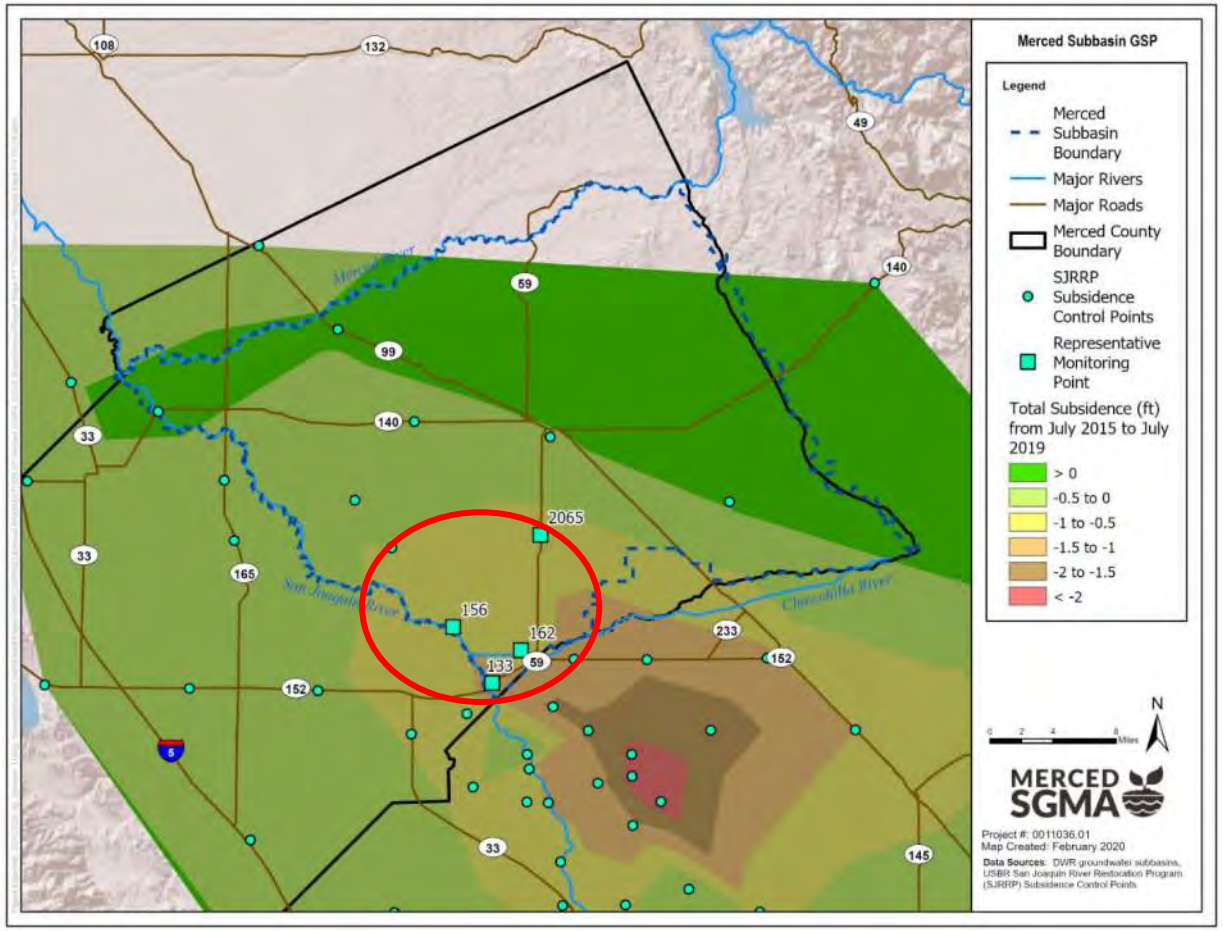
Groundwater Quality – Data Gaps



- Spatial data gaps:
  - Relatively few monitoring wells closer to the San Joaquin River and closer to Mariposa County.
  - Lack of construction information, limits the ability to distinguish whether wells are below or above the Corcoran Clay.
- Areas of interest:
  - Target areas in proximity to TDS or NO3 concentrations above the maximum contaminant level (MCL).
- Approach to filling gaps
  - Attempt to fill quality and levels gaps with the same facilities
  - Consideration of video surveys
  - Coordination with other programs

MERCED SGMA

Land Subsidence – Data Gap Areas

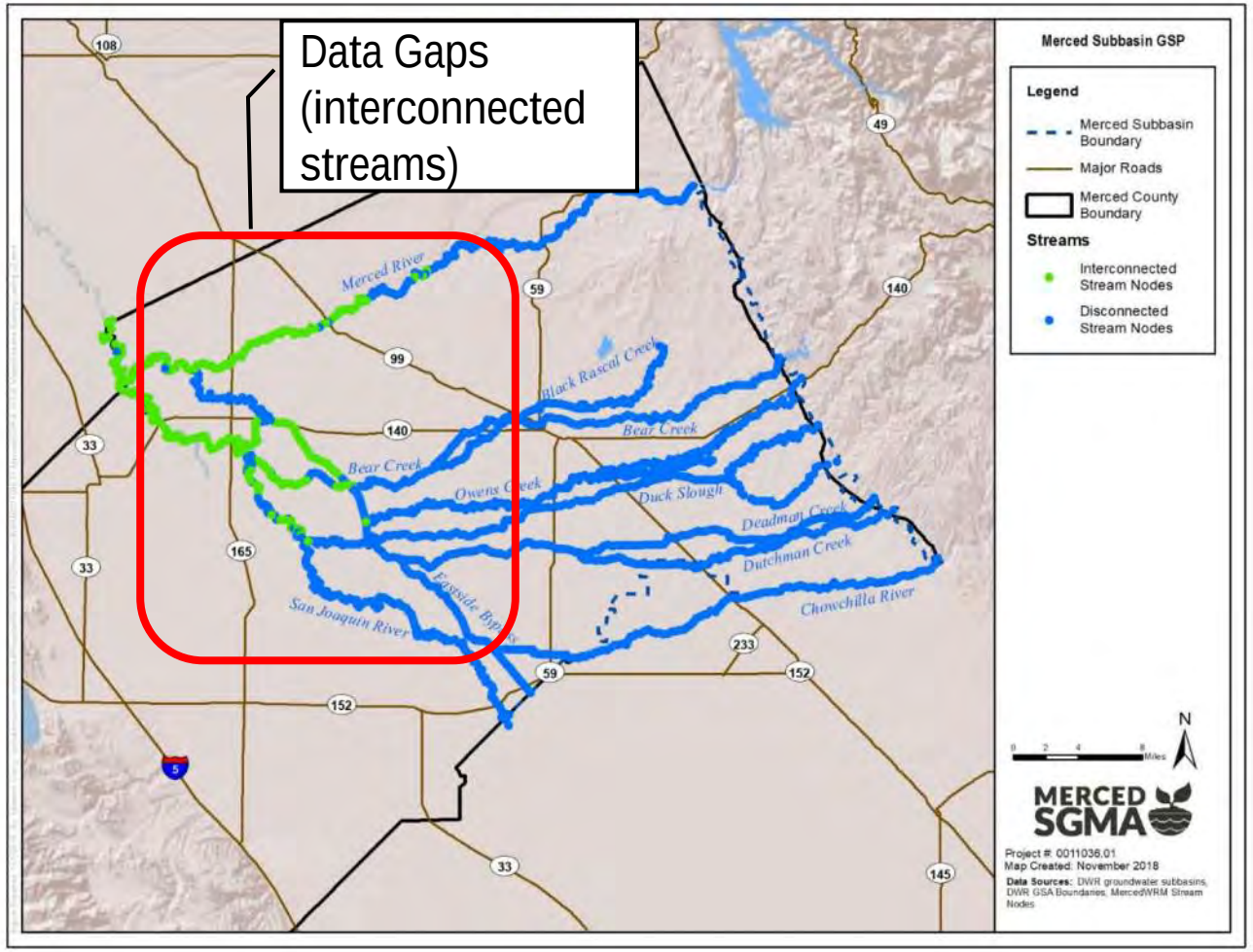


- There are multiple methods used to evaluate land subsidence
  1. Leveling surveys
  2. CGPS surveys
  3. InSAR surveys
  4. Construction and use of borehole extensometers (to support understanding of the depth at which subsidence is occurring and the level of compaction)

Focus of subsidence data gap evaluation

Image courtesy: Veronica Ardovel/UC Merced

Interconnected Surface Waters – Data Gap Areas



- Streams identified as interconnected are located in the western portion of the Subbasin.
- Areas near the transition from connected to interconnected streams can benefit from additional shallow groundwater monitoring
- Pair with other gap efforts

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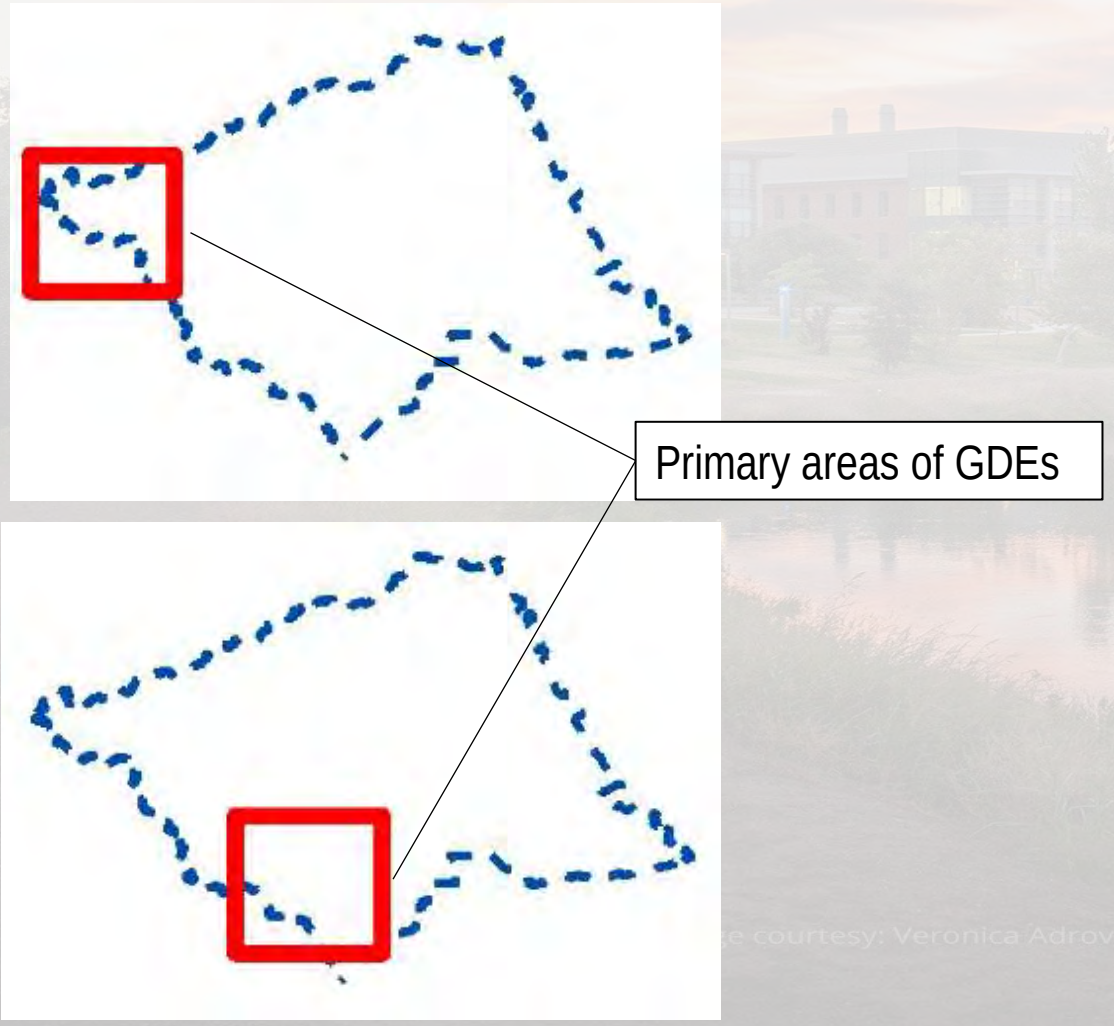
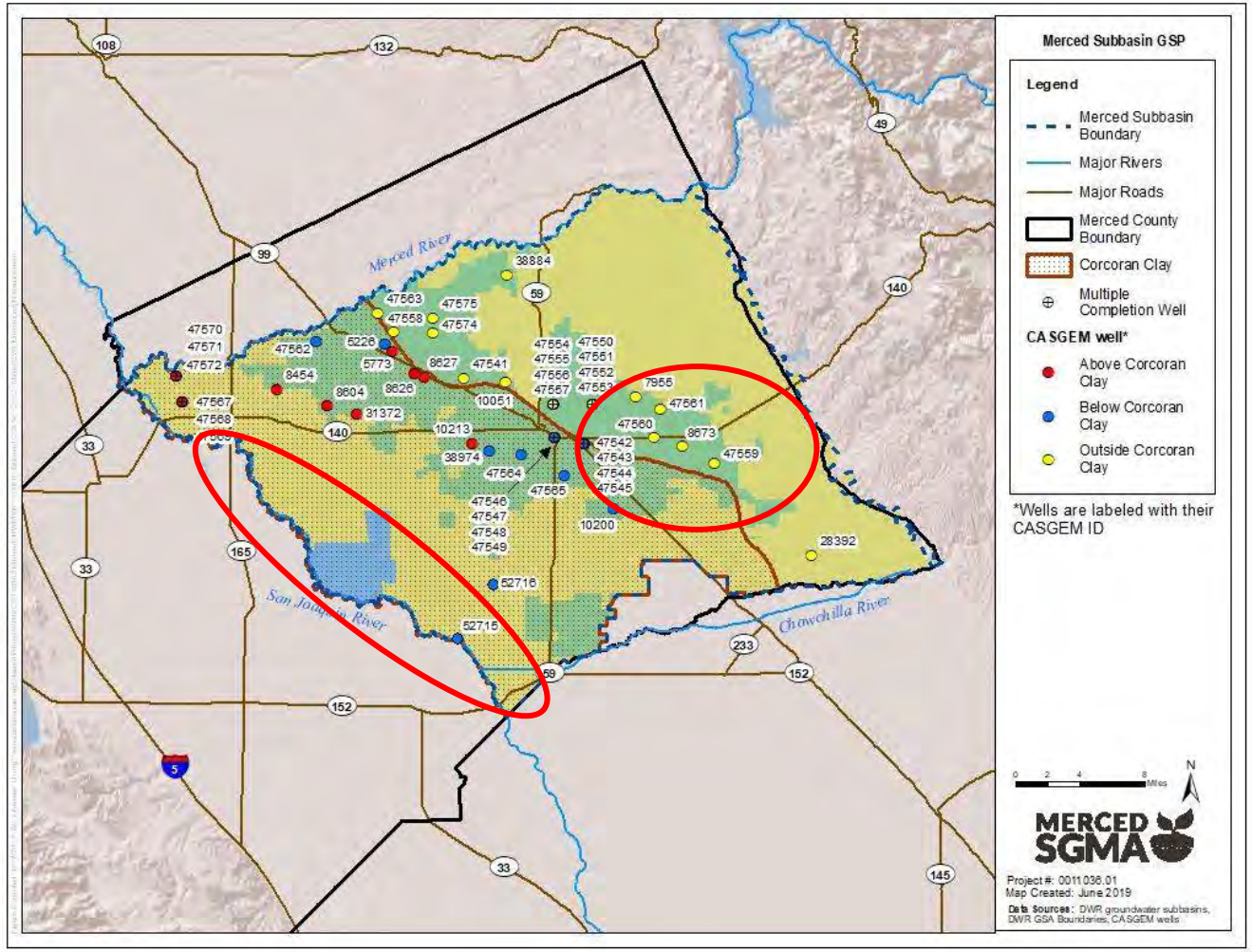
Groundwater-Dependent Ecosystems (GDEs)



- Shallow groundwater level data gaps – coordinated with levels gaps
- Ecosystem health data gaps – consideration of existing tools for vegetative health

Inter-basin Flows/Model Data Gaps



- Limited groundwater level data near San Joaquin River (to inform understanding of inter-basin flows).
- Area of limited groundwater level data in the Outside Corcoran Clay aquifer.
- Very similar to groundwater level data gaps

MEETING AGENDA – Merced GSP

SUBJECT: Merced GSP Stakeholder Advisory Committee Meeting

DATE/TIME: April 12, 2021, 1:00 to 3:00 PM

LOCATION: Zoom https://us02web.zoom.us/j/89176312890
Dial-in number if not using web audio: +1 669 900 6833 Webinar ID: 891 7631 2890
If you're unable to click the "Join Zoom Meeting" link above and want to join on a computer, visit www.mercedsgma.com/meetings to find a clickable join link on the MercedSGMA website.

Due to the ongoing COVID-19 crisis, and as authorized by the Governor's Executive Order N-29-20, Stakeholder Committee will participate in this meeting offsite via video conference.

Please note: This meeting agenda also serves as notice for the Coordination Committee, members of which may also be in attendance and participate during the meeting.

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1. Call to Order and Welcome

2. Introductions and Roll Call

   Stakeholder Advisory Representatives for Merced Subbasin GSP.

3. Merced GSP Overview
   a. GSP Highlights/Commitments
   b. GSP Implementation Progress
   c. WY2020 Annual Report Summary

4. **What's Next?**
   a. Data Gaps Plan
   b. Future Stakeholder Advisory Committee Meetings

5. Public Comment

6. Next steps and adjourn
   a. Confirm next meeting date

Next Regular Meeting
TBD
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Note: The meeting will be offered with simultaneous Spanish language interpretation.

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Posted: April 8 at www.MercedSGMA.org

MEETING MINUTES – Merced GSP Stakeholder Advisory Committee

SUBJECT: Stakeholder Advisory Committee Meeting
DATE/TIME: April 12, 2021 at 1:00 PM
LOCATION: Zoom Virtual Meeting

Stakeholder Committee Members In Attendance:

	Representative	**Community Aspect Representation**
☐	Arlan Thomas	MIDAC member
☒	Ben Migliazzo (alternate)	Live Oak Farms
☒	Bob Kelley	Stevinson Representative
☒	Breanne Ramos	MCFB
☒	Craig Arnold	Arnold Farms
☒	Darren Olguin	Resident of Merced County
☒	Dave Serrano	Serrano Farms - Le Grand
☒	David Belt	Foster Farms
☒	Emma Reyes	Martin Reyes Farm/Land Leveling
☒	Gil Cardon	Merced Co. Hispanic Chamber of Commerce
☐	Greg Olzack	Atwater Resident
☒	Jean Okuye	E Merced RCD
☒	Joe Sansoni	Sansoni Farms/MCFB
☐	Joe Scoto	Scoto Brothers/McSwain School Dist.
☒	Jose Moran	Livingston City Council
☒	Lacy Carothers	Cal Am Water
☒	Lisa Baker	Clayton Water District
☒	Lisa Kayser-Grant	Sierra Club
☐	Mark Maxwell	UC Merced
☒	Maxwell Norton	Unincorporated area
☒	Nav Athwal	TriNut Farms
☒	Olivia Gomez	Community of Planada
☒	Parry Klassen	ESJWQC
☐	Reyn Akinoa	River Partners
☒	Rick Drayer	Merced/Mariposa Cattlemen
☐	Robert Weimer	Weimer Farms
☒	Simon Vander Woude	Sandy Mush MWC
☒	Susan Walsh	City of Merced
☒	Thomas Dinwoodie	Master Gardener/McSwain
☒	Trevor Hutton	Valley Land Alliance
☒	Wes Myers	Merced Grassland Coalition

Meeting Minutes

1. Call to Order and Welcome
    a. Charles Gardiners (Catalyst) welcomed the group.
2. Introductions and Roll Call
    a. Stakeholder Advisory Representatives for the Merced Subbasin GSP introduced themselves (see attendance record above).
    b. Representatives from the three GSAs introduced themselves (Lacey McBride with Merced Subbasin GSA, Larry Harris with Turner Island Water District GSA-#1, and Matt Beaman for Merced Irrigation-Urban GSA [MIUGSA]) as well as the consultant team from Woodard & Curran (Samantha Salvia, Chris Hewes, and Ali Taghavi).
3. Merced GSP Overview
    a. GSP Highlights/Commitments
        i. Samantha Salvia (Woodard & Curran) provided an overview of the Sustainable Groundwater Management Act (SGMA), the development of the GSP and two annual reports, and key elements of the GSP.
        ii. Matt Beaman (MIUGSA) provided an update on the status of priority projects identified in the GSP.
        iii. Q: Why did the initial Planada recharge project not work out? A: The grant application identified two potential areas to construct a recharge basin based on some preliminary studies looking at soils and available well completion reports. At both sites, there are shallow clay layers (~10 feet) that impede infiltration. The dry wells are the next alternative.
        iv. Q: Historically, what percentage is the volume of overdraft compared to current pumping? (or what is the volume of annual sustainable yield relative to water pumped historically) A: It's not a simple answer as pumping can change annually and the solution is not going to be as simple as an across the board cut to pumping. The long-term change in storage published in the Water Year 2020 Annual Report shows an average reduction of 132,000 Acre-feet per year (based on 2006-2020).
        v. Q: Did DWR have any noteworthy comments on the GSP? A: DWR has provided no feedback on any GSP thus far. The regulations provide DWR two years to review GSPs.
        vi. Q: In making projection for sustainable yield in the future, did the model include the likelihood of precipitation/runoff being less in the future than in last 100 years due to drought or climate change? A: The GSP includes model sensitivity runs for the effect of climate change which was identified and acknowledged as an uncertainty.
        vii. Public Question: Why hasn't green water infrastructure been mentioned in the sustainability plan? The cost and overall benefit seems like a win-win proposition. e.g. rainwater harvesting. What are the barriers to getting a discussion about green water infrastructure? Not just Flood-MAR which is one tool in the toolbox – there are other tools under the umbrella of green infrastructure that benefit communities. Many micro-projects can help enhance the water table. A: While the GSP does not use the term "green infrastructure," much of the analysis of how to reach sustainability has focused on capturing stormwater for recharge purposes. This is a component of several priority GSP projects. Our website has a place (on the Contact Us page) to submit ideas for additional projects.
        viii. Public Question: Does it make it any more urgent to have demand reduction be a focus rather than supply augmentation given that we potentially may not have surface water supplies that the GSP relies on, and recharge projects? A: The GSAs are currently evaluating 5-year objectives to move toward to the sustainability goal. The Merced Subbasin GSA already has a demand reduction management action from the GSP and is

thinking about this as well – it will be balanced between both demand reduction and supply augmentation.

b. GSP Implementation Progress
    i. Lacey McBride (Merced Subbasin GSA) provided an updated on GSP implementation since the GSP was submitted in January 2020, including Proposition 68 grant funded projects.
c. WY2020 Annual Report Summary
    i. Chris Hewes (Woodard & Curran) provided an overview of the Water Year 2020 Annual Report, including sustainable management criteria, groundwater level changes, and groundwater storage change.
d. Comments and questions
    i. Comment (Susan Walsh): As someone who has lived in Merced and has paid attention to growth in the valley in the last 30 years, feeling some cognitive dissonance in talking about limiting pumping yet City of Merced is about to annex a large acreage of land for new development. At what point is growth in the valley going to be collapsed into planning with groundwater? At meetings about safety, housing, etc., rarely do people mention the fact that groundwater is such an important and scarce commodity.
    ii. Comment (Maxwell Norton): The Monterey/Salinas area has some of the most expensive urban water in North America. There seems to be a lot of planning efforts and documents in San Joaquin Valley, but long-term water security doesn't seem to be merged with long-term growth projections.
    iii. Comment (Susan Walsh): Cities and suburban areas in Merced County have made efforts to reduce impacts on water systems, e.g. turf replacement/removal. Have we ever measured that or quantified how different landscapes look between 1980 and now? (some has been mandated for new development requirements). It would be helpful to measure what has been done in the past to apply to the future.
        1. Answer from Leah Brown (City of Merced): Every urban supplier has different information about what's happened in their area. The City of Merced doesn't have tracking of turf conversion projects. But it does have all kinds of data from the metering system. In 2015, a large scale metering project resulted in more complete metering in the City. Between July 2013 drought and July 2018, there was a 39% reduction in use. This urban water use reduction has maintained since then and is a cumulative 28% reduction as of the current Urban Water Management Plan effort.
    iv. Comment (David Serrano): Concerned that foothills in Madera and Merced have been developed from previously native pasture. Impact of reduced natural foothill recharge and increased draw on groundwater resources. With surface water prices increasing, concerned about being priced out of agricultural livelihood/legacy.
    v. Comment (Olivia Gomez): Hearing that California is going into drought again. There was a lot of education in the previous drought but it has stopped. This education is important to keep up because everyone's in it together – it's important to share perspectives. Going to start metering which will help conservation efforts. Education about conservation and preservation is key.
    vi. Comment (Gil Cardon): How have the wildfires affected soil conditions? A: We are not sure – it has not come up in GSA discussions. But we know that UC Merced faculty have been doing research in this area.
    vii. Comment (Joe Sansoni): As family farmers with small operations, water issues and availability are critical. We understand overdraft is an issue that needs solutions. Have spent a lot of effort to be more efficient already. Yields per acre and AF pumped are significantly more efficient than in the past and continuing to improve. This stands for most growers regardless of crop type and growers don't always get a lot of public credit for that.

This is also costly to implement. Something that has become an unfortunate reality in agriculture is big production investment agriculture – for instance, almond industry had several good years, thus thousands of acres were installed in last decade. If there's a downturn, investment agriculture can take a multi-year hit which would hurt smaller farmers. It feels like the large drawdowns are driven by investment agriculture.

viii. Q (Wes Myers): Some monitoring data is iffy, e.g. hatched areas. What opportunities or mechanisms exist to audit the model? GSPs are moving forward based on one assumption, but how do we know that it's correct? Does the state audit or a third party consultant come in and do this? A: Most Annual Report figures are based on actual monitoring data, not modeled data. The model is also informed by historical data. The model has been calibrated based on monthly records from 20-30 years. During the development and calibration process, there was an involved technical advisory panel including UC Merced, USGS, and DWR representation. The GSP includes some writeup about model uncertainty as well.

ix. Comment (Nav Athwal): One way to reduce overdraft is potentially the use of more efficient technology when it comes to irrigation of crops. Many folks have moved to drip irrigation and it's very efficient. But wondering if as a group and GSAs, has there been work in adopting better irrigation technology as a way to reduce demand without requiring fallowing and other negative consequences that come with that? In addition, thoughts about how to use water from parcels that would rather not irrigate (e.g. commodities with less demand) vs those who need the water to meet minimum ET – like a groundwater credits market to meet irrigation demand. Is there thought to fund resource conservation projects at a grower level?

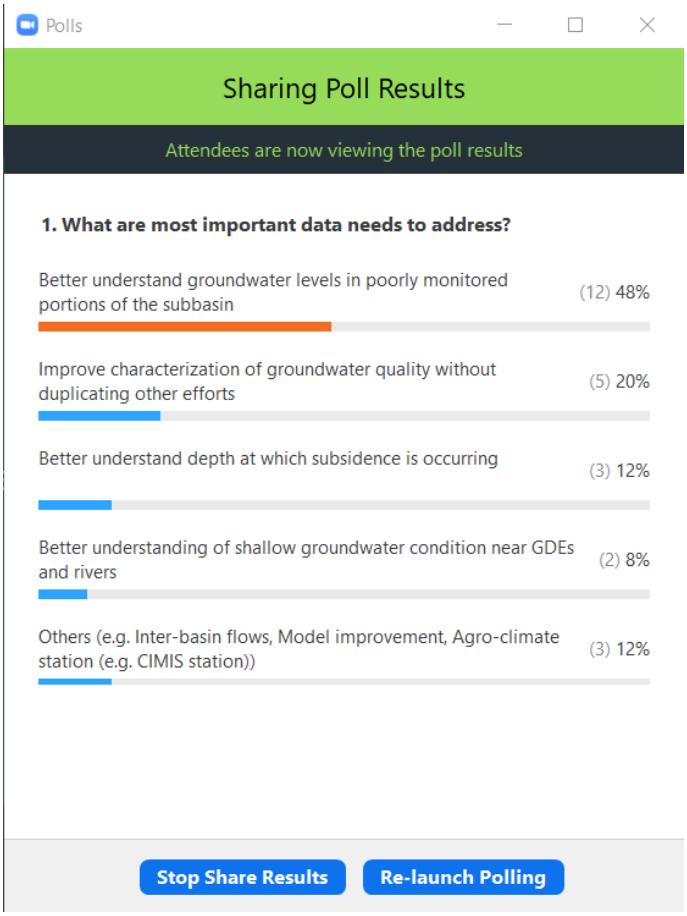
1. Lacey McBride (Merced Subbasin GSA): The GSA is looking at and considering many different tools in the toolbox as options outside of fallowing land. One challenge is that you need to consider that efficiency should reduce overall groundwater use and not end up increasing it beyond historical due to more efficient use and less percolation. The Merced Subbasin GSA doesn't have a program (or funding now) to do something like funding a resource conservation project. Another future discussion will be how will the GSA generate revenue to pay for these types of programs.

x. Comment (Jean Okuye): With less than 20 years before we are to have balance and sustainable management it seems we need to address the demand. Are we looking at Sustainable Agricultural Lands Conservation? Award those doing the right thing, keep our water in our county, be sure we don't take from Peter to pay Paul, be sure the small farmers and communities can afford water? Who owns the water? Look at what Madera County is doing as they have received grant to help them manage water.

xi. Comment (Maxwell Norton): There's been a wide assortment of cost-sharing and straight funding through NRCS and others. Programs come and go based on the latest Farm Bill. Most improvements that are possible in production agriculture have been achieved.

4. What's Next?
    a. Data Gaps Plan
        i. Samantha Salvia (Woodard & Curran) provided an overview of the Data Gaps Plan effort and encouraged stakeholders to explore the slides in detail after the meeting as time was running short at this point in the meeting.
        ii. Poll results:

iii.



iv. Amanda Monaco: Are the GSAs going to use the data gaps grant to fill in missing info about the location and vulnerability of domestic wells, so we can better understand potential impacts on their drinking water supply? A: Ongoing Integrated Regional Water Management (IRWM) work funded by DWR is evaluating locations and depths of domestic wells in key areas of the Subbasin.
    1. Matt Beaman (MIUGSA): Report will be presented to Merced IRWM region likely in May and made public later.

b. Future Stakeholder Advisory Committee Meetings
    i. Charles Gardiner (Catalyst) talked through options for the next meeting, likely July 6 or 12. A poll will go out to committee members to schedule this.

5. Public Comment
    a. No comments.
6. Next steps and adjourn

Next Regular Meeting
July 12, 2021 from 1-3pm
Information also available online at mercedsgma.org

Note: If you need disability-related modification or accommodation to participate in this meeting, please contact Merced County, Community and Economic Development staff at 209-385-7654 at least 48 hours prior to the start of the meeting.

What's Next? Data Gap Plan

Image courtesy: Veronica Adrover/UC Merced

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Purpose & Goal

- **Purpose –** Improve scientific understanding of Subbasin to support ongoing basin management and policy making

- **Goal –** Develop a plan that identifies and ranks priority areas for the installation of monitoring wells or subsidence monitoring stations to support basin characterization and future GSP refinement.

Image courtesy: Veronica Adrover/UC Merced

Data needs identified in GSP

- Better understand groundwater levels in poorly monitored portions of the subbasin
- Improve characterization of groundwater quality without duplicating other efforts
- Better understand depth at which subsidence is occurring
- Better understanding of shallow groundwater condition near GDEs and rivers
- Others
  - Inter-basin flows
  - Model improvement
  - Agro-climate station (e.g. CIMIS station)
  - Areas of interest (e.g., high pumping areas, groundwater level depressions, significant recharge areas, specific projects)

Image courtesy: Veronica Adrover/UC Merced

Data Gaps Plan Development – Process

1. Describe data gap areas
2. Use ranking and weighting methodology to prioritize different needs (e.g., groundwater levels, subsidence, interconnected surface water)
3. Prepare an Implementation Plan which lays out next steps for filling priority data gaps
4. Draft Plan by June 2021

Image courtesy: Veronica Adrover/UC Merced

Groundwater Level Data Gap Approach

- Monitoring wells are expensive – prioritize use of existing facilities where possible
- Monitoring well siting can be challenging – flexibility is necessary on siting
- Funding or partnering opportunities can lead to wells in good areas rather than great areas
- Each facility that joins the network “changes the map.”
- Plan will be flexible and adaptable to guide efforts moving forward
- A number of folks in the basin have reached out to the GSAs with information about potential wells that could be added to network. The GSAs and Woodard & Curran are following up.

Groundwater Level – Data Gaps

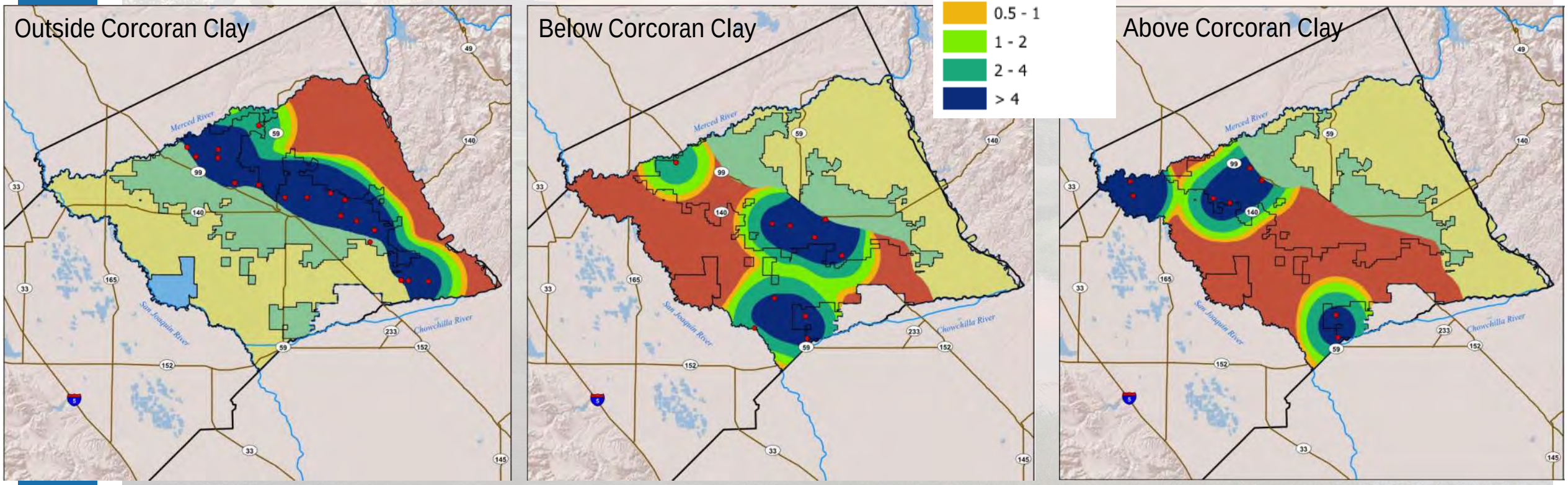
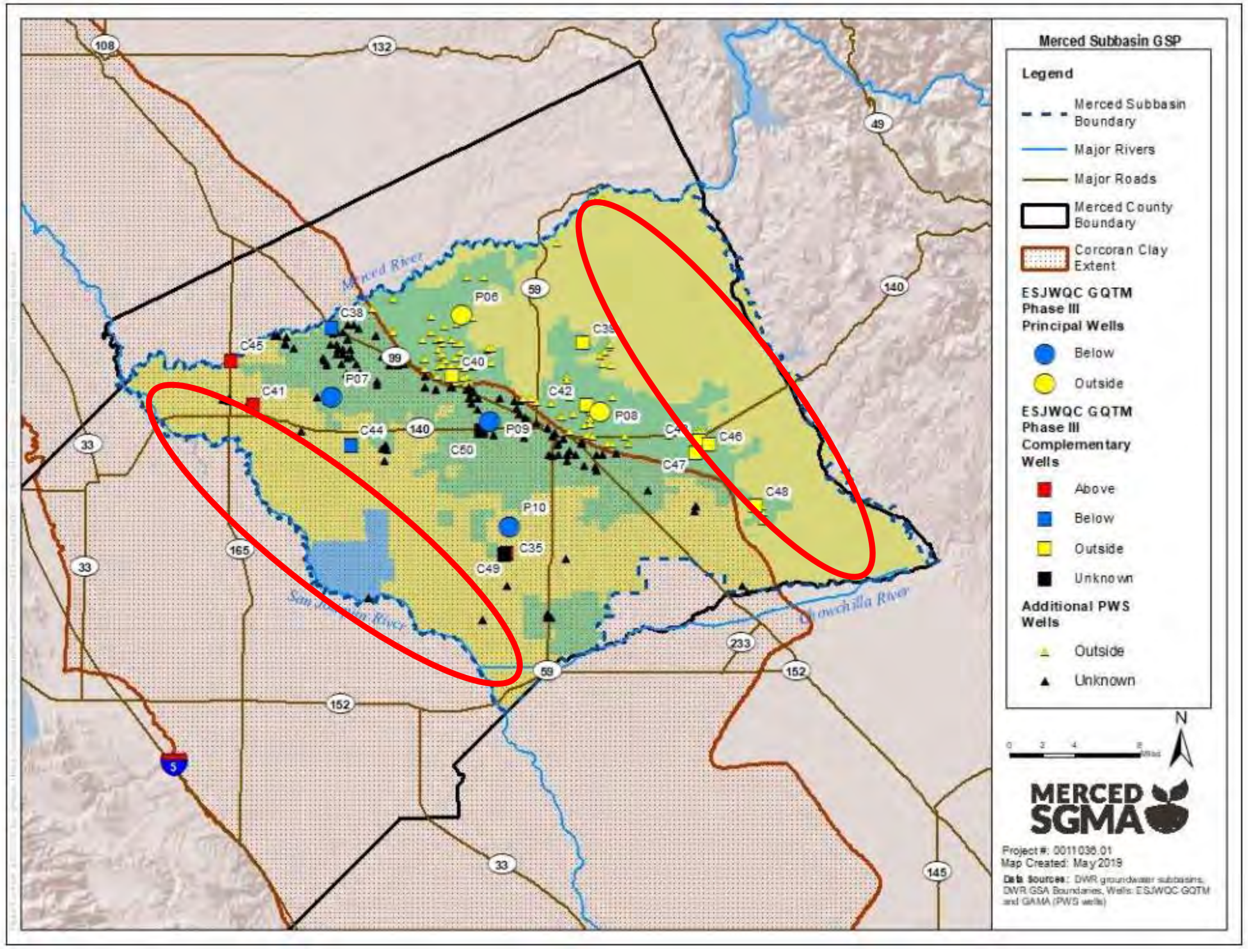


Image courtesy: Veronica Adrover/UC Merced

Groundwater Quality – Data Gaps



- Areas of interest:
  - Target areas with maximum contaminant level concentrations for TDS.
- Approach to filling gaps
  - Attempt to fill quality and levels gaps with the same facilities
  - Consideration of video surveys
  - Coordination with other programs

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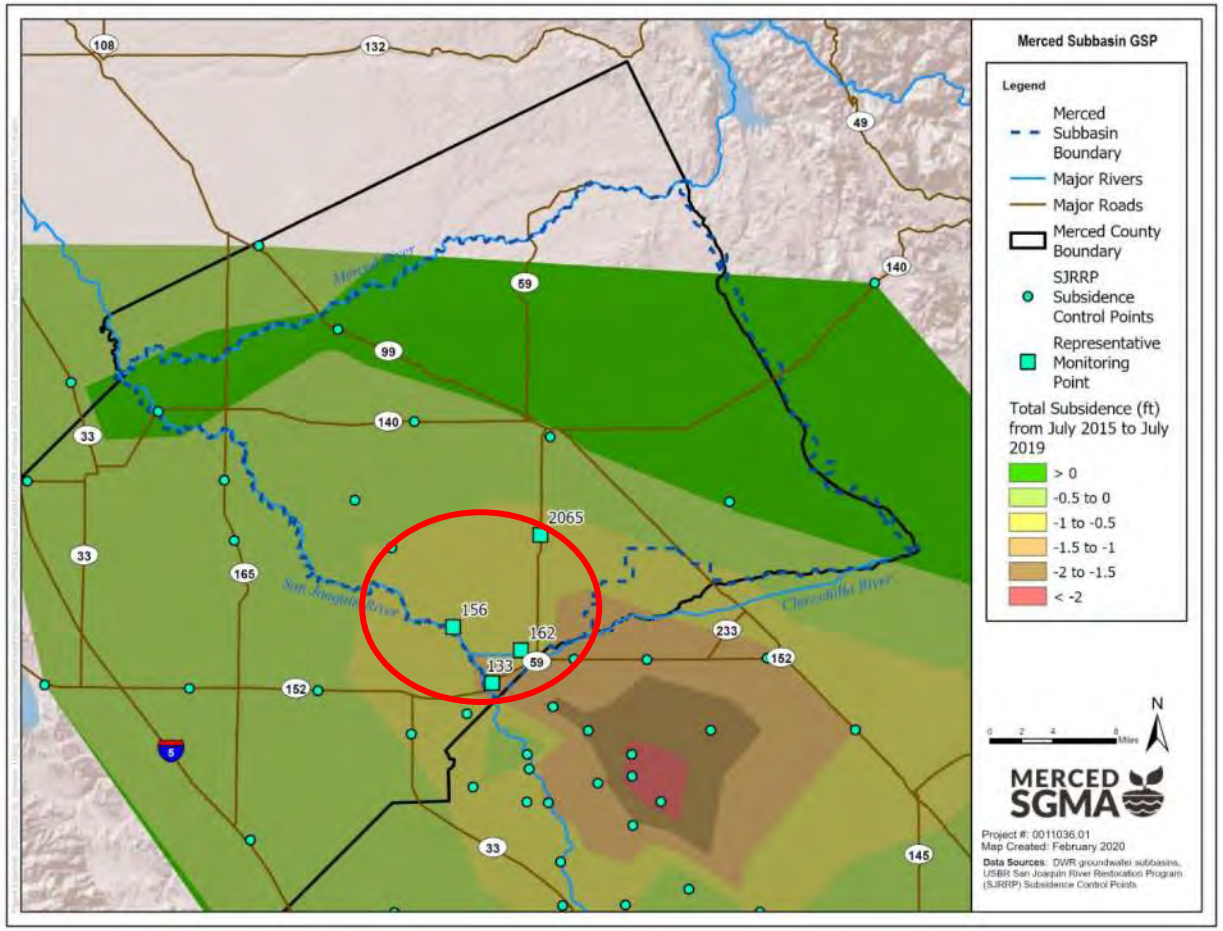
Land Subsidence – Data Gap Areas



- Need to understand depth at which subsidence is occurring.
- Construct and use borehole extensometers.

Image courtesy: Veronica Ador/UC Merced

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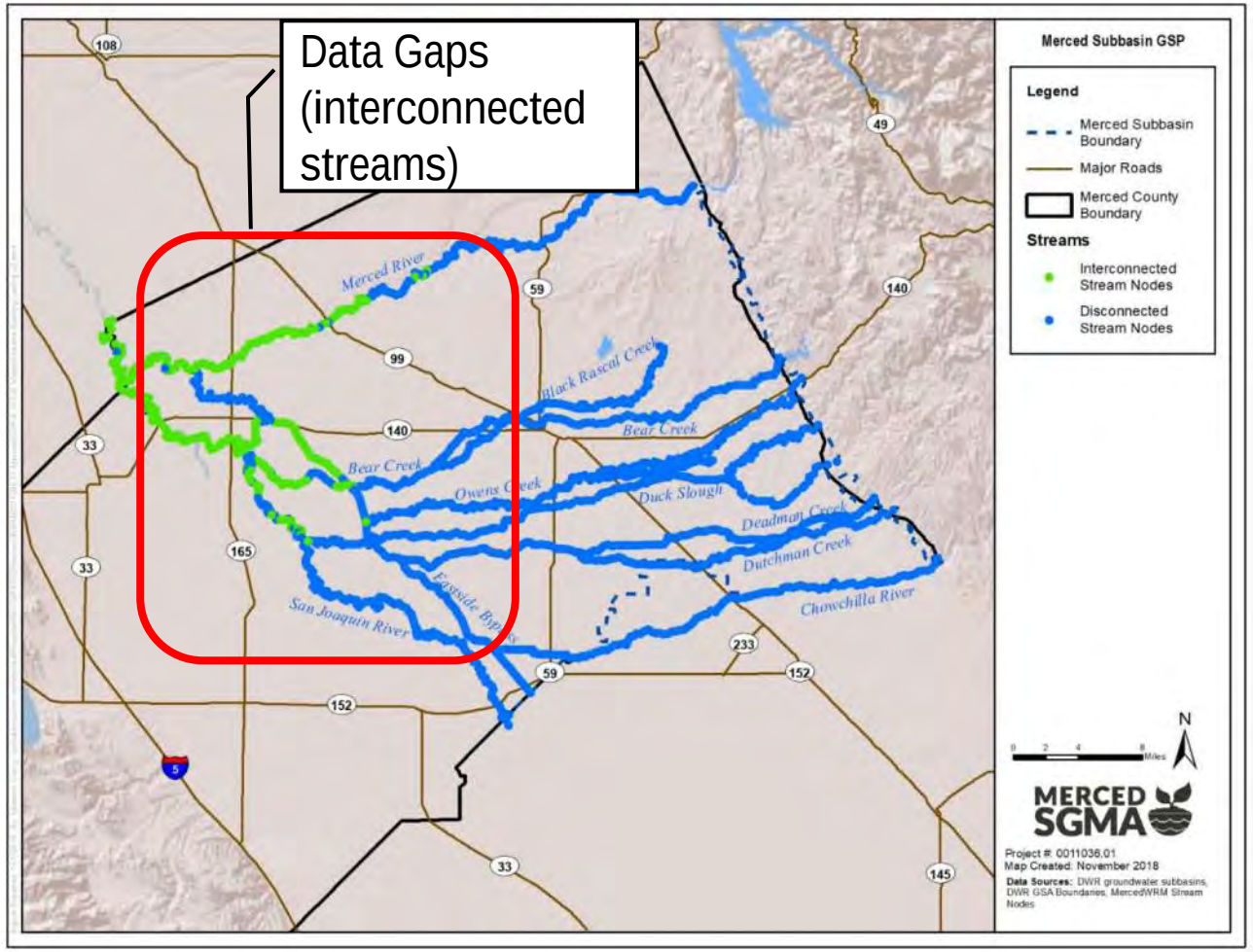
Interconnected Surface Waters – Data Gap Areas



- Areas near the transition from connected to interconnected streams can benefit from additional shallow groundwater monitoring
- Pair with other gap efforts

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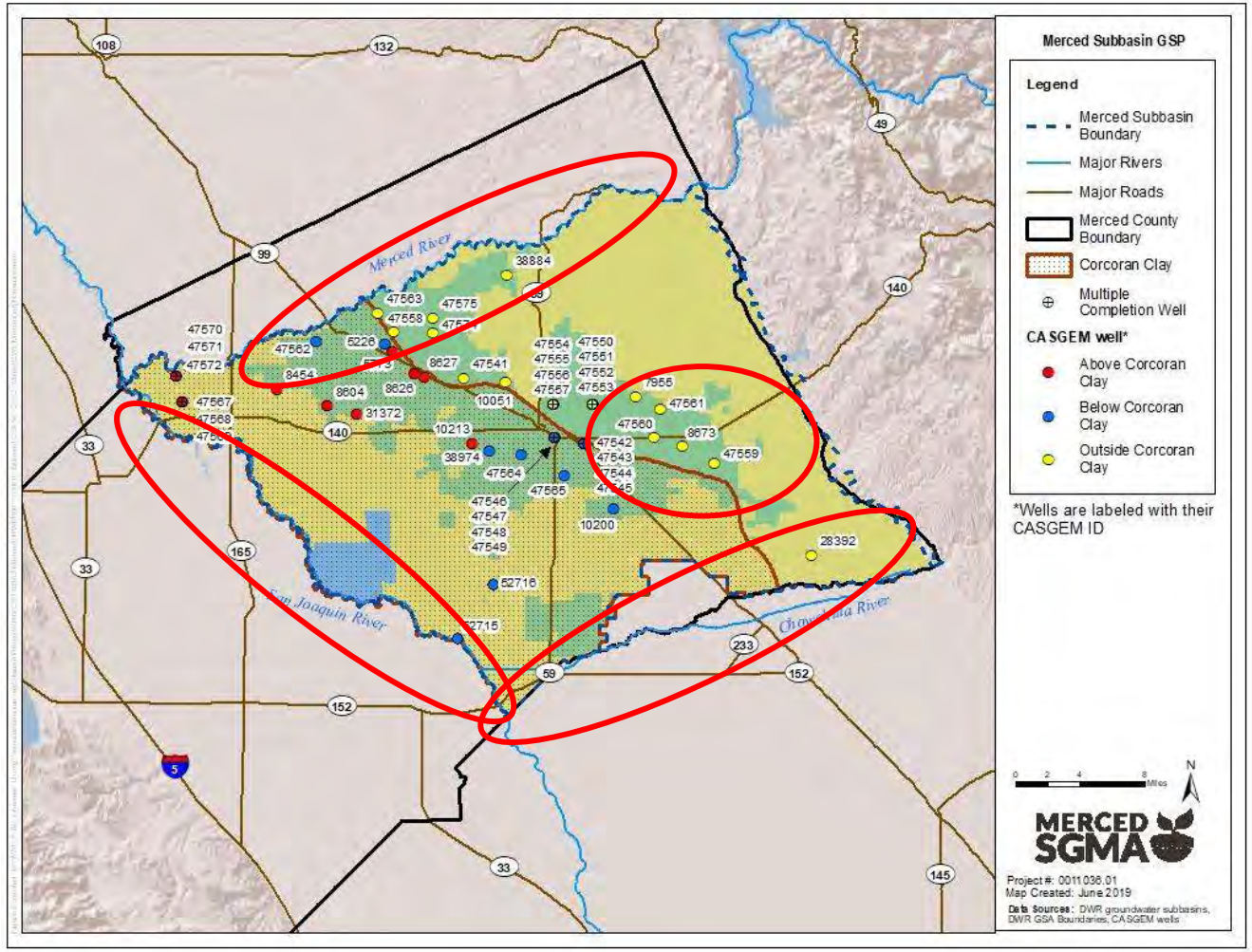
Groundwater-Dependent Ecosystems (GDEs)

- Shallow groundwater level data gaps
- Ecosystem health data gaps

Image courtesy: Veronica Adrover/UC Merced

Inter-basin Flows/Model Data Gaps



- Need better flow information at the Subbasin boundary
- Lack of hydrogeologic information in area Outside Corcoran Clay

Questions for Stakeholder Advisory Committee

1) Given limited resources to spend to address Data Gaps, where would you prioritize those dollars?

2) Is there anything else you'd like us to consider as we prepare the draft Data Gaps Plan?

MEETING AGENDA – Merced GSP

SUBJECT: Merced GSP Coordination Committee Meeting

DATE/TIME: April 26, 2021, 1:15 to 3:15 PM

LOCATION: Zoom https://us02web.zoom.us/j/86716541340
Dial-in number if not using web audio: 1-669-900-6833 Webinar ID: 867 1654 1340
If you're unable to click the "Join Zoom Meeting" link above and want to join on a computer, visit www.mercedsgma.com/meetings to find a clickable join link on the MercedSGMA website.

Due to the ongoing COVID-19 crisis, and as authorized by the Governor's Executive Order N-29-20, Coordination Committee will participate in this meeting offsite via video conference.

Please note: This meeting agenda also serves as notice for the Stakeholder Advisory Committee, members of which may also be in attendance and participate during the meeting.

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1. Call to Order and Welcome

2. Roll Call

   Representatives for Merced Groundwater Subbasin GSA, Merced Irrigation-Urban GSA, and Turner Island GSA-1

3. Consent Calendar

   Approval of February 22, 2021 Meeting Minutes

4. Public Comment
   Members of the public are invited to provide up to 3 min of public comment on any agenda item

5. Reports
   a. Current basin conditions
   b. Coordination with neighboring basins
   c. GSA Reports - Updates from each GSA on activities they are undertaking in their own jurisdiction

6. Actions
   a. No action items.

7. Discussion Items
   a. Stakeholder Advisory Committee update – Woodard & Curran will present a brief summary of the April 12 meeting.
   b. Data Gaps Plan (Prop 68 Planning Grant funded work) – Woodard & Curran will present draft findings and recommendations from the data gaps plan development effort.
   c. Meadowbrook Water System Intertie Feasibility Study – AECOM will present on the results of this study.

8. Next steps and adjourn
   a. Confirm next meeting date

Next Regular Meeting
TBD, but expected to be in July
Meeting to be conducted virtually (subject to change)
Information also available online at mercedsgma.org

Action may be taken on any item

Note: The meeting will be offered with simultaneous Spanish language interpretation.

Nota: Esta reunión será ofrecida con interpretación simultánea al idioma español.

If you need disability-related modification or accommodation in order to participate in this meeting, please contact Woodard & Curran staff at 415.321.3400 at least 48 hours prior to the start of the meeting.

MEETING NOTES – Merced GSP

SUBJECT: Merced GSP Coordination Committee Meeting

DATE/TIME: April 26, 2021 at 1:15 – 3:15 PM

LOCATION: Online – Zoom Meeting

Coordination Committee Members In Attendance:

	Representative	GSA
☒	Hicham ElTal	Merced Irrigation-Urban GSA
☐	Stephanie Dietz	Merced Irrigation-Urban GSA
☒	Justin Vinson	Merced Irrigation-Urban GSA
☐	Daniel Chavez	Merced Irrigation-Urban GSA
☒	Ken Elwin (alternate)	Merced Irrigation-Urban GSA
☒	Eric Swenson	Merced Subbasin GSA
☒	Mike Gallo	Merced Subbasin GSA
☒	Nic Marchini	Merced Subbasin GSA
☒	George Park (alternate)	Merced Subbasin GSA
☒	Larry Harris	Turner Island Water District GSA #1
☐	Scott Skinner (alternate)	Turner Island Water District GSA #1

Meeting Notes

1. CALL TO ORDER AND WELCOME
    a. Samantha Salvia (Woodard & Curran) called the meeting to order.
2. ROLL CALL
    a. Coordination Committee members in attendance are shown in table above. The Committee had a quorum.
3. CONSENT CALENDAR
    a. Meeting notes from previous meeting (February 22, 2021) were approved with one correction to note a missing committee member in the attendance table (Mike Gallo motions, Ken Elwin seconded, none opposed or abstained).
4. PUBLIC COMMENT
    a. Dennis Evans: Dennis shared that he emailed a report to contact@mercedsgma.org from the EPA about green infrastructure to help decision-makers assess the potential value of investment in green infrastructure and encourages committee members to read it. Dennis provided additional follow-up information via chat:
        i. Please check out two links concerning Green Stormwater Infrastructure (GSI) epa.gov/smartgrowth and Enhancing sustainable communities with green infrastructure

epa.gov/green-infrastructure. The report was prepared by the U.S. Environmental Protection Agency's Office of Sustainable Communities. The report Links and valuation tools will help guide community leaders' decision makers to potential cost saving in Merced.

The examples of how cost savings can be compared in Merced County please See (page 9-Exhibit 6), Supportive Strategies (page 20)

5. REPORTS

a. Current basin conditions

i. Chris Hewes (Woodard & Curran) presented hydrographs for each principal aquifer to highlight new Spring 2021 groundwater measurements.

ii. Hicham ElTal (MIUGSA) suggests considering in future GSP updates to move to quarterly monitoring instead of monthly monitoring.

b. Coordination with neighboring basins

i. Hicham ElTal (MIUGSA) provided updates:

1. Turlock Subbasin – Coordination is occurring through Merced Irrigation District (MID) and Merced County's involvement as member agencies in the East Turlock GSA during the Turlock Subbasin GSP Development process. Current discussions are focused on interconnected surfaces water and chronic lowering of groundwater levels. This is particularly relevant to flows into and out of the Merced Subbasin. A draft GSP is not expected for public review until a July timeframe.

2. Chowchilla Subbasin – a meeting was sponsored by DWR for Chowchilla, Merced, Madera, and Delta-Mendota Subbasins to discuss subsidence. An additional meeting is expected (date TBD) to talk about the history of subsidence.

c. GSA Reports - Updates were provided from each GSA on activities they are undertaking in their own jurisdiction:

i. Nic Marchini and Eric Swenson (MSGSA) provided updates:

1. At the April 8 meeting, the MSGSA Board moved forwarded with sustainability zones for groundwater management. For now, they are not permanent and may be further refined. It will help MSGSA analyze subareas.

2. The MSGSA Board also formed a demand reduction committee to explore options for implementing this management action in the GSA.

3. The MSGSA Board has moved from quarterly to monthly meetings.

ii. Hicham ElTal (MIUGSA) provided updates:

1. MIUGSA is still looking to put forward several policies (similar to what was shared in February CC meeting).

2. DWR has officially awarded the Merced Subbasin $4,999,800 for two projects under the Proposition 68 implementation grant program (DWR finalized a draft awards list released a couple months ago). MID will move forward with executing a contract with DWR.

iii. Larry Harris (TIWD GSA-#1) provided updates:

1. TIWD GSA-#1 is still focused on a telemetry project for metering and storage projects (permitting, financing, etc.).

6. DISCUSSION ITEMS

a. Meadowbrook Water System Intertie Feasibility Study

i. Mark Reitz (AECOM) provided an overview of the Meadowbrook Water System Intertie Feasibility Study. The feasibility study evaluated possible connections to the City of Atwater and to the City of Merced systems. Details are presented in the separate slide deck.

ii. Q: City of Merced has a nominal pressure of 44 psi, plus some various pressure drops, so does the cost estimate include a booster pump? A: Not yet, would need to check some of the observed pressures in the potential connection areas.

b. Stakeholder Advisory Committee update

i. Samantha Salvia (Woodard & Curran) presented a summary of the first meeting of Stakeholder Advisory Committee for GSP Implementation, held on 4/12. Engagement was good (25/30 members in attendance). The meeting provided an overview of GSP commitments and the annual reports, and sought input on priorities for the Data Gaps Plan.

1. Link to meeting minutes from 4/12: https://www.mercedsgma.org/assets/pdf/meeting-materials/2021-04-12-SC-Meeting-Minutes-final.pdf

c. Data Gaps Plan (Prop 68 Planning Grant funded work)

i. Jim Blanke (W&C) shared the approach and draft results/recommendations from the data gaps plan effort.

ii. Comment (Hicham ElTal): it would be nice to have wells near the Merced River stream gauging stations to correlate surface water and groundwater measurements. It would also be nice to have similar wells on the Turlock side of the basin.

iii. Comment (Hicham ElTal): East of City of Merced along Bear Creek, MID installed gauging stations and put in two sets of wells (50 and 100 feet deep). It is possible we could add one of these wells to the network, though the gauging stations are not maintained.

iv. Q: Numerous folks have offered up monitoring sites sourced from existing production wells. Are these included in the draft results? A: Yes, some have been included where depth information or recent monitoring data were available.

v. Comment (Eric Swenson): Hard to review maps without roads or latitude/longitude coordinates.

1. Woodard & Curran will generate some PDFs with a different basemap where you can zoom in on locations with more detail.

vi. Comment (Eric Swenson): The intersection of Baxter and Buchanan Hollow roads is a suggested location for a new well that is a County dirt road.

vii. Comment (Eric Swenson): Another tool for subsidence is looking at casing failures for production wells (vertical and lateral shear fractures). Depth at which this is occurring may shed light on compaction depth. If you can identify locations, the next question would be outreach to the landowners.

viii. Comment (Hicham ElTal): Have looked at extensometers in the past and confirmed they are very expensive.

ix. Comment (Eric Swenson): Thinks there are some consistent cropping areas in the Subbasin that might be good candidates for a new CIMIS station.

x. Comment (Hicham ElTal): Hoping the data gaps plan can look at topography and wind patterns to suggest a representative location for a new CIMIS station. Not sure if we need to talk to DWR or other weather forecasters. Wind is an important factor to consider.

    1. Next steps for additional siting evaluation will be outlined in the data gaps plan.

xi. Q: Why can't the CIMIS station be installed in an alfalfa field? Does it need to be grass? A: Hicham's understanding is that it could be, but would require some kind of adjustment factor.

xii. Q: Will the plan look at how many wells needed to look at interconnected surface waters? A: The preferential monitoring layer takes into account distance to stream boundaries and included some suggested well sites along both Merced and San Joaquin Rivers.

xiii. Woodard & Curran will consider putting out some draft maps for Committee members to provide input before the draft plan is published.

xiv. Q (Dennis Evans): Is Aquifer recharge monitored? A: It depends on the context of the question – some artificial recharge is measured directly while other measurements (e.g. rainfall, etc.) are used to help model and estimate recharge.

7. Next steps and adjourn
    a. Confirm next meeting date – July 26
    b. Meeting adjourned at 3:13 PM

Next Regular Meeting
July 26 at 1:15-3:15 PM
Meeting to be conducted virtually (subject to change)
Information also available online at mercedsgma.org

Data Gaps Plan

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Purpose & Goal

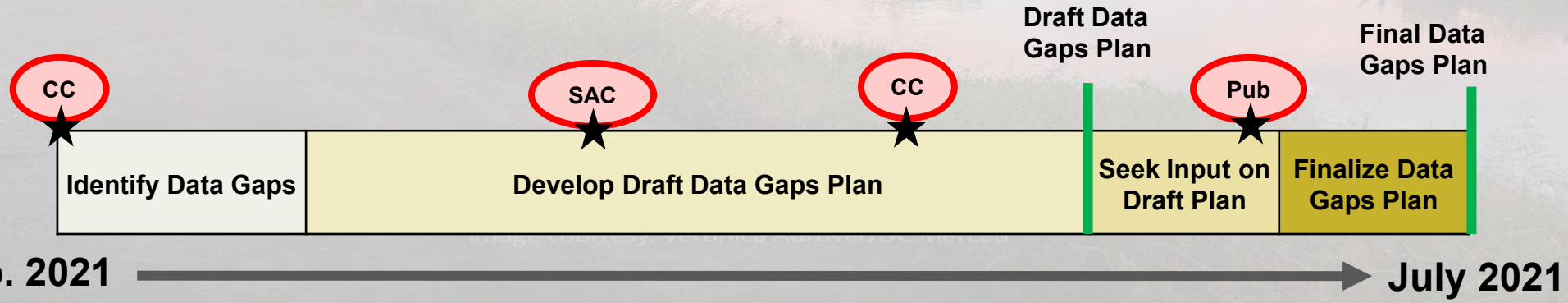
- **Purpose –** Improve scientific understanding of subbasin to support ongoing basin management and policy making
- **Goal –** Develop a plan that identifies and ranks priority areas for the installation of monitoring wells or subsidence monitoring stations to support basin characterization and future GSP refinement.

Image courtesy: Veronica Adrover/UC Merced

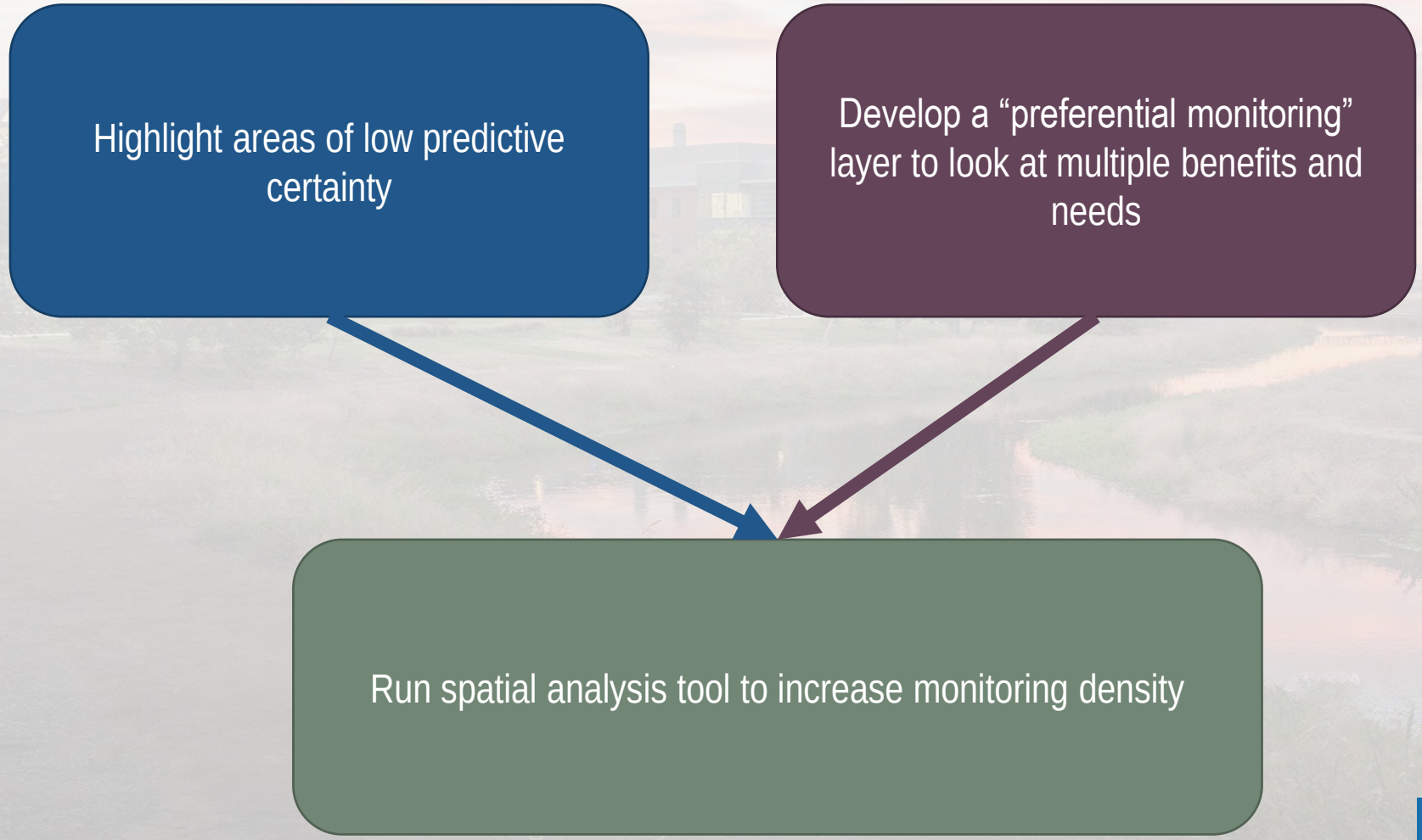
MERCED SGMA

Data Gaps Plan – Schedule

1. **Coordination Committee Meeting – Feb. 22**
   - Background, Prioritization, and Ranking Methodology
2. **Stakeholder Advisory Committee Meeting – Apr. 12**
   - Background, Prioritization, and Ranking Methodology
3. **Coordination Committee Meeting – Apr. 26**
   - Present Approach and Recommendations
4. **Write up draft plan in May and release for review and comment late May**
5. **Public Meeting – June**
   - Present draft Plan and collect feedback before finalizing in July

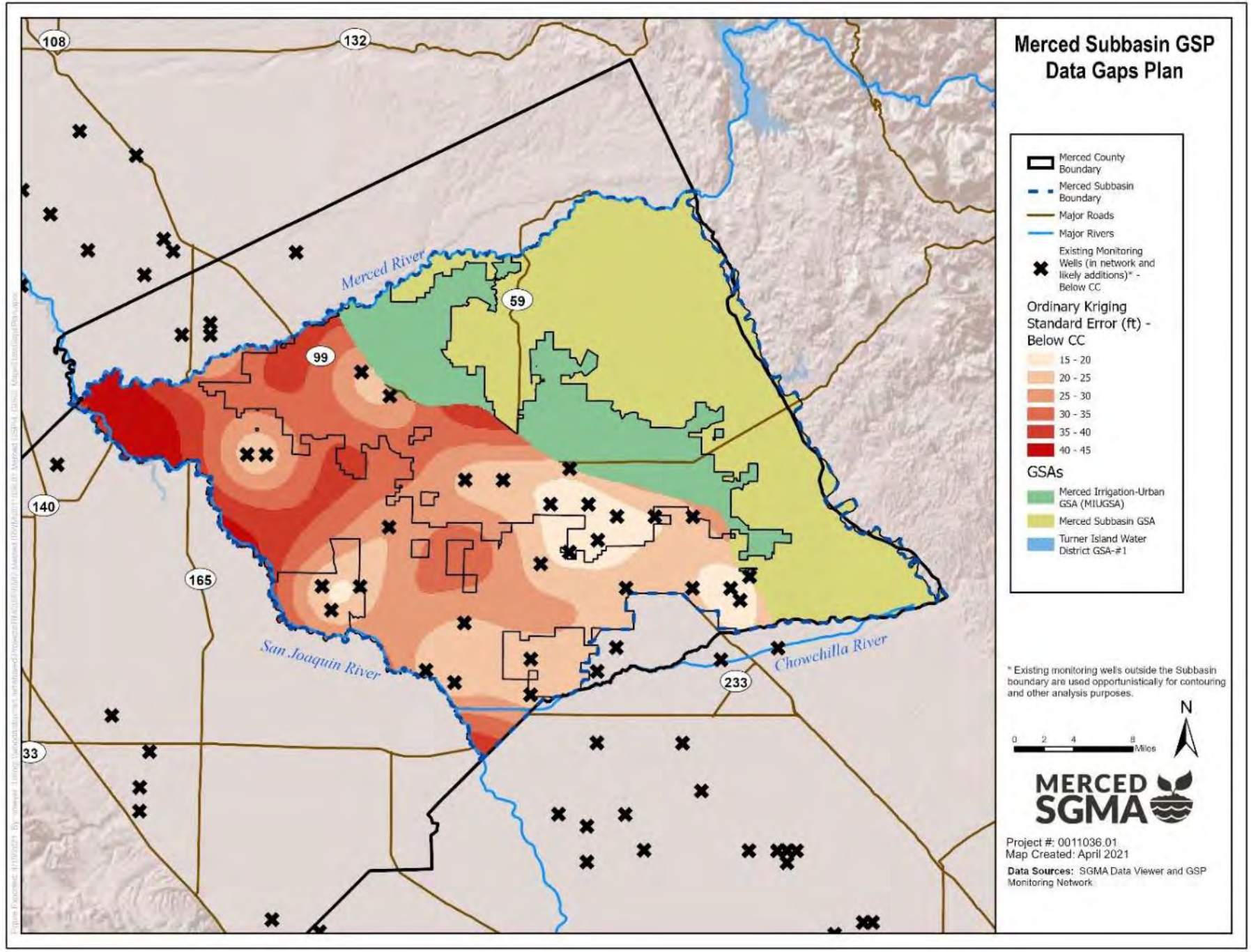


Data Gaps Tool Overview



Highlight areas of low predictive certainty

- Uncertainty in interpolated groundwater estimates: ordinary kriging standard error



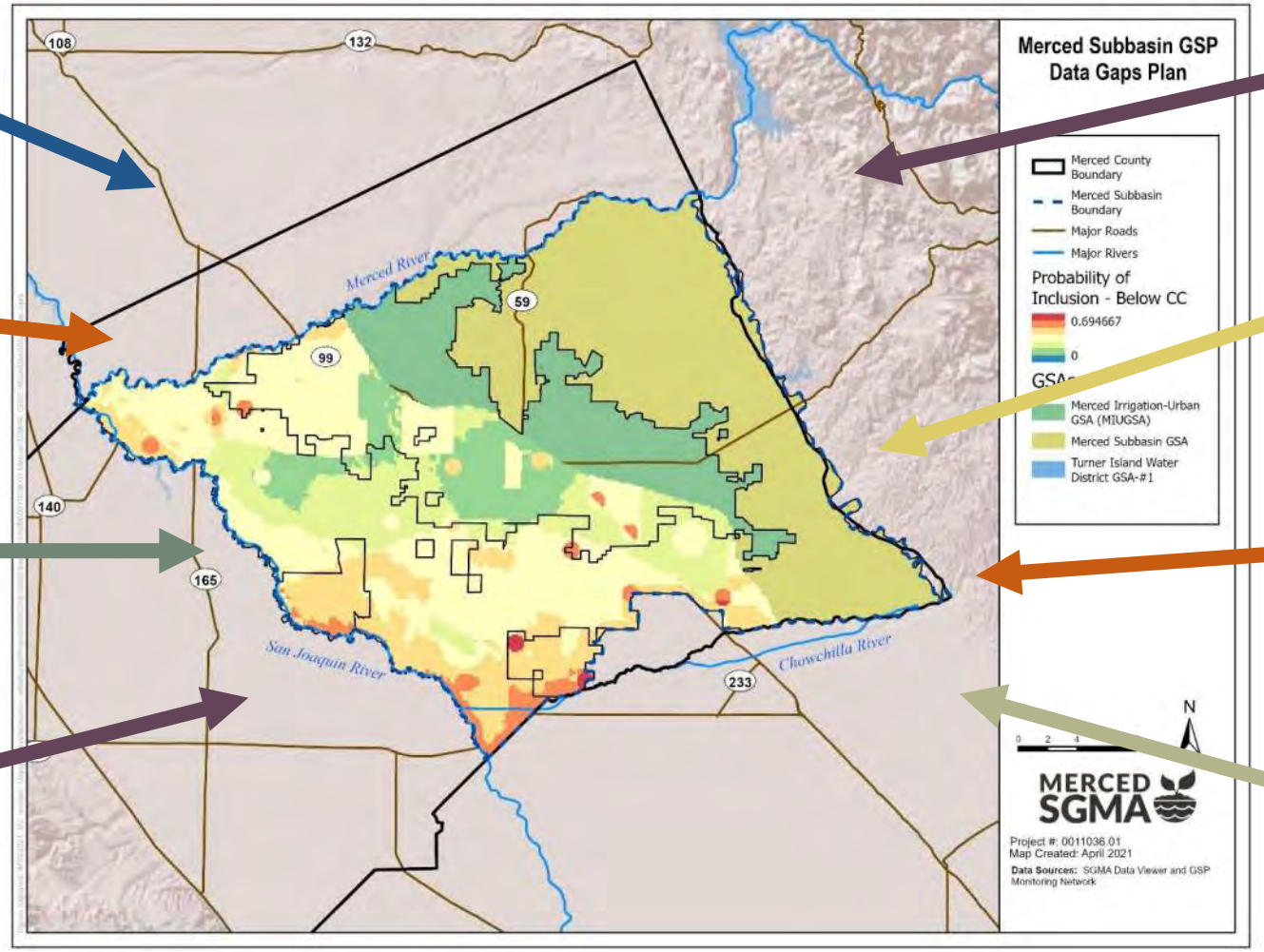
Develop a "preferential monitoring" layer to look at multiple benefits and needs

Existing Well Tiering Rank

Depth to Groundwater

Distance to Streams

Water Quality



Subsidence
*Below and Outside CC

Distance to Subbasin Boundary

Natural Communities Commonly Associated with Groundwater
*Above and Outside CC

Disadvantaged Communities

MERCED SGMA

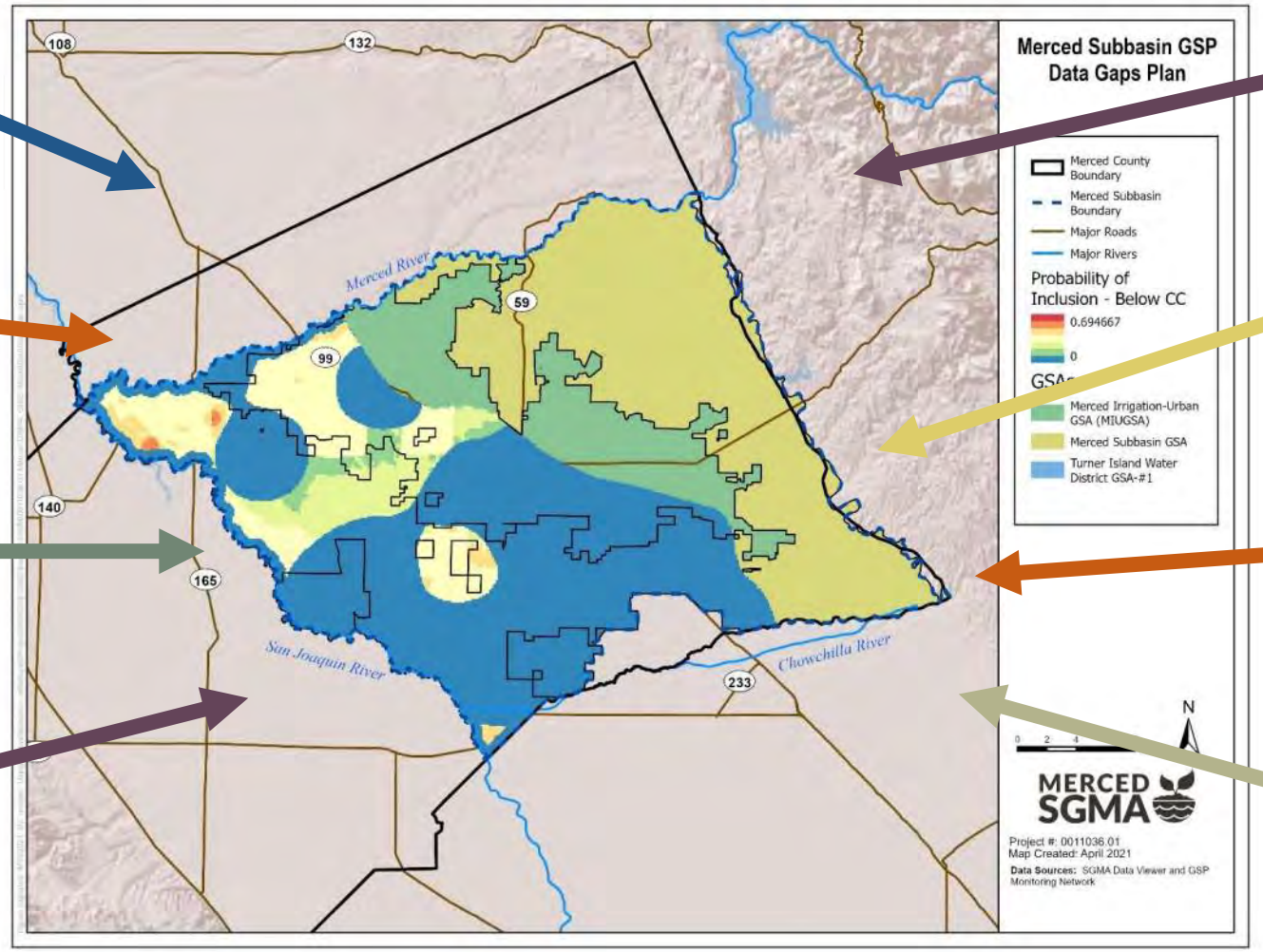
Develop a "preferential monitoring" layer to look at multiple benefits and needs

Existing Well Tiering Rank

Depth to Groundwater

Distance to Streams

Water Quality



Subsidence
*Below and Outside CC

Distance to Subbasin Boundary

Natural Communities Commonly Associated with Groundwater
*Above and Outside CC

Disadvantaged Communities

MERCED SGMA

Determine how many additional wells needed

Aquifer	Number of Existing Wells within Subbasin	Aquifer Area (sq. mi.)	Existing Aquifer Area with 4+ wells / 100 sq. mi.	Number of Additional Wells Needed to Reach 4+ wells / 100 sq. mi.
Below CC	31	438	263	7
Above CC	14	438	91	14
Outside CC	30	364	185	8

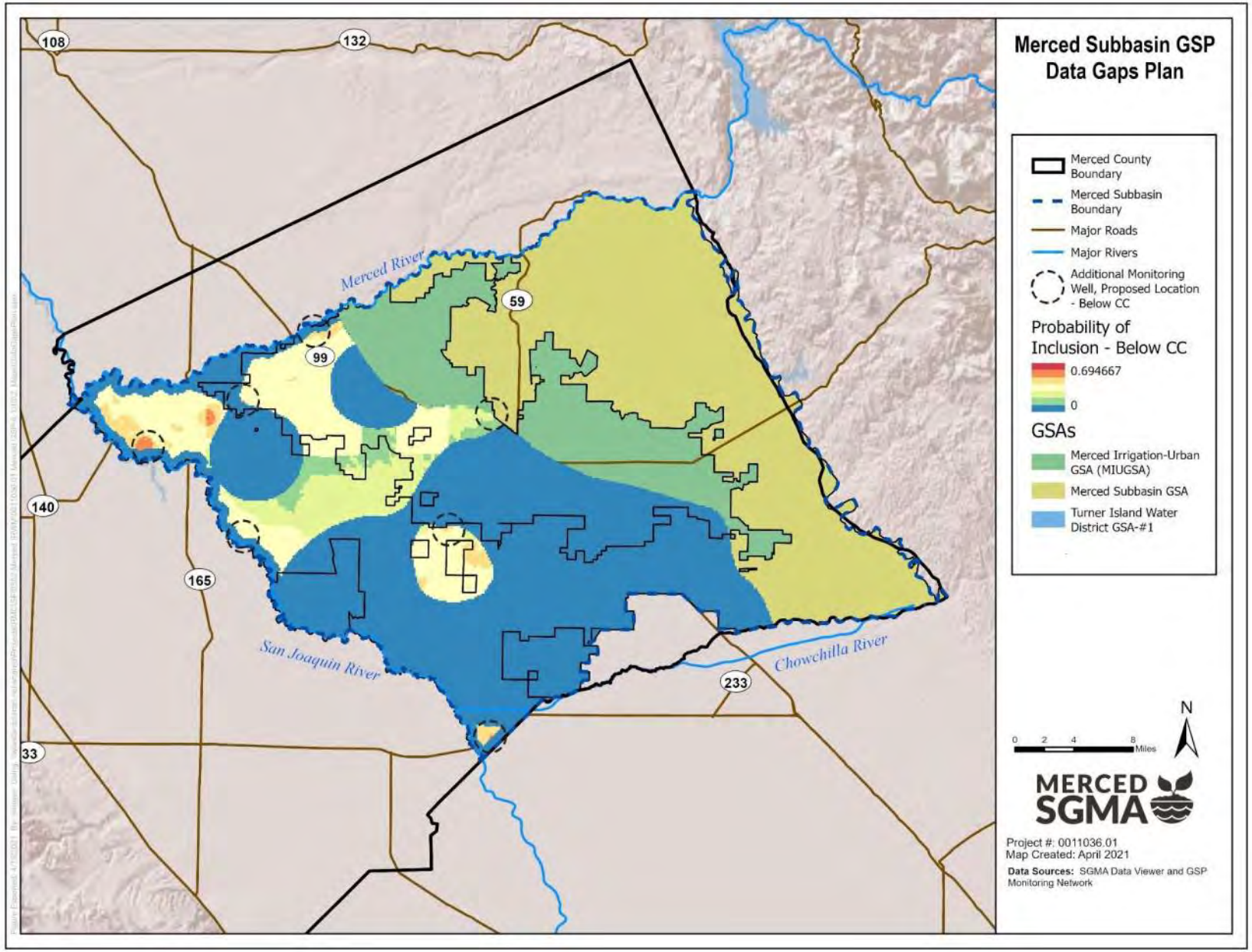
Assumptions

- 4+ wells per 100 sq. mi. guideline based on DWR BMP
- Proposed number of new wells assumes even distribution
- Assumes wells in SGMA Data Viewer with Fall 2020 monitoring data will be added to network if not already included
- Assumes adding some existing wells in TIWD GSA-#1 to monitoring network
- Already incorporates newly installed monitoring wells in El Nido, Planada, and City of Merced (UC Merced region)

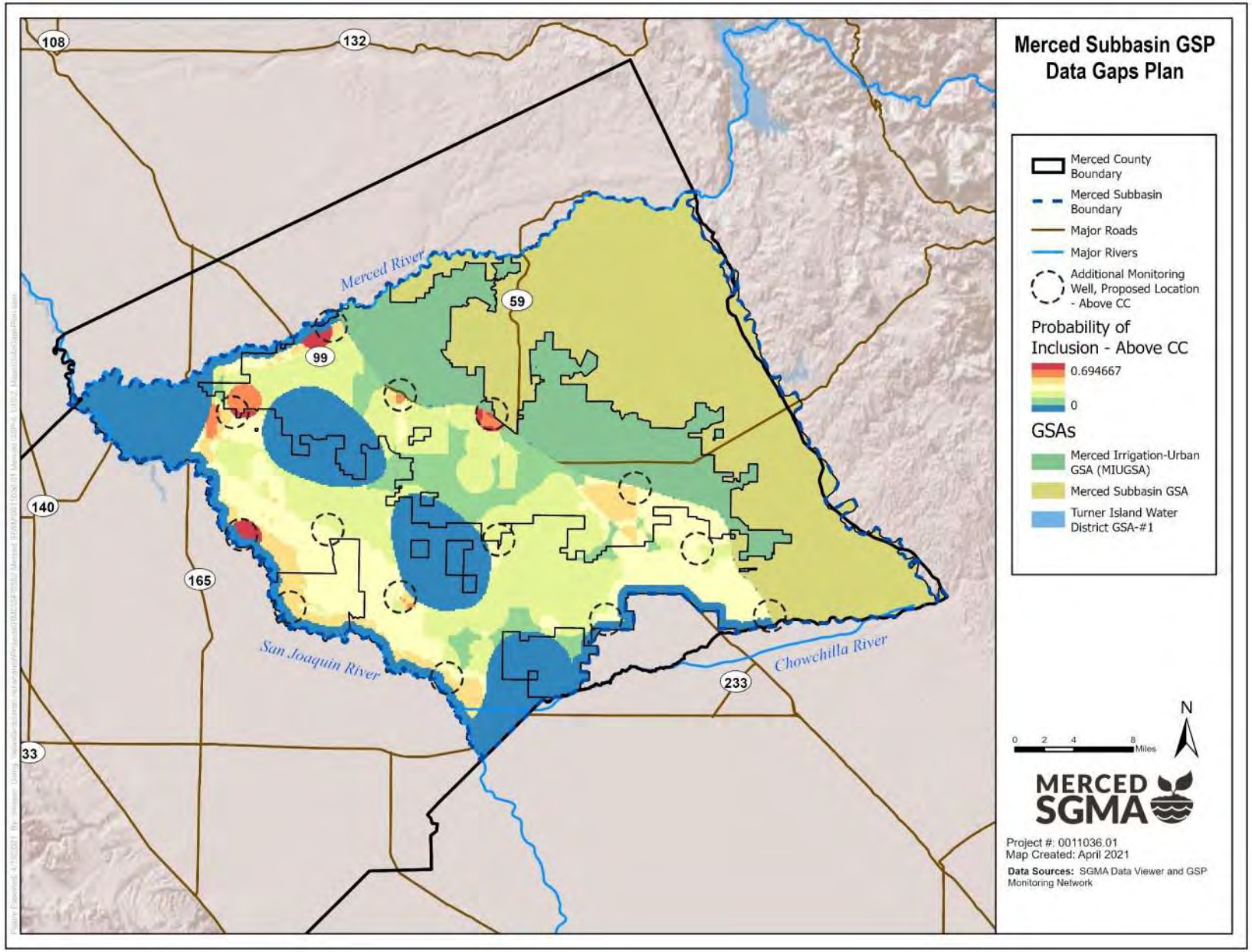
Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

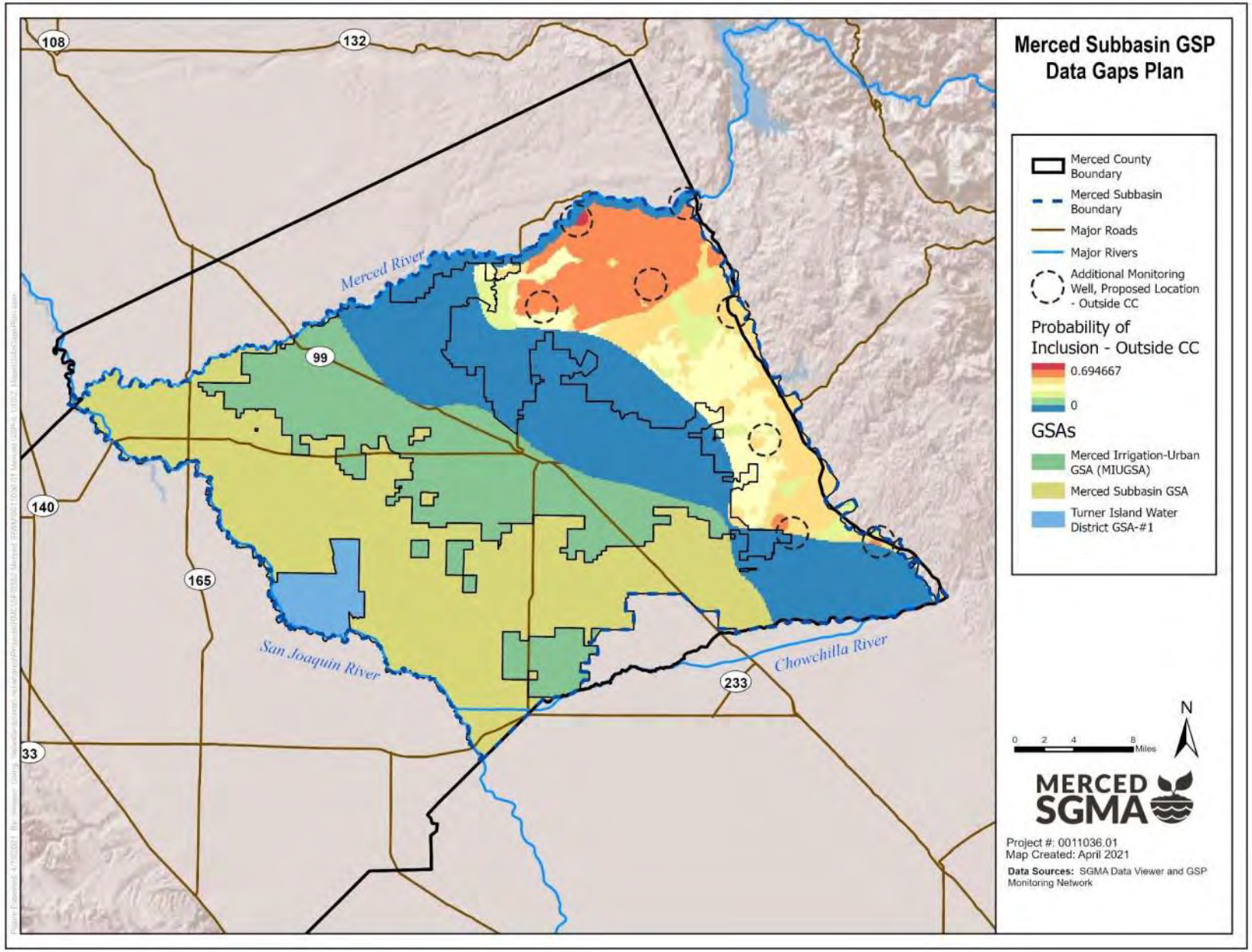
Run spatial analysis tool to increase monitoring density: Below Corcoran Clay



Run spatial analysis tool to increase monitoring density: Above Corcoran Clay



Run spatial analysis tool to increase monitoring density: Outside Corcoran Clay



Implementation Plan for Groundwater Level Wells

1. Run analysis tool
2. Identify existing wells to fill data gaps
3. Coordinate with landowners on well monitoring access
4. Obtain construction information for existing wells
5. Re-run analysis tool to identify updated priority areas with Steps 2-4 complete.
6. Install new monitoring wells in remaining data gap locations

Groundwater Quality – ESJWQC Groundwater Quality Trend Monitoring (GQTM)

Objectives include:

- Develop long-term groundwater quality information that can be used to evaluate the regional effects of irrigated agricultural practices and changes in agricultural practices,
- Understand long-term temporal trends in regional groundwater quality, particularly as they relate to effects from irrigated agriculture on potential sources of drinking water for communities

Monitoring design considerations include:

- Groundwater vulnerability
- Prioritization of High Vulnerability Areas
- Areas contributing recharge to communities reliant on groundwater, including disadvantaged communities (DACs)
- Top acreage commodities

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Groundwater Quality – ESJWQC Groundwater Quality Trend Monitoring (GQTM)

- Ultimately expected to have density of 1 well per 30 square miles (or higher)
- Spatial representation and statistical validity to be evaluated on an annual basis
- Efforts are ongoing to identify additional wells
  - Extensive work has already been done to identify well completion reports (total depth and screened interval), contact PWS, review existing wells in GAMA (DWR, USGS, etc.)
  - Has focused largely in “Upper Zone” of Central Valley (less focused on equivalent of Below Corcoran Clay)
- Upcoming effort of focused sampling expected in Merced in 2022

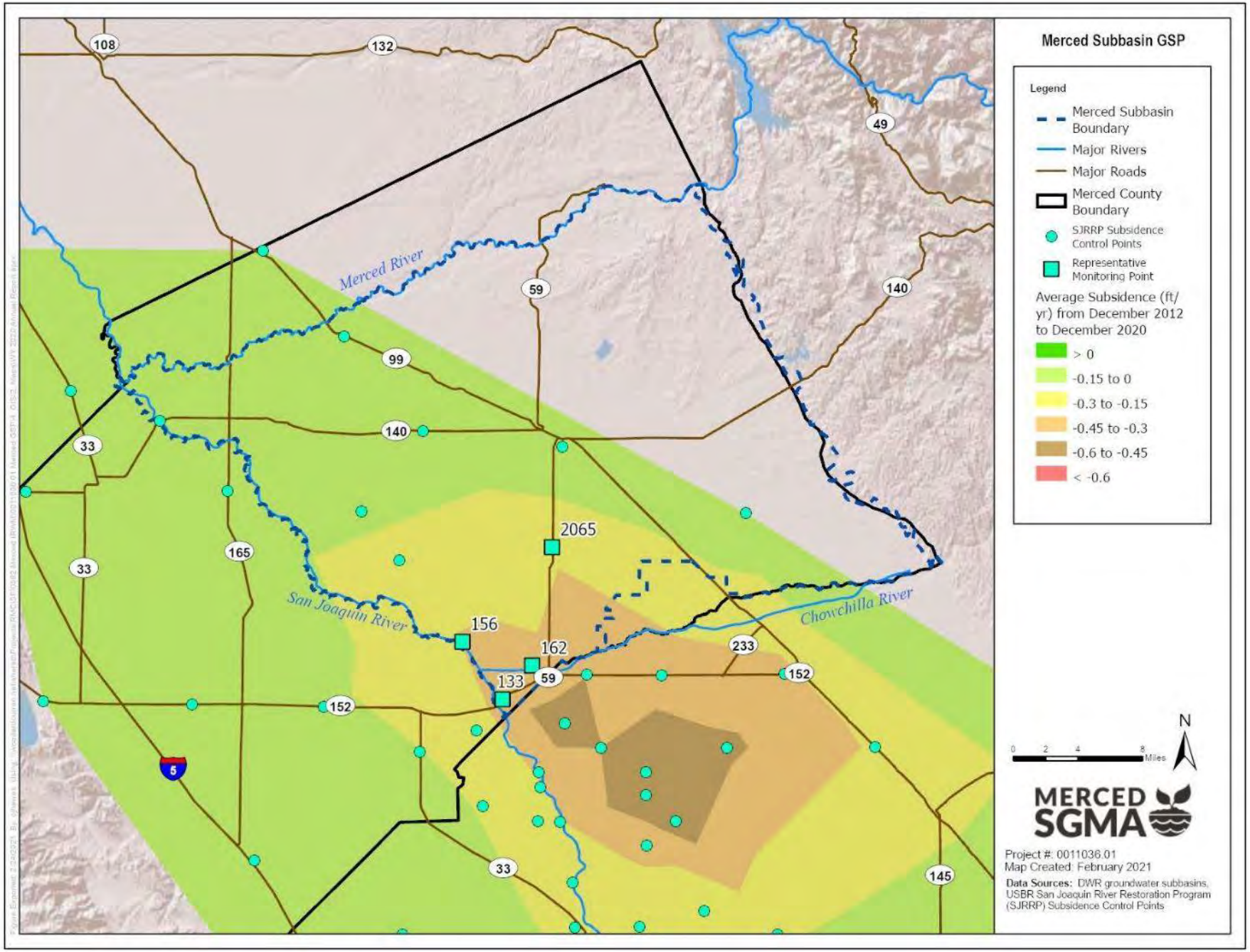
Data Gaps Plan recommendations

- Coordinate with existing efforts by ESJWQC in GQTM – may include increased frequency or other arrangements
- Analyze potential PWS wells in Below Corcoran for inclusion in network – may include increased frequency or other arrangements
- Other areas, deep and rural, may require additional efforts

Image courtesy: Veronica Addoyer/UC Merced

Subsidence

- Extensometers measure depth at which compaction is occurring
- Co-locate with GWL monitoring well in southern portion of basin
- Capture subsidence at multiple depths



Climate Monitoring

- Existing Merced CIMIS station site conditions limit the usefulness of data measured there
- Modeling and other efforts to date have used Los Banos station → introduces uncertainty due to being outside basin
- Future projects (remote sensing, etc.) would strongly benefit from:
  - A properly functioning CIMIS station → ongoing effort to improve current conditions
  - Siting and installing an additional CIMIS station to capture variability

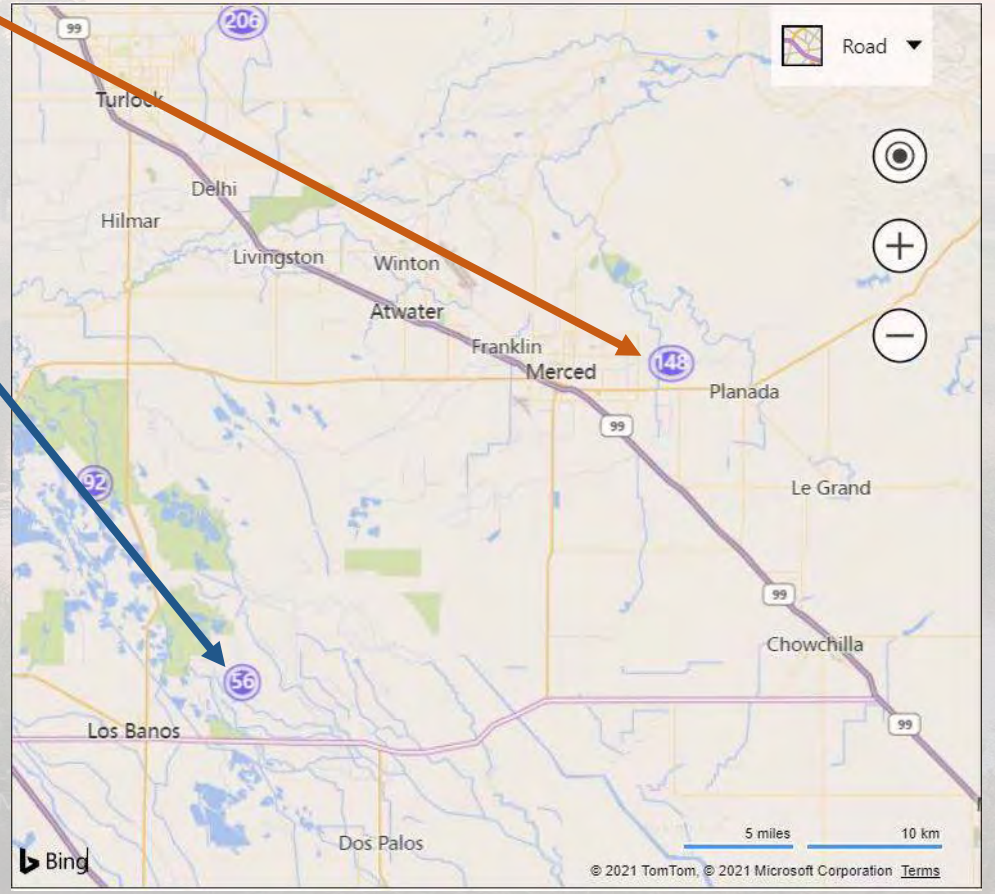


Image courtesy: Veronica Adrover/UC M

MEETING AGENDA – Merced GSP

SUBJECT: Merced GSP Stakeholder Advisory Committee Meeting

DATE/TIME: July 12, 2021, 1:00 to 3:00 PM

LOCATION: Zoom https://us02web.zoom.us/j/87522588896
Dial-in number if not using web audio: +1 669 900 6833 Webinar ID: 875 2258 8896
If you're unable to click the "Join Zoom Meeting" link above and want to join on a computer, visit www.mercedsgma.com/meetings to find a clickable join link on the MercedSGMA website.

Please note: This meeting agenda also serves as notice for the Coordination Committee, members of which may also be in attendance and participate during the meeting.

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1. Call to Order and Welcome

2. Introductions and Roll Call
   a. Review of Meeting Guidelines
   b. Discussion on moving to in-person meetings

3. SGMA Overview
   a. SGMA purpose and water rights
   b. GSA Authority
   c. County information item: potential transfer of well permitting to GSAs

4. Merced GSP Overview
   a. Estimated Sustainable Yield
   b. Allocation Framework as described in GSP and what is under development

5. Summary of April Coordination Committee Meeting
   a. Current Basin Conditions
   b. Meadowbrook Intertie Feasibility Study
   c. Data Gaps Plan

6. Drought Preparedness

7. Public Comment

8. Next Steps and Adjourn

Next Regular Meeting
TBD
Meeting to be conducted virtually (subject to change)
Information also available online at mercedsgma.org

Note: The meeting will be offered with simultaneous Spanish language interpretation.
Nota: Esta reunión será ofrecida con interpretación simultánea al idioma español.

If you need disability-related modification or accommodation in order to participate in this meeting, please contact Woodard & Curran staff at 415.321.3400 at least 48 hours prior to the start of the meeting.

Posted: June 29 at www.MercedSGMA.org

MEETING MINUTES – Merced GSP Stakeholder Advisory Committee

SUBJECT: Stakeholder Advisory Committee Meeting
DATE/TIME: July 12, 2021 at 1:00 PM
LOCATION: Zoom Virtual Meeting

Stakeholder Committee Members In Attendance:

	Representative	**Community Aspect Representation**
☐	Arlan Thomas	MIDAC member
☒	Ben Migliazzo (alternate)	Live Oak Farms
☒	Bob Kelley	Stevinson Representative
☒	Breanne Ramos	MCFB
☒	Craig Arnold	Arnold Farms
☐	Darren Olguin	Resident of Merced County
☒	Dave Serrano	Serrano Farms - Le Grand
☒	David Belt	Foster Farms
☒	Emma Reyes	Martin Reyes Farm/Land Leveling
☐	~~Gil Cardon~~ (has left committee, replacement TBD)	~~Merced Co. Hispanic Chamber of Commerce~~
☐	Greg Olzack	Atwater Resident
☒	Jean Okuye	E Merced RCD
☐	Joe Sansoni	Sansoni Farms/MCFB
☒	Joe Scoto	Scoto Brothers/McSwain School Dist.
☒	Jose Moran	Livingston City Council
☒	Lacy Carothers	Cal Am Water
☒	Lisa Baker	Clayton Water District
☒	Lisa Kayser-Grant	Sierra Club
☒	Mark Maxwell	UC Merced
☒	Maxwell Norton	Unincorporated area
☒	Nav Athwal	TriNut Farms
☒	Olivia Gomez	Community of Planada
☒	Amanda Monaco (alternate)	Leadership Counsel
☒	Parry Klassen	ESJWQC
☐	Reyn Akinoa	River Partners
☐	Rick Drayer	Merced/Mariposa Cattlemen
☒	Robert Weimer	Weimer Farms
☒	Simon Vander Woude	Sandy Mush MWC
☒	Susan Walsh	City of Merced
☒	Thomas Dinwoodie	Master Gardener/McSwain
☒	Trevor Hutton	Valley Land Alliance
☒	Wes Myers	Merced Grassland Coalition

Meeting Minutes

1. Call to Order and Welcome
    a. Charles Gardiners (Catalyst) welcomed the group.
2. Introductions and Roll Call
    a. Stakeholder Advisory Representatives for the Merced Subbasin GSP introduced themselves (see attendance record above).
    b. Charles Gardiners (Catalyst) provided a summary of responses to a survey of committee members conducted online ahead of the meeting (25 responses) about resuming in-person meetings.
        i. Comments ranged from wanting in person to desire for hybrid approach (both in person and option for virtual); the major limitation to a hybrid system is confirming a meeting space and the available technology.
        ii. Concern was raised over losing the voices of people who can't attend in-person if there's not a way to include them remotely.
        iii. Emma Reyes shared that vaccination status can be requested or can be stated as part of a policy, but participants don't need to provide that information as it is private medical information.
        iv. The Merced County Farm Bureau is working to upgrade their conference room for remote integration over the next several months which may be a possibility for future hybrid meetings.
        v. GSAs and W&C will explore technology and room availability to see if hybrid option is possible for October meeting.
3. Review of Topics Covered at April Stakeholder Advisory Committee Meeting
    a. Samantha Salvia (Woodard & Curran) briefly listed the topics covered at the April meeting and reminded the group all slides and meeting notes are posted on the www.MercedSGMA.org website. Topics covered:
        i. Overview of Merced GSP (sustainable management criteria, sustainability goal, etc.)
        ii. GSP Implementation Progress (grants, monitoring, projects)
        iii. Annual Report Summary (changes in gw levels in WY 2020)
        iv. Data Gaps Plan Development (gaps identified in GSP and grant funded work to prepare a plan to prioritize and address)
4. SGMA Overview
    a. Samantha Salvia (Woodard & Curran) explained that given the group only meets quarterly and the GSP is a large document, the GSAs want to start each meeting with some context. She provided a brief explanation of SGMA's purpose emphasizing that SGMA is meant to foster local management of groundwater and that SGMA gives GSAs authority to establish groundwater extraction allocations and collect fees. SGMA and GSPs adopted under SGMA cannot alter water rights.
    b. Lacey McBride (MSGSA) provided an informational update about how Merced County is considering updating the Groundwater Ordinance for well permitting (staff proposal currently being developed). The proposal would shift determination of consistency with GSPs from the County to the appropriate GSA. Lacey pointed out that under current conditions, the County is making a determination of whether well permit applications are consistent with GSPs they did not directly develop.
        i. Q: What about existing well replacement? A: Under the current staff proposal, well replacement would fall under the GSAs the same as for new wells. Existing exemptions would be pre-empted by the fact that the applicant is within jurisdiction of a GSA managing under a GSP.
        ii. Q: What about hardship such as replacement of a domestic well? A: That is something the GSAs will need to consider as they develop their policies if the proposal moves forward.

iii. Lisa Kayser-Grant: How many GSAs are considered under this policy? A: Merced County-wide has 17 GSAs across portions of several subbasins, but the Merced Subbasin only has 3 GSAs (and 1 GSP).
iv. Q: What is the level of oversight on consistency between GSPs? A: DWR reviews GSPs for consistency across each individual basin, and each GSP has to adhere to SGMA requirements as well.

5. Merced GSP Overview
   a. Samantha Salvia (Woodard & Curran) provided more information specific to the Merced GSP and ongoing review by DWR. She outlined what DWR has shared about its 3 review pathways for GSPs (approved, incomplete with corrective actions, inadequate). She described the feedback DWR has provided on the plans it has released public information on so far (2 approvals, and 2 "internal consultation"). She reiterated that DWR expects GSAs to be implementing their GSPs during the review process.
      i. Q: If there are questions from DWR's review, does this put us back to "zero" for Committees and decision-making? A: DWR feedback is more likely to be specifically targeted to areas of the GSP where DWR wants more information or support for analyses. Not so much a "redo" as a "refinement".
      ii. Q: Are the Plans that have already received feedback due to lack of documentation or weak implementation? A: Santa Cruz was approved while two others (Cuyama and Paso Robles) have started a more informal "internal consultation" with DWR (this information consultation avoids triggering the formal 180 day period for GSAs to address deficiencies, not fully declared "incomplete"). DWR's initial feedback is published publicly in the SGMA Portal.
      iii. Comment (Amanda Monaco): One takeaway from Leadership Counsel is that in addition to comments on sustainable management criteria and linkage to undesirable results, DWR wants to see as part of undesirable results that GSAs are looking at potential drinking water impacts and whether there will be impacts, as well as whether or not a mitigation program is required. .
   b. Samantha Salvia (Woodard & Curran) walked the group through the Merced GSP's estimates of water budgets, calculation of sustainable yield, and the development of the framework for allocation of the sustainable yield among the GSAs. The 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. As the GSAs continue to work on basin-wide allocations, they are evaluating GSA-specific 5 yr targets to make immediate progress towards sustainability while allocation framework discussions are ongoing. Samantha invited each GSA rep to describe their 5 yr target.
   c. Matt Beaman (MIUGSA) described MIUGSA's tentative target as a goal of reducing pumping of native groundwater to 1.5AF/AC by 2025. He further explained that a public process is underway within the GSA to develop principles and guideline for GSP implementation within MIUGSA (meetings expected to start August). He said MIUGSA recognizes that the ultimate sustainable number might be lower (than 1.5 AF/AC) but they wanted to set an aggressive intermediate target. Info available at http://mercedgroundwater.org/
   d. Lacey McBride (MSGSA) shared that MSGSA adopted via resolution on 7/8/21 a 5 yr target of 15,000 AFY reduction in consumptive use of groundwater in MSGSA by 2025. She acknowledged that greater reductions will be needed, but that this target puts the GSA on a glidepath to allow time for programs and projects to get into place in the first five years, and then additional reductions in years afterward will need to be steeper.
   e. Kel Mitchell (TIWD GSA #1) confirmed that all wells in TIWD GSA#1 are metered and that 1.5 AF/AC is a likely achievable 5 yr target but nothing has gone to the TIWD GSA#1 board formally yet. He stated that 1.5 AF/AC will be subject to additional discussions and collaboration at the Coordination Committee level.

f. Q: MIUGSA to reduce to 1.5 AF/AC by when? Will the MSGSA target eventually include AF/AC limit to users? Any ideas on when that clarification will be made public?
    i. A (MIUGSA): MIUGSA board has not taken specific action on this. Additional technical work and the public process are ongoing.
    ii. A (MSGSA): There's no single silver bullet for MSGSA to reduce consumptive use – it will be accomplished through a variety of projects and programs. The GSA has a technical advisory committee that is looking at this. Land repurposing will likely be part of a solution because it can provide multiple benefits (habitat, protection of domestic wells around DACs, etc.) along with allocations.

g. Q: So is the thought is we'll reduce pumping by 1.5 acre feet and then to meet the rest of the gap, we'll come up with additional surface water sources or establish a trading market?
    i. A (MIUGSA): There is no set schedule beyond the five-year target at this time.
    ii. A (MSGSA): Similar to MIUGSA, not sure exactly when bigger discussion about trading/markets/etc. will happen down the road because there are more near-term framework discussions to be had. The intent of the 5 yr targets is to help us make progress while we figure out what sustainability ultimately looks like for this basin.
h. Q: How many wells are metered in the Subbasin? A: The GSAs do not have data on how many are metered currently, except for TIWD GSA-#1. Requiring metering on wells is one management option available to the GSAs.

6. Summary of April Coordination Committee Meeting
    a. Chris Hewes (Woodard & Curran) provided a summary of current basin conditions that were presented at the April Coordination Committee meeting, including spring 2021 measurements of groundwater levels.
    b. Samantha Salvia (Woodard & Curran) provided a summary of the April presentation to the Coordination Committee about the Meadowbrook Intertie Feasibility Study. The goal of the grant funded study was to evaluate the needs and feasibility of connecting the Meadowbrook water system to either the Atwater or Merced city water system. The study found that interties to both Merced and Atwater systems are feasible with costs ranging from $1M to $2.5M depending on location.
    c. Chris Hewes (Woodard & Curran) provided a summary of the methodology and progress to date on the Data Gaps Plan. The Data Gaps Plan is grant funded and with a goal of developing a plan that identifies and ranks priority areas for the installation of monitoring wells or subsidence monitoring stations to support basin characterization and future GSP refinement. Chris shared the results of the SAC's April meeting poll on priorities for data gaps to fill. The Plan is currently drafted and being reviewed by GSA staff. Chris shared preliminary results of the spatial analysis tool showing areas recommended for additional monitoring.
        i. Q: Can private well owners be compelled to have their wells participate in the GSP monitoring network? A: No.
        ii. Comment from Bob Kelley: I have let WC know that we have installed a dedicated internet item in monitoring well on the east portion of the Stevinson Area. It is close to an orange area you cite in your tool methodology. Contact Betty Lindeman for inclusion of this real time information. I'm sure you have her email address.
        iii. Q: Will there be outreach to well owners to encourage participation in the monitoring program? A: Yes, the next step in the implementation of the Data Gaps Plan will be to conduct outreach. There is currently a standing call for monitoring data on the MercedSGMA website.
        iv. Q: Is the alternate to volunteering for groundwater level monitoring to be expensive remote sensing? A: For groundwater levels, it is more likely that new dedicated monitoring wells would need to be installed in right-of-ways or by finding willing landowners. . Note: A Remote-sensing tool is also being developed under grant funding as a potential alternative to *metering*, which is very expensive.

v. Q: Do volunteered wells need construction information to be part of the network? A: SGMA doesn't necessarily require construction information but we do need to know which aquifer it is completed in; there's the possibility of running a camera down the well to determine this.
    1. Follow-up comment from Parry Klassen: ESJWQC asked well owners to volunteer wells for their Groundwater Quality Trend Monitoring program and were amazed at the number of owners who volunteered, but most didn't qualify as they didn't have construction information. The ESJWQC Board might agree to provide information previously collected for volunteers in the data gap areas to approach them to be part of the network.

vi. Written Comment in chat: I thought USGS was doing a lot of monitoring of the zone below Corcoran Clay. *Follow-up response in chat:* USGS has been in Stanislaus and Merced Counties monitoring domestic wells. 60-80 wells is planned I understand

7. Drought Preparedness
    a. Matt Beaman (MIUGSA) provided a description of drought-related resources as California continues to experience an extreme drought.
    b. Lacey McBride (MSGSA): MSGSA's Technical Advisory Committee met in May and discussed drought and domestic wells. The committee's recommendation was to gather better information about domestic well locations before considering a mitigation program (data from the County about post-1996 permitted domestic wells may overcount because it doesn't include records for destroyed wells.) For now the best resource for emergency water is Self Help Enterprises (SHE). They are the administrator of state funds to provide tanked water or help drill new wells.
8. Public Comment
    a. Ursula Stock (via email):
        i. Attached is a very good article on the status of water in California, and I hope it will be referenced when making decisions, and included with my public comment, https://thevalleycitizen.com/valley-water-belongs-to-the-people/
        The water of Merced County needs to stay in Merced County. The natural system of the entire valley is an "ecosystem" onto itself. Low snowpack is constantly blamed on global warming, but our handling of valley water is crucial to snowpack. Over 95% of the Valley wetlands have been drained, cutting evapotranspiration. As we divert surface water, reducing recharge and the health of valley biomes, we further impact snowpack. As we lower or dry out the groundwater basin, that has a on the snowpack too. The less moisture in the valley, the less there is to evaporate, form clouds and rain/snow in the mountains- to flow back down our rivers. It is all interconnected.
        For example, lowered groundwater tables become too deep for the tap roots of indiginois trees to reach, causes the death of the tree, stops the huge movement of water it transpires, and reduces soil biomes that are tree dependent. The loss of these biomes result in the loss of water retention around the tree. In the early spring, you can easily see this water retention due to trees, when green encircles the trunks, while surrounding treeless areas remain brown. The Tule Fog is impacted as ground water recedes, which stone fruits and many local plants "mine' for water, further reducing evapotranspiration. Water is a finite resource, and as we remove the water from the valley, and reduce the flow of that water, we impact its availability to snowpack and to the valley.
        Like the human body, which can sustain a sudden loss of up to 14% of its blood in a short incident, and at 15% begins to suffer dire consequences, our watersheds have a tipping point. That tipping point is desertification, and humans have done this all over the world. Will we do it here too, as we fuss about water rights, versus the viability of the entire valley and delta ecosystem upon which we depend?
        Keep the water of Merced County in Merced County, and work to find nature based solutions to " living within the means" provided by this magnificent Valley.
        Ursula Stock, Merced

b. No other public comment during the meeting.

9. Next steps and adjourn
    a. Q: Could we change time of meetings from 1pm to 1:30PM? A: GSAs and consultants will consider this along with evaluating options for hybrid meeting location.

Next Regular Meeting
TBD mid-October 2021
Information also available online at mercedsgma.org

Data Gaps Plan

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Purpose & Goal

- **Purpose –** Improve scientific understanding of Subbasin to support ongoing basin management and policy making

- **Goal –** Develop a plan that identifies and ranks priority areas for the installation of monitoring wells or subsidence monitoring stations to support basin characterization and future GSP refinement.

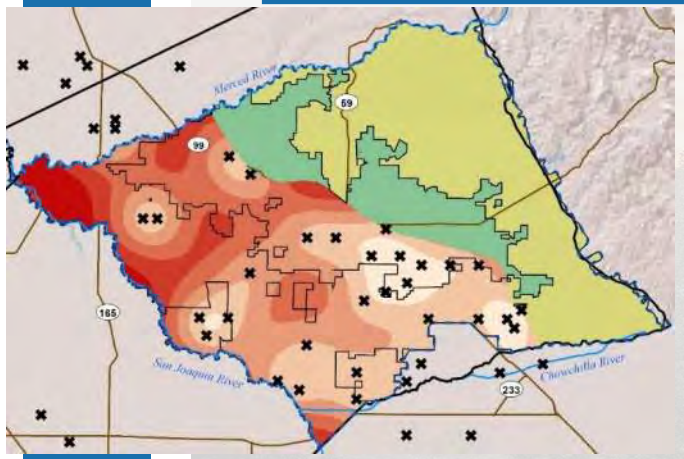
Image courtesy: Veronica Adrover/UC Merced

Data needs identified in GSP

- Better understand groundwater levels in poorly monitored portions of the subbasin
- Improve characterization of groundwater quality without duplicating other efforts
- Better understand depth at which subsidence is occurring
- Better understanding of shallow groundwater condition near GDEs and rivers
- Others
  - Inter-basin flows
  - Model improvement
  - Agro-climate station (e.g. CIMIS station)
  - Areas of interest (e.g., high pumping areas, groundwater level depressions, significant recharge areas, specific projects)

Image courtesy: Veronica Adrover/UC Merced

Data Gaps Tool Overview



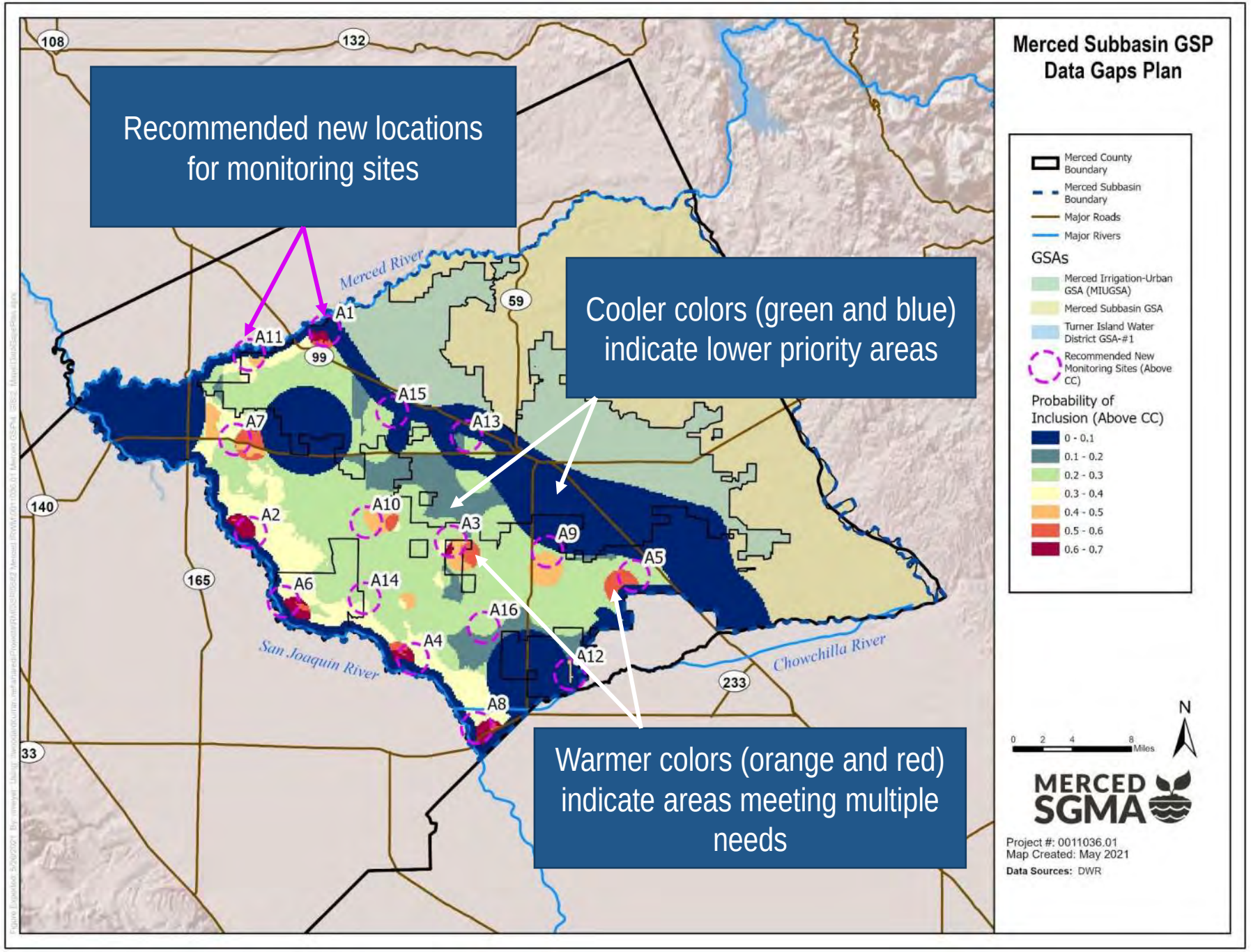
Highlight areas of uncertainty

Consider other important factors for monitoring site locations

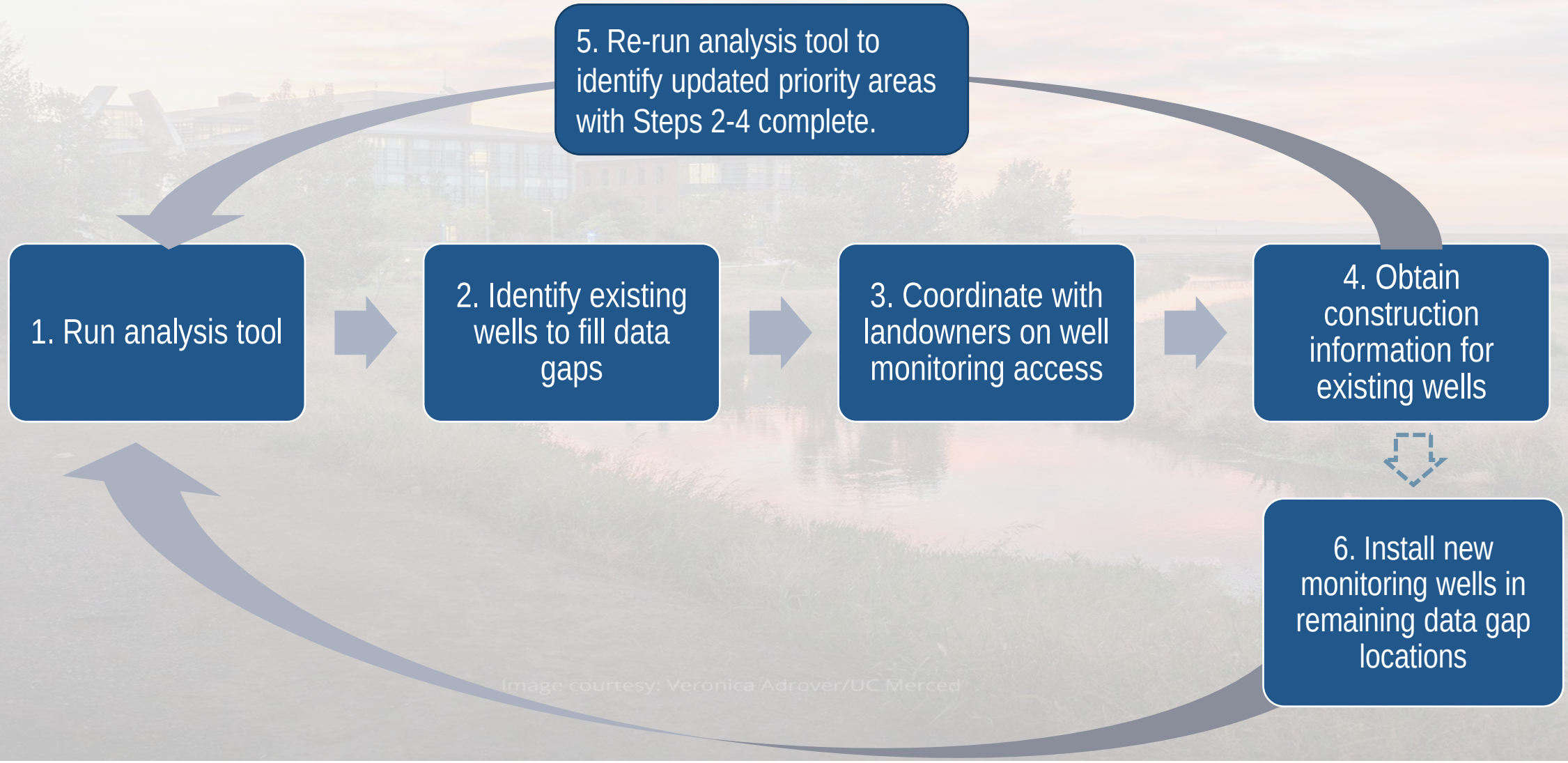
- Existing Well Tiering Rank
- Depth to Groundwater
- Distance to Streams
- Water Quality
- Subsidence
- Distance to Subbasin Boundary
- Natural Communities Commonly Associated with Groundwater
- Disadvantaged Communities

Run spatial analysis tool to get recommendations on where to locate additional wells

Run spatial analysis tool to get recommended locations for additional wells: Example results for Above Corcoran Clay



Implementation Plan for Groundwater Level Wells



Other Recommendations

Groundwater Quality

- Increase monitoring frequency - coordinate with existing efforts by ESJWQC in GQTM & work with well owners to coordinate increased TDS sampling at existing wells.
- Identify additional wells in Below Corcoran Clay or rural/deep Outside Corcoran Clay

Subsidence

- Contact drillers/well owners to look at depth of casing failures
- Consider extensometers to measure depth at which compaction is occurring ($$$ likely requires outside funding)

Interconnected Surface Waters

- Expand monitoring network, incorporate new data, coordinate data collection adjacent to Subbasin boundary

Model / Climate

- Consider installation of a second CIMIS station in the Subbasin

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

MEETING AGENDA – Merced GSP

SUBJECT: Merced GSP Coordination Committee Meeting

DATE/TIME: July 26, 2021, 1:15 to 3:15 PM

LOCATION: Zoom https://us02web.zoom.us/j/84114807675
Dial-in number if not using web audio: 1-669-900-6833 Webinar ID: 841 1480 7675
If you're unable to click the "Join Zoom Meeting" link above and want to join on a computer, visit www.mercedsgma.com/meetings to find a clickable join link on the MercedSGMA website.

Please note: This meeting agenda also serves as notice for the Stakeholder Advisory Committee, members of which may also be in attendance and participate during the meeting.

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1. Call to Order and Welcome

2. Roll Call

   Representatives for Merced Groundwater Subbasin GSA, Merced Irrigation-Urban GSA, and Turner Island GSA-1

3. Consent Calendar

   Approval of April 26, 2021 Meeting Minutes

4. Public Comment
   Members of the public are invited to provide up to 3 min of public comment on any agenda item

5. Reports
   a. Current basin conditions
   b. Coordination with neighboring basins
   c. GSA Reports - Updates from each GSA on activities they are undertaking in their own jurisdiction

6. Actions
   a. GSP Well Monitoring
      i. ACTION: Recommend GSA boards authorize MIUGSA to administer a contract with QK for monitoring work and related technical support.

7. Discussion Items
   a. Remote Sensing Decision Support Tool (Prop 68 Planning Grant funded work) – Woodard & Curran will present an update on the remote sensing decision support tool.
   b. Stakeholder Advisory Committee update – Woodard & Curran will present a brief summary of the July 26 meeting.
   c. Data Gaps Plan (Prop 68 Planning Grant funded work) – Woodard & Curran will present the findings and recommendations from the Data Gaps Plan.
   d. Minimum Thresholds in Areas Lacking Historical Monitoring Data – Woodard & Curran will summarize recent discussion and analysis with GSA staff and recommendations on how to proceed with establishing MTs in areas lacking historical monitoring.

e. Insights from DWR Comment Letter on Other GSPs – Woodard & Curran will present a summary of the information DWR has published on several GSPs so far and their potential relevance to the Merced GSP.

f. Legislation Update – MIUGSA to provide summary of SWRCB latest emergency rules/notices affecting surface water diversions and their potential impact on groundwater.

g. Allocation Framework Update – The ad-hoc group will provide an update on the development of the allocation framework.

8. Next steps and adjourn
   a. Confirm next meeting date

Next Regular Meeting
TBD, but expected to be in October
Information also available online at mercedsgma.org

Action may be taken on any item

Note: The meeting will be offered with simultaneous Spanish language interpretation.

Nota: Esta reunión será ofrecida con interpretación simultánea al idioma español.

If you need disability-related modification or accommodation in order to participate in this meeting, please contact Woodard & Curran staff at 415.321.3400 at least 48 hours prior to the start of the meeting.

Meeting minutes for the 7/26 Coordination Committee meeting are expected to be posted to the Merced SGMA website once approved in October 2021: http://www.mercedsgma.org/committees

Data Gaps Plan

Image courtesy: Veronica Adrover/UC Merced

MERCED SGMA

Data Gaps Plan Recap

- **Purpose –** Improve scientific understanding of subbasin to support ongoing basin management and policy making
- **Goal –** Develop a plan that identifies and ranks priority areas for the installation of monitoring wells or subsidence monitoring stations to support basin characterization and future GSP refinement.
- **Status –** Feedback collected at April meetings (CC & SAC) and comments provided by GSA staff & CC. Plan just finalized today 7/26.
  - Describes a methodology for filling data gaps and provides a first round of results.
  - Next steps during the implementation phase will be running the tool iteratively after researching existing wells & conducting landowner outreach.

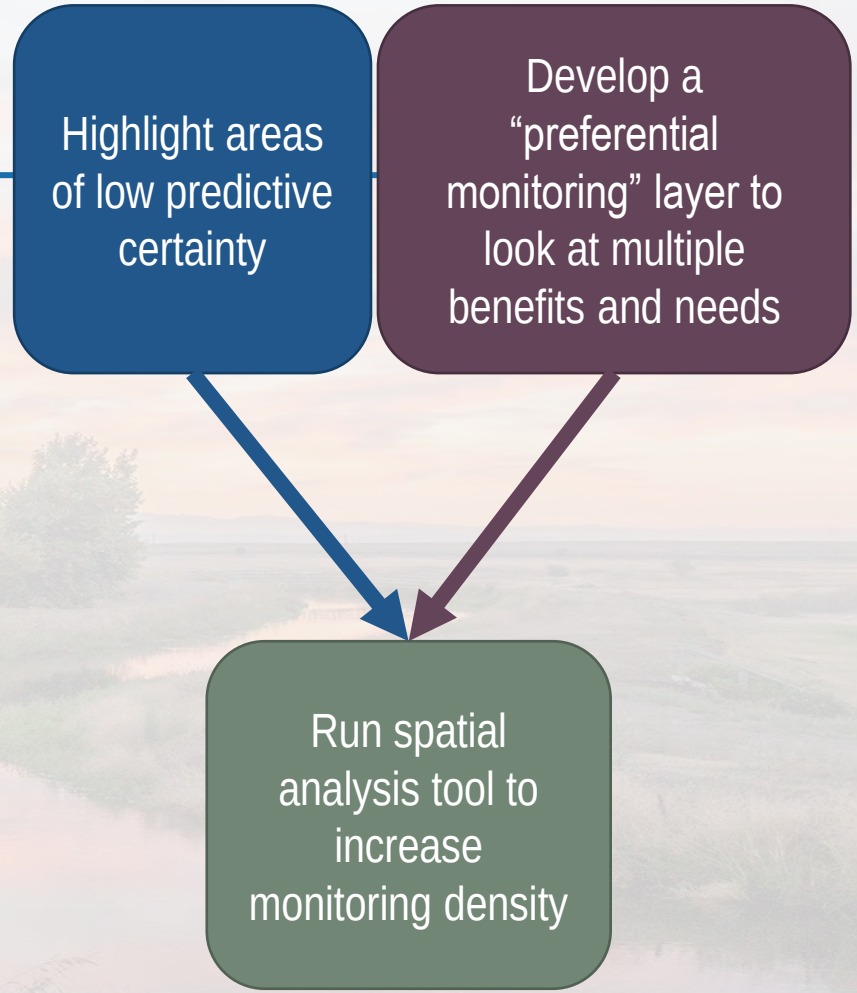

Image courtesy Veronica Adrover/UC Merced

Update to how many additional wells needed

- Incorporated updated weighting scheme to calculate number of additional wells needed to meet monitoring network density goal of 4 wells / 100 square miles

Aquifer	Number of Existing Monitoring Network Wells	Weighted Aquifer Area (sq. mi.) Requiring New Well to Reach 4+ wells / 100 sq. mi.	Number of Additional Wells Needed to Reach 4+ wells / 100 sq. mi.
Below CC	17	206 (47%)	9
Above CC	11	311 (71%)	13*
Outside CC	26	132 (36%)	6

**Some of the 13 new Above CC wells are overlaps with the 9 needed for Below CC*

Image courtesy: Veronica Adrover/UC Merced

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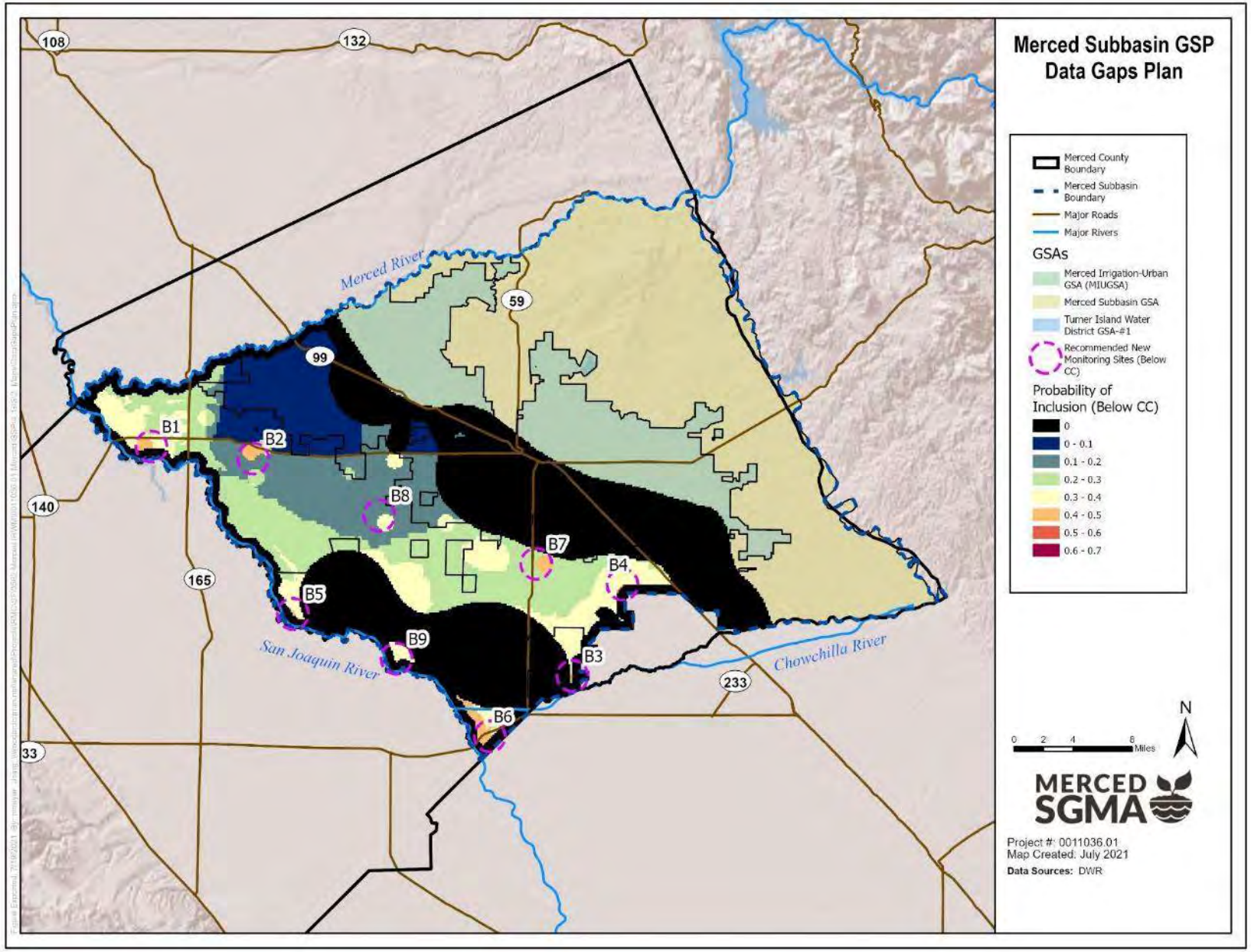
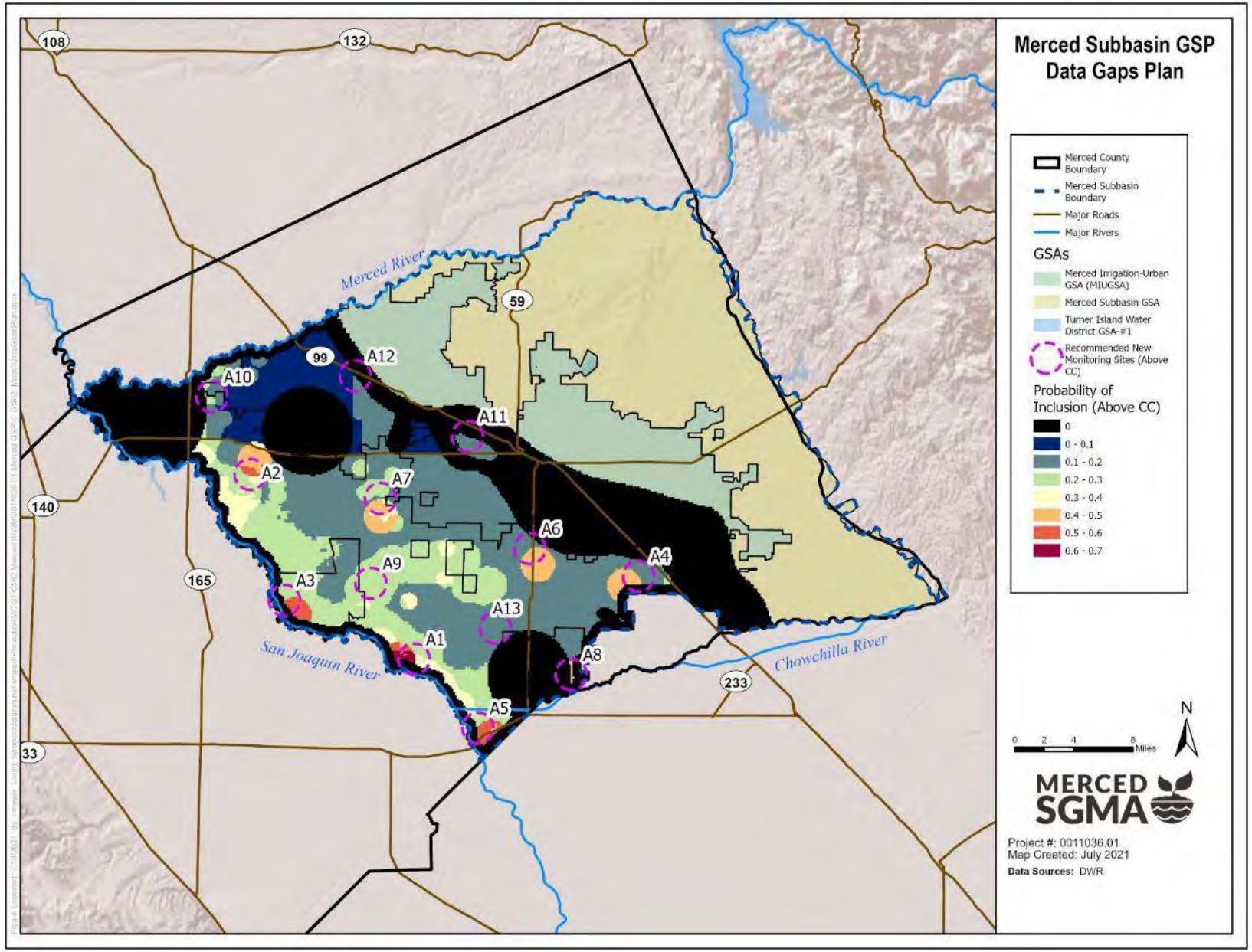
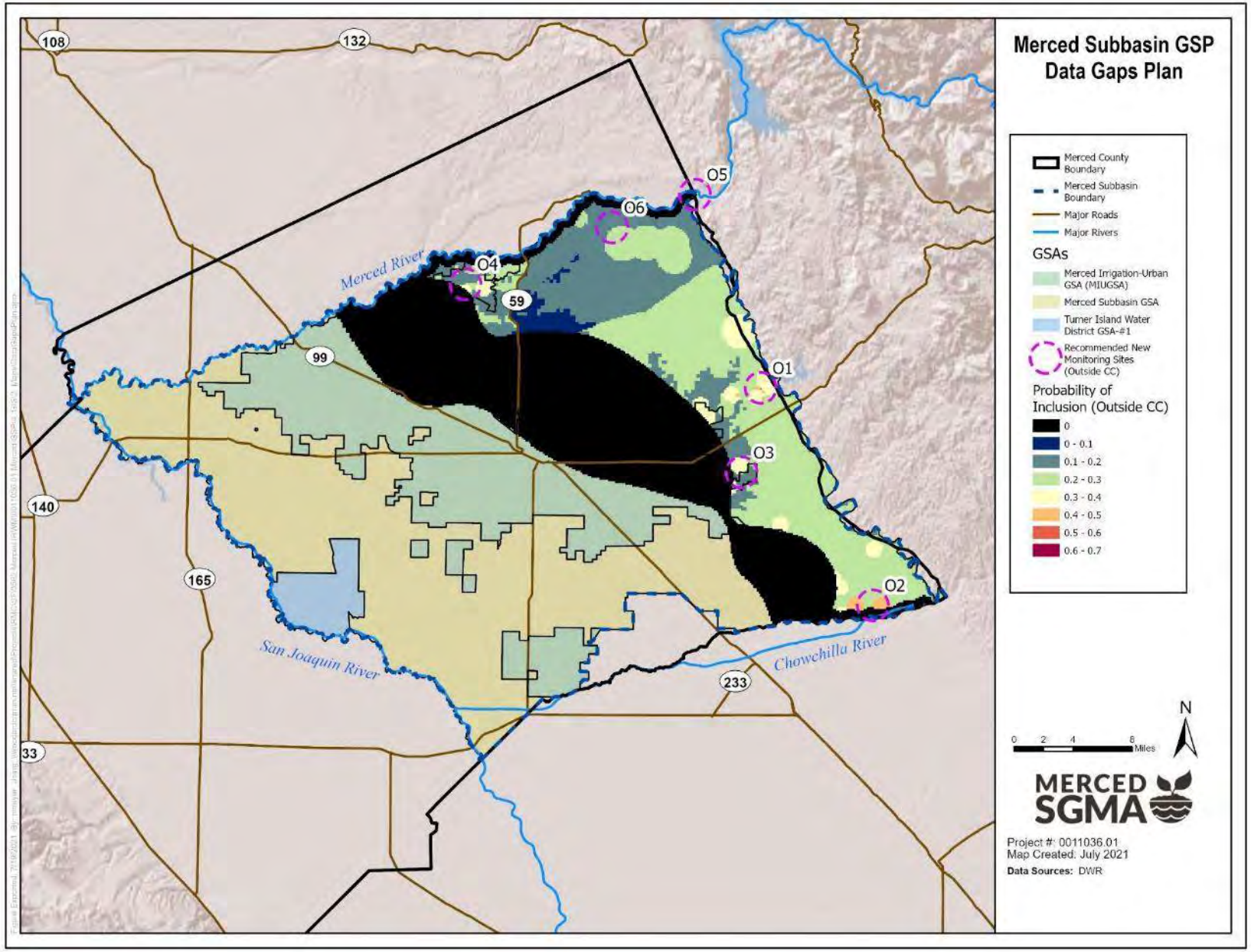
Run spatial analysis tool to increase monitoring density: Below Corcoran Clay



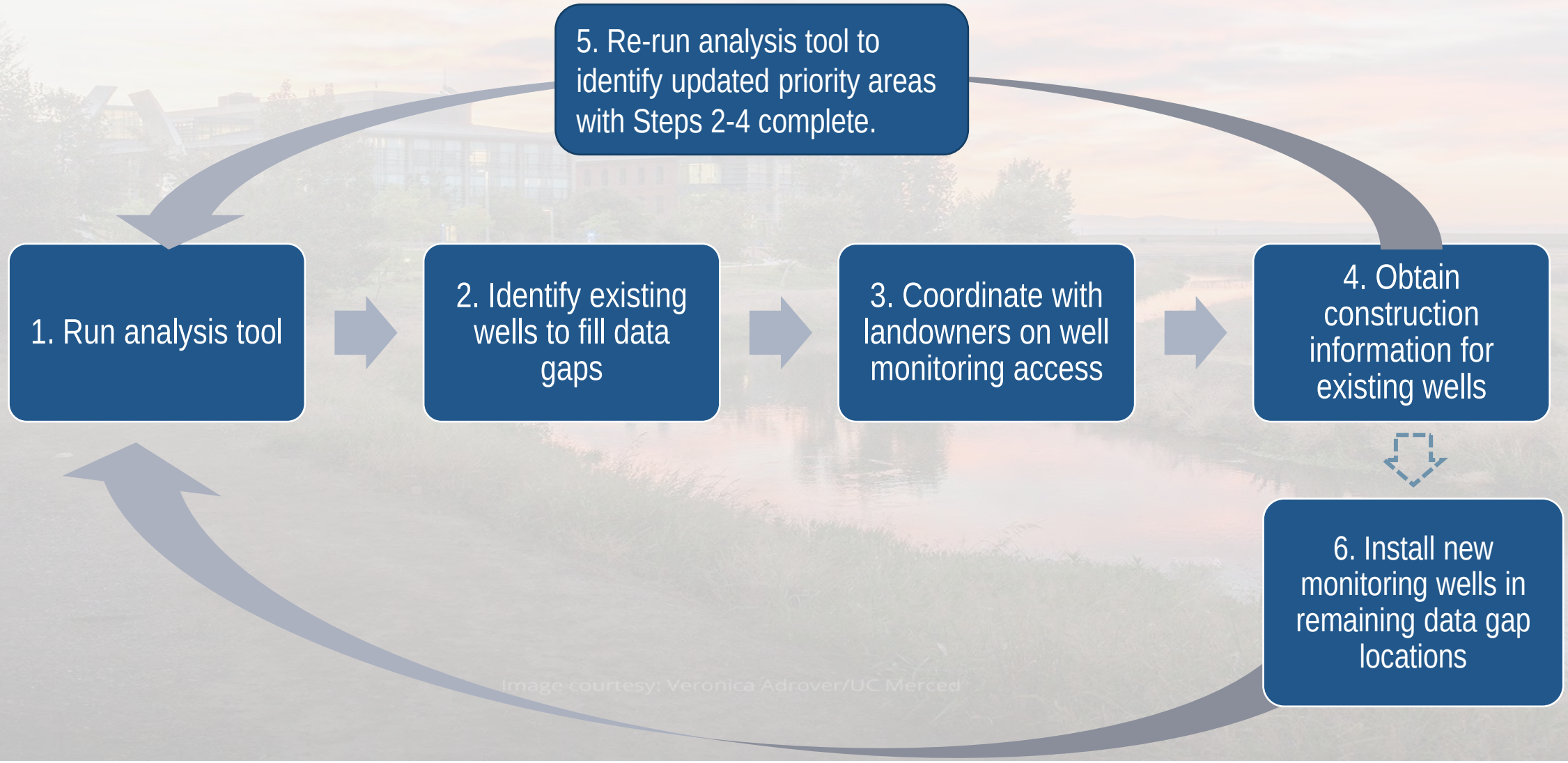
Run spatial analysis tool to increase monitoring density: Above Corcoran Clay



Run spatial analysis tool to increase monitoring density: Outside Corcoran Clay



Implementation Plan for Groundwater Level Wells



Summary of Other Recommendations

Groundwater Quality

- Increase monitoring frequency - coordinate with existing efforts by ESJWQC in GQTM & work with well owners to coordinate increased TDS sampling at existing wells.
- Identify additional wells in Below Corcoran Clay or rural/deep Outside Corcoran Clay

Subsidence

- Contact drillers/well owners to look at depth of casing failures
- Consider extensometers to measure depth at which compaction is occurring ($$$ likely requires outside funding)

Interconnected Surface Waters

- Expand monitoring network, incorporate new data, coordinate data collection adjacent to Subbasin boundary

Model / Climate

- Consider installation of a second CIMIS station in the Subbasin

Image courtesy: Veronica Adrover/UC Merced

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