GSP Stakeholder Committee

Stakeholder Committee Meeting – June 24, 2019

Image courtesy: Veronica Adrover/UC Merced

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Agenda

- Welcome, Introductions, and Agenda Review
- Presentation by Woodard & Curran on GSP development
  1. Next Steps in GSP Development
  2. Sustainable Management Criteria
  3. Monitoring Networks & Addressing Data Gaps
  4. Plan Implementation
- Public Outreach Update
- Interbasin Coordination Update
- Public Comment on Items not on the Agenda
- Next Steps and Next Meeting

Image courtesy: Veronica Adrover/UC Merced

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Stakeholder Committee Meeting Agreements

Guidelines for successful meetings

- Civility is required.
  - Treat one another with courtesy and respect for the personal integrity, values, motivations, and intentions of each member.
  - Be honest, fair, and as candid as possible.
  - Personal attacks and stereotyping are not acceptable.
- Creativity is encouraged.
  - Think outside the box and welcome new ideas.
  - Build on the ideas of others to improve results.
  - Disagreements are problems to be solved rather than battles to be won.
- Efficiency is important.
  - Participate fully, without distractions.
  - Respect time constraints and be succinct.
  - Let one person speak at a time.
- Constructiveness is essential.
  - Take responsibility for the group as a whole and ask for what you need.
  - Enter commitments honestly, and keep them.
  - Delay will not be employed as a tactic to avoid an undesired result.

Image courtesy: Veronica Adrover/UC Merced

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Coordinating Committee Update

Image courtesy: Veronica Adrover/UC Merced

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Next Steps in GSP Development

Image courtesy: Veronica Adrover/UC Merced

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GSP Development

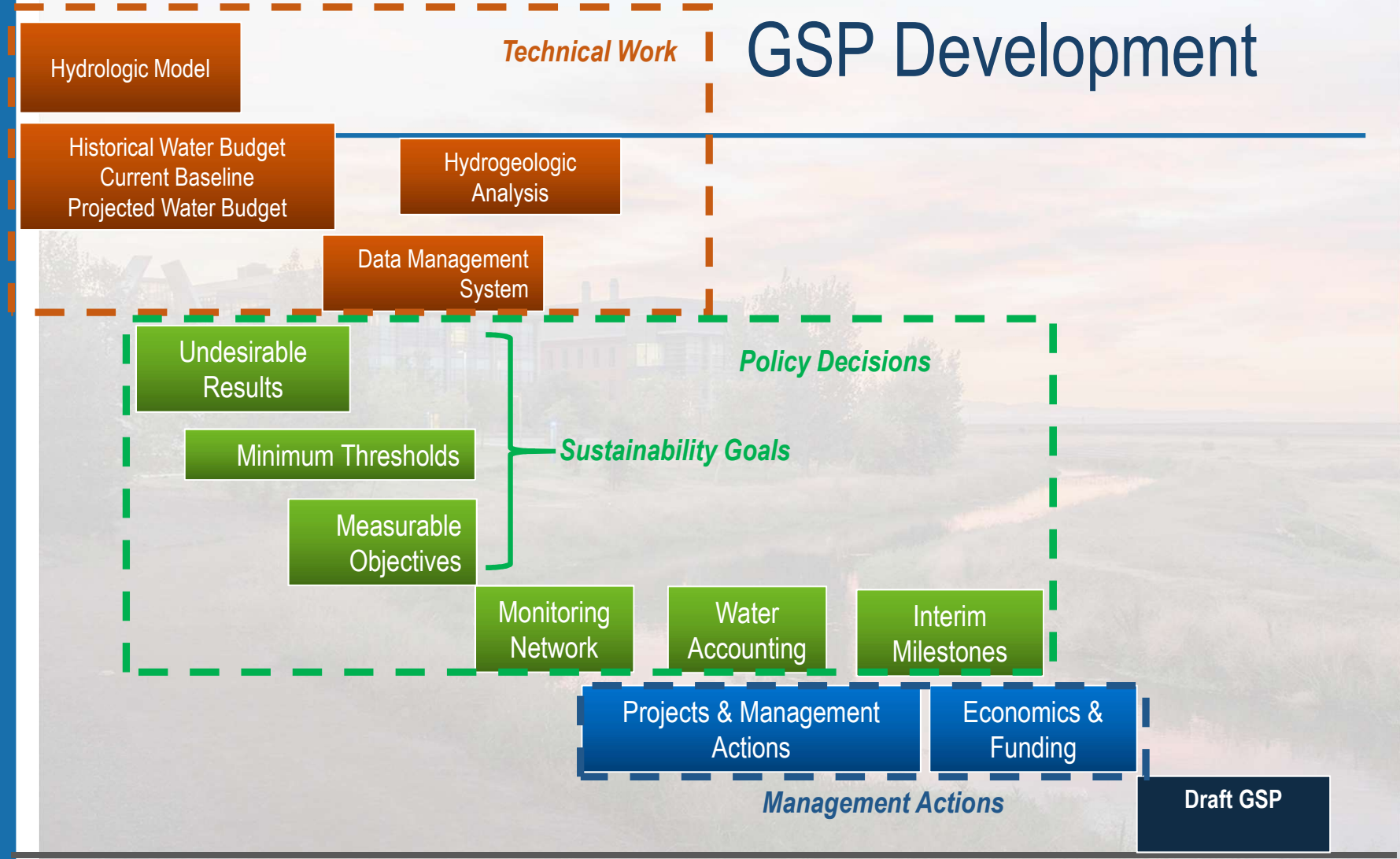

Image courtesy: Veronica Adrover/UC Merced

Revised Merced GSP Review & Submission Timeline

90 Days Post-Notice of Intent to Adopt
(Can adopt or amend from 28-Oct if notice issued by 29-Jul)

Full GSP Available for Public Review

JULY	AUG/SEPT	OCTOBER	NOV/DEC	DEC/JAN
Deliver full GSP draft July 19	Review and Comments on Draft GSP	Consulting team revisions to incorporate comments	Recirculate to GSA Boards	Submit to DWR
SC & CC meetings July 22 Issue NOI by July 29	SC meeting Joint Board meeting of the three GSAs		Adoption hearings: MSGSA, TIWD, & MIUGSA agencies	

GSP Development:
Current Status & Activities

Section	Status	Input needed from today's meeting
Plan Area and Authority	✓	none
Basin Setting	✓	none
Sustainable Management Criteria	Expected release to SC 6/28	Input on setting MTs for future wells
Monitoring Networks	In GSA Staff review	Plan to fill data gaps
DMS	✓	none
Projects and Management Actions to Achieve Sustainability Goal	In GSA Staff review	Allocation framework
Plan Implementation	Under development	Discuss assumptions

Sustainable Management Criteria

Image courtesy: Veronica Adrover/UC Merced

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Sustainable Management Criteria

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

Image courtesy: Veronica Adrover/UC Merced

Sustainable Management Criteria: Input from County on Water Quality

Input received from Merced County Environmental Health Division on water quality sustainability indicator:

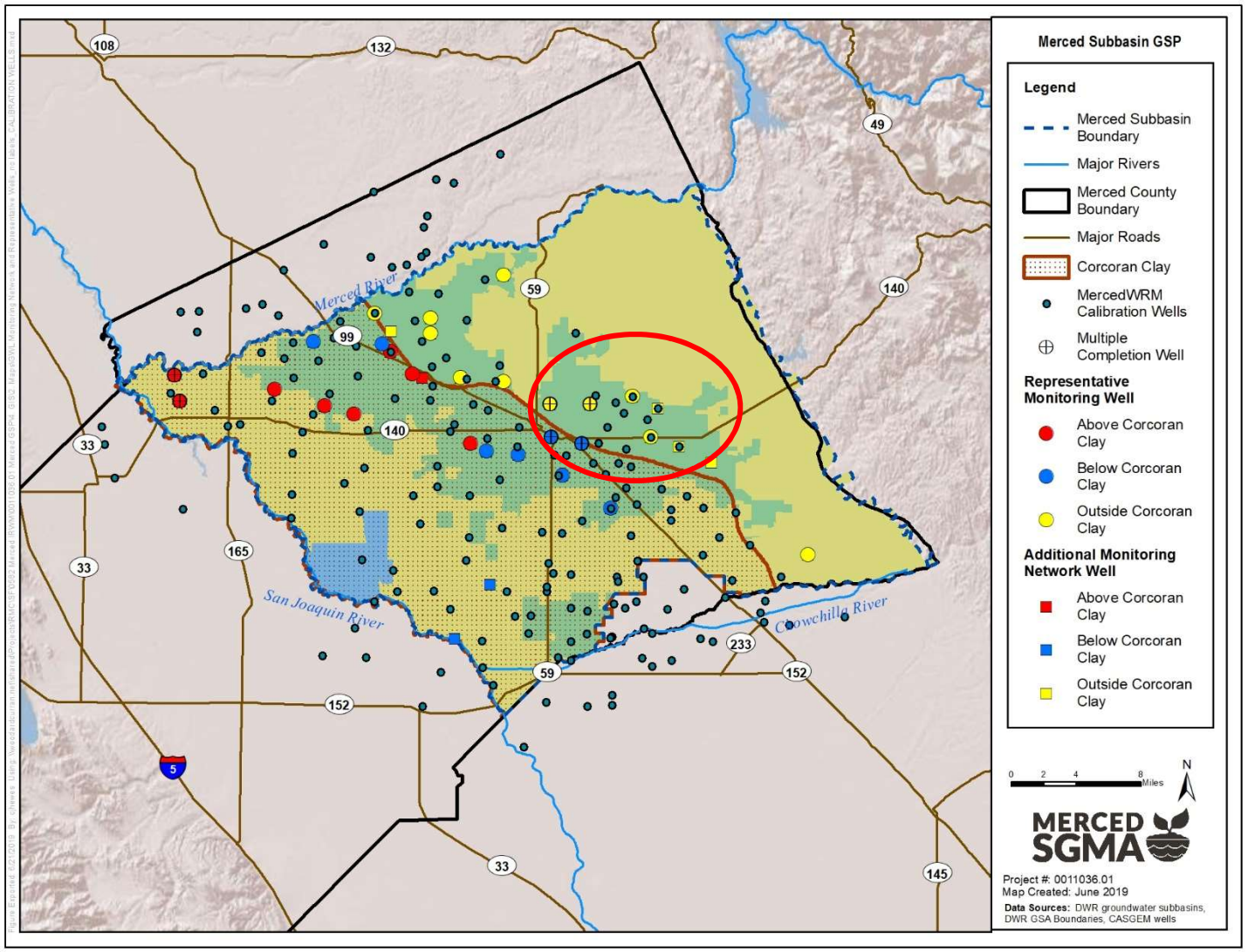
- SGMA does not specify what water quality constituents must have MTs
- Agree that salinity is good indicator for water quality issues that are related to gw management activities
- GSAs do not have the tools, responsibility, or resources to monitor and clean up water quality contamination, other programs are tasked with that
- **Recommendations**
  1. Encourage the GSA's to make use of resources like GeoTracker and Envirostor for any active sites in the basin
  2. Coordinate with State programs to follow their monitoring, implement active surveillance of state's monitoring sites, identify next steps if known plumes move toward a GSA well (part of coordination program, not monitoring program)
  3. If GSAs take on monitoring of additional contaminants, GSAs should obtain formal documentation from the State removing GSAs from liability of cleanup

Image courtesy: Veronica Adrover/UC Merced

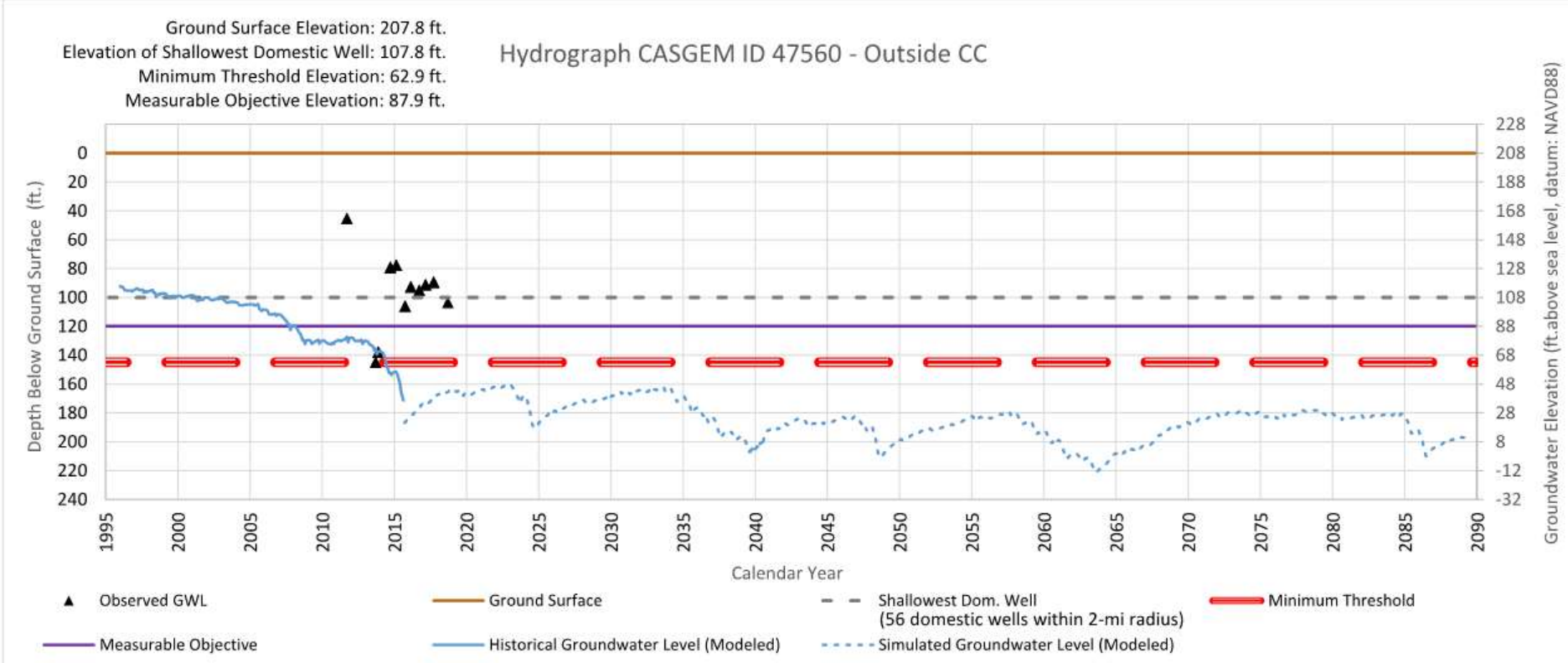
Sustainable Management Criteria: Discussion

- GW level MT: Depth of shallowest well in 2-mi radius of representative well or Jan 1 2015
- Issue: two wells included in representative monitoring network have *modeled* results which indicate *potential* levels below MTs (historical data is well above MTs)
  - Located in an area with known calibration issues related to lack of data about a shallow geologic confining unit in the area; model data is not considered reliable in this location and requires refinement
- Suggestion from Merced Subbasin GSA to add third element to methodology for groundwater elevation Minimum Thresholds OR remove wells
  - Add a third element to the methodology that uses the model to anticipate groundwater elevation and help determine a Minimum Threshold for certain wells where the historical data shows groundwater levels have already dewatered the shallowest domestic well and where modeling shows the groundwater elevation may drop below the 2015 level

Monitoring Wells and MercedWRM Calibration Wells



Monitoring Wells and MercedWRM Calibration Wells



- Simulated groundwater levels go below minimum threshold
- Partially due to a lack of data about a shallow geologic confining unit in this geographical area
- Model appears to be more accurate in representing the trends at these wells
- Expected that simulated groundwater levels are being shown lower than what would be expected based on historical trends.

Options for Discussion

- Consultant recommendation: maintain existing MT and UR definitions:
  - Violations are not expected to occur; while modeled data suggests they are possible, historical data does not (and it is not recommended that modeled data be used this location, as it is an area with known model refinement needs)
  - Even if modeled data were included in the definition, MT would be based on domestic wells not modeling projections, because domestic wells would be dewatered using a MT based on modeled data
  - Even if the wells DO dip below the MT, an UR would not occur unless 25% of representative wells dipped below MTs in two consecutive non-dry years
- Alternative options:
  - Add a third element to the methodology that uses the model to anticipate groundwater elevation and help determine a MT for certain wells where the historical data shows groundwater levels have already dewatered the shallowest domestic well and where modeling shows the groundwater elevation may drop below the 2015 level
  - Do not use these wells

Monitoring Networks & Addressing Data Gaps

Image courtesy: Veronica Adrover/UC Merced

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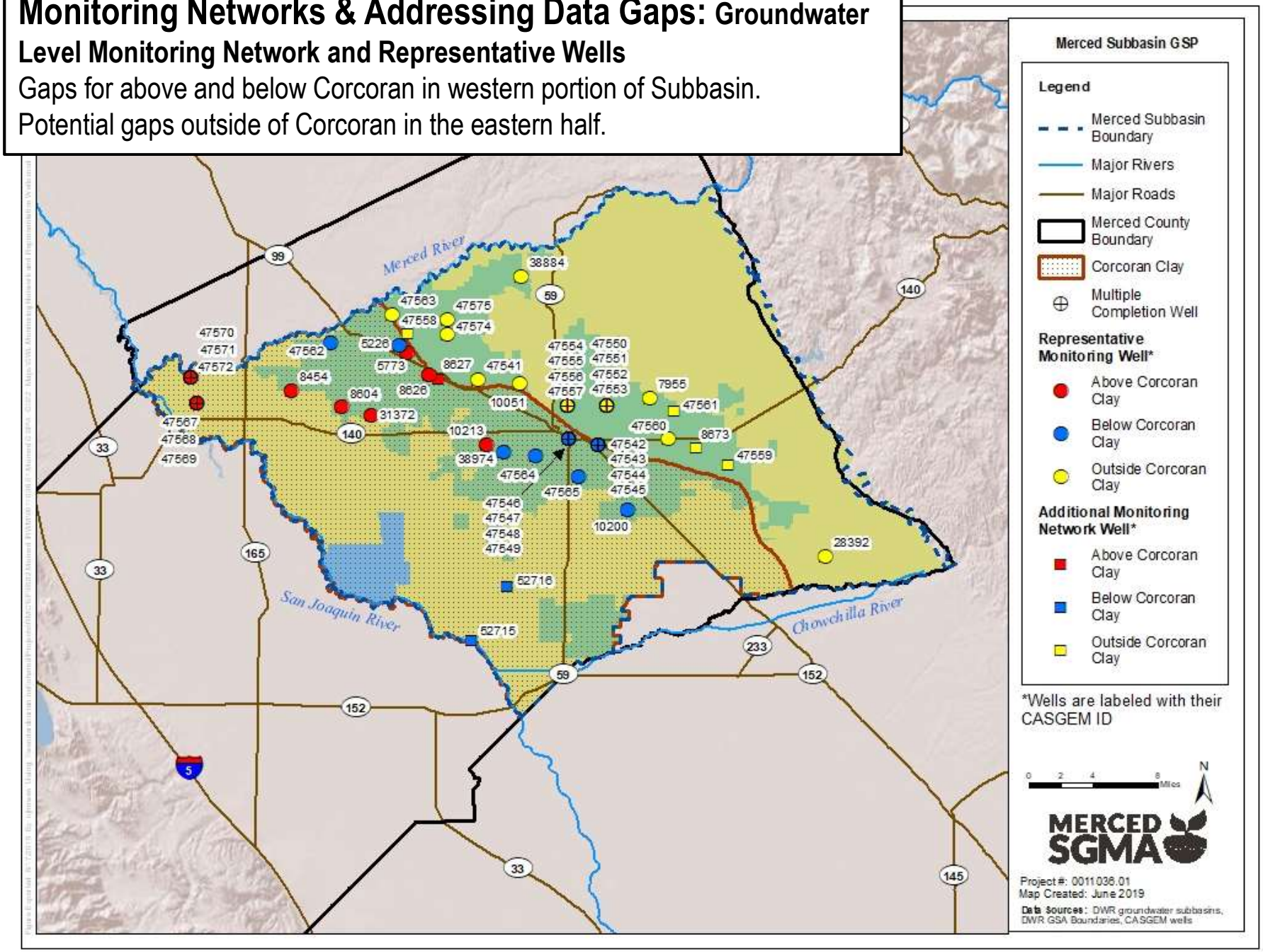
Monitoring Networks & Addressing Data Gaps: Groundwater Level Monitoring Network and Representative Wells

Gaps for above and below Corcoran in western portion of Subbasin.

Potential gaps outside of Corcoran in the eastern half.



Monitoring Networks & Addressing Data Gaps: Groundwater Levels

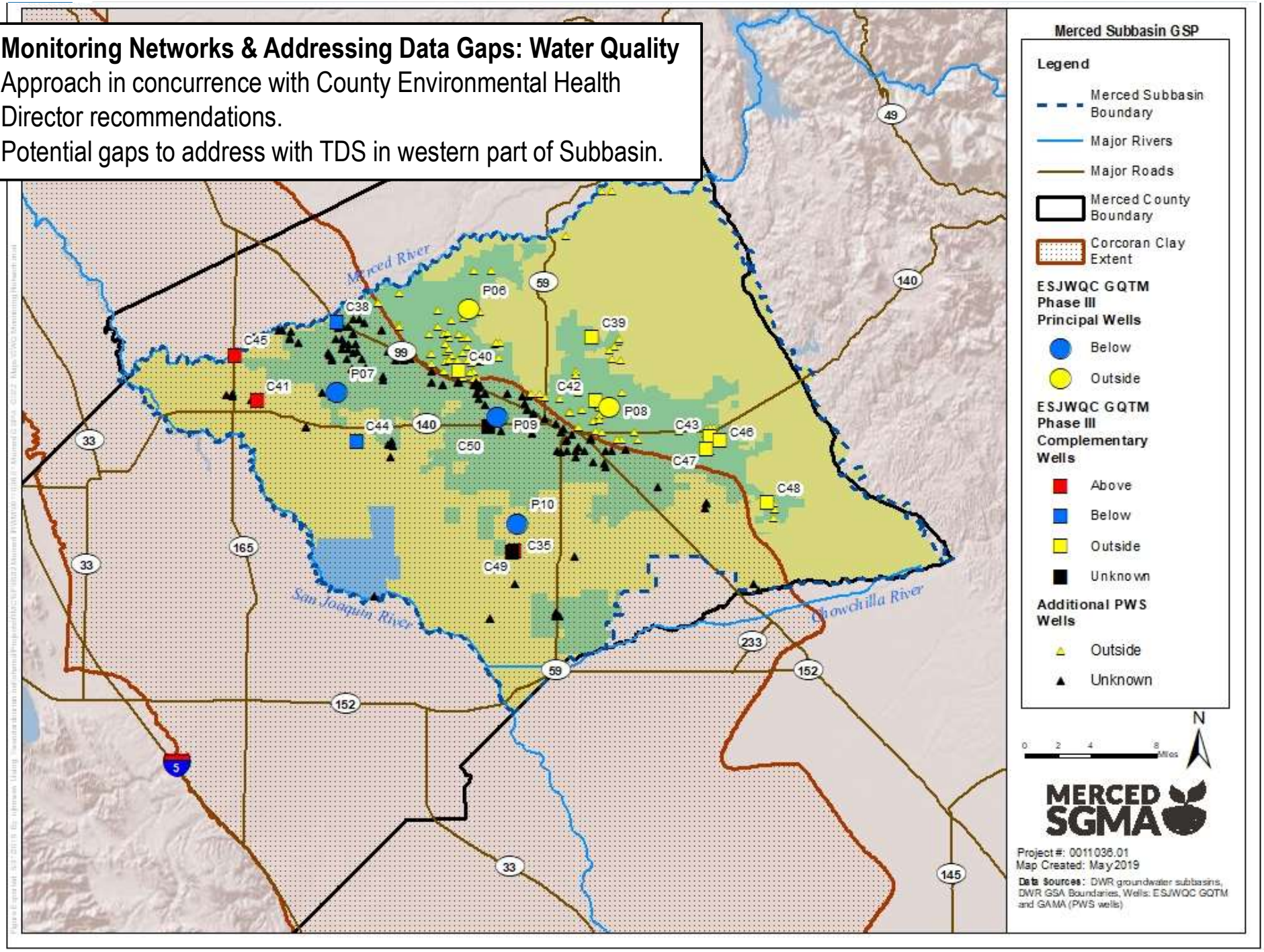
- **Data Gaps:**
  - Primarily along western edge of the Subbasin
- **Plan to Fill Data gaps:**
  - Evaluate existing wells for additional construction information (where missing) and/or permission for access to wells to collect data.
  - Seeking funding to construct additional monitoring wells, which are preferred to active wells due to shorter screened intervals and lack of groundwater production to interfere with measurements.
- **Need process for setting MTs at new wells which may not have historical GWL data or be located within 2 miles of domestic wells**
  - Propose to identify as a future need to be addressed by 5-yr update

Image courtesy: Veronica Adrover/UC Merced

Monitoring Networks & Addressing Data Gaps: Water Quality

Approach in concurrence with County Environmental Health Director recommendations.

Potential gaps to address with TDS in western part of Subbasin.



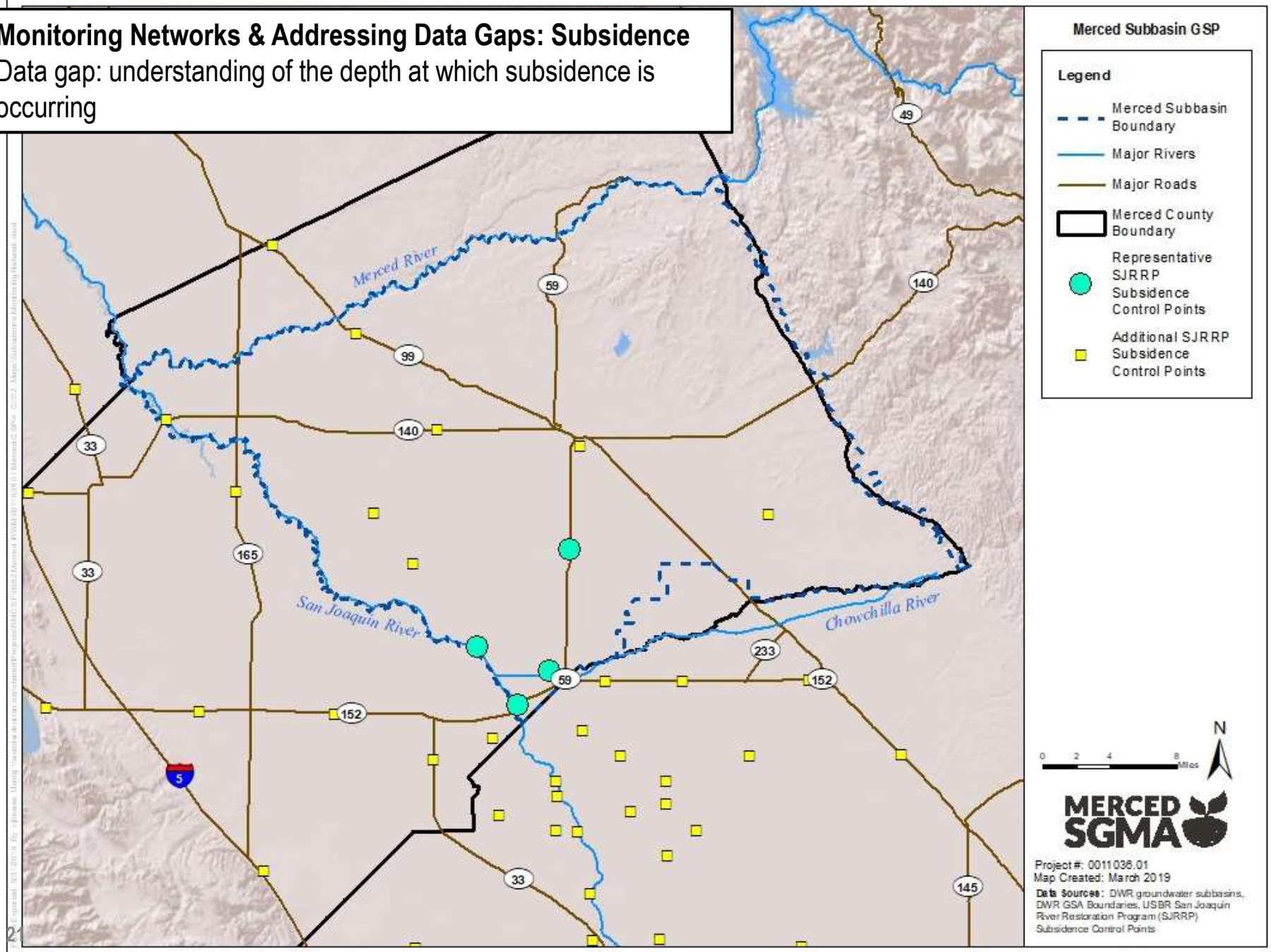
Monitoring Networks & Addressing Data Gaps: Groundwater Quality

- **Data Gaps:**
  - There are relatively few monitoring wells closer to the San Joaquin River and closer to Mariposa County.
  - Many wells used for monitoring do not have construction information, which notably limits the ability to distinguish whether wells are below or above the Corcoran Clay.
- **Plan to Fill Data gaps:**
  - ESJWQC GQTMP already includes a plan to add additional principal wells
  - Obtain additional construction information for at least 20 PWS wells
  - Work with the ESJWQC to identify monitoring opportunities and associated funding opportunities in the data gap areas.
  - Within two years after the acceptance of the GSP by DWR, the GSAs will provide a plan to fill in identified gaps, with a timeline for priorities of implementation.

Image courtesy: Veronica Adrover/UC Merced

Monitoring Networks & Addressing Data Gaps: Subsidence

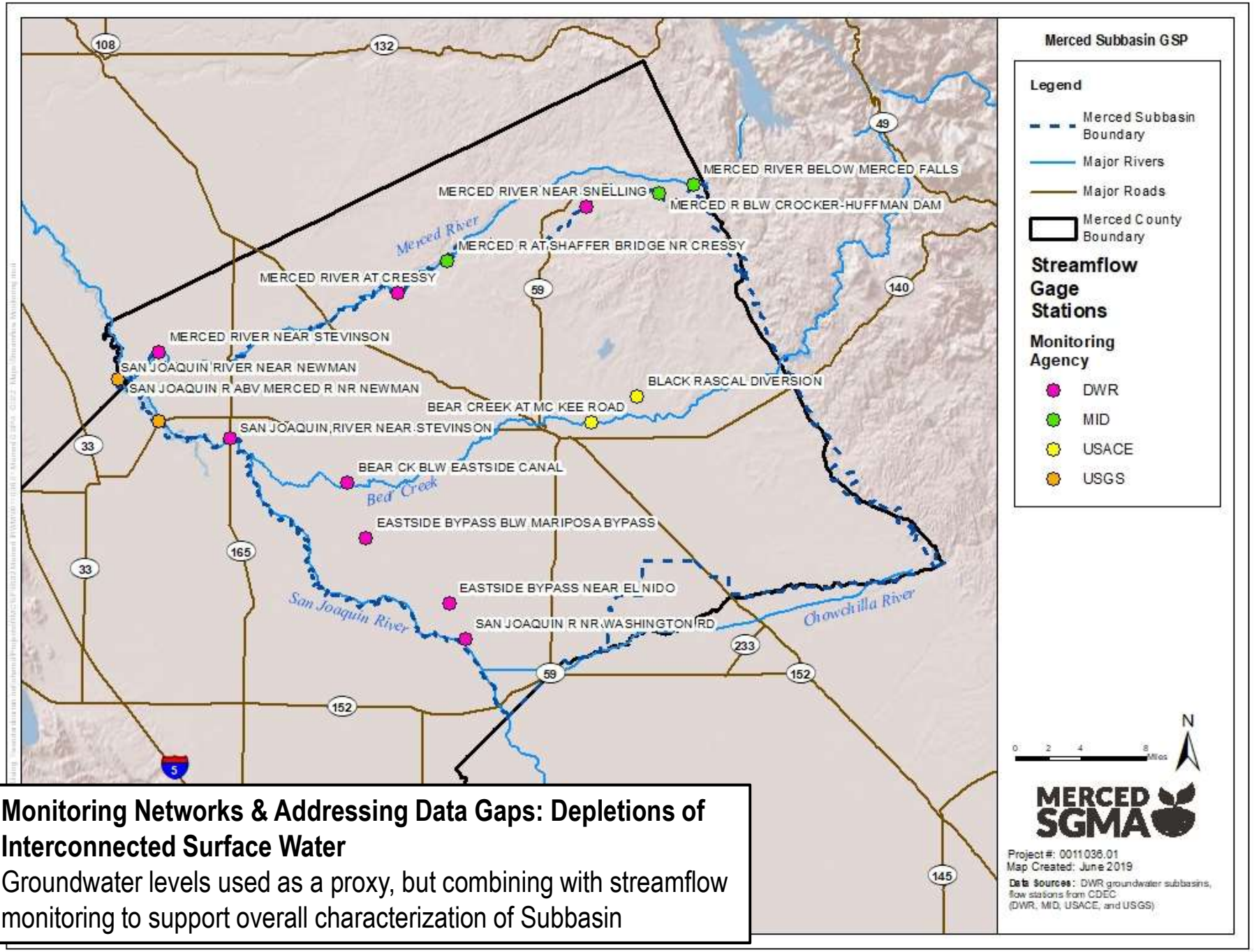
Data gap: understanding of the depth at which subsidence is occurring



Monitoring Networks & Addressing Data Gaps: Subsidence

- **Data Gaps:**
  - Data gaps exist regarding an understanding of the depth at which subsidence is occurring (existing locations provide only information on the elevation of the land surface and do not provide information on the depths at which compaction is occurring. Depth of compaction is an important consideration when managing groundwater elevations to avoid dewatering of sensitive clays.)
- **Plan to Fill Data gaps:**
  - Cooperative funding for extensometers installations via interbasin coordination as well as coordination with SJRRP, USGS, and other entities associated with subsidence studies, such as the State Water Project, Central Valley Project, California High Speed Rail Authority, and the Central Valley Flood Protection Board

Image courtesy: Veronica Adrover/UC Merced



Monitoring Networks & Addressing Data Gaps: Depletions of Interconnected Surface Water

Groundwater levels used as a proxy, but combining with streamflow monitoring to support overall characterization of Subbasin

Monitoring Networks & Addressing Data Gaps: Groundwater Quality

- **Monitoring network developed to characterize:**
  - Flow conditions including surface water discharge, surface water head, and baseflow contribution.
  - Identifying the approximate date and location where ephemeral or intermittent flowing streams and rivers cease to flow, if applicable.
  - Temporal change in conditions due to variations in stream discharge and regional groundwater extraction.
  - Other factors that may be necessary to identify adverse impacts on beneficial uses of the surface water.
- **Plan for characterization efforts:**
  - Contact state, federal, and environmental organizations to determine interest in developing a method of tracking the date and location where ephemeral or intermittent flowing streams and rivers cease to flow.
  - Develop multi-level monitoring wells to better characterize conditions near rivers and streams, subject to funding availability.
  - Within one year of the acceptance of the GSP by DWR, the GSAs will develop a plan to address identified data gaps with a timeline for implementation based on priority.

Image courtesy: Veronica Adrover/UC Merced

Monitoring Networks & Addressing Data Gaps:

Considerations for Metering program:

- There are different types of architecture (set ups) for metering
- Different types of meters that vary in terms of: cost, pressure loss, rangeability, and accuracy
- Must also consider installation of meter as part of process for selecting meter type
- Challenges for installation: remote locations, limited available straight segments of pipe, different pipe diameters between sites, and availability of power
- Can have inconsistency between well sites (meaning sites might not be able to have the same meter type), therefore need flexible approach
- There are “invasive” (requires breach of pipe) and “passive” (no modification to existing pipe) types of installation
- Well site data transmitters will also need to be installed at the well sites (this can include frequency radios, cellular data radios, or a landline connection)

Image courtesy: Veronica Adrover/UC Merced

Monitoring Networks & Addressing Data Gaps:

- **Metering Rough Cost Estimations:**
  - High-level estimate per well site: $6,000 - $10,000 for installation and first year operating costs (per well)
  - Network Communication Factors: High-level network communications estimate (not a hosted service): $3,000 - $15,000 for first year (for entire system)
  - Data Collection, Storage, and Access Factors: High-level central collection host estimate (not a hosted service): $20,000 - $27,000 (for entire system)
  - Overall per well cost depends on how much data we want to store

- **Recommendation: have metering approach allowing flexible implementation, while enabling collection of required data**
  - Ideal meter: ultrasonic time of flight flow meter (does not involve breaching the pipe, is highly accurate, requires relatively short lengths of pipe for installation)
    - This type of meter is capable of storing flow data and internally totalizing the flow, and can communicate that information to an external device

Image courtesy: Veronica Ardovel/UC Merced

Plan Implementation

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Plan Implementation : Requirements & Guidelines

SGMA requires certain content for plan implementation:

- Estimate of GSP Implementation Costs

  "(e) An estimate of the cost of implementing the Plan and a general description of how the Agency plans to meet those costs"

  (*Section 10733.2, Water Code, Reg. 354.6*)

Implementation Elements to Include:

- GSP Implementation Program Management
- GSA Administration
- Stakeholder/GSA Board engagement
- Outreach
- Developing Annual Reports
- Developing Five-Year Evaluation Reports
- Monitoring Programs
- Implementing GSP-Related Projects and Management Actions

Image courtesy: Veronica Adrover/UC Merced

Plan Implementation:
Input Needed on Plan Assumptions

- GSP Implementation Program Management
  - Assume GSAs' existing MOU remains in place
  - Assume ongoing coordination with neighboring basins
- GSA Administration
  - GSAs administrative costs – what should we assume per GSA?
- Stakeholder/GSA Board engagement
  - Assume CC continues to meet quarterly
  - Assume GSA boards meet bi-monthly
  - Future of stakeholder committee: Will SC keep meeting? Quarterly? and will membership have term limit or process for appointing new members?
- Outreach
  - Assume 2 public workshops/year + maintaining website

Image courtesy: Veronica Adrover/UC Merced

Plan Implementation:
Input Needed on Plan Assumptions

- Implementing GSP-Related Projects and Management Actions
  - Assume GSAs develop their own financing plan for operations and projects
  - Assume GSAs assess pumping fees through Prop 218 process (MSGSA has already initiated the process)
  - Assume GSAs may adopt adaptive management actions (including revisiting projects on running list) as needed

Image courtesy: Veronica Adrover/UC Merced

Plan Implementation:
Input Needed on Plan Assumptions

- Allocation Framework/Implementation – assume activities include:
  - Fill data gaps
  - Finalize allocation framework
  - Document developed supply estimates
  - Public outreach/education about allocation framework implementation
  - Implement metering & reporting program
  - Determine allocations and confirm rights to water
  - Implement and enforce allocations

Image courtesy: Veronica Adrover/UC Merced

Plan Implementation:
Confirm Project Schedules

11 near term projects scheduled to begin in first five years

Project Name	Start	Finish	Funding Secured
Project 1: Planada Groundwater Recharge Basin Pilot Project	1/20	12/23	Y
Project 2: El Nido Groundwater Monitoring Wells	9/19	12/19	Y
Project 3: Meadowbrook Water System Intertie Feasibility Study	8/19	6/20	Y
Project 4: Merquin County Water District Recharge Basin	8/18	12/21	N
Project 5: Merced Irrigation District to Lone Tree Mutual Water Company Conveyance Canal	5/19	11/20	N
Project 6: Merced IRWM Region Climate Change Modeling	6/19	4/21	N
Project 7: Merced Region Water Use Efficiency Program	6/19	12/20	N
Project 8: Merced Groundwater Subbasin LIDAR	8/19	12/20	N
Project 9: Study for Potential Water System Intertie Facilities from MID to LGAWD and CWD	6/19	6/20	N
Project 10: Vander Woude Dairy Offstream Temporary Storage	5/18	5/20	Partially
Project 11: Mini-Big Conveyance Project	6/22	6/26	N
Project 12: Streamlining Permitting for Replacing Sub-Corcoran Wells	8/19	1/20	Y

Public Outreach Update

Image courtesy: Veronica Adrover/UC Merced

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Coordination With Neighboring Basins Update

Image courtesy: Veronica Adrover/UC Merced

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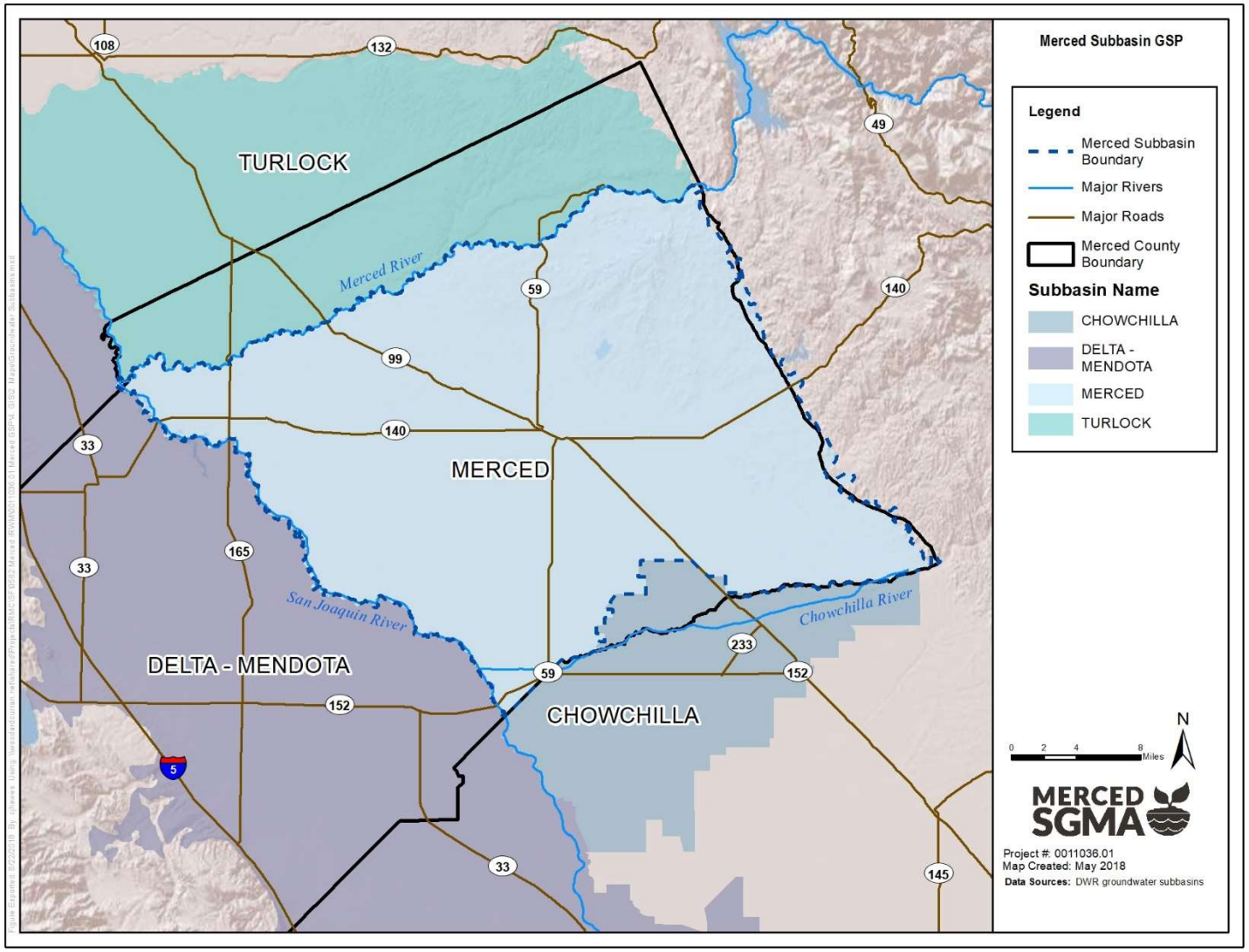
Coordination with Neighboring Basins



Questions/Comments from Public

Image courtesy: Veronica Adrover/UC Merced

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Next Steps

Image courtesy: Veronica Adrover/UC Merced

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Proposed Merced GSP Review & Submission Timeline

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What's coming up next?

- GSP Development Items:
  - Release of GSP Public Draft
- Focus for July meeting
  - Discussion and comments for GSP Public Draft sections
  - Process for GSP Adoption and next steps
- Adjourn to next meeting: July 22nd,9:30 AM at Castle Conference Center

Image courtesy: Veronica Adrover/UC Merced

GSP Stakeholder Committee

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