ARROYO SANTA ROSA GROUNDWATER SUSTAINABILITY AGENCY

GROUNDWATER SUSTAINABILITY PLAN WORKSHOP NO. 1

CAMROSA WATER DISTRICT

AUGUST 4, 2022
6PM

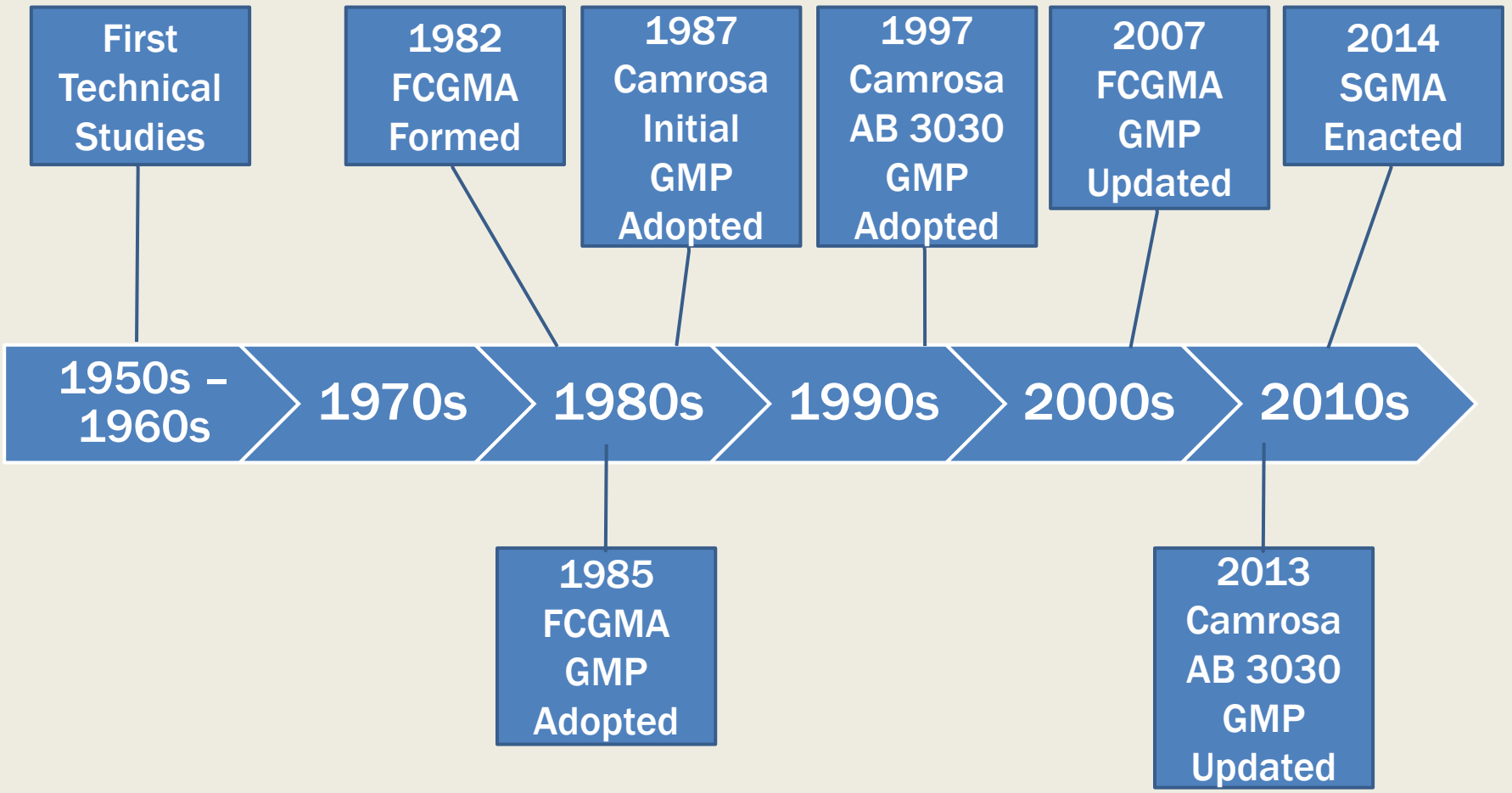
WORKSHOP AGENDA

No.	TIME	TOPIC
1	6:00 – 6:05 pm	Meeting Call to Order and Public Comments
2	6:05 – 6:10 pm	• Welcome • Agenda Review
3	6:10 – 6:15 pm	Get to Know the Stakeholders (Attendee Polls Nos. 1 - 3)
4	6:15 – 6:30 pm	Introduction to SGMA & GSPs • Presentation • Q & A
5	6:30 – 6:45 pm	Overview of Basin Setting • Presentation • Q & A
6	6:45 – 7:00 pm	Overview of Sustainable Management Criteria & Next Steps • Presentation • Q & A
7	7:00 – 7:15 pm	• Stakeholder Questions and Feedback • Attendee Poll Nos. 4 and 5
8	7:15 – 7:25 pm	Executive Director and Board Member Comments
9	7:25 – 7:30 pm	Wrap-up

ATTENDEE POLL NOS. 1 - 3

INTRODUCTION TO SGMA & GSP

HISTORY OF GROUNDWATER MANAGEMENT IN ASRV BASIN



Note: GMP = Groundwater Management Plan

WHAT IS SGMA?

- Sustainable Groundwater Management Act
  - Three bill package signed into CA law in late 2014, replacing prior groundwater management legislation (AB 3030)
  - Provides a statewide framework for long-term sustainable groundwater management in CA
  - Requires basins subject to the act or that voluntarily opt in to be managed sustainably 20 years after adopting a Groundwater Sustainability Plan (GSP) by a local Groundwater Sustainability Agency (GSA)

HISTORY OF SGMA IN ASRV BASIN

Initial basin priority was medium, making the basin subject to SGMA.

- ASRBGSA formed in 2016 to comply with SGMA

Initial efforts to prepare GSPs by FCGMA and ASRBGSA commenced.

Basin was reprioritized to low in 2019, making SGMA implementation optional.

- GSP put on hold.

Camrosa has voluntarily resumed work on a GSP under SGMA.

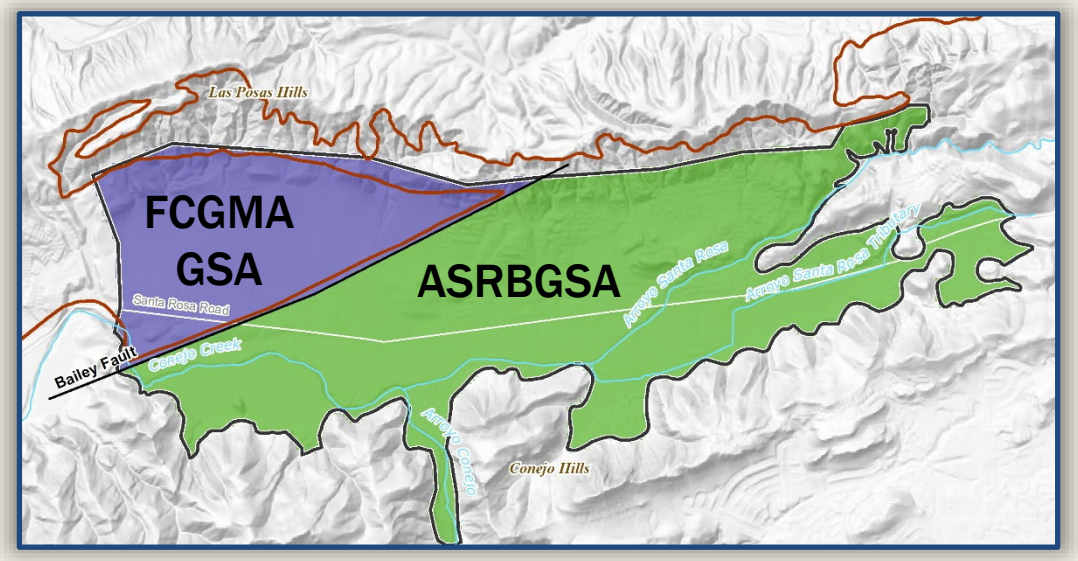
- GSP scheduled for completion in April 2023.

WHY DEVELOP AND IMPLEMENT A GSP?

- Continued groundwater management to:
  - Be good stewards of the Basin
  - Ensure reliability of local water supplies
  - Create more opportunities to enhance the basin (access to grants)
- State no longer allows GMPs under AB 3030 – a SGMA GSP is the only option for groundwater management.

WHO WILL MANAGE ASRV BASIN GROUNDWATER?

- Fox Canyon GMA
  - Special Act District formed in 1982
- ASRBGSA
  - Formed in March 2016 under a Joint Powers Authority Agreement between Camrosa Water District and Ventura County



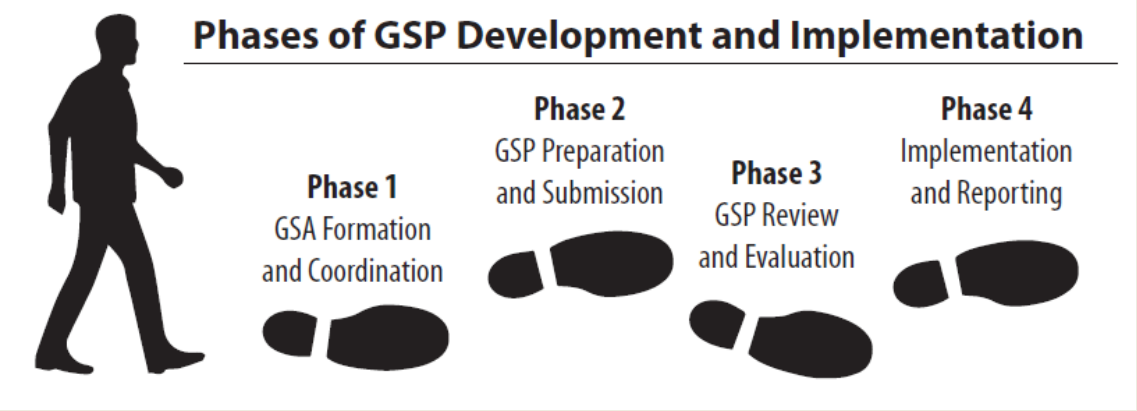
A single GSP will be adopted by both GSAs for coordinated management of the entire basin

SGMA LEGISLATIVE INTENT

- **Avoid undesirable results**
- Provide local authority to manage groundwater
- Extensive stakeholder outreach and engagement
- Establish minimum standards
- Assert State authority when necessary

WHAT DOES SGMA REQUIRE?

1. Form a Groundwater Sustainability Agency (GSA)
2. Adopt a Groundwater Sustainability Plan (GSP)
   - Due April 2022 (grant schedule deadline)
3. Achieve Sustainable Groundwater Management
   - 20 years following GSP adoption



GSA AUTHORITIES

- Conduct studies
- Register and monitor wells
- Require reports of groundwater extraction
- Regulate groundwater extractions
- Assess fees
- Implement capital projects
- Some requirements do not apply to small groundwater users
- GSA DOES NOT determine water rights

GSA RESPONSIBILITIES

- Develop, adopt, and implement a GSP to achieve sustainable GW management
- Annual reporting to DWR
- Review and update GSP
- Stakeholder outreach and engagement

WHAT IS A GSP?

The GSP is a flexible road map for how a groundwater basin will achieve long term sustainability by avoiding undesirable results through data-driven adaptive management

WHO IS DEVELOPING THE GSP?

- ASRBGSA and FCGMA will review & adopt the GSP
- GSP Development Team:

Bryan Bondy, PG, CHG
GSP Manager and GSP Contributor

Abhishek Singh, PhD, PE & staff
Quantitative Analysis / Modeling
GSP Contributor & Document Lead

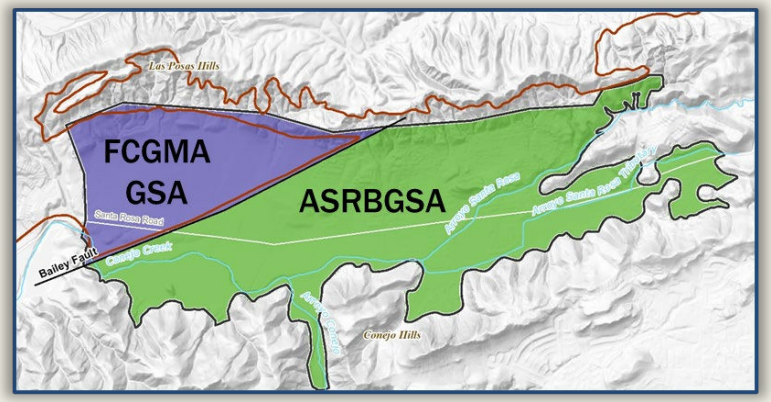
WHAT MUST A GSP INCLUDE?

- GSP Contents
  - Administrative Information
  - Basin Setting
  - Sustainable Management Criteria
  - Monitoring Networks
  - Projects and Management Actions
  - Implementation

ADMINISTRATIVE INFORMATION

- Agency Information

- Description of Plan Area



- Notice and Communication

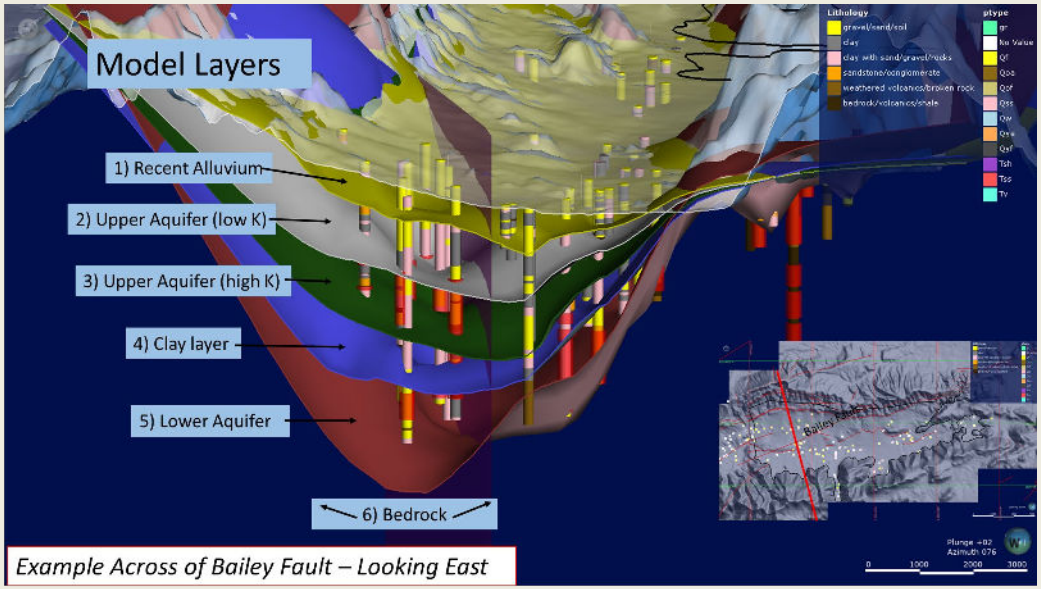
STAKEHOLDER ENGAGEMENT PLAN
ARROYO SANTA ROSA VALLEY BASIN
DWR BASIN NO. 4-007
VENTURA COUNTY, CALIFORNIA

SUSTAINABLE GROUNDWATER MANAGEMENT ACT (SGMA) PROGRAM

PREPARED BY THE ARROYO SANTA ROSA BASIN GROUNDWATER SUSTAINABILITY AGENCY

BASIN SETTING

- Hydrogeologic Conceptual Model
- Groundwater Conditions
- Water Budget
- Management Areas



SUSTAINABLE MANAGEMENT CRITERIA

- Sustainable management criteria to address six sustainability indicators:

MONITORING NETWORKS

- SGMA requires monitoring networks to measure progress toward achieving and/or maintaining sustainable groundwater management:
  - Groundwater Levels
  - Groundwater Quality
  - Surface water flow
  - Groundwater Surface Water Interaction

PROJECTS AND MANAGEMENT ACTIONS

- Projects and/or management actions:
  - If necessary to achieve sustainable management
  - If desired to increase basin yield or improve water quality

GSP IMPLEMENTATION

- Sustainable management must be achieved within 20 years of GSP adoption

- The GSP will include and implementation plan to address data gaps and further develop projects and management actions

KEY SGMA CONCEPTS

- Overarching goal is to avoid undesirable results
- Undesirable results and actions to prevent them are defined at the local level, not by the State
- SGMA requires data-driven management:
  - GSP must be developed with best available science
  - Sustainability demonstrated with monitoring data
- SGMA requires adaptive management
  - GSP will be a starting point for a 20 yr. journey to sustainability
  - GSP revaluation and updates (req. min. every 5-yrs)

SGMA & GSP OVERVIEW QUESTIONS

Arroyo Santa Rosa Basin Groundwater Sustainability Agency

Workshop #1: Basin Setting

WATER RESOURCES
INTERA

BONDY
Groundwater Consulting, Inc.

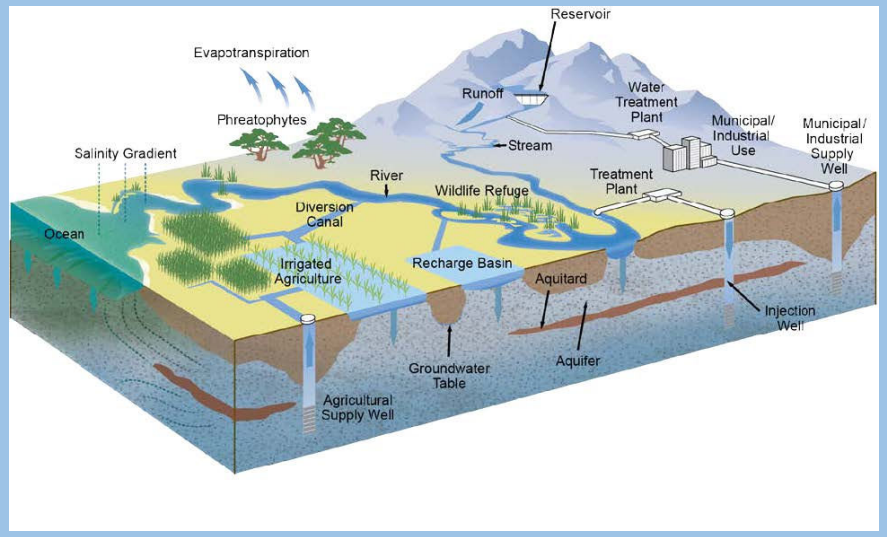
Presented to Arroyo Santa Rosa GSA| 8/4/2022

Basin Setting Agenda

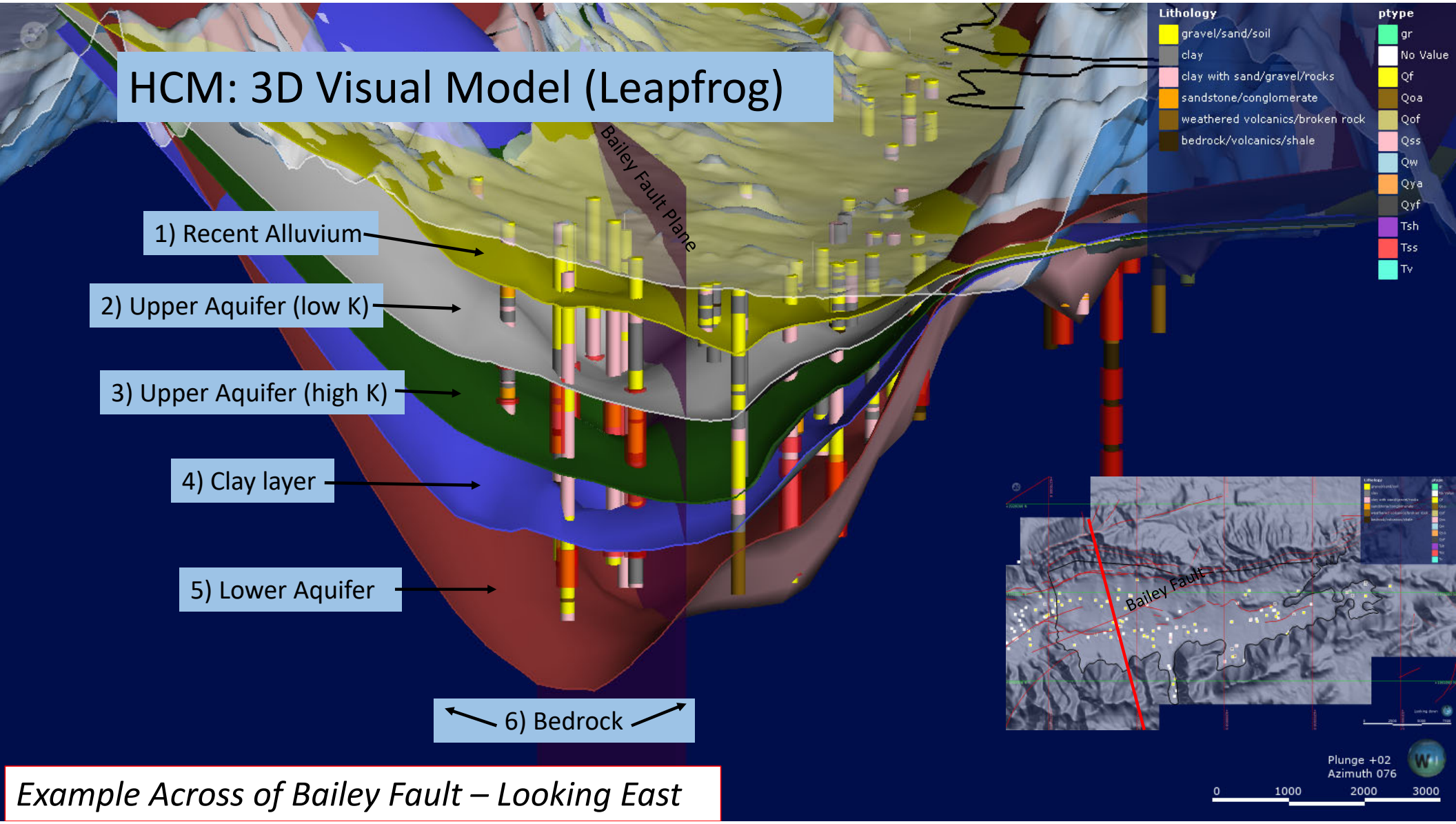
- Hydrogeologic Conceptual Model (HCM)
- Numerical Groundwater Model
- Groundwater Conditions
- Water Budget

Hydrogeologic Conceptual Model (HCM)

- Physical Characteristics of Regional Geology and Hydrology
- Land Use
- Geologic Structure of Units
  - Faults, Folds, Bedrock vs. Alluvium
- Hydrostratigraphy
  - Aquifers and Aquitards
  - Material properties
- Boundary Conditions
- Groundwater Quality
- Key Recharge and Discharge Processes
- Also Serves as Basis for Development of the Numerical Model



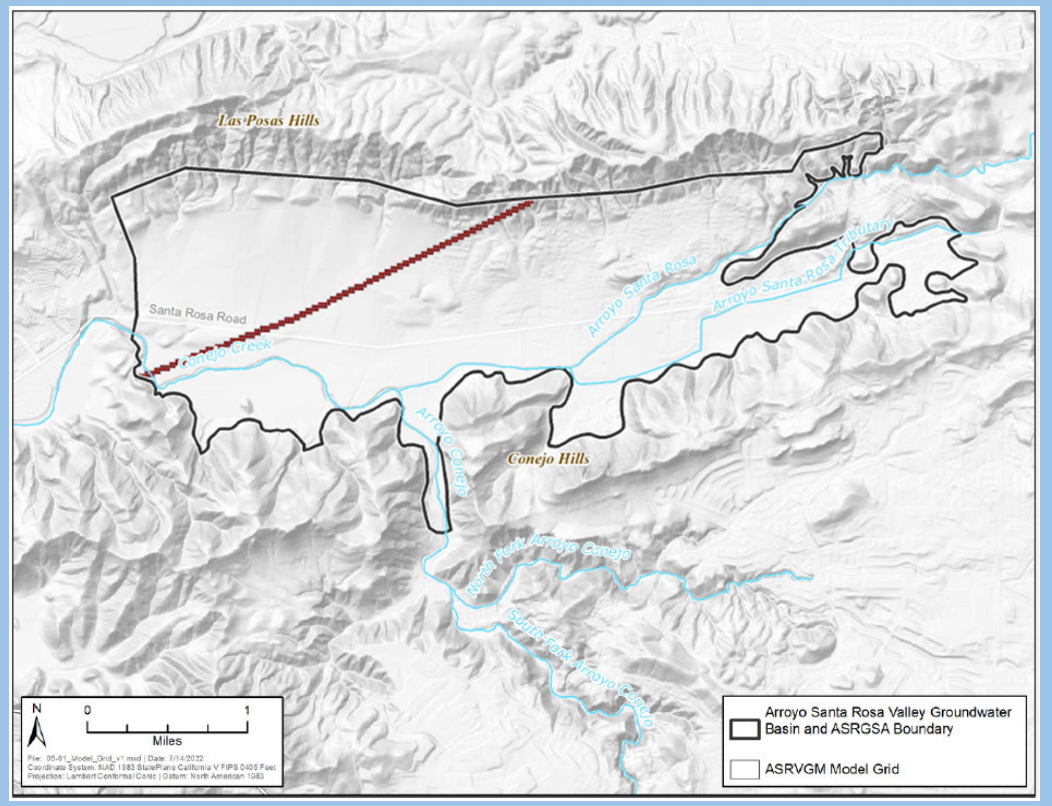
HCM: 3D Visual Model (Leapfrog)



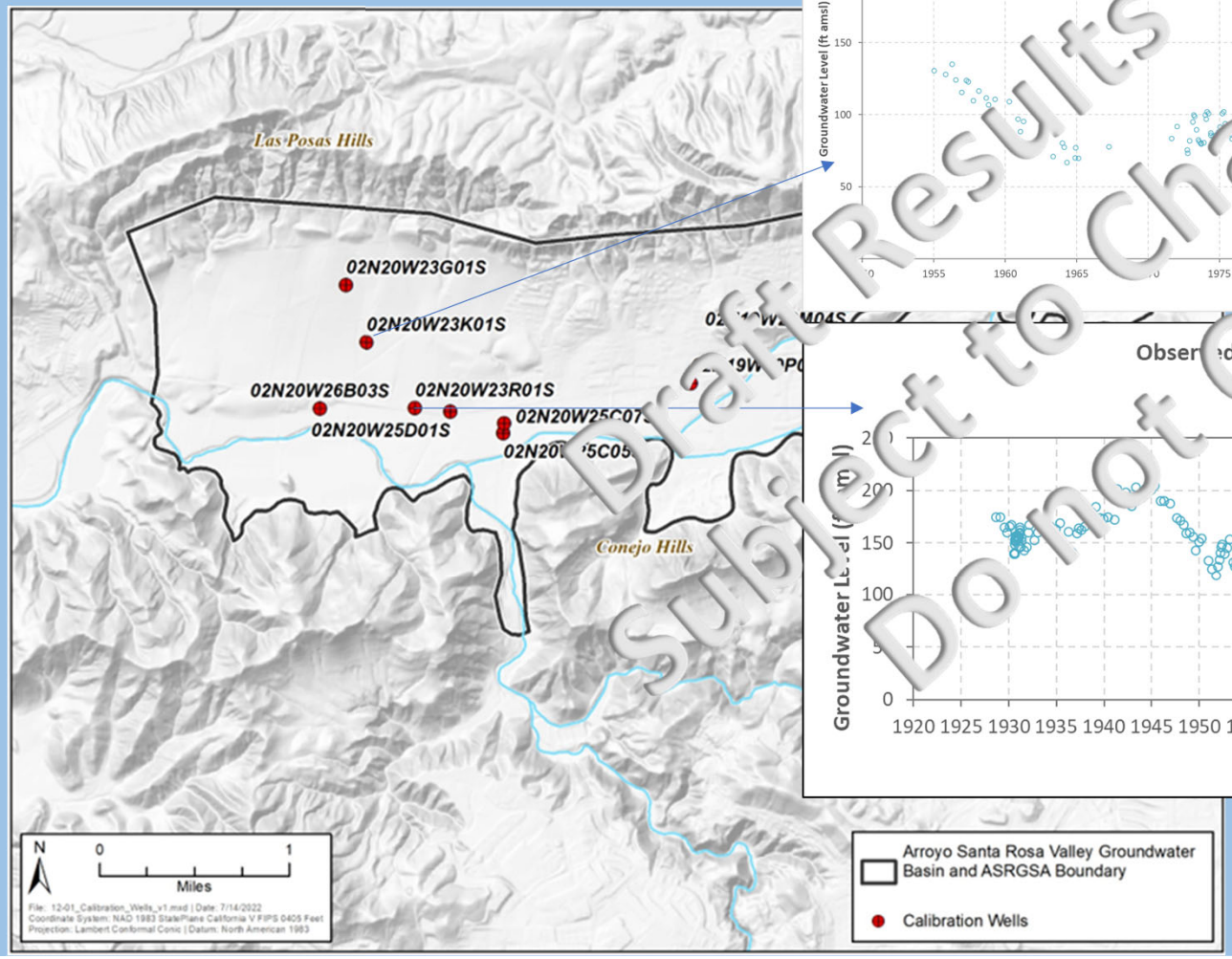
Example Across of Bailey Fault – Looking East

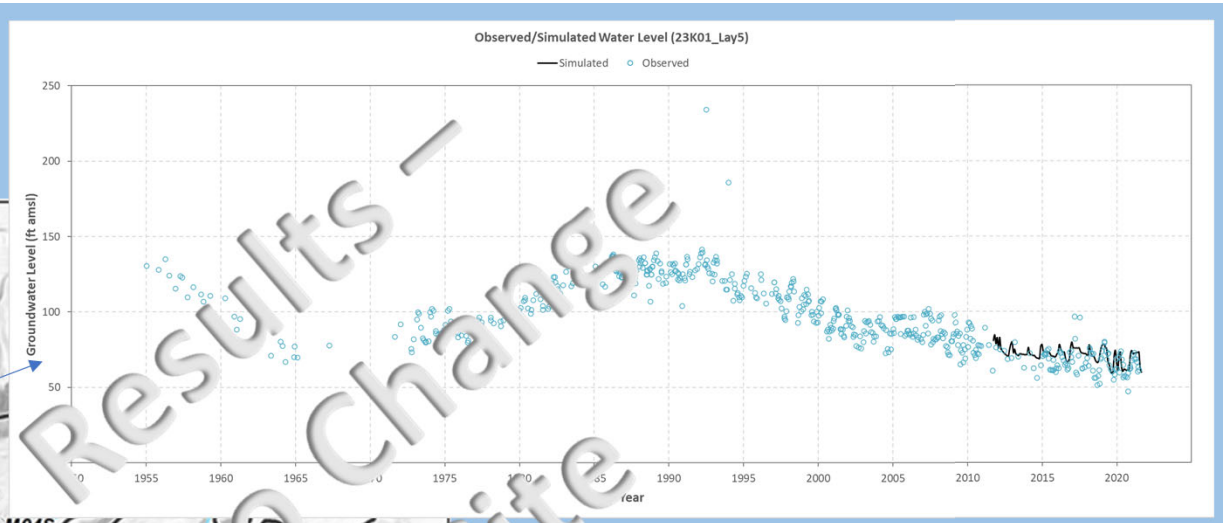
Numerical Groundwater Model

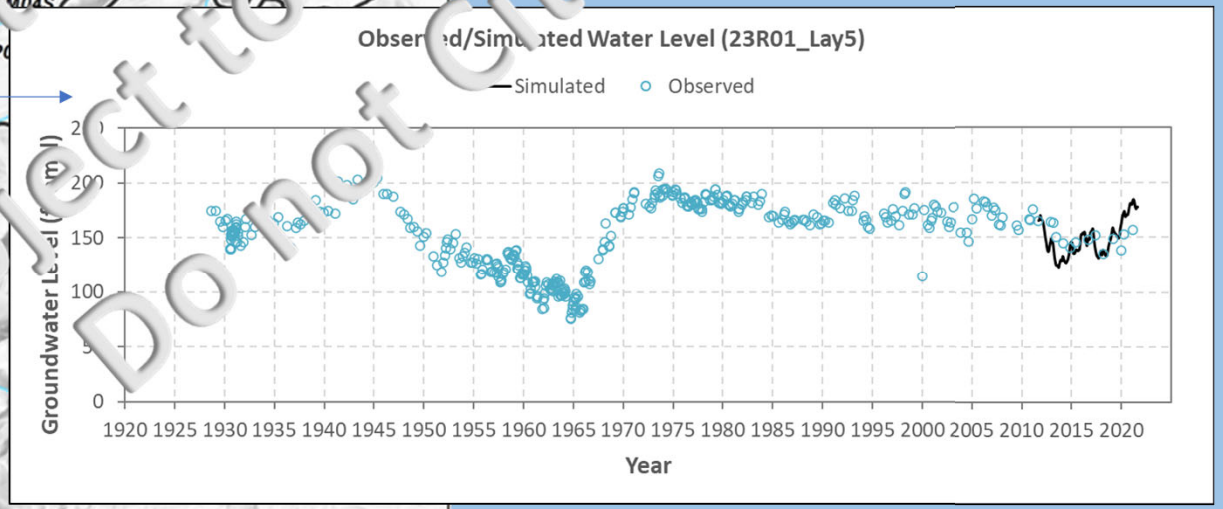
- Translated HCM into numerical groundwater model
- Complies with SGMA Requirements
  - Developed using best available data and science
  - Assesses groundwater conditions
  - Quantifies groundwater budget
  - Evaluates sustainable management criteria (SMCs)
  - Evaluates future groundwater projects and management actions (PMAs)



GW Level Calibration





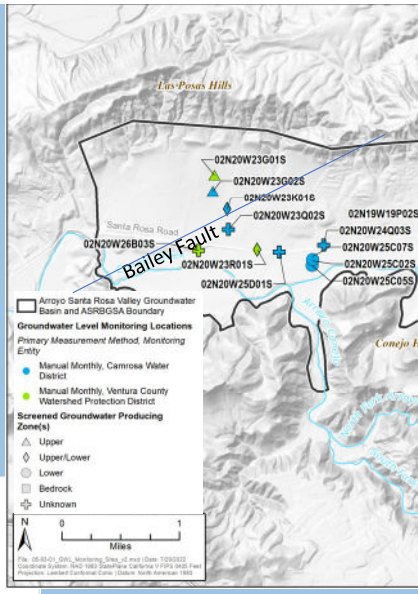


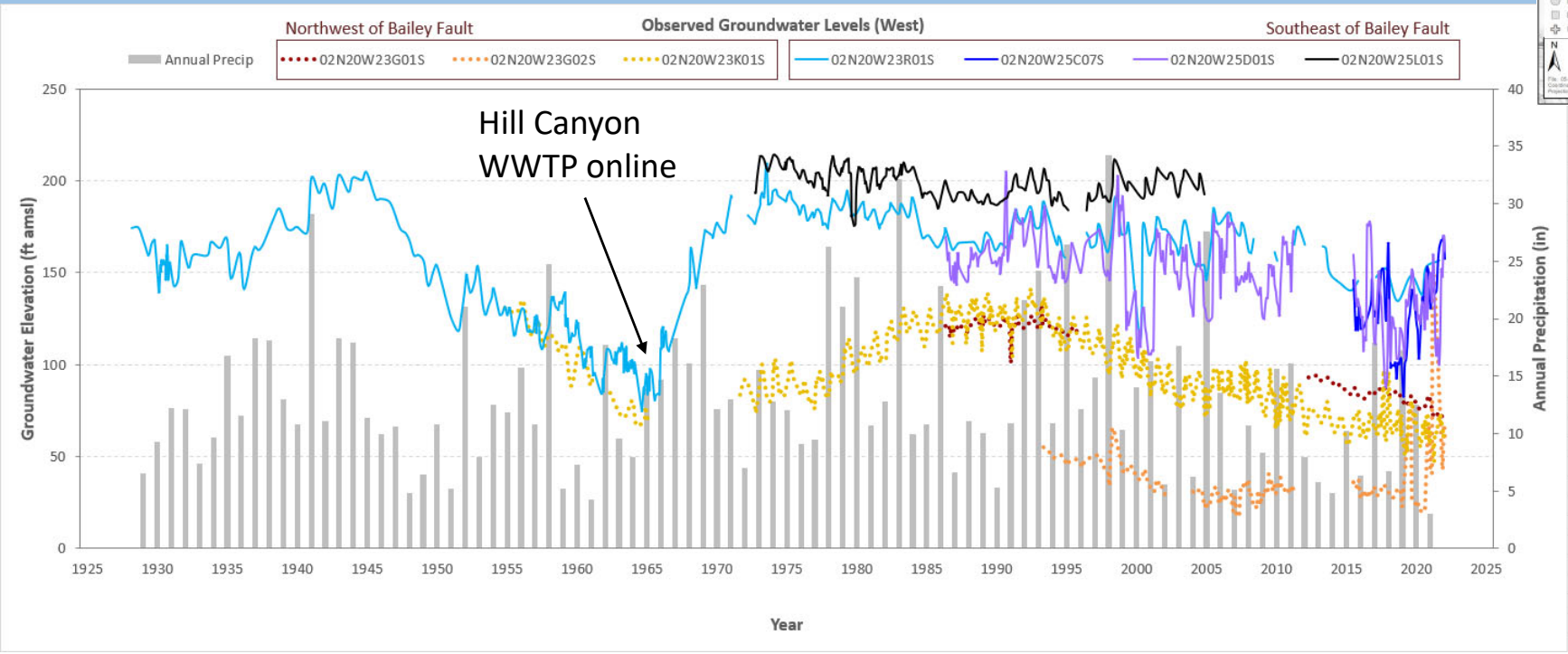
Groundwater Conditions

- Groundwater Level Hydrographs
- Groundwater Elevation Contour Maps
- Land Subsidence and Seawater Intrusion
- Groundwater Quality Data
- Interconnected Surface Water
- Groundwater Dependent Ecosystems

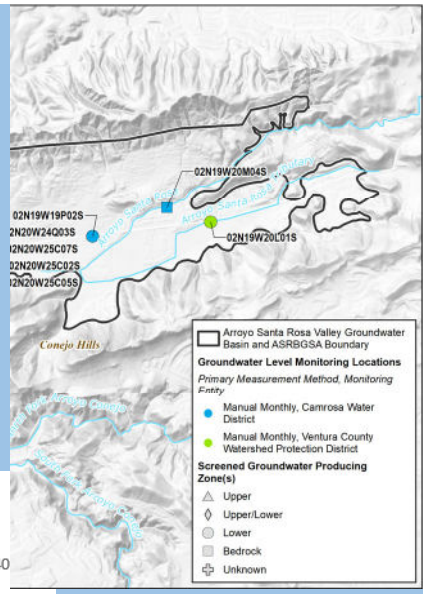
Groundwater Level Hydrographs (West)

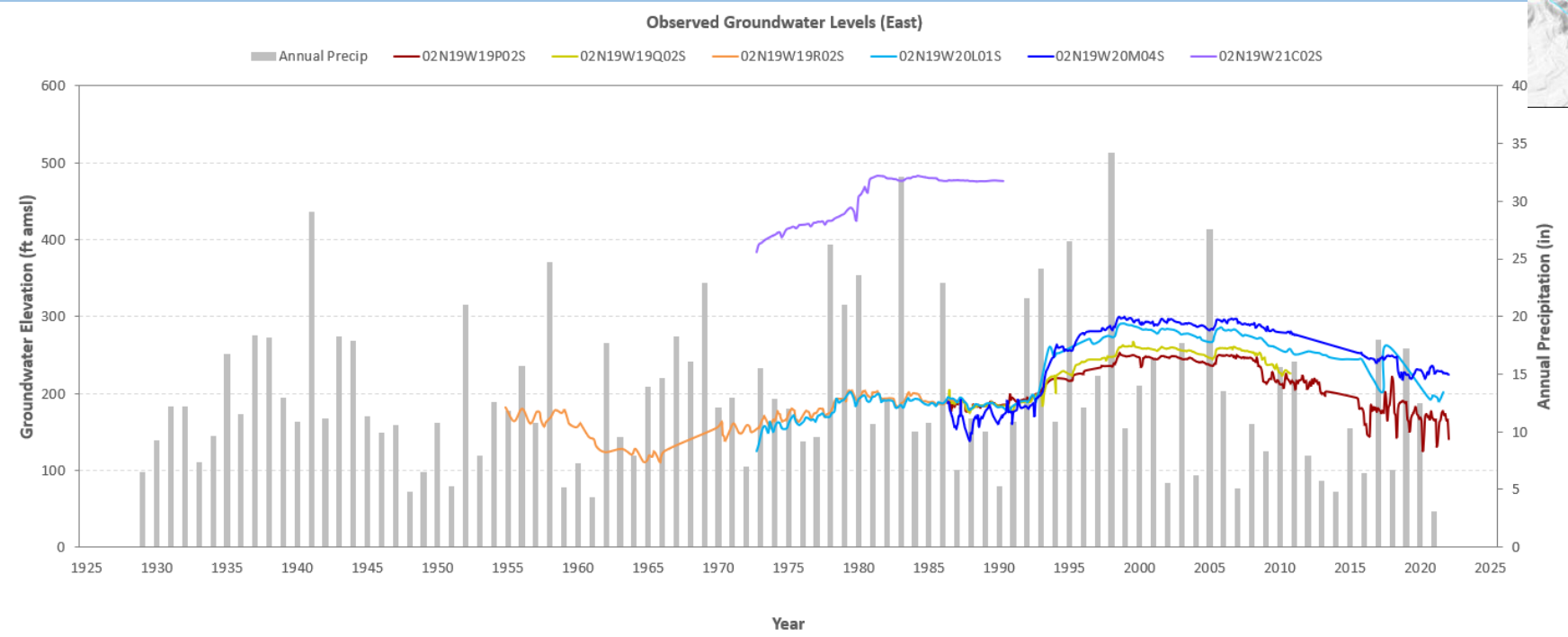
Groundwater levels are higher on the southeast side of the Bailey Fault
Groundwater levels depend on amount of water entering/leaving Basin



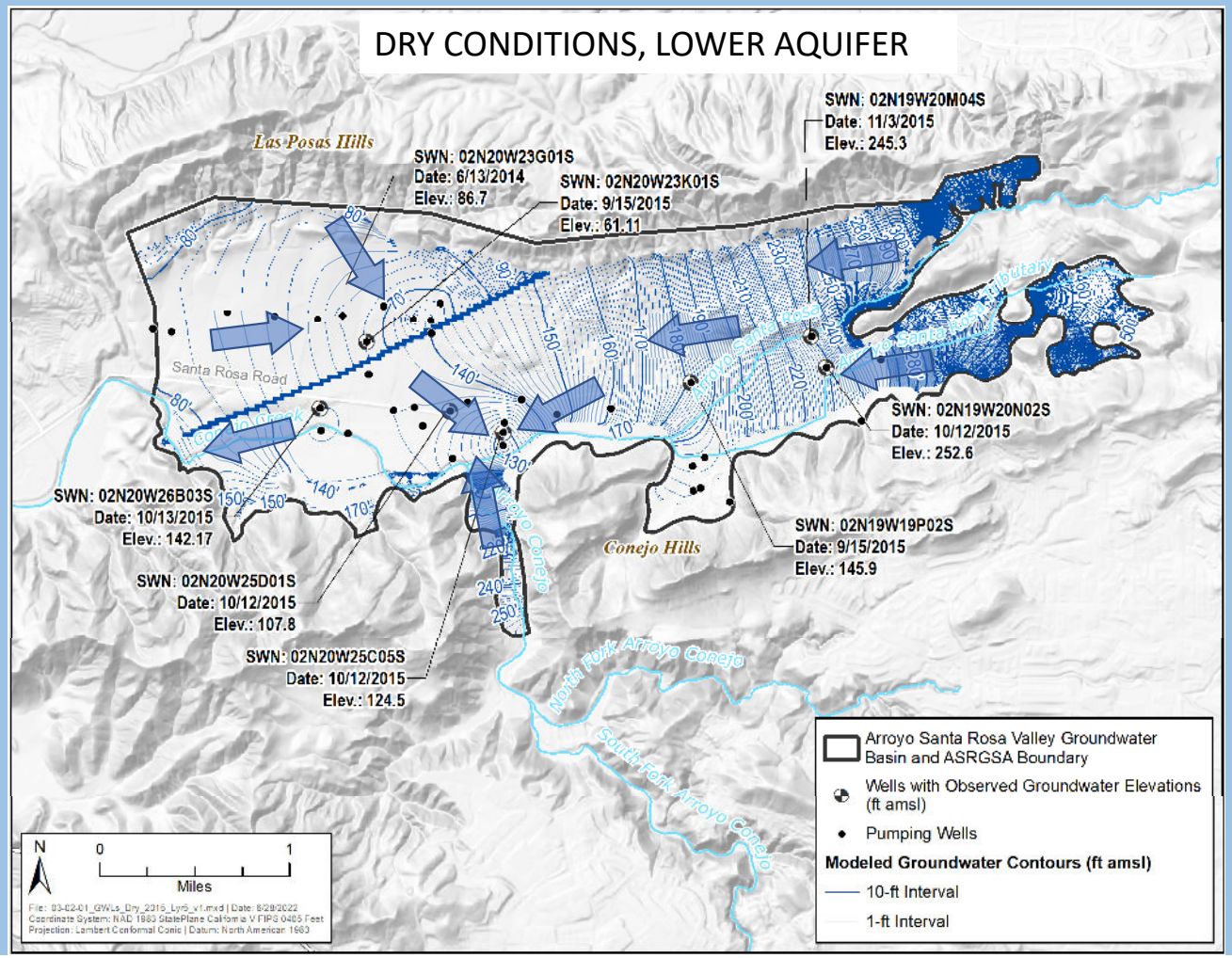


Groundwater Level Hydrographs (East)

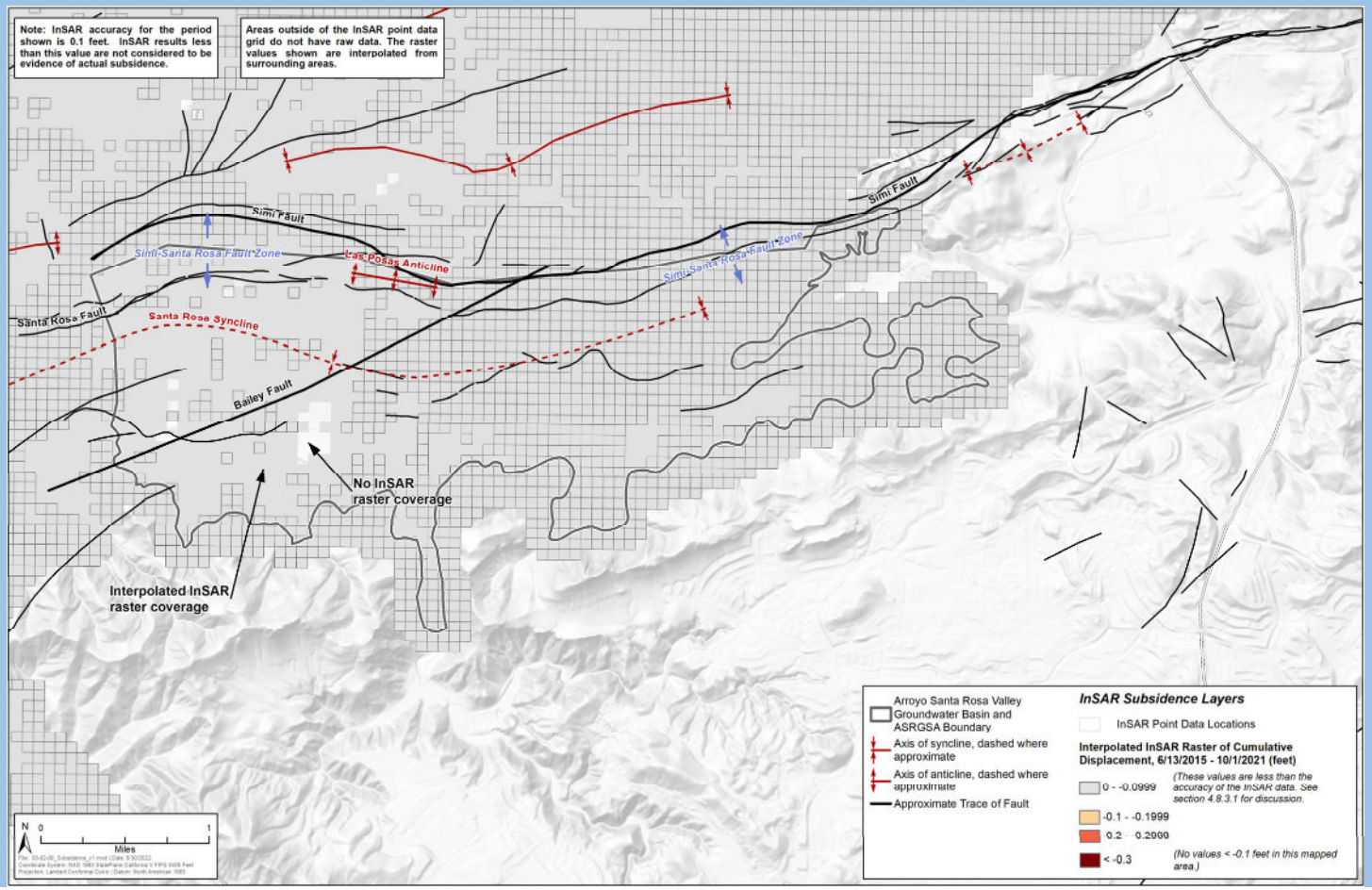




Groundwater Elevation Contours and Flow Directions

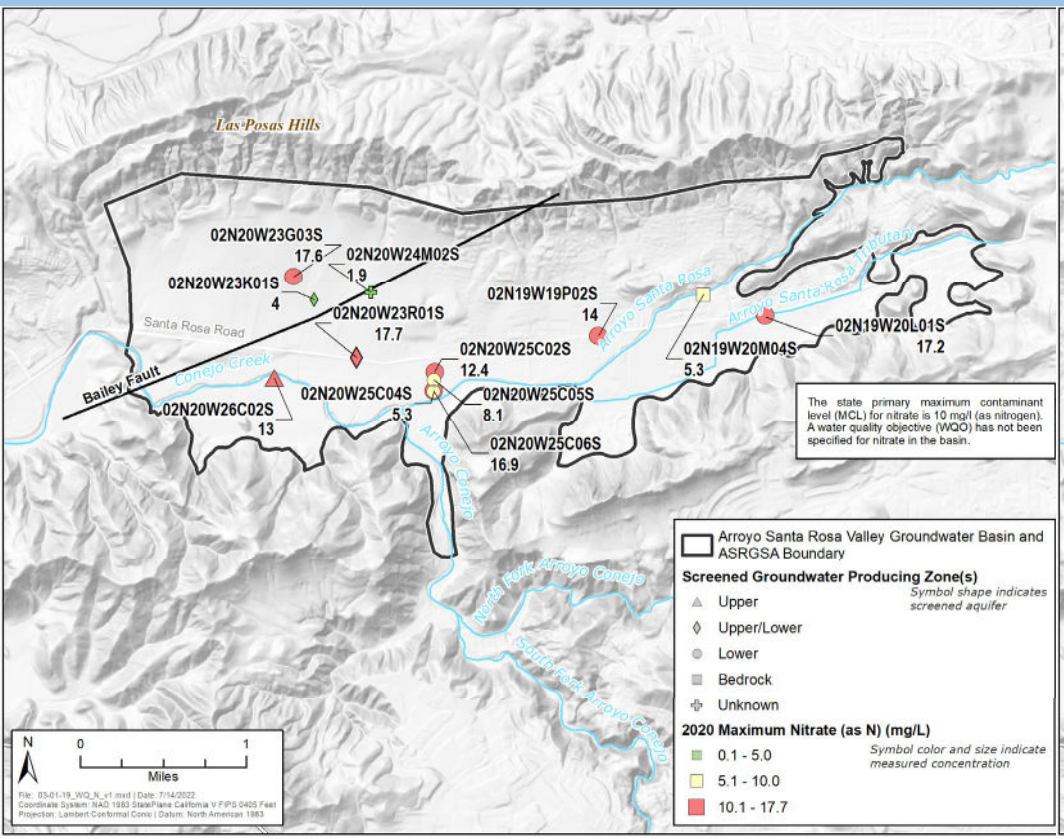


Land Subsidence

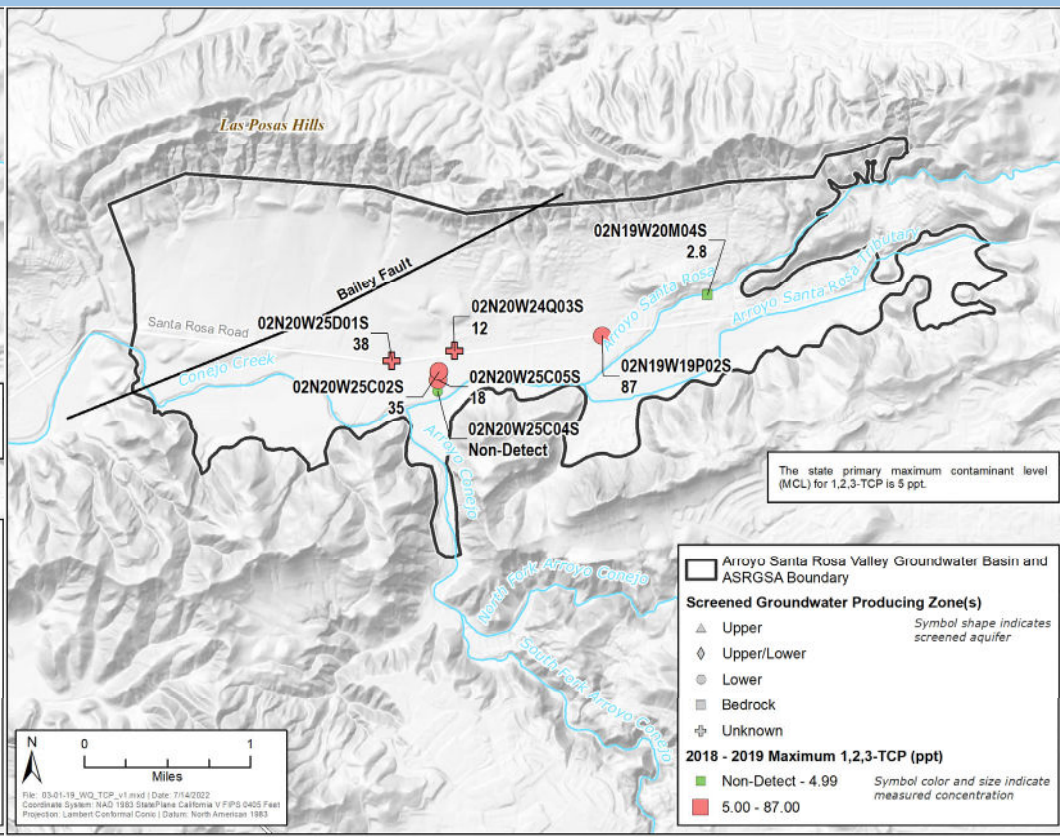


Groundwater Quality Data

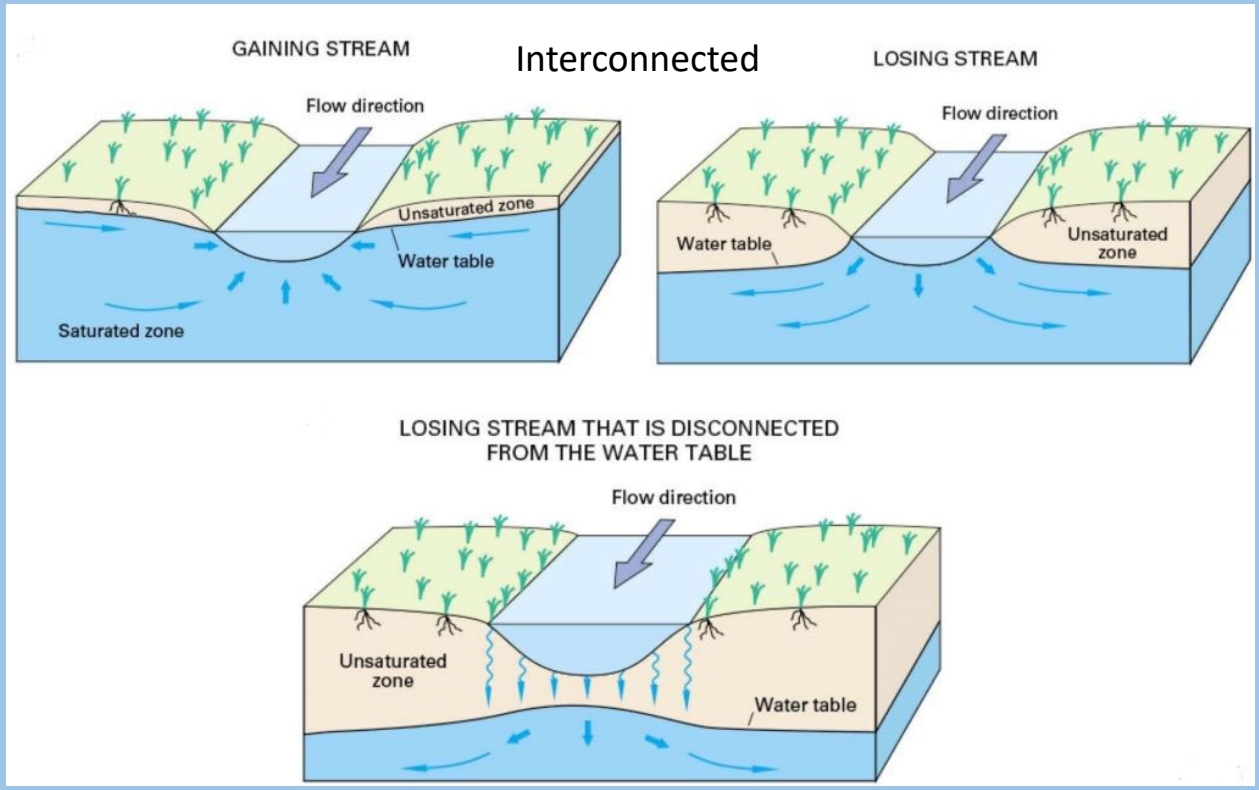
Nitrate



TCP



Interconnected Surface Water

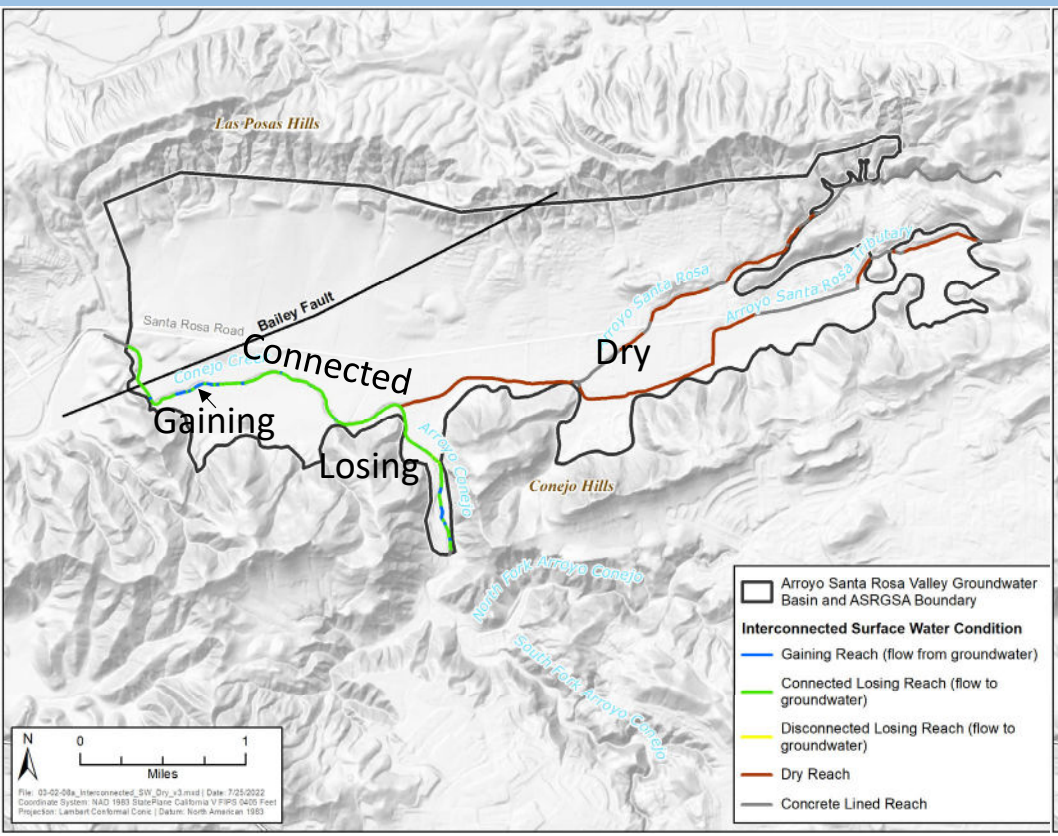


Connected – water table in contact with stream

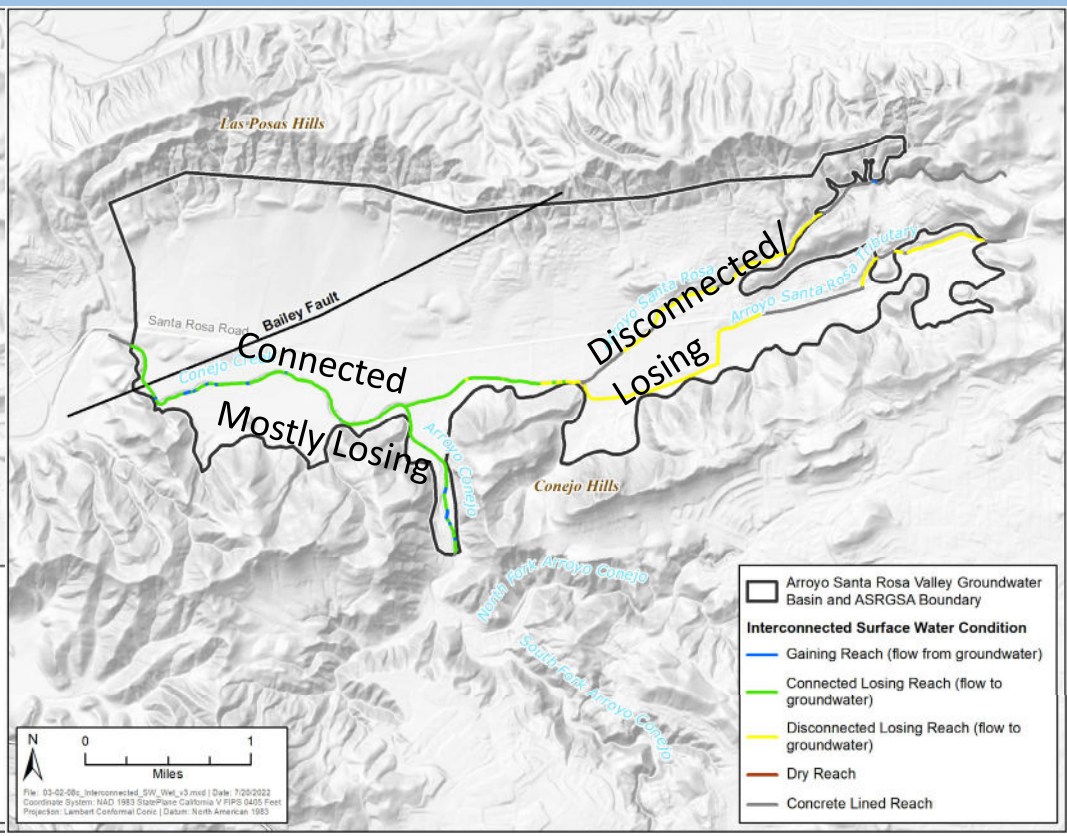
Disconnected – water table NOT in contact with stream

Interconnected Surface Water Results

DRY



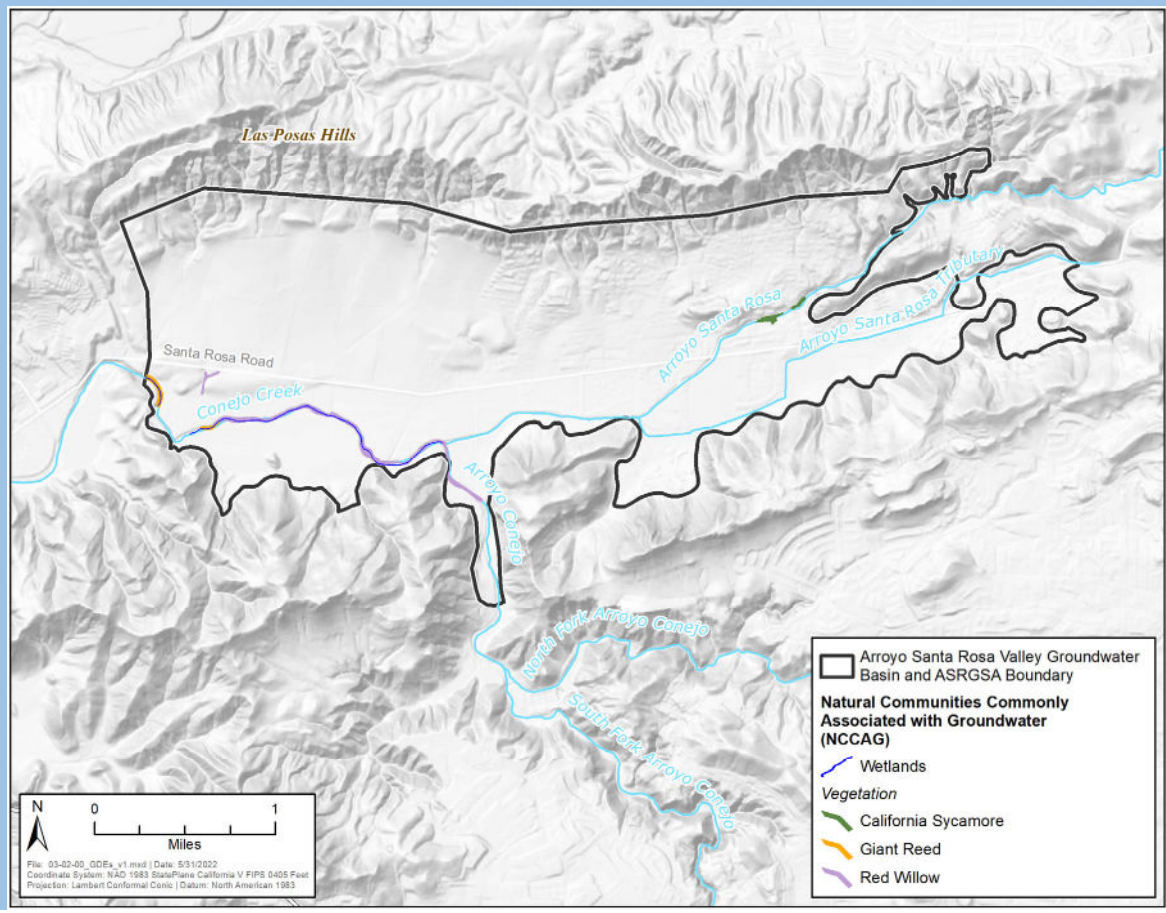
WET



Groundwater Dependent Ecosystems

- SGMA requires evaluation of potential GDEs
- All is riparian vegetation and determined to be purely surface water dependent
- The sycamores were screened out
- Concluded no GDEs in Basin

Potential GDEs



Water Budget

- SGMA requires 3 water budgets
  - Historical (most recent 10 years)
  - Current (not specified)
  - Projected (50 years)
    - Evaluate uncertainty due to climate change, land use changes, and population growth
- Model was developed to assist the development of the water budget

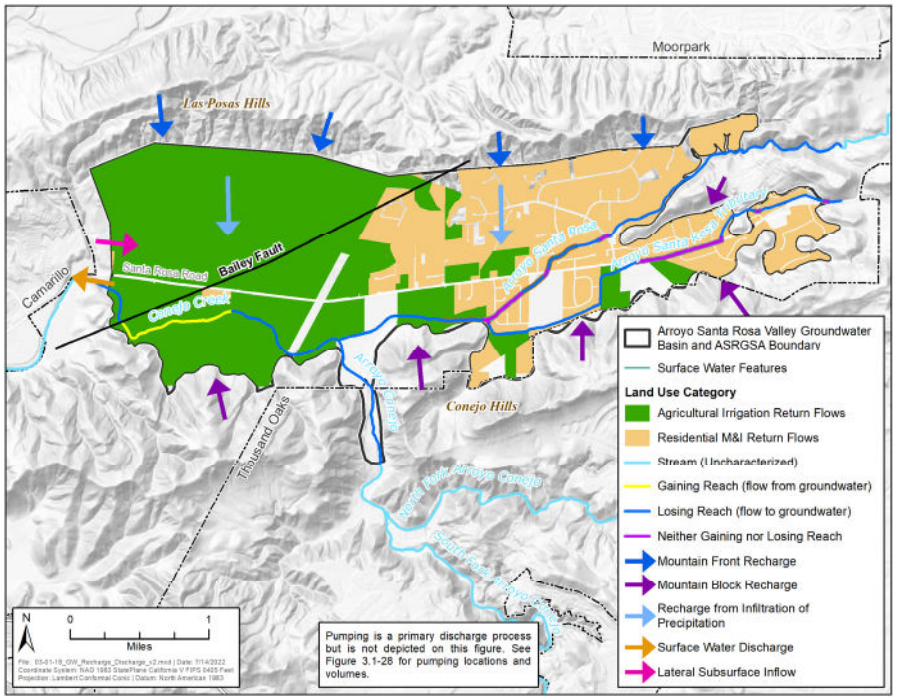
Modeled Water Budget Components

Inflows

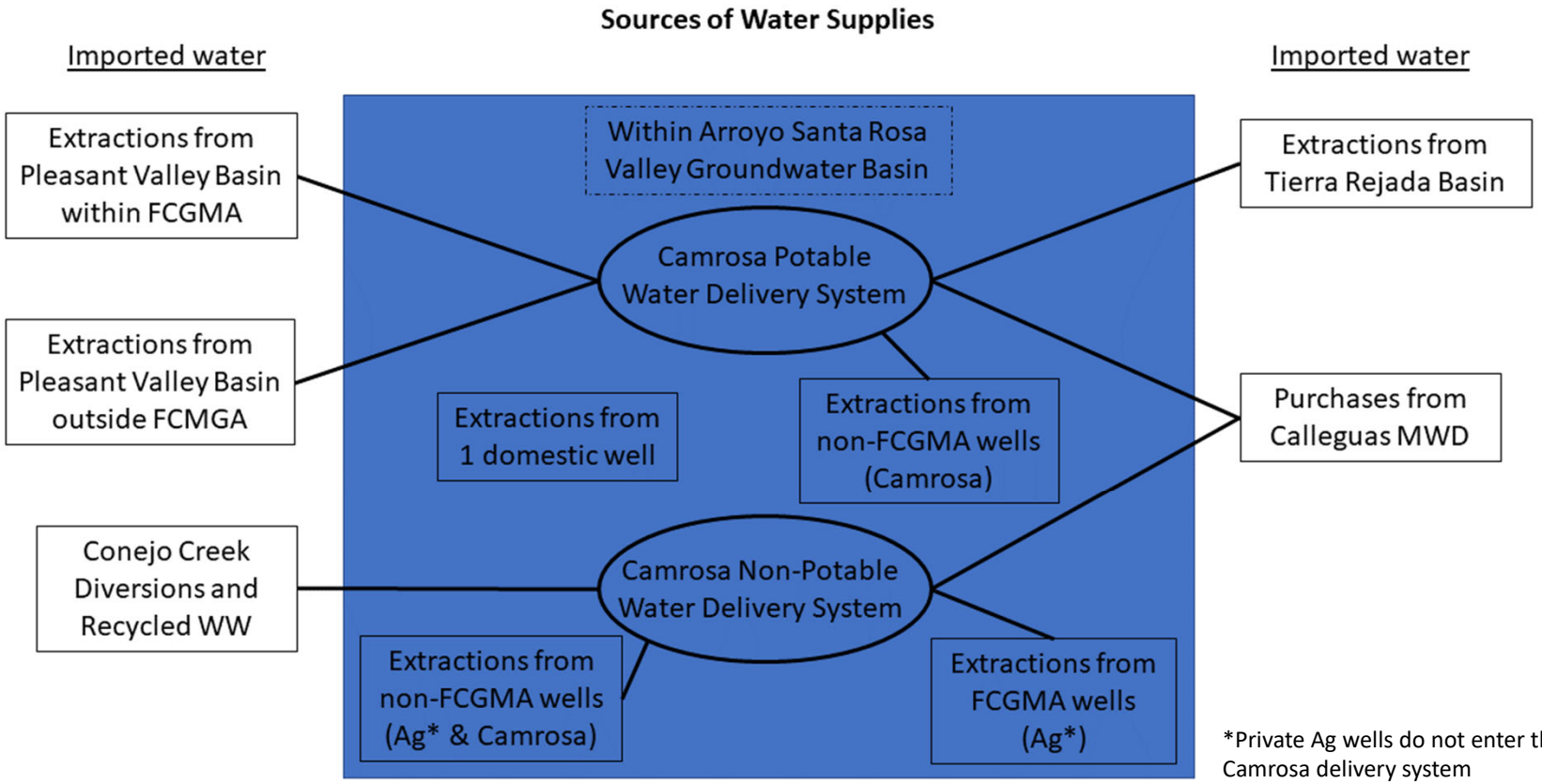
- Direct Groundwater Recharge from Precipitation (Ag, urban, native)
- Surface Water Recharge Through Tributaries
- Recharge from Conejo Creek/Arroyo Conejo (Modeled)
- Subsurface Flows from Conejo Volcanics
- Mountain Front Recharge from the North
- Lateral Subsurface Inflow from Pleasant Valley Basin
- Agricultural Irrigation Return Flows
- Urban (M&I) Irrigation Return Flows
- Septic System Return Flows
- Distribution Losses

Outflows

- Storage Change
- Agricultural Pumping
- M&I Pumping
- Domestic Pumping (1 well)
- Phreatophyte Evapotranspiration (Included in SFR)



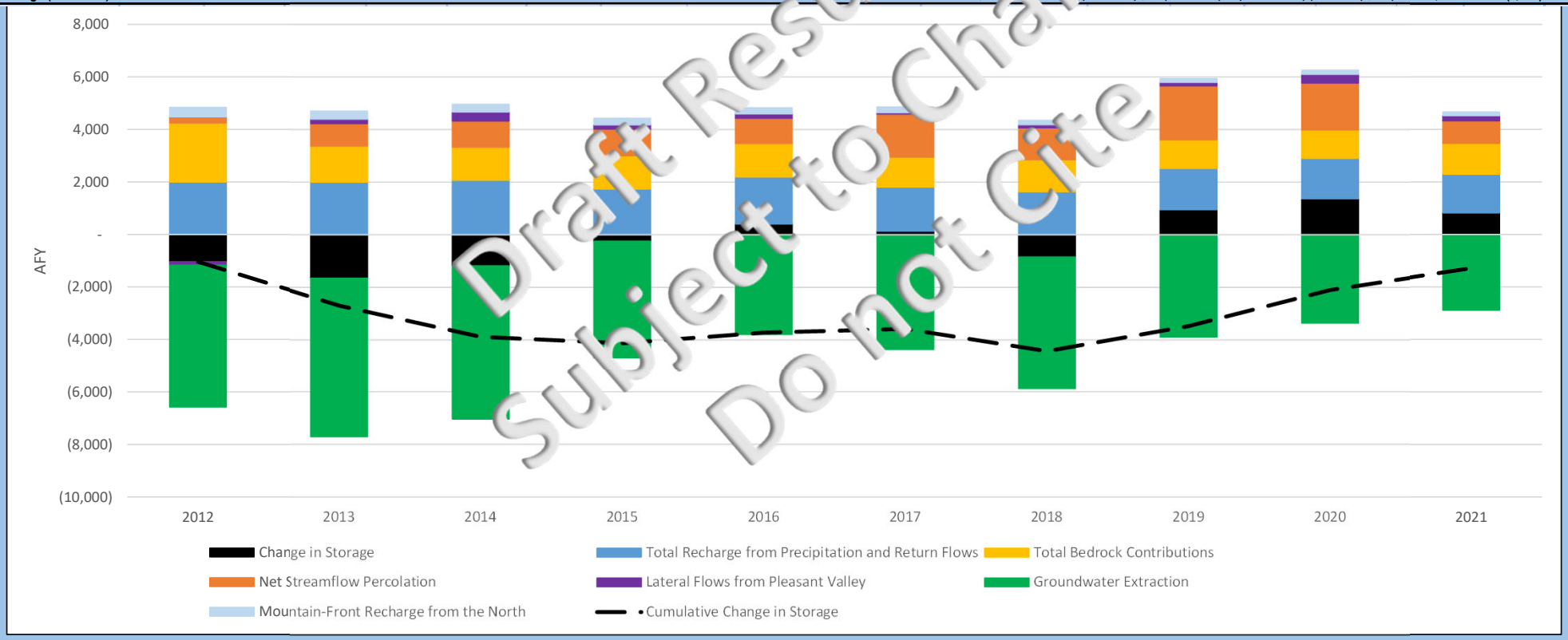
Sources of Water for the Basin



*Private Ag wells do not enter the Camrosa delivery system

Example Groundwater Budget (Historical)

Groundwater Budget	Mountain-Front Recharge from the North	Recharge from Precipitation	Agricultural Return Flows	M&I Outdoor Return Flows	M&I Septic Return Flows	Non-potable Distribution Losses	Potable Distribution Losses	Inflow from the Conejo Volcanics from the South	Inflow from the Conejo Volcanics from the	Underflow from Pleasant Valley	Streamflow Percolation from Losing Reaches	GW Discharge to Streamflow Gaining Reac	FCG A Agricultural Pumping	Non-FCGMA Agricultural Pumping	Domestic Pumping	M&I Pumping	Inflows	Outflows	Change in Storage
Historical Average (2012-2021)	223	41	698	307	319	107	54	87	1,226	155	1,280	(119	,304)	(609)	(3)	(2,590)	4,510	(4,639)	(129)
Current Average (2019-2021)	143	72	570	294	319	79	52	56	[illegible]0	221	1,642	78)	(1,256)	(577)	(3)	(1,546)	4,506	(3,459)	1,047

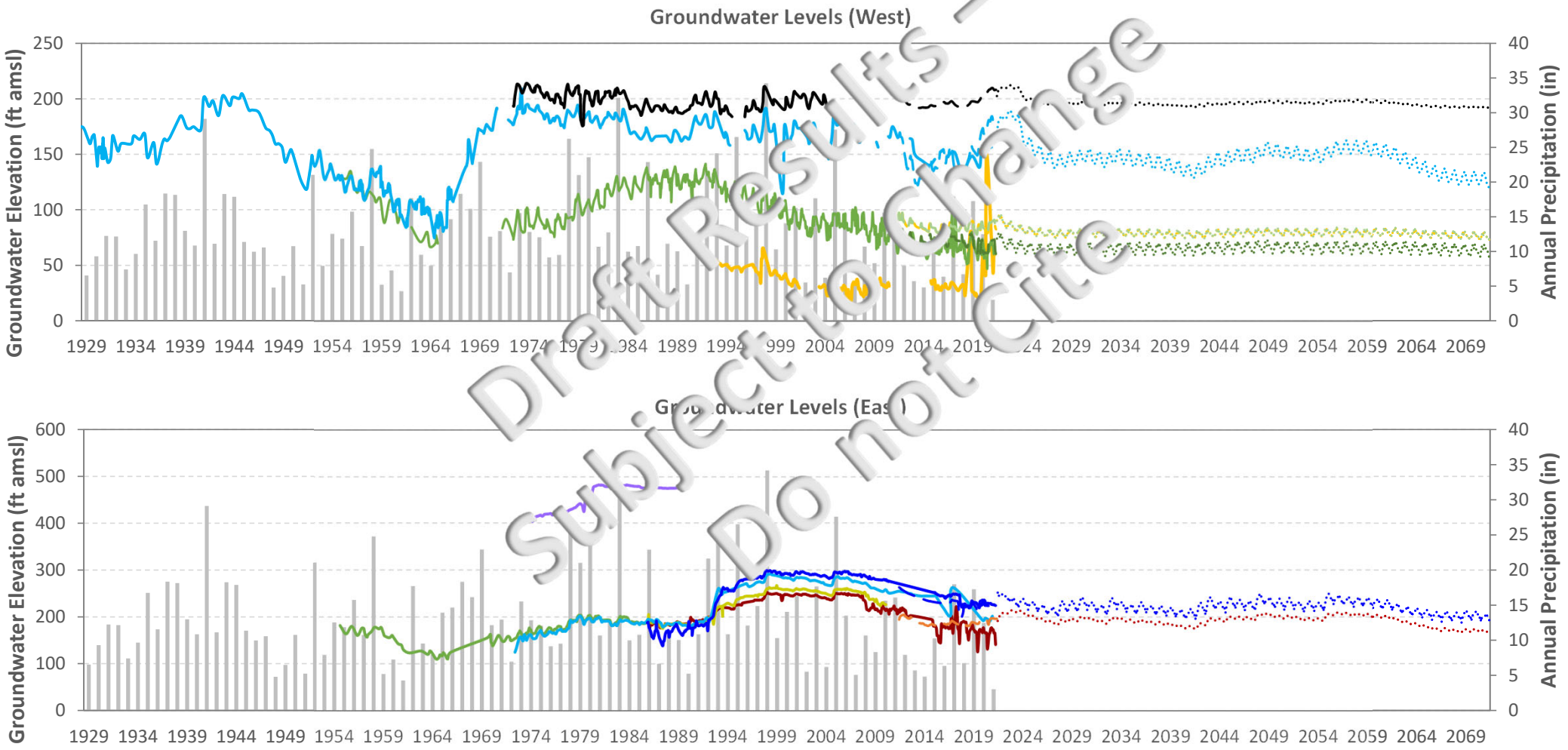


Groundwater Budget Summary

Modeled Budget	GW Inflows	GW outflows	Change in Storage
Historical	4,510	4,639	-129
Current	4,506	3,459	1,047
Projected	5,107	5,236	-130
2030 CC	5,179	5,311	-132
2070 CC	5,283	5,413	-130

- Overall averages in acre-feet/year
- Basin is in balance
- Deficits are within error range of model accuracy
  - Not a problem to manage

Projected Groundwater Levels



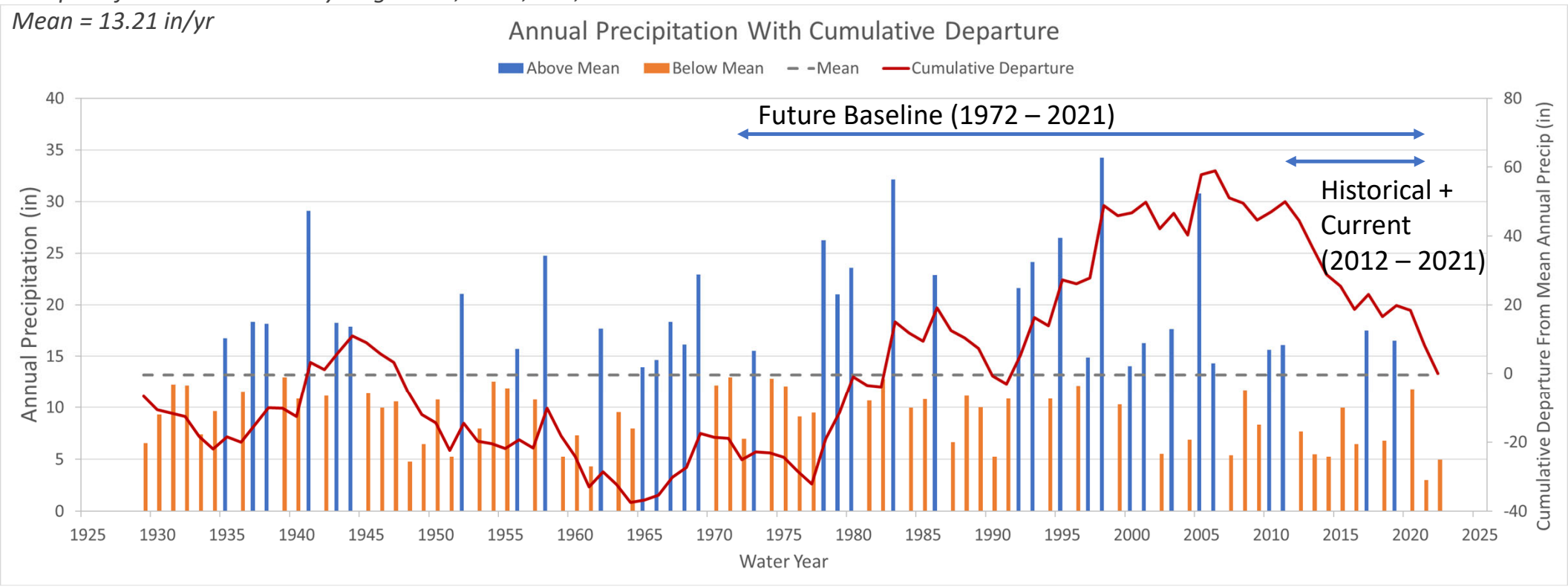
Summary

- Key takeaways
  - Basin is close to being in balance
    - Calculated deficit is small and within modeling error
  - No chronic declines in GW levels
  - No land subsidence or seawater intrusion
  - Groundwater quality is an issue currently being addressed
  - Streamflow depletion due to pumping is very small compared to overall outflow
  - No GDEs
  - Used the best available data and science but uncertainty and data gaps exist and will be addressed in upcoming workshops
- Bottom line: review of historical data and modeling did not reveal any obvious groundwater management issues other than already known water quality concerns

Questions?

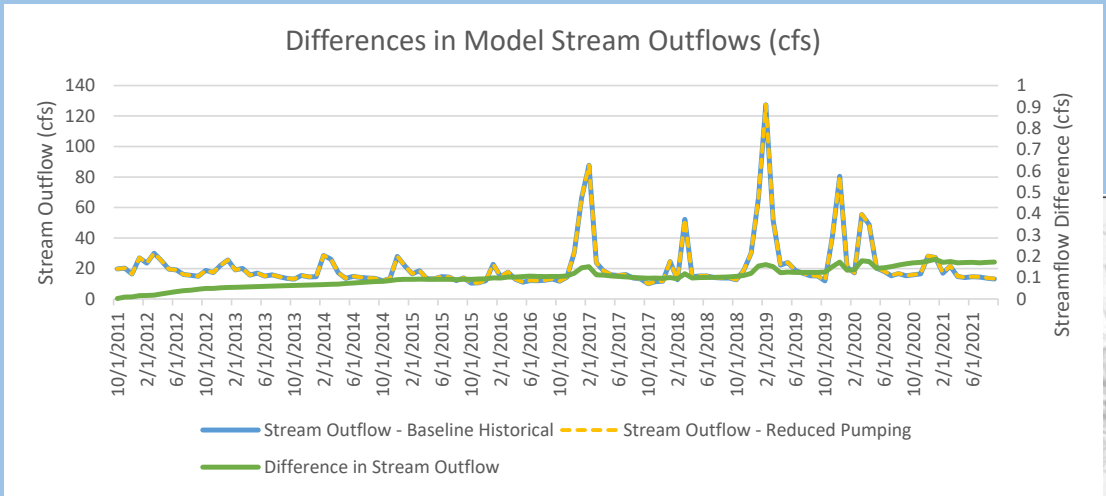
Model Time Periods

Compiled from Ventura County Gages 049, 049A, 500, 500A
Mean = 13.21 in/yr

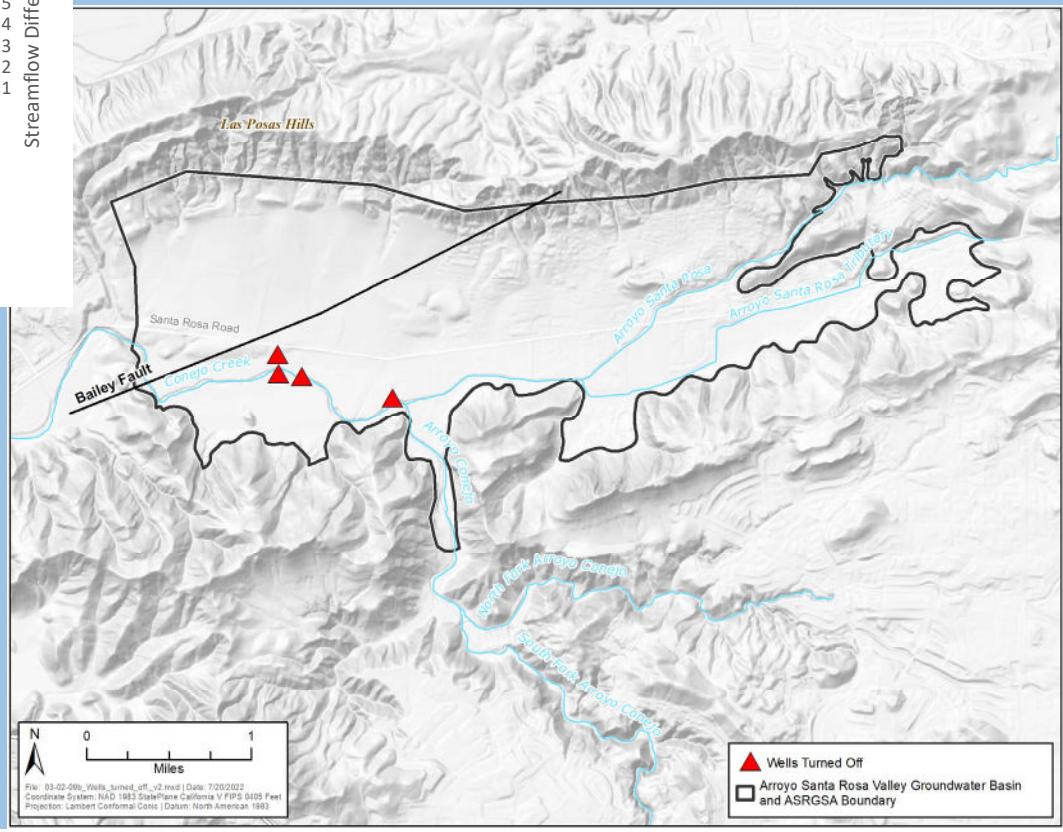


Calibration Period = Water Years 2012 – 2021 **(Oct 1st, 2011, through September 30th, 2021)**

Direct Depletion of Interconnected Surface Water



- Model turns off pumping wells adjacent to surface water
- Comparison of streamflow with and without pumping
- Streamflow Depletion due to pumping: maximum of 0.2 cfs



OVERVIEW OF SMC AND NEXT STEPS

SUSTAINABLE MANAGEMENT CRITERIA

- Sustainability Goal
- Sustainability Indicators

  - Undesirable Results
    - Significant and unreasonable effect related to any of the six sustainability indicators
  - Minimum Thresholds
    - Quantitative metrics indicating undesirable results exist
  - Measureable Objectives
    - Quantitative metrics that reflect basin desired conditions

SUSTAINABILITY GOAL

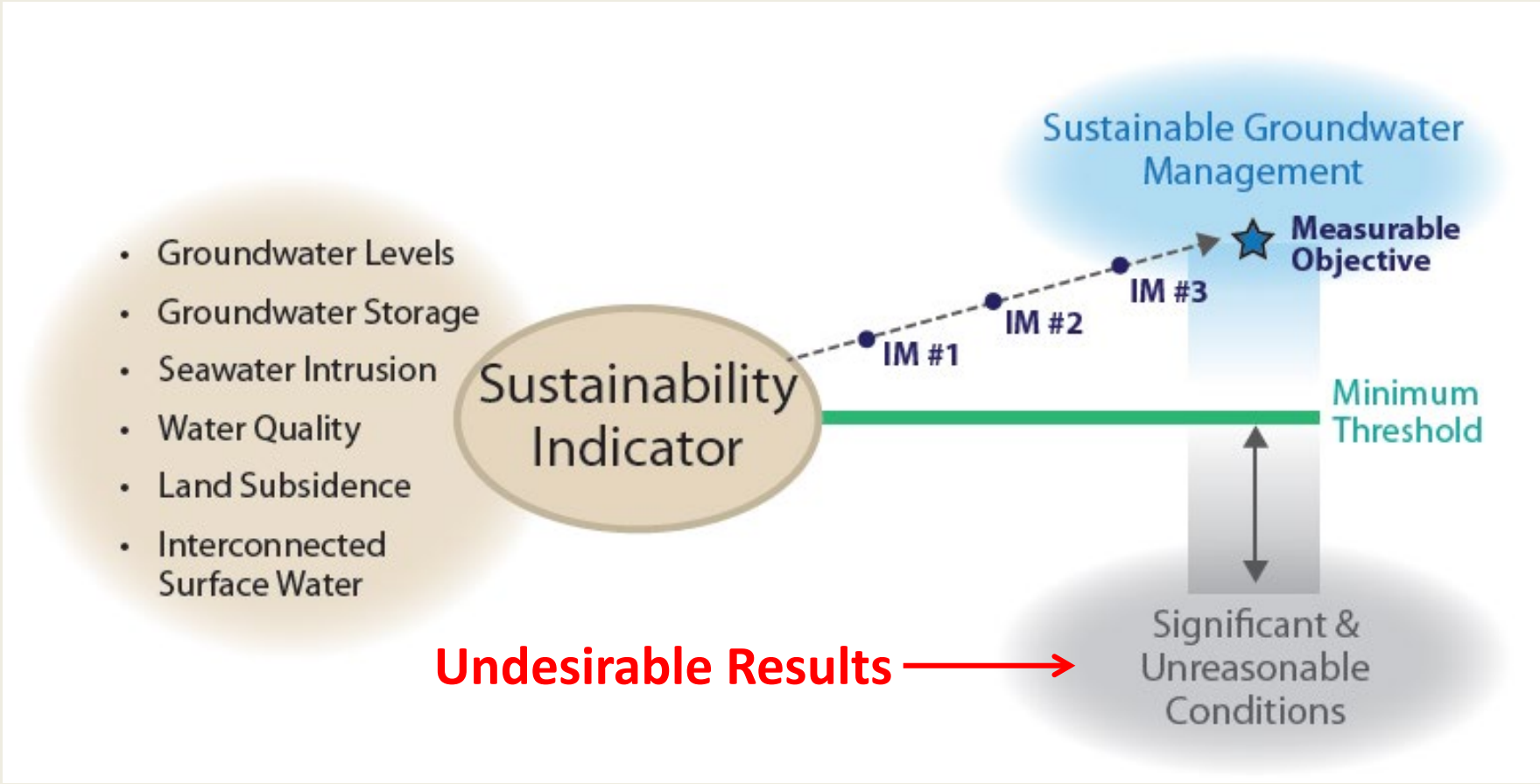
- High-level policy framework to guide development of Sustainable Management Criteria & Plan Actions

DEFINING UNDESIRABLE RESULTS IS A CRITICAL STEP IN GSP DEVELOPMENT

- Not all poor conditions are necessarily unreasonable

- Locally determined by GSA in consultation with stakeholders and public input

RELATIONSHIP BETWEEN MT/MO AND UNDESIRABLE RESULTS AND SUSTAINABLE MANAGEMENT



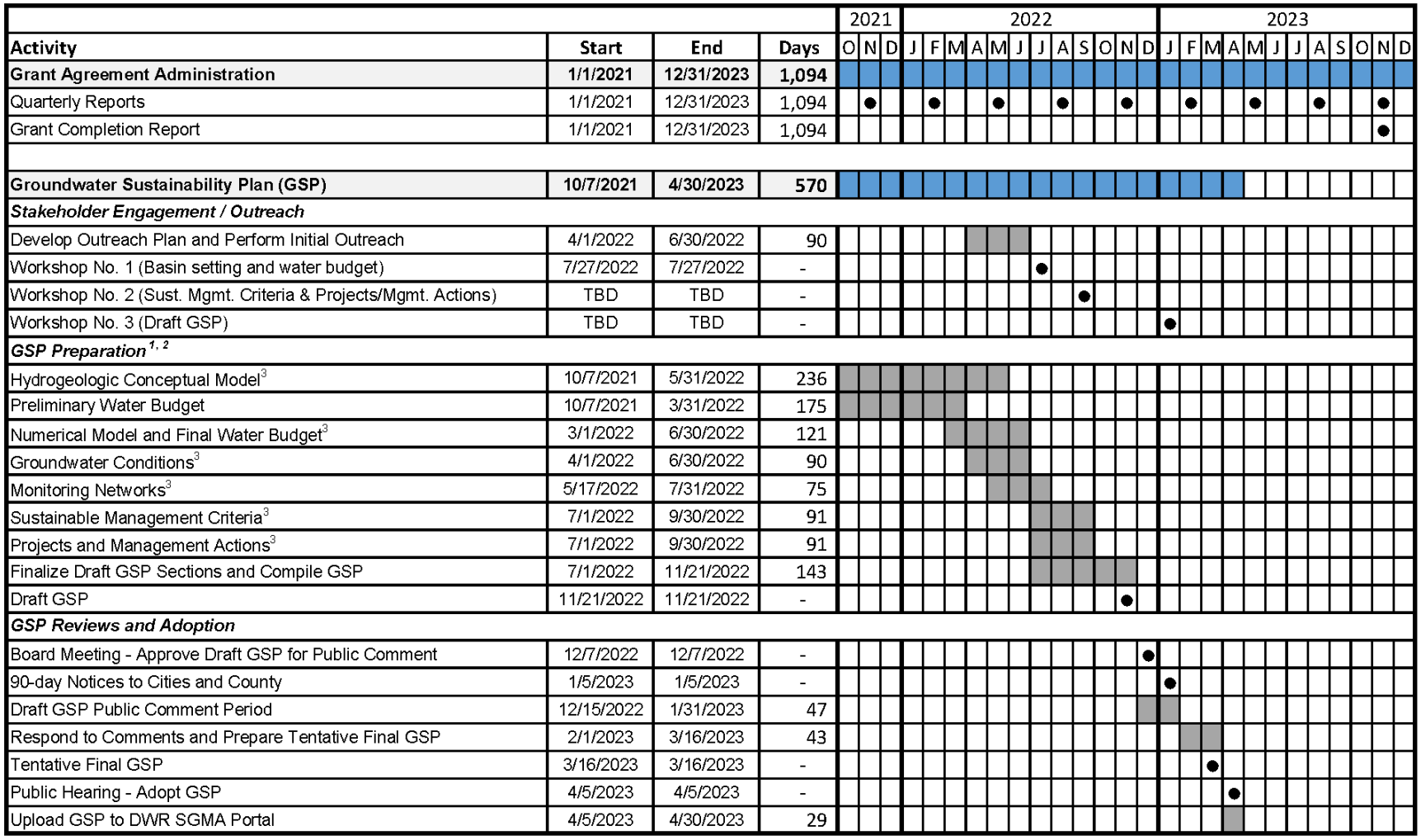
MT/MO METRICS

Sustainability Indicators	Lowering GW Levels	Reduction of Storage	Seawater Intrusion	Degraded Quality	Land Subsidence	Surface Water Depletion
Metric(s) Defined in GSP Regulations	• Groundwater Elevation	• Total Volume	• Chloride concentration isocontour	• Migration of Plumes • Number of supply wells • Volume • Location of isocontour	• Rate and Extent of Land Subsidence	• Volume or rate of surface water depletion

GSP DEVELOPMENT APPROACH

Please don't wait for the draft GSP to make comments. Your input will be more effective if it is received while the draft GSP is being developed!

GSP DEVELOPMENT SCHEDULE WILL BE UPDATED ON ASRBGSA WEBSITE



Activity	Start	End	Days
Grant Agreement Administration	**1/1/2021**	**12/31/2023**	**1,094**
Quarterly Reports	1/1/2021	12/31/2023	1,094
Grant Completion Report	1/1/2021	12/31/2023	1,094
Groundwater Sustainability Plan (GSP)	**10/7/2021**	**4/30/2023**	**570**
Stakeholder Engagement / Outreach			
Develop Outreach Plan and Perform Initial Outreach	4/1/2022	6/30/2022	90
Workshop No. 1 (Basin setting and water budget)	7/27/2022	7/27/2022	-
Workshop No. 2 (Sust. Mgmt. Criteria & Projects/Mgmt. Actions)	TBD	TBD	-
Workshop No. 3 (Draft GSP)	TBD	TBD	-
GSP Preparation [1, 2]			
Hydrogeologic Conceptual Model[3]	10/7/2021	5/31/2022	236
Preliminary Water Budget	10/7/2021	3/31/2022	175
Numerical Model and Final Water Budget[3]	3/1/2022	6/30/2022	121
Groundwater Conditions[3]	4/1/2022	6/30/2022	90
Monitoring Networks[3]	5/17/2022	7/31/2022	75
Sustainable Management Criteria[3]	7/1/2022	9/30/2022	91
Projects and Management Actions[3]	7/1/2022	9/30/2022	91
Finalize Draft GSP Sections and Compile GSP	7/1/2022	11/21/2022	143
Draft GSP	11/21/2022	11/21/2022	-
GSP Reviews and Adoption			
Board Meeting - Approve Draft GSP for Public Comment	12/7/2022	12/7/2022	-
90-day Notices to Cities and County	1/5/2023	1/5/2023	-
Draft GSP Public Comment Period	12/15/2022	1/31/2023	47
Respond to Comments and Prepare Tentative Final GSP	2/1/2023	3/16/2023	43
Tentative Final GSP	3/16/2023	3/16/2023	-
Public Hearing - Adopt GSP	4/5/2023	4/5/2023	-
Upload GSP to DWR SGMA Portal	4/5/2023	4/30/2023	29

STAKEHOLDER ENGAGEMENT IS ENCOURAGED

- Track status at: https://www.camrosa.com/srgsa/
- Join the ASRBGSA Interested Parties List by contacting IanP@camrosa.com.
- Email inquiries to: IanP@camrosa.com

SMC OVERVIEW AND NEXT STEPS QUESTIONS

STAKEHOLDER Q&A & FEEDBACK

ATTENDEE POLL NOS. 4 & 5

EXECUTIVE DIRECTOR AND BOARD MEMBER COMMENTS

WRAP UP
THANK YOU FOR PARTICIPATING!