

North American Groundwater Subbasin (NASb)

Groundwater Sustainability Plan (GSP) & other Groundwater Management Activities - Status Update

Presentation to the Natomas Central Mutual Water Company
Annual Shareholder Meeting

Trevor Joseph, P.G., C.Hg., Manager of Technical Services

February 13, 2024



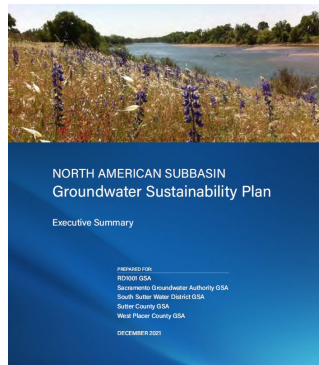
NASb Groundwater Sustainability Agencies (GSAs) – Timeline of Activities

GSP development and adoption

GSP Implementation Begins and continues...

5-year updates (2026, 2031, 2036, 2041) →

SGMA



2016 to 2021

2023

2024

Dec

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec

Annual Reporting

Projects and Management Actions

Groundwater Sustainability Agency (GSA) Coordination

Outreach and Engagement

Monitoring and Data Management

Budgeting and Funding

SGM Round 2 Grant Implementation

Prior Groundwater Management Plan Development and Implementation

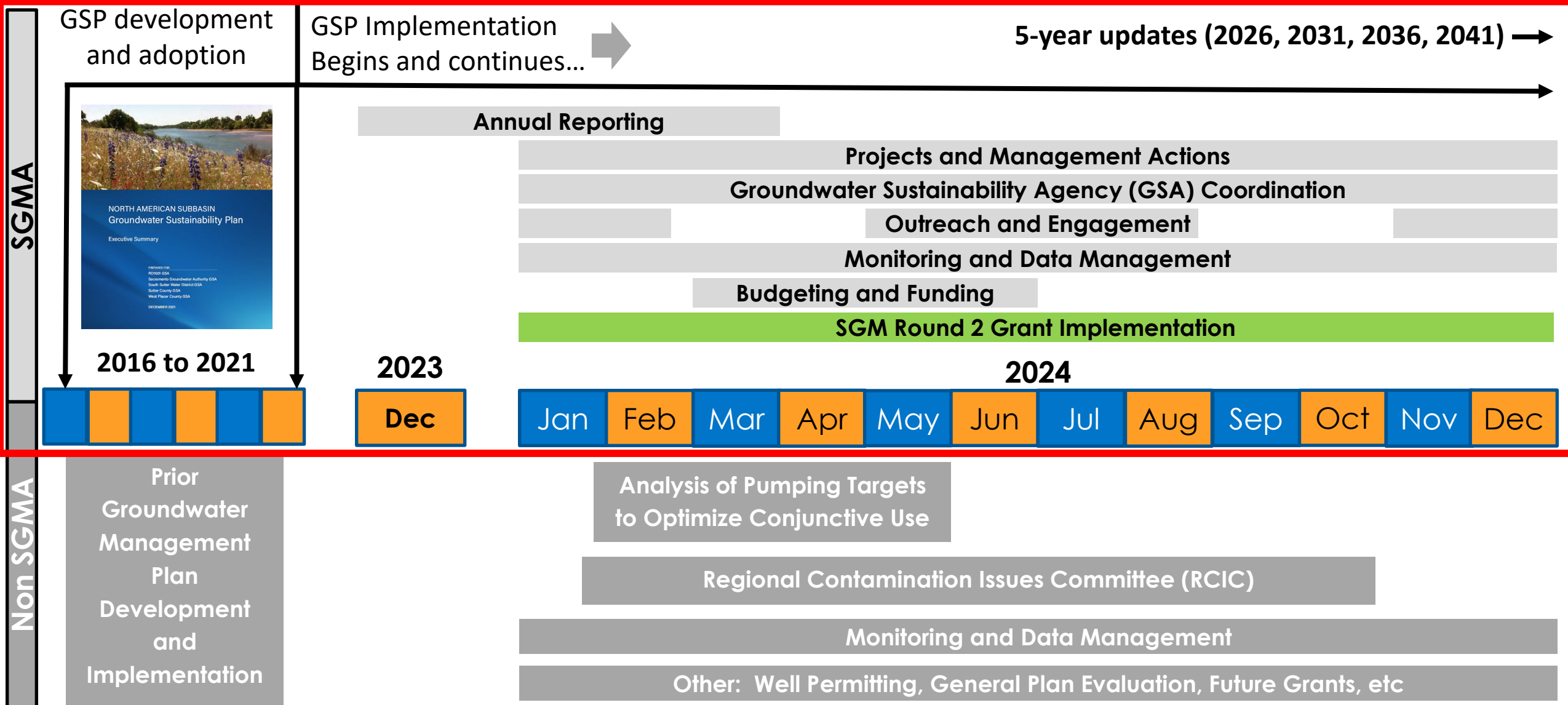
Analysis of Pumping Targets to Optimize Conjunctive Use

Regional Contamination Issues Committee (RCIC)

Monitoring and Data Management

Other: Well Permitting, General Plan Evaluation, Future Grants, etc

NASb Groundwater Sustainability Agencies (GSAs) – Timeline of Activities



Sustainable Groundwater Management Act (SGMA)

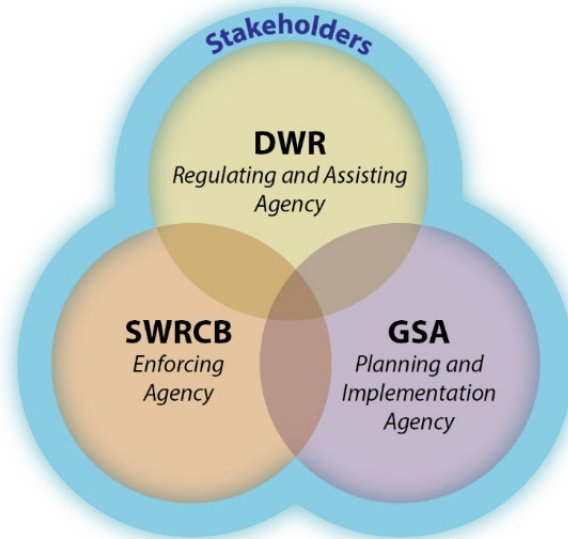
Local Control



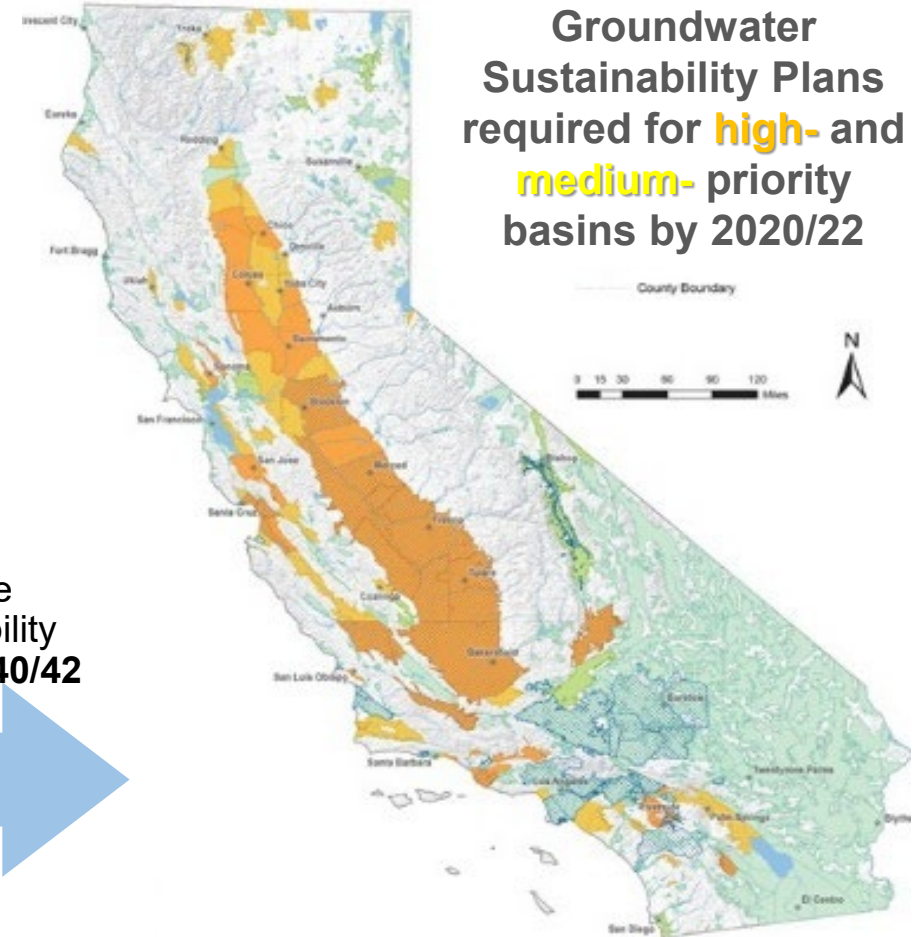
“A central feature of these bills is the recognition that groundwater management in California is best accomplished locally.”

Governor Jerry Brown, September 2014

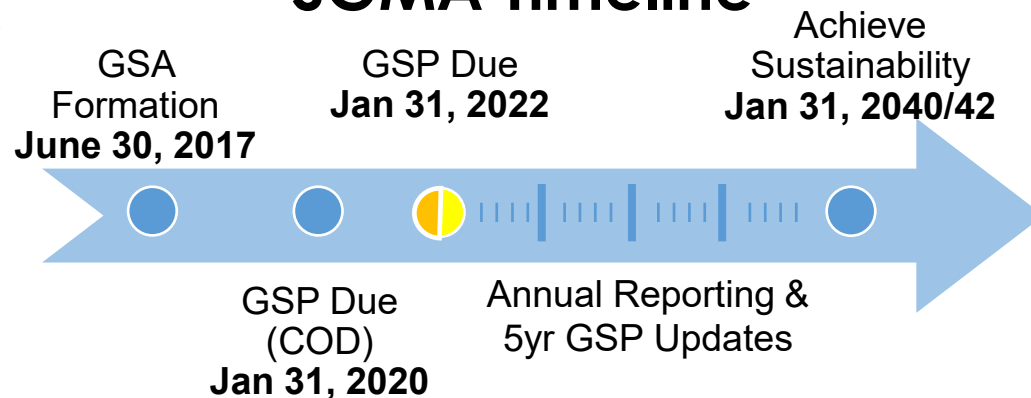
Roles



Groundwater Basins



SGMA Timeline



Sustainability Indicators

“effects caused by groundwater conditions throughout the basin that, when significant and unreasonable, cause undesirable results...”

Undesirable Results

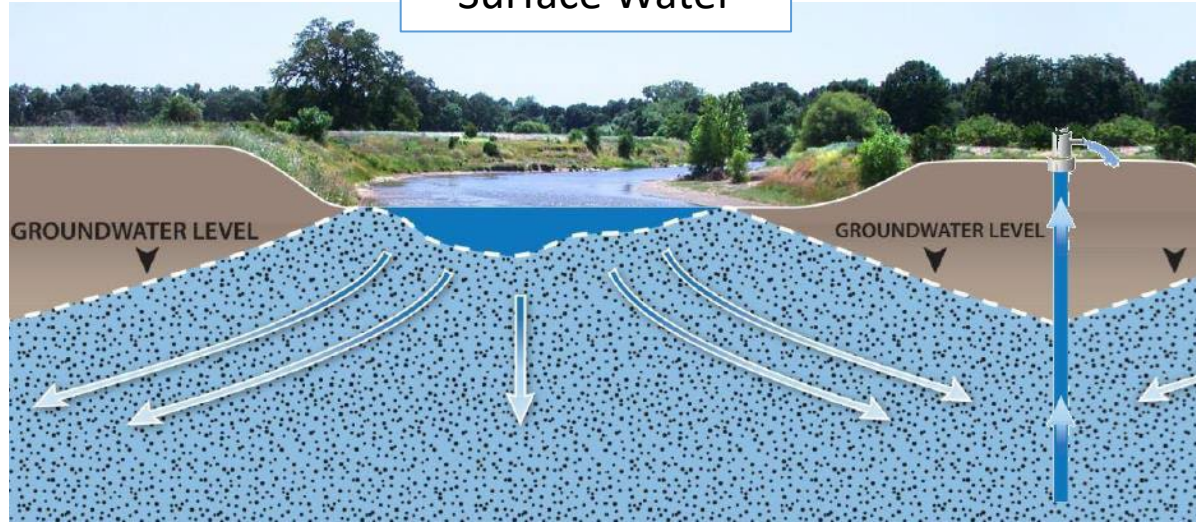
		<p>Community Public and State Small Water Systems, Raw Water Nitrate Levels, 2006-2010 (mg/L)</p> <ul style="list-style-type: none"> up to 10 11 - 15 151 - 22.6 22.6 - 45 451 - 90 over 90 			<p>Historic Seawater Intrusion Map Present 10-Foot Aquifer, 100 mg/L Chloride Axis</p> <p>Legend Intrusion Depth (feet)</p> <ul style="list-style-type: none"> 0-10 10-20 20-30 30-40 40-50 50-60 60-70 70-80 80-90 90-100 100-110 110-120 120-130 130-140 140-150 150-160 160-170 170-180 180-190 190-200 200-210 210-220 220-230 230-240 240-250 250-260 260-270 270-280 280-290 290-300 300-310 310-320 320-330 330-340 340-350 350-360 360-370 370-380 380-390 390-400 400-410 410-420 420-430 430-440 440-450 450-460 460-470 470-480 480-490 490-500 500-510 510-520 520-530 530-540 540-550 550-560 560-570 570-580 580-590 590-600 600-610 610-620 620-630 630-640 640-650 650-660 660-670 670-680 680-690 690-700 700-710 710-720 720-730 730-740 740-750 750-760 760-770 770-780 780-790 790-800 800-810 810-820 820-830 830-840 840-850 850-860 860-870 870-880 880-890 890-900 900-910 910-920 920-930 930-940 940-950 950-960 960-970 970-980 980-990 990-1000
Lowering of GW Levels	Reduction of GW Storage	Water Quality Degradation	Land Subsidence	Depletion of Interconnected Streams	Seawater Intrusion

NASb Applicable Sustainability Indicators

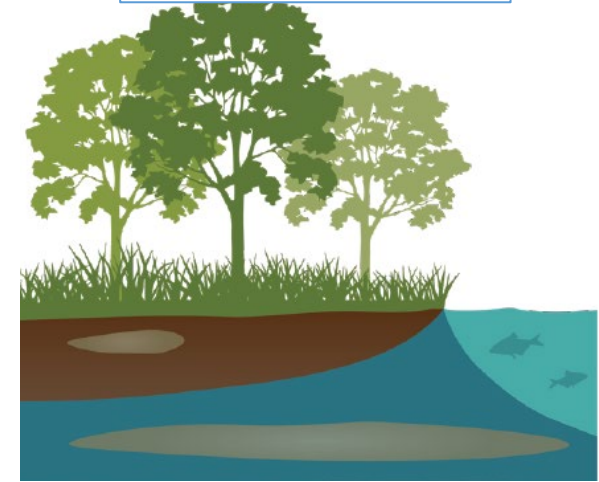
Lowering GW Levels Reduction of Storage Degraded Quality Land Subsidence Surface Water Depletion	Seawater Intrusion
Applicable NASb Sustainability Indicators	Not applicable in the NASb

Beneficial Uses and Users

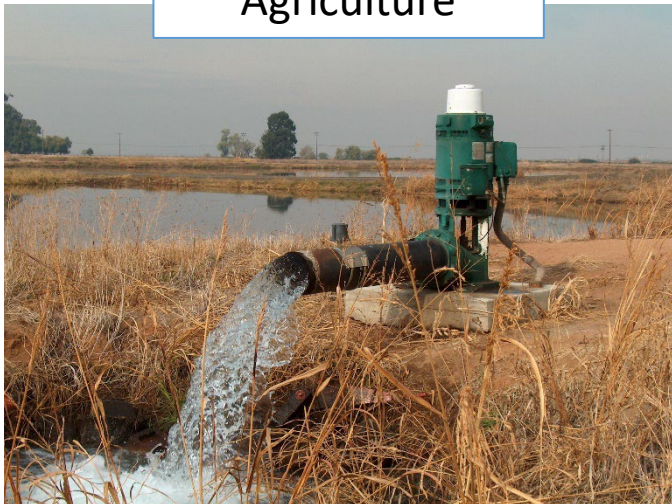
Surface Water



Environment



Agriculture



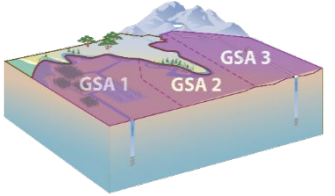
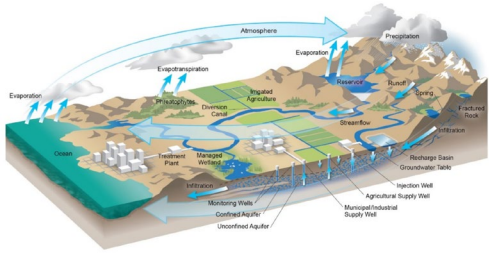
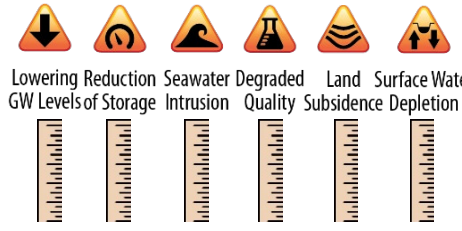
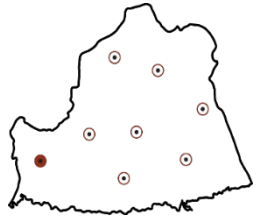
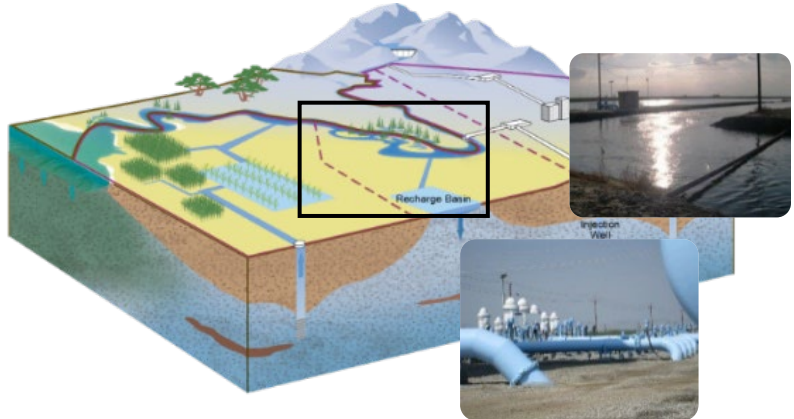
Municipal



Domestic



Groundwater Sustainability Plan (GSP) Regulations & NASb Sections

GSP Development Phases	1. Understand existing basin conditions	2. Develop water levels that consider beneficial uses and users	3. Develop management actions and/or projects to ensure basin is sustainable
GSP Regulation Requirements	<p>Who - Administrative Information -</p>  <p>What - Basin Setting -</p> 	<p>Where - Sustainable Management Criteria -</p>  <p>Lowering Reduction Seawater Degraded Land Surface Water GW Levels of Storage Intrusion Quality Subsidence Depletion</p> <p>- Monitoring Network -</p> 	<p>How - Projects & Management Actions -</p> 
NASb GSP Sections	<ul style="list-style-type: none"> ◦ Section 1 Introduction ◦ Section 2 Agency Information ◦ Section 3 Plan Area ◦ Section 4 Hydrogeologic Setting ◦ Section 5 Groundwater Conditions 	<ul style="list-style-type: none"> ◦ Section 6 Water Budgets ◦ Section 7 Monitoring Networks ◦ Section 8 Sustainable Management Criteria 	<ul style="list-style-type: none"> ◦ Section 9 Projects and Management Actions ◦ Section 10 Plan Implementation ◦ Section 11 Notice and Communications

GSP Adopted and Submitted

- GSP Submitted January 24, 2022
- Public Comments closed
April 16, 2022
- DWR has 2 years to review GSP
 - DWR Provided “*Approved Determination*” July 2023

GSP available at:
nasbgroundwater.org



NORTH AMERICAN SUBBASIN Groundwater Sustainability Plan

Executive Summary

PREPARED FOR:

RD1001 GSA

Sacramento Groundwater Authority GSA

South Sutter Water District GSA

Sutter County GSA

West Placer County GSA

DECEMBER 2021

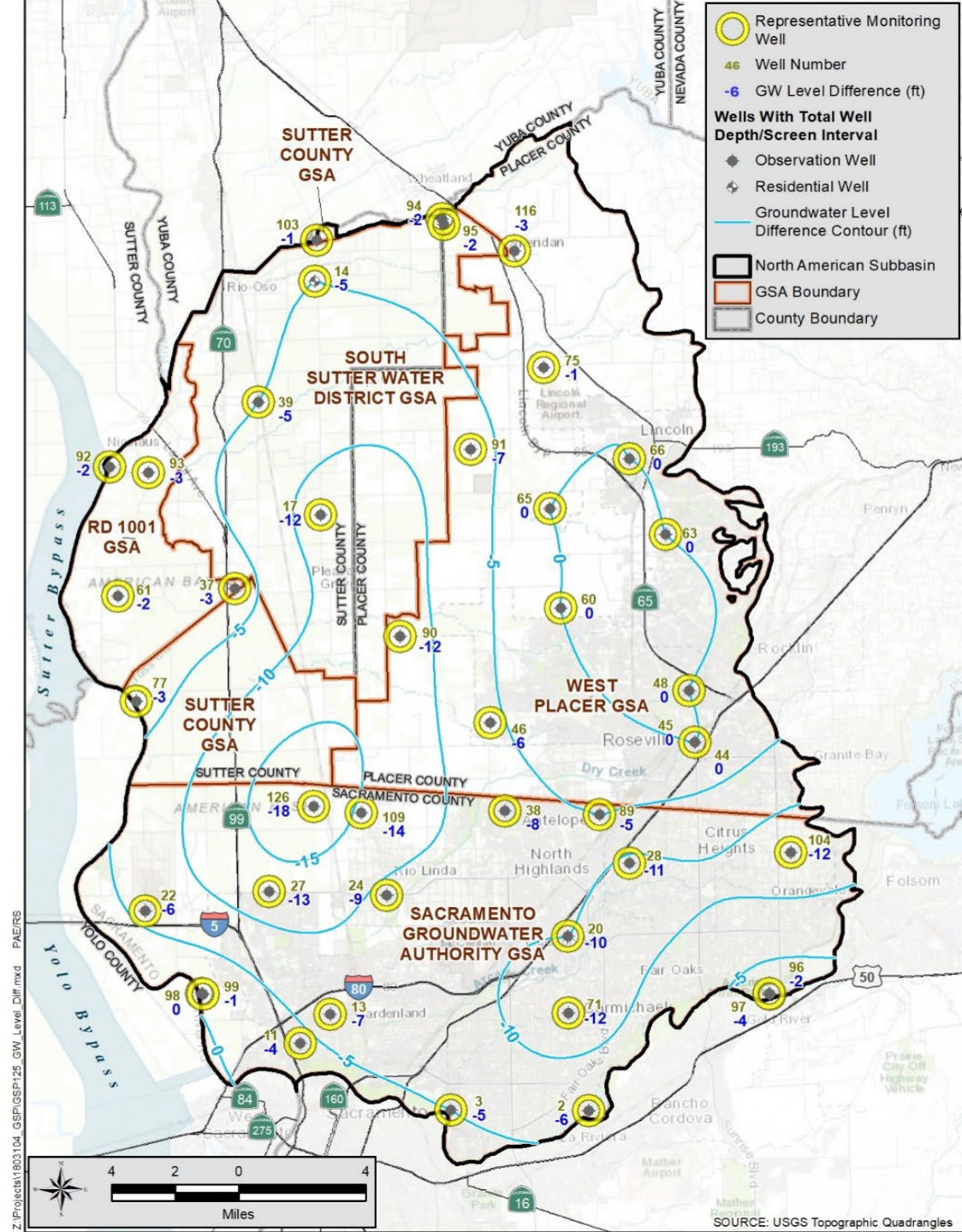
Groundwater Budget from Model

Model Scenario	Groundwater Use (acre-feet)	Change in Storage (acre-feet)
Current Conditions	303,300	14,900
Projected Conditions	325,300	5,400
Projected Conditions with Climate Change	345,100	-3,500

Estimated sustainable yield = 336,000 acre-feet per year

Projected Groundwater Level Changes

- 50-year simulation
- Subtracted projected declines from baseline to establish minimum thresholds
- Compared the effects of these future levels on beneficial uses and users



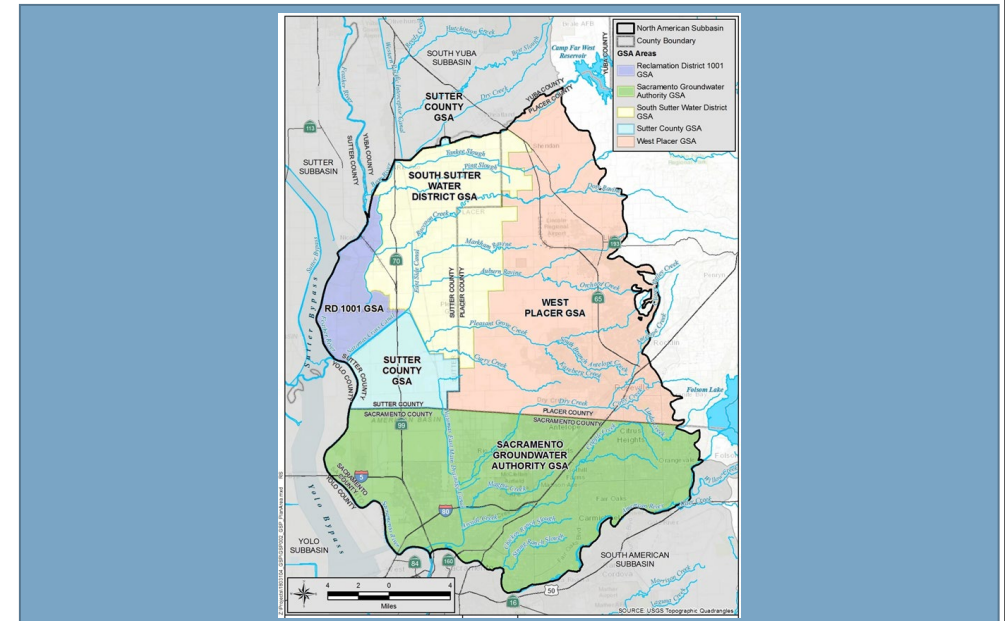
Annual Report

- Hydrology
- Water Use
- Water Budget
- Groundwater Levels
- Groundwater Storage
- GSP Implementation
- Sustainability Indicators

Water Year 2021

Annual Report for the North American Subbasin

March 2022

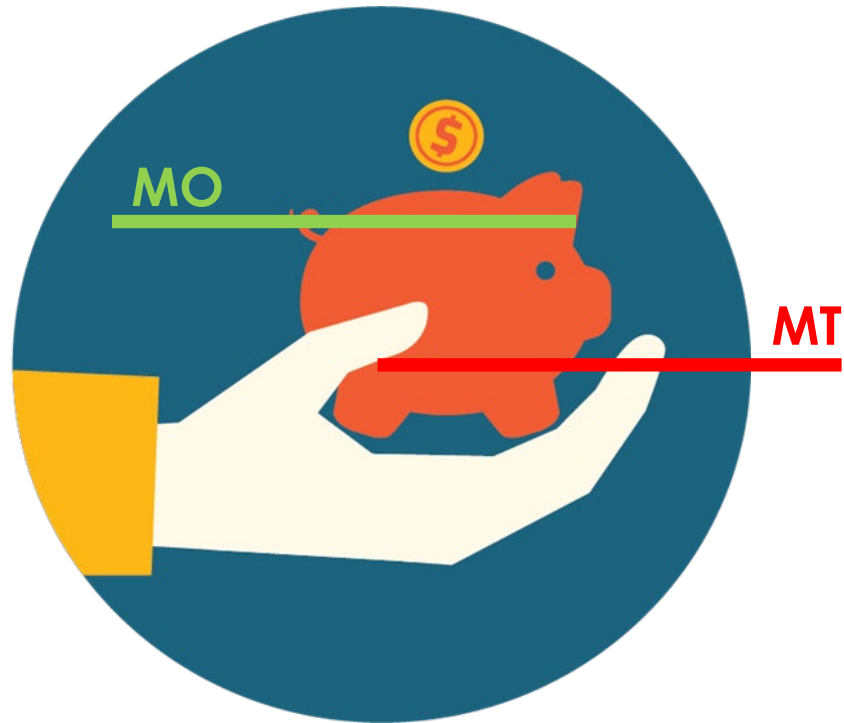


Prepared for the North American Subbasin GSAs:

RD1001
Sacramento Groundwater Authority
South Sutter Water District
Sutter County
West Placer

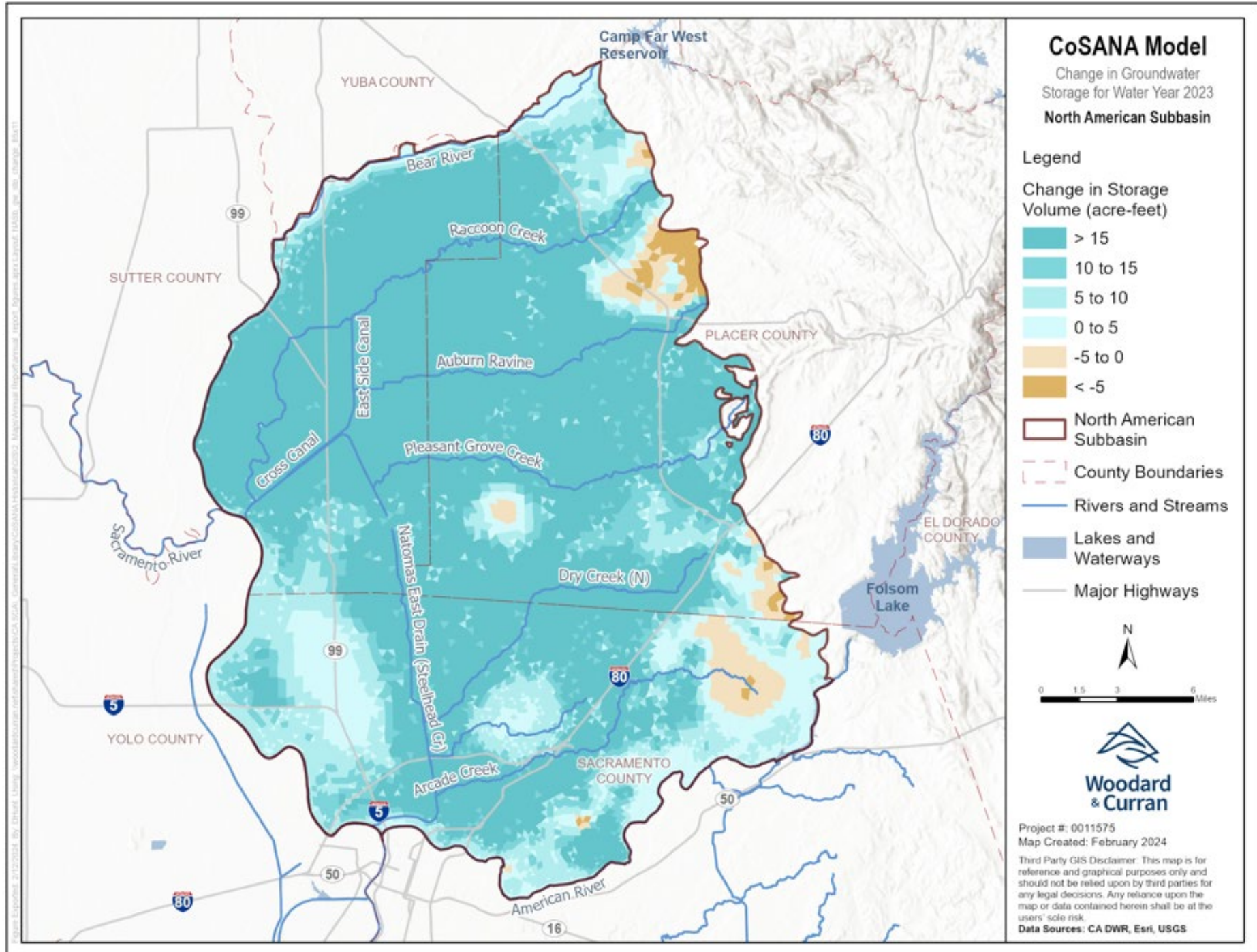
Measurable Objectives and Minimum Thresholds

Measurable Objective (MO) = levels that reflect desired conditions...that enable GSA to achieve sustainability



Minimum Threshold (MT) = levels at a site that when exceeded, either individually or at a combination of sites, may cause undesirable results

Water Year 2023 Groundwater Conditions (DRAFT)



Projects and Management Actions and Supplemental Projects

Projects

- #1: Regional Conjunctive Use Expansion - Phase 1
- #2: Natomas Cross Canal Stability Berm and Channel Habitat Enhancement Project

Management Actions

- #1: Complete Planning for Sacramento Regional water Bank
- #2: Explore Improvements with NASb Well Permitting Programs
- #3: Proactive Coordination with Land Use Agencies
- #4: Domestic/Shallow Well - Data Collection and Communication Program
- #5: GDE Assessment Program

Supplemental Projects

- Regional Water Authority - Expansion of the Sacramento Regional Water Bank (Phase 2)
- Placer County Water Agency - RiverArc
- South Sutter Water District - Water System Conveyance System Improvements
- Natomas Mutual Water Company - Service Area Expansion
- Expansion City of Lincoln – Recycled Water Conjunctive Use
- Placer County - Sustainable Agricultural Groundwater Recharge Program

DWR – NASb GSP Approval Determination



CALIFORNIA DEPARTMENT OF WATER RESOURCES
SUSTAINABLE GROUNDWATER
MANAGEMENT OFFICE
715 P Street, 8th Floor | Sacramento, CA 95814 | P.O. Box 942836 | Sacramento, CA 94236-0001

July 27, 2023

Trevor Joseph
Sacramento Groundwater Authority
2295 Gateway Oaks Dr, Suite 100
Sacramento, CA, 95833
tjoseph@wah2o.org

RE: Sacramento Valley – North American Subbasin 2022 Groundwater Sustainability Plan

Dear Trevor Joseph,

The Department of Water Resources (Department) has evaluated the groundwater sustainability plan (GSP) submitted for the Sacramento Valley – North American Subbasin and has determined the GSP is approved. The approval is based on recommendations from the Staff Report, included as an exhibit to the attached Statement of Findings, which describes that the North American Subbasin satisfies the objectives of the Sustainable Groundwater Management Act (SGMA) and substantially complies with the GSP Regulations. The Staff Report also proposes recommended corrective actions that the Department believes will enhance the GSP and facilitate future evaluation by the Department. The Department strongly encourages the recommended corrective actions be given due consideration and suggests incorporating all resulting changes to the GSP in future updates.

Recognizing SGMA sets a long-term horizon for groundwater sustainability agencies (GSAs) to achieve their basin sustainability goals, monitoring progress is fundamental for successful implementation. GSAs are required to evaluate their GSPs at least every five years and whenever the Plan is amended, and to provide a written assessment to the Department. Accordingly, the Department will evaluate approved GSPs and issue an assessment at least every five years. The Department will initiate the first periodic review of the North American Subbasin no later than January 24, 2027.

Please contact Sustainable Groundwater Management staff by emailing sgmps@water.ca.gov if you have any questions related to the Department's assessment or implementation of your GSP.

DWR Recommendations:

1. Further define bottom of subbasin
2. Schedule to address data gaps related to the identification of interconnected surface water
3. Enhance information and definition of degraded water quality (particularly for the public water supply well group), including describing potential impacts to beneficial uses and users
4. Further establish sustainable management criteria for land subsidence
5. Further establish sustainable management criteria for stream depletion associated with interconnected surface water DWR guidance
6. Enhance clarity on presentation of data related to all representative monitoring sites in the chronic lowering of groundwater levels, degraded water quality, and depletion of interconnected surface water monitoring networks ensuring internal consistency between info provided in different sections of the GSP and the SGMA portals MNM portal

NASb GSP Plan Implementation – Budget

2022 ANNUAL BUDGET AND FOUR-YEAR PROJECTION SUMMARY					
GSA Name	Estimated Annual Contribution by GSAs (a)				
	2022	2023	2024	2025	2026
Reclamation District 1001	11,673	11,673	11,673	11,673	11,673
Sacramento Groundwater Authority	83,171	83,171	83,171	83,171	83,171
South Sutter Water District	44,521	44,521	44,521	44,521	44,521
Sutter County	13,583	13,583	13,583	13,583	13,583
West Placer Groundwater Sustainability Agency	76,912	76,912	76,912	76,912	76,912
TOTAL	\$229,860	\$229,860	\$229,860	\$229,860	\$229,860
FIVE-YEAR TOTAL	\$1,149,300				
NOTES:					
<p>a. The Parties acknowledge the need to establish an aggregate contingency budget of up to 20%. Any future use of any portion of the contingency budget shall be provided to each GSA for review and approved by a unanimous vote of the Parties at a GSA Basin Coordination Meeting before implementation. Upon approval of the use of the contingency budget, SGA will invoice the Parties to collect the agreed upon contingency amount.</p>					

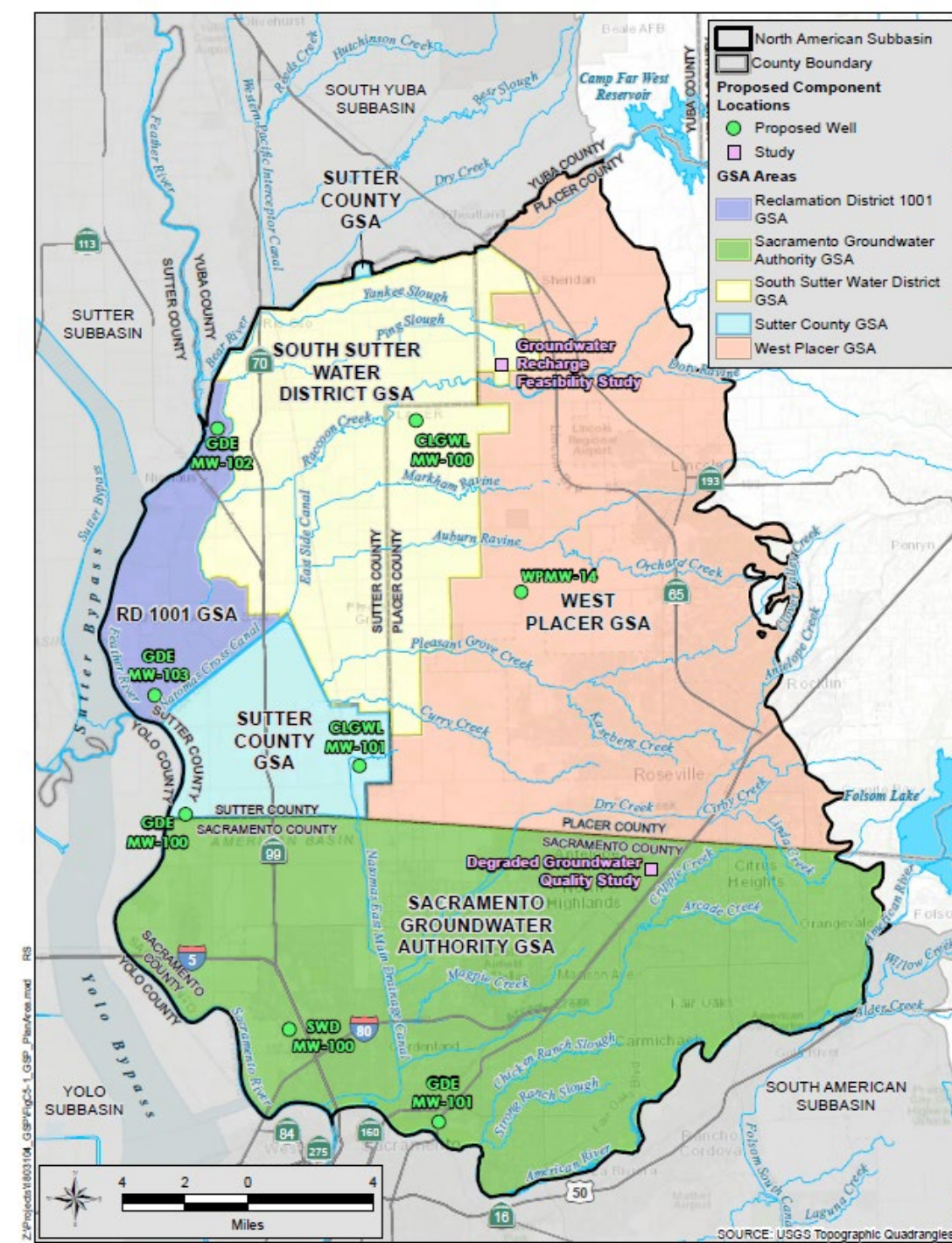
SGM Department of Water Resources (DWR) Grant

Department of Water Resources (DWR) NASb Grant Application

Advancing NASb Sustainable Groundwater Management

Components

1. Grant Administration
2. Recharge Basin Feasibility Study
3. PCE Water Quality Study
4. Monitoring Wells
 - GDE (4)
 - Lowering of Levels (1)
 - SW Depletion (1)
5. Large Capacity Monitoring Well/Emergency Supply Well
 - Domestic and Emergency Supply (1)
6. Annual Reporting and 5-year update
7. CoSANA modeling improvements



Department of Water Resources (DWR)

SGM Grant Overview (cont.)

- ▶ DWR and SGA signed grant agreement on **January 18, 2024**
- ▶ First Progress Report due to DWR on **April 30, 2024**, for activities that occurred between October 4, 2022, through December 2023 (applicable only to Component 6: GSP Update and Annual Reporting)
- ▶ WPGSA will be the lead of Component 2: Groundwater Recharge Feasibility Study
- ▶ On February 8, 2024, the SGA Board of Directors approved sole source contracting for the following components/consultants:
 - ▶ **Component 3: Groundwater Quality Degradation Study – West Yost**
 - ▶ **Component 4 and 5: Groundwater Monitoring Wells Construction and Groundwater Monitoring Well/Emergency Supply Well, respectively – GEI**
 - ▶ **Component 7: CoSANA Model Upgrade and Enhancements – Woodard & Curran**
- ▶ NASb GSAs are currently working through the cashflow/budget regarding implementation of grant

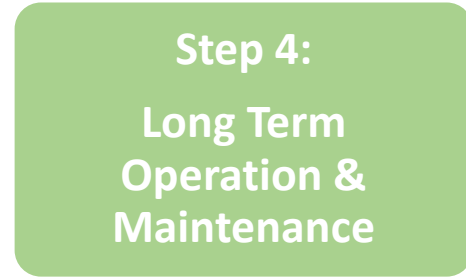
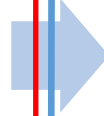
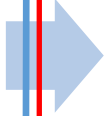
Key threshold or determination to proceed to next stage

Fatal Flaws?

SGM Grant Component

Favorable Site?

Suitable Site?



Primary Stage Objectives & Activities

1. Site Identification
2. Preliminary Background Search (desktop analysis)
3. Develop and apply site ranking criteria

1. Obtain right of entry/access agreement to conduct testing
2. Conduct site field investigation
3. Develop Report of Findings

1. Design and Conduct Pilot or Full Scale Testing
2. Develop Performance Testing Technical Memorandum

1. Secure Long Term Recharge Land Use Agreement
2. Develop Financial Plan
3. Proceed to
 1. Final Design
 2. Construction
 3. Operations

Specific considerations & additional activities during each Stage

- At a minimum criteria should consider:
 - + SGMA benefit
 - + Geology & Soils
 - + Land Use
 - + Water Conveyance
 - + Sensitive Habitat & Zones
 - + Groundwater Conditions
 - + Site History/Potential Contamination
 - + Land & Water Costs

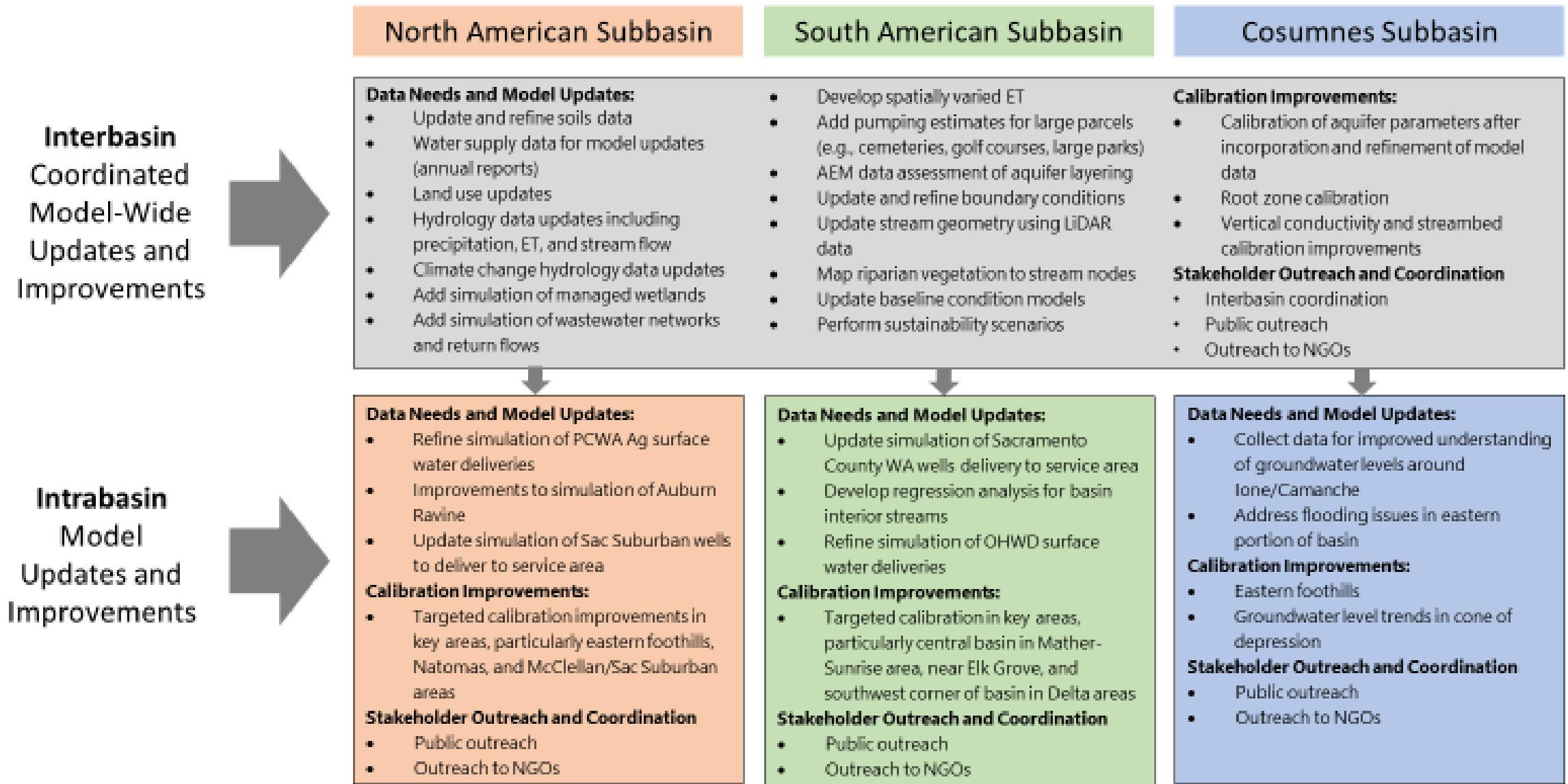
- At a minimum findings should consider:
 - + SGMA benefit
 - + Geology & Soils
 - + Water Source, Quality, & Conveyance
 - + Sensitive Habitat
 - + Groundwater Conditions
 - + Potential Contamination
 - + Land & Water Costs

- At a minimum performance testing will consist of:
 - Installation of recharge monitoring infrastructure
 - Wells
 - Gages
 - Berm Maintenance
 - Monitoring:
 - Infiltration rates
 - Groundwater flow & quality

- Implement Financial Plan
- Secure Interagency and land owner agreements
- Implement and document conditions based on long term monitoring
- Reporting SGMA and other benefits

CoSANA Model Upgrade and Enhancements

Coordinated Effort for Cosumnes, South American, & North American Subbasins



subject to change

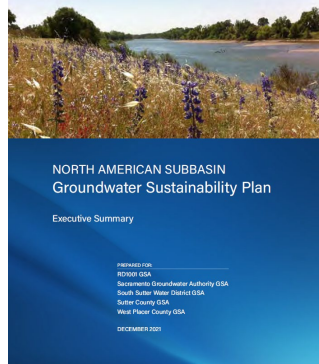
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2016 to 2021

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Prior
Groundwater
Management
Plan
Development
and
Implementation

Analysis of Pumping Targets
to Optimize Conjunctive Use

Regional Contamination Issues Committee (RCIC)

Monitoring and Data Management

Other: Well Permitting, General Plan Evaluation, Future Grants, etc

Non SGMA

Groundwater Management (non-SGMA) Activities

- Prior Groundwater Management Plan (GMP) development & implementation (State of Basin Reporting)
 - Prior Local Groundwater Assistance Grants
- **Analysis of Pumping Targets to Optimize Conjunctive Use**
 - **Monitoring and Data Management**
 - **Other: Well Permitting, General Plan Evaluation, Future Grants, etc**
 - **Regional Contamination Issues Committee (RCIC)**
- Groundwater Substitution Transfers (RWA subscription service)