Yolo Subbasin Groundwater Agency
Groundwater Sustainability Agency

34274 State Highway 16 Woodland, CA 95695 530.662.3211 www.yologroundwater.org

Welcome New Member!

Thank you for joining the Yolo Subbasin Groundwater Agency (YSGA) Board of Directors and making a commitment to ensure sustainable groundwater management in the Yolo Subbasin. This packet contains important documents that will assist you in understanding why a Groundwater Sustainability Agency (GSA) was formed, what is required to be included in a Groundwater Sustainability Plan (GSP), and where the YSGA is currently at in implementing the adopted Yolo Subbasin GSP. Updated versions of these documents will be available on our website at http://www.yologroundwater.org.

1. Yolo Subbasin Groundwater Agency Members, Map, and Roster
2. Adopted Yolo Subbasin GSP
3. Yolo Subbasin GSP Approval with DWR Comments
4. Annual Reports for Water Years 2019-2022
5. Draft Management Area Framework
6. Critical Elements of the Proposed Yolo Subbasin Groundwater Authority
7. Draft Yolo Subbasin GSA Development Principles (October 2016)
8. Joint Exercise of Powers Agreement for the Yolo Subbasin Groundwater Agency
9. Yolo Subbasin GSP: Components
10. California Department of Water Resources' (DWR) Groundwater Sustainability Agency (GSA) Frequently Asked Questions
11. DWR's Groundwater Sustainability Plan Emergency Regulations
12. DWR's Guidance Document for the Sustainable Management of Groundwater: Groundwater Sustainability Plan Annotated Outline
13. DWR's Guidance for Sustainable Groundwater Management Act Implementation: Considerations for Identifying and Addressing Drinking Water Well Impacts

I look forward to working with you.

Kristin Sicke
Executive Officer

Yolo Subbasin Groundwater Agency

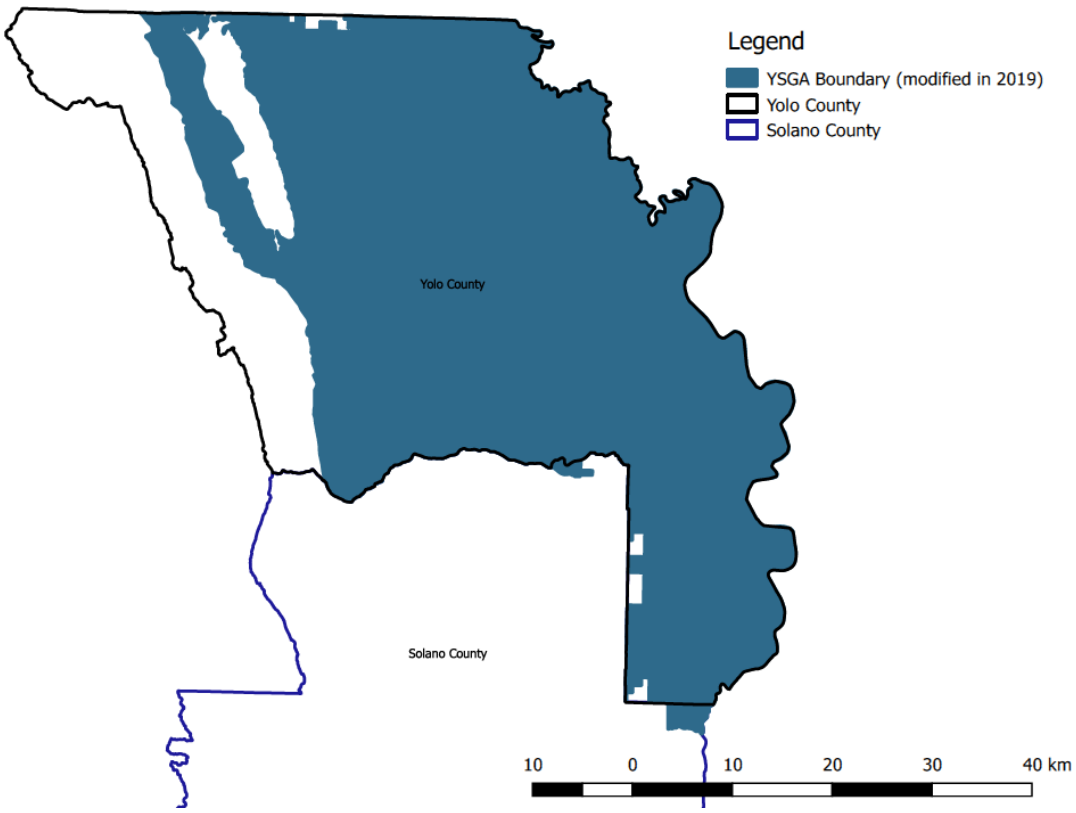
Member Agencies

City of Davis
City of West Sacramento
City of Winters
City of Woodland
Dunnigan Water District
Esparto Community Service District (CSD)
Madison CSD
Reclamation District (RD) 108
RD 150
RD 307
RD 537
RD 730
RD 765
RD 787
RD 999
RD 1600
RD 2035
Yocha Dehe Wintun Nation
Yolo County
Yolo County Flood Control and Water Conservation District

Affiliated Parties

California American Water Company – Dunnigan
Colusa Drain Mutual Water Company
Environmental Party – Ann Brice
Rumsey Water Users Association
University of California, Davis
Private Pumper Representative as appointed by Yolo County Farm Bureau

Yolo Subbasin Groundwater Agency Map Boundaries



Yolo Subbasin Groundwater Agency - Board of Directors and Alternates (Updated: 1/19/24)

Agency	Director (Alternate)	Email Address
City of Davis	Bapu Vaitla (Stan Gryczko) (Richard Tsai)	bapu.vaitla@gmail.com (sgryczko@cityofdavis.org) (rtsai@cityofdavis.org)
City of West Sacramento	Verna Sulpizio	vernas@cityofwestsacramento.org
City of Winters	Carol Scianna (Wade Cowan) (Kurt Balasek)	carol.scianna@cityofwinters.org (wade.cowan@cityofwinters.org) (kbalasek@wallace-kuhl.com)
City of Woodland	Mayra Vega (Vicky Fernandez)	mayra.vega@cityofwoodland.org (vicky.fernandez@cityofwoodland.org)
Dunnigan Water District	David Schaad (Bill Vanderwaal)	schaad0001@att.net (wvanderwaal@rd108.org)
Esparto CSD	Pierce Scott (Alex Lepley)	piercemscott@gmail.com (alex@ecsd-ca.org)
Madison CSD	Leo Refsland	leo@madisoncsd.org
RD 108	Roger Cornwell (Bill Vanderwaal)	rcornwell@sutterbasinwater.com (wvanderwaal@rd108.org)
RD 150	Warren Bogle	warren@boglewinery.com
RD 307	James Johas (Karen Chesnut)	James.johas@gmail.com (karensmc@earthlink.net)
RD 537	Tom Ramos	tramos@ramco-ent.com
RD 730	Jim Heidrick	jeheidrick@gmail.com
RD 765	David Dickson (Doug Dickson)	david.dickson79@gmail.com (dickson@sbcglobal.net)
RD 787	Dominic Bruno	dominic@rivergardenfarms.com
RD 999	Tom Slater	tslaterdee@yahoo.com
RD 1600	Michele Clark	mclark@theyololandtrust.org
RD 2035	Kyriakos Tsakopoulos	tsakopoulos@conawayranch.com
Yocha Dehe Wintun Nation	Marc Fawns	mfawns@yochadehe-nsn.gov
Yolo County	Mary Vixie Sandy (Angel Barajas)	mary.vixiesandy@yolocounty.org; dotty.pritchard@yolocounty.org (angel.barajas@yolocounty.org; Monica.Rivera@yolocounty.org)
YCFC&WCD	Tom Barth (Kristin Sicke)	tbarth@barth-daly.com (ksicke@ycfcwcd.org)
Affiliated Party	**Director (Alternate)**	**Email Address**
University of California, Davis	Andrew Fulks (Kelli O'Day)	amfulks@ucdavis.edu (kaoday@ucdavis.edu)
Cal Am Water Dunnigan	Evan Jacobs (Audie Foster)	evan.jacobs@amwater.com (audie.foster@amwater.com)
Colusa Drain MWC	Lynnel Pollock (Jim Wallace)	yoloranch@yolo.net (jimwallace@ecolusa.com)
Private Pumper Representative Yolo County Farm Bureau	Lee Smith (Denise Sagara)	lsmith@libertypistachio.com (denise@yolofarmbureau.org)

Yolo Subbasin Groundwater Agency - Board of Directors and Alternates (Updated: 1/19/24)

Environmental Representative	Ann Brice	anntandybrice@gmail.com
Rumsey Water Users Association	Ken Muller (Mica Bennet)	farmers@pasture42.com (micaboz@dcn.org)

2022 Yolo Subbasin Groundwater Sustainability Plan

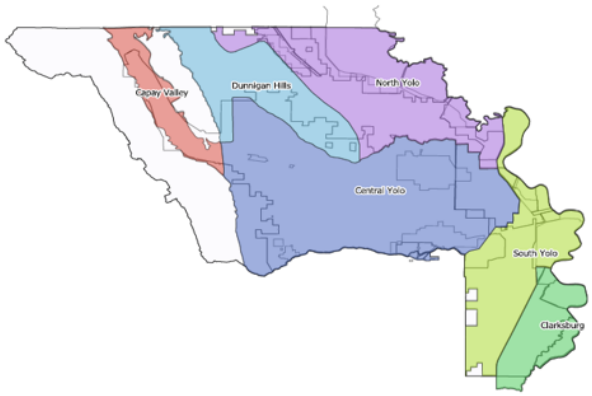
Yolo Subbasin GSP Approval with DWR Comments

Yolo Subbasin Annual Reports: Water Years 2019, 2020, and 2021

Yolo Subbasin Annual Report: Water Year 2022

Yolo Subbasin Management Area Framework

Draft – For internal discussion purposes only
September 20, 2021

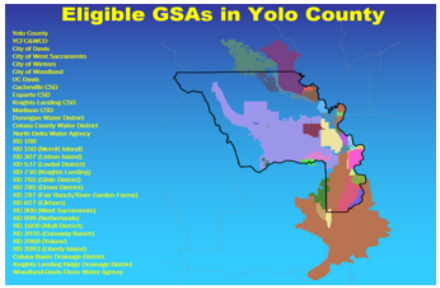


Yolo Subbasin Groundwater Agency

26 Members

- Limited Authority
- For regional planning & reporting
- JPA defines authorities & responsibilities of GSA, Management Areas, and Eligible Entities

Groundwater Sustainability Plan



Management Areas are used to define sustainability goals and objectives for a hydrogeologic setting.

Capay Valley

Rumsey Water Users Assoc.
YCFC&WCD
Yocha Dehe Wintun Nation
Yolo County (white area)
Yolo County Farm Bureau
Environmental Representative

Advisory Committee
Public

North Yolo

Dunnigan WD
Colusa Drain Mutual Water Co.
California American Water Co.
RDs 108, 730, and 787
YCFC&WCD
Yolo County (white area)
Yolo County Farm Bureau
Environmental Representative

Advisory Committee
Public

Central Yolo

Cities of Davis, Woodland &Winters
UC Davis
YCFC&WCD
RD 2035
Esparto and Madison CSDs
Yolo County (white area)
Yolo County Farm Bureau
Environmental Representative

Advisory Committee
Public

Dunnigan Hills

YCFC&WCD
Yolo County Farm Bureau
Yolo County (white area)
Environmental Representative

Advisory Committee
Public

South Yolo

City of West Sacramento
Colusa Drain Mutual Water Co.
RDs 537 and 1600
YCFC&WCD
Yolo County Farm Bureau
Yolo County (white area)
Environmental Representative

Advisory Committee
Public

Clarksburg

RDs 150, 307, 765, and 999
Yolo County Farm Bureau
Environmental Representative

Advisory Committee
Public

DRAFT

CRITICAL ELEMENTS OF THE PROPOSED YOLO SUBBASIN GROUNDWATER AUTHORITY

BACKGROUND

Water interests in the Yolo groundwater subbasin have been working together over the last three years to develop an efficient and effective groundwater governance structure in order to fully comply with and implement the basin-scale Sustainable Groundwater Management Act (SGMA). The overarching principle behind our approach to regulation under SGMA is to **continue and extend the cooperative, collaborative approach practiced for the past three decades** by the Water Resources Association of Yolo County (WRA). The purpose of this white paper is to explain in a concise manner the specific critical elements that are being proposed in the formation of the Yolo Groundwater Authority (YGA).

History of WRA

The WRA was established in 1993 to serve as a collaborative, consensus-based regional forum to plan, coordinate, and facilitate solutions to water management issues in Yolo County. In 2007, the WRA developed the Yolo Integrated Regional Water Management Plan (IRWMP), which serves as the road map for water resource planning in the region and is a component of the Westside-Sacramento IRWMP. The WRA has succeeded in securing millions of dollars of funding for its member agencies in areas of water efficiency, groundwater management, water quality, and environmental and recreational protection and enhancement.

Local implementation of the Sustainable Groundwater Management Act

In 2014, the California Legislature and Governor Brown signed into legislation the Sustainable Groundwater Management Act (SGMA). This Legislation called for local management of groundwater basins to achieve and ensure groundwater sustainability. From the beginning, Yolo county interests have approached this implementation process in a collaborative fashion that takes advantage of the existing relationships among the parties and the robust groundwater monitoring network that has been in place for over 40 years. Recognizing and building on these values, local Yolo subbasin eligible entities have achieved the following;

- Partnered with the Yolo County Farm Bureau to inform and educate the local landowners and Cities about the Legislation (“Year of Groundwater”).
- Submitted a basin boundary modification request to the California Department of Water Resources (DWR) to consolidate the original four Bulletin 118 groundwater subbasins into a single Yolo Subbasin.
- Developed a conceptual governance structure to maintain governance and decision making at the lowest (grassroots) level allowed by the Legislation while protecting and preserving the autonomy and authorities of local agencies
- Collaborated in developing a single GSA for managing groundwater in the Yolo subbasin in order to meet the June 30, 2017 deadline.

- Proposed a fee and voting structure for the GSA that attempts to equitably distribute the roles and responsibilities of implementing agencies and interested parties.
- Planned on utilizing the GSA to write the Groundwater Sustainability Plan (GSP) for the Yolo subbasin in order to meet the January 1, 2022 deadline

The proposed approach provides economies of scale to all participants, honors our regional community, recognizes the value of county partnerships, and creates shared accountability for the shared water resources on which we all depend. The approach provides regulatory coverage, preserves local control, and serves as a leadership model in the state.

RECOMMENDATIONS OF THE YOLO GSA WORKING GROUP

I. JPA Formation

- The Yolo GSA Working Group recommends forming a new Joint Powers Authority to serve as the Yolo Subbasin Groundwater Authority. The proposed boundary of the Yolo Subbasin Groundwater Authority is shown in Attachment A.

II. YGA Governance Structure and Voting

- Use an equal partners approach, particularly during the formation of this management structure, to help this subbasin-wide management agency be successful and result in the multiple signatories feeling mutually respected by each other.
- **Grant one voting board seat per signatory (both JPA + MOU)**

III. YGA Fee Structure

- Adopt the fee schedule as shown in Attachment B to provide a budget for administration and program development costs for the first two years of the YGA.

PROPOSED ENTITY STRUCTURE AND VOTING

Entity Structure

- While each eligible entity is entitled to form a GSA on its own, the intent behind a Yolo-wide GSA is to **build on the Water Resources Association's successful history of collaboratively and cooperatively managing water resources**.
- Each eligible entity desiring to participate will sign to form a Joint Exercise of Powers Agreement (JPA), creating the YGA, a subbasin-wide management structure.
- Non-eligible entities are addressed separately, depending upon type of entity.

Non-eligible Entities

- Affiliated Parties are not eligible entities under the strict definition in Water Code §10724, but do have water supply, water management or land use authority, and are invited to sign MOUs with the JPA and have a voting board seat.

    - Current listed Affiliated Parties are: UC Davis, California American Water, and the Colusa Drain Mutual Water Company
- Yocha Dehe Wintun Nation may elect to join the JPA or to sign an MOU with the JPA and have a voting board seat.
- The “white areas” (see map in Attachment A) will be represented by an eligible entity (a water district, reclamation district, or the county).
- The Yolo Bypass and Putah Creek areas managed by CDFW will be treated as “white areas,” at least at the outset of the GSA formation and GSP preparation process.
- Private pumpers will be represented through a voting seat appointed by the Farm Bureau.
- Environmental concerns will be represented through a voting seat.
    - The environmental seat is expected to represent environmental justice, land-based, and ecosystem issues.
    - The structure for addressing fees/dues payment by the environmental seat still needs to be decided upon.
    - The process for determining the environmental seat is being developed; three possible mechanisms are under consideration:
        i. Ask the Yolo County HCP/NCCP to appoint the seat
        ii. Ask the Yolo County Resource Conservation District to appoint the seat
        iii. Offer the seat as an open call to applicants, in a manner similar to city or county commissions like the Planning Commission.
- The JPA may need to have a clause to determine who could be an additional Affiliated Party, or have a voting seat on the board, unless this is covered already in Article 6 of the JPA.
    - Identify the initial parties in the JPA.
    - A possible governance process could include an application “test” for parties applying for membership in the JPA and representation on the board.
    - New members would need to be approved by a supermajority of the seated board.

Re-opener Clause

- The JPA is being crafted to have a “re-opener” clause after two years, or the completion of the initial phases of a Groundwater Sustainability Plan (GSP), whichever comes first.
- The reopener will allow voting and fee structures, along with any other relevant JPA articles of formation, purpose or powers, to be revised or tuned according to the initial findings of the GSP work, and/or changes to SGMA regulatory implementation.

Voting Issues

The main issues requiring a vote are expected to be largely administrative. The focus will be on budget, contracts, staffing, and general GSA liaison with other governmental agencies. In addition, the Board will provide intra-management area support and coordination as well as maintain the overall GSA data repository. For the most part, these votes will be based on a majority basis, but all efforts for consensus-based decisions will be made.

The overall scope and sustainability criteria for the GSA which include items such as rules, regulations, ordinances, etc. will come before the Board as the need arises during the formative first two years. These votes of the Board would require a two-thirds supermajority in order to pass. As in the majority vote above, all efforts for consensus-based decisions will be made. Other issues that would/could require a supermajority would/could be:

- Approval of the Authority's annual budget;
- Decisions related to the levying of taxes, assessments or property-related fees and charges;
- Decisions related to the expenditure of funds by the Authority beyond expenditures approved in the Authority's annual budget;
- Adoption of rules, regulations, policies, bylaws and procedures related to the function of the Authority;
- Decisions related to the establishment of the Members' percentage obligations for payment of the Authority's operating and administrative costs; and
- Approval of a GSP.

The voting issue shall be subject to a re-opener after the establishment of the GSA and not later than 2 years from that date. At that time, a more formal voting structural framework will be established and approved by the whole GSA membership. Attachment C includes a list of all eligible entities, affiliated parties, and interested parties that have participated in the YGA JPA process.

FEES FOR IMPLEMENTATION

For three decades, members of the WRA have paid dues to cover expenses associated with collaboratively planning and managing water resources in Yolo County. The YGA proposes continuing to collect dues, or fees, to collectively:

- Share the costs and achieve economies of scale through collaborating on expensive water balance modeling and GSP preparation
    - See spreadsheet of required GSP components (Attachment D)
- Plan for and assure the future resilience of our water resources, including:
    - Stewardship for groundwater availability during periods when surface water resources are limited
    - Ability to collectively undertake development of new resources
- Pool resources to be poised to take advantage of cost-sharing grants for preparing and implementing the GSP

While there is a large degree of uncertainty as to how much revenue will be needed in the first two years of the YGA existence, a budget of $400,000 to $500,000 per year for two years has been proposed as a starting point. Approximately $100,000 per year will be needed for general

administrative services (administrative support, office supplies, etc.), $100,000 per year will be needed for general project management (including maintaining and enhancing the existing groundwater monitoring program), and $200,000 per year for GSP development. Attachment B includes a table of proposed fees for entities wishing to formally participate in the YGA JPA.

Fee Structure Rationale

- The proposed fee structure assumes a roughly 50/50 split between the Rural and Urban interests. Rural interests will be assessed approximately $0.50 per acre for land within their service areas, while the Urban interests will be assessed a total of $200,000 in a ratio roughly equivalent to their current WRA dues. The organizations without a defined "GSA-boundary" such as the Yolo County Farm Bureau, the environmental interests, and California American Water Company have their proposed fees listed.
- These initial costs are likely to be lower by obtaining grants. Two grants (USDA and Storm Water Planning) have already been secured in order to complete the water balance requirements portion of the GSP, and the CA Department of Water Resources has indicated that the YGA is in a strong position to receive future grants.
- Regardless of the final fee schedule that will be adopted, there is unanimous support for reopening the fee schedule within two years to review and adjust the fee schedule as appropriate. That review and adjustment will include devising a method for collecting fees going forward that ties fees collection to some underlying use or performance basis rationale.
- The re-opener clause will state that the review will happen within two years after Agreement date (not starting in two years).
- Other fee mechanisms were considered, such as using acreage, population, extraction, groundwater conditions, assessed valuation, a consensus process, or a combination of the proceeding. Population and acreage statistics of Yolo County are included in Attachment E.

Potential Costs for Developing an Independent GSA

It is generally recognized and accepted that a collaborative approach for forming a GSA is more cost-effective than "going alone" in forming a GSA. Some example costs are listed here. An additional cost estimate can be derived from the State Water Resources Control Board (State Water Board) draft fee schedule for administering probationary basins. The State Water Board's draft fee schedule information can be found in Attachment F.

- Other GSA cost examples:
    - Solano JPA High Estimates
        - GSA Management = $565,000
        - GSP Development = $1.65M
        - GSP Ongoing/Annual/5-Year updates = $550,000
    - Solano Irrigation District (as single GSA) Estimates
        - GSA Management = $50,000
        - GSP Development = $500,000

        - GSP Ongoing / Annual / 5-Year updates = $160,000
    - Fox Canyon Groundwater Management Agency
        - GSP Development within one year = $1M
    - Martis Valley Groundwater Basin
        - GSP Development = $1M
    - Colusa County
        - SGMA Implementation for first year = $800-$900,000 (studies to characterize current conditions and relate to sustainability indicators)

LIST OF ACRONYMS

GSA - Groundwater Sustainability Agency
GSP - Groundwater Sustainability Plan
JPA - Joint Exercise of Powers Agreement
MOU - Memorandum of Understanding
SGMA - Sustainable Groundwater Management Act
WRA - Water Resources Association of Yolo County
YGA - Yolo Groundwater Authority

ATTACHMENTS

ATTACHMENT A: MAP OF PROPOSED YOLO SUBBASIN GROUNDWATER AUTHORITY (YOLO SUBBASIN)

Attachment A includes a map of the proposed Yolo Subbasin Groundwater Authority boundary along with the Yolo Subbasin extents, and a hyperlink to DWR's basin boundary website.

ATTACHMENT B: SPREADSHEET OF PROPOSED FEES

Attachment B includes a draft table of proposed fees for entities wishing to participate in the YGA JPA.

ATTACHMENT C: LIST OF ELIGIBLE ENTITIES, AFFILIATED PARTIES, AND INTERESTED PARTIES

Attachment C includes a draft list of all eligible entities, affiliated parties, and interested parties that have participated in the YGA JPA process. Eligible entities are defined by SGMA as those local governments that are eligible to independently apply for GSA status. Not all eligible entities will choose to be a member of the YGA JPA. Affiliated parties include mutual water companies, private utilities, and certain interested parties that wish to enter into an MOU with the JPA that would allow them to have a voting seat on the Board of Directors. Interested parties include those beneficial uses and users of groundwater listed in Water Code Section 10723.2.

ATTACHMENT D: MATRIX OF GROUNDWATER SUSTAINABILITY PLAN COMPONENTS

Attachment D includes a draft summary table of DWR's GSP Emergency Regulations. Within the table, draft information has been provided to estimate the level of effort, responsible parties, and estimated associated cost.

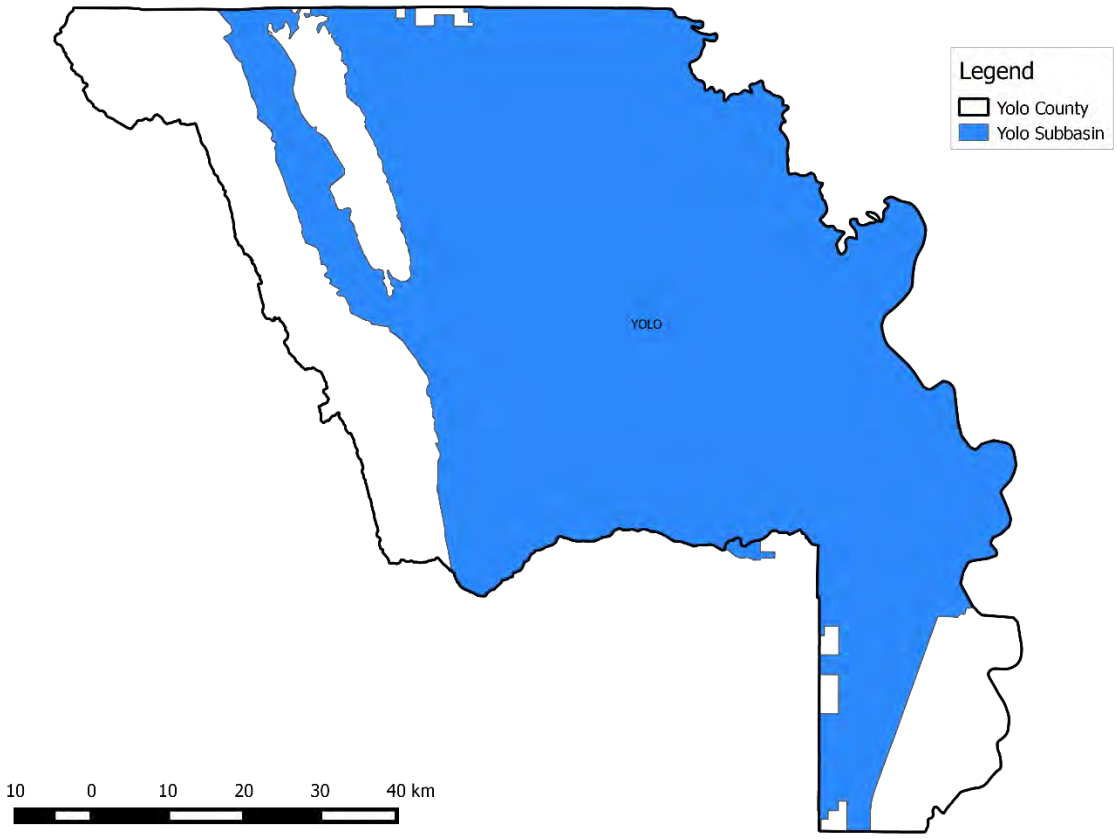
ATTACHMENT E: YOLO COUNTY DEMOGRAPHICS AND ACREAGE

Attachment E includes draft information on Yolo County demographics and acreage; the remainder will be developed in the near future.

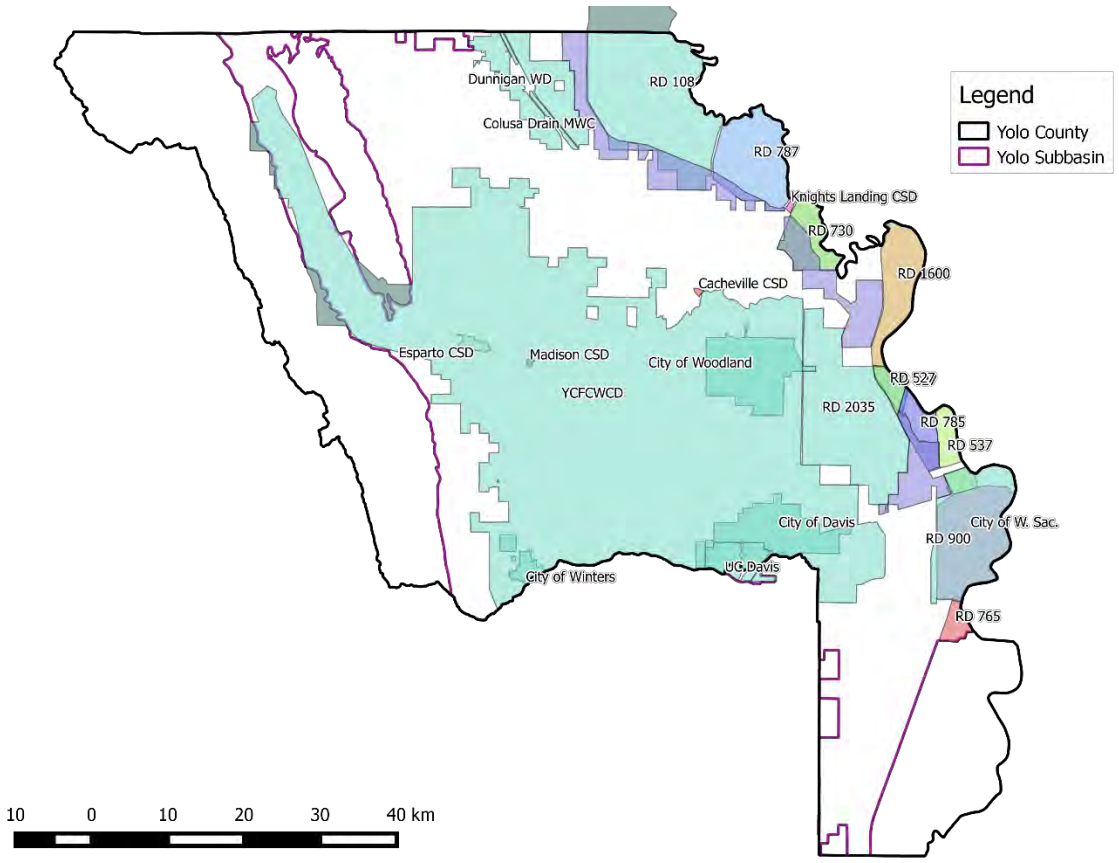
ATTACHMENT F: STATE WATER BOARD DRAFT FEE SCHEDULE

Attachment F includes information on the State Water Board's draft fee schedule for administering basins that are probationary from lack of GSA coverage.

ATTACHMENT A. MAP OF PROPOSED YOLO SUBBASIN GROUNDWATER AUTHORITY



Map of Yolo Subbasin



Draft Map of Yolo Subbasin, Entities, and White Areas

DWR's Map of Basin Boundary Modifications can be found on their Groundwater Basin Boundary Assessment Tool: https://gis.water.ca.gov/app/bbat/.

DRAFT FOR DISCUSSION PURPOSES ONLY

YOLO GSA Voting Members and Fee Structure

Key
Blue = Existing WRA member
Orange = Others

There will be two types of fees.
1. *"Administrative fees"* to cover GSA administrative overhead, all types of regional monitoring, water balance development, reporting, etc.
2. *"Project Fees"* to cover specific sustainability projects. Project fees to be paid by the project beneficiaries.

It is proposed that administrative fees in the range of approximately $400,000 to $500,000 per year be collected for the first two years of the GSA. **After two years, the fee structure will be revisited and adjusted as appropriate.**

	Potential Entity Contributions			Current Annual WRA Dues			
				WRA	**GWM**		
	Urban Agencies	1 Base	**$**	**Dues**	**Contribution**	**Total**	**Difference**
1	City of Davis		$40,000	$25,500	$8,126	$33,626	$6,374
2	City of Woodland		$40,000	$25,500	$8,126	$33,626	$6,374
3	City of West Sacramento		$40,000	$25,500	$956	$26,456	$13,544
4	City of Winters		$20,000	$6,660	$2,390	$9,050	$10,950
5	Esparto CSD		$5,000	$0	$0	$0	$5,000
6	Madison CSD		$5,000	$0	$0	$0	$5,000
			$150,000	$83,160	$19,598	$102,758	

	Potential Entity Contributions				WRA	GWM		
	Rural Agencies ($0.50/acre)	0.5	**Acres**	**$**	**Dues**	**Contribution**	**Total**	**Difference**
10	Yolo County Flood Control & WCD		200,000	$100,000	$20,500	$49,936	$70,436	$29,564
11	Yolo County (White Areas)*		160,000	$40,000	$25,000	$8,126	$33,126	$6,874
12	Direct Contributions (White Areas)**		40,000	$20,000	$0	$0	$0	$20,000
13	Other Contributions from Rural Agencies***			$40,000	$0	$0	$0	$40,000
14	Dunnigan Water District		10,700	$5,350	$2,020	$956	$2,976	$2,374
15	RD 108		23,200	$11,600	$7,575	$1,434	$9,009	$2,591
16	RD 2035		18,000	$9,000	$7,575	$4,780	$12,355	-$3,355
17	RD 787		9,400	$4,700	$0	$0	$0	$4,700
			461,300	$230,650	$62,670	$65,232	$127,902	

**Yolo County is not $0.50/acre*
***Direct Contributions from private pumpers currently residing in "white areas"*
****RD 108, RD 787, RD 2035, and YCFCWCD ($10k/ea)*

	Affiliated Parties with Board Voting Seats			WRA	GWM		
		1 Base	**$**	**Dues**	**Contribution**	**Total**	**Difference**
18	University of California, Davis		$40,000	$25,500	$4,780	$30,280	$9,720
19	Yocha Dehe Wintun Nation		$10,000	$0	$0	$0	$10,000
20	Colusa Drain Mutual Water Company		$10,000	$0	$0	$0	$10,000
21	California American Water Company - Dunnigan		$5,000	$0	$0	$0	$5,000
22	Yolo County Farm Bureau		$10,000	$0	$0	$0	$10,000
23	Environmental Party - TBD			$0	$0	$0	$0
			$75,000	$25,500	$4,780	$30,280	

Sub Total:	$455,650

Annual expenses of new GSA and WRA combined entity	
Administrative	$110,000
SGMA Implementation Project Management	$110,000
Consultant (Water Balances, GSP development)	$110,000
Real-time GWM sensors (6X)	$80,000
WSVIRWMP Coordinating Committee	$20,000
Other projects	
Totals	$430,000

Other Income	
Associate Memberships	$1,200
Interest Earned on bank accounts	$650
Water Calendar Donations	$3,200
Subsidence Monitoring	*$93,000*
SGMA Implementation	*$35,000*
Subtotal:	$133,050
Totals	$363,710

ATTACHMENT C: LIST OF ELIGIBLE ENTITIES, AFFILIATED PARTIES, AND INTERESTED PARTIES

LIST OF ELIGIBLE ENTITIES AND AFFILIATED PARTIES
Eligible Entities
City of Davis
City of West Sacramento
City of Winters
City of Woodland
Dunnigan Water District
Esparto CSD
Madison CSD
Reclamation District (RD) 108
RD 787
RD 2035
Yolo County
Yolo County Flood Control & Water Conservation District

Affiliated Parties
California American Water Company -- Dunnigan
Colusa Drain Mutual Water Company
Environmental Party**
University of California, Davis
Yocha Dehe Wintun Nation
Yolo County Farm Bureau

**To be determined.

Eligible Entities Potentially Not Interested
Cacheville Community Service District (CSD)
Colusa Basin Drainage District
Knights Landing CSD
Knights Landing Drainage District***
North Delta Water Agency
RD 537
RD 730
RD 765
RD 785
RD 827
RD 900
RD 827
RD 1600
Yolo County Housing Authority***
Woodland Davis Clean Water Agency***

***Eligible entity, but likely not to participate because of redundancy

INTERESTED PARTIES Beneficial Uses and Users of Groundwater (SGMA Section 10723.2)
Holders of overlying groundwater rights
Municipal well operators
Public water systems
Local land use planning agencies
Environmental users of groundwater
Surface water users, if there is a hydrologic connection between surface and groundwater bodies.
The federal government, including the military and managers of federal lands.
California Native American tribes
Disadvantaged communities, including those served by private domestic wells or small community water systems.
Entities listed in Section 10927 of SGMA that are monitoring and reporting groundwater elevations in all or a part of a groundwater basin managed by the groundwater sustainability agency.

ATTACHMENT D: MATRIX OF GSP REGULATIONS

Phase 1: GSA Formation and Coordination – realignment of basins and establishment of basin governance through formation of GSAs

Phase 2: GSP Preparation and Submission – development and adoption of GSPs by GSAs

Phase 3: GSP Review and Evaluation – DWR staff review and evaluation of GSPs to determine adequacy

Phase 4: Implementation and Reporting – locally-driven effort, which includes development of annual reports and GSP assessments completed every 5 years during implementation of GSPs

---

SGMA defines sustainable groundwater management as the "management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results".

Undesirable results are defined in SGMA and summarized as any of the following effects caused by groundwater conditions occurring throughout the basin:

1. Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply
2. Significant and unreasonable reduction of groundwater storage
3. Significant and unreasonable seawater intrusion
4. Significant and unreasonable degraded water quality
5. Significant and unreasonable land subsidence
6. Surface water depletions that have significant and unreasonable adverse impacts on beneficial uses of the surface water

Sustainability Indicator: refers to any of the effects caused by groundwater conditions occurring through the basin that, when significant and unreasonable, cause undesirable results, as described in Water Code Section 10721(x).

GSP Components (DWR Regs May 18, 2016)	Detail (DWR Regulations adopted May 18, 2016)	Done or Not Done?	Expected Level of Effort (1), (2), or (3) (Low → High)	Anticipated Responsible Party	Est. Associated Cost ($950k-$1.25M) ($), ($$), or ($$$)	State Financial Assistance Needed?
Technical and Reporting Standards (Article 3)	▪ Monitoring protocols ▪ Data and reporting stds ▪ Develop/maintain DMS		(1)	Staff and consultants	Protocols and standards – $10,000 DMS Upgrade – $40,000	
Description of Plan Area (Article 5, Subarticle 1, §354.8)	▪ Maps of the basin (density of wells/mi^2) ▪ Description of existing water resource and mgt. programs and land use elements		(1)	Primarily consultants	$35,000	
Notice and Communication (Article 5, Subarticle 1, §354.10)	▪ Communication section ▪ Agency's decision-making process ▪ Public engagement opportunities ▪ Overall public process		(1)	Primarily staff	$15,000 Need to consider separate annual public process budget	
Hydrogeologic Conceptual Model (Article 5, Subarticle 2, §354.14)	▪ Geologic and structural setting of the basin ▪ Lateral basin boundaries ▪ Definable bottom of the basin ▪ Principal aquifers and aquitards ▪ Topographic information ▪ Surficial geology ▪ Soil characteristics ▪ Delineation of existing recharge areas ▪ Significant surface water bodies ▪ Source and point of delivery for imported water supplies		(2)	Staff and consultants	$25,000; most work will need to identify and define the new boundaries and extents of the basin boundary modification	
Groundwater conditions (1/1/15 on) as relate to Undesirable Results (Article 5, Subarticle 2, §354.16)	▪ GW elevation data (flow directions, lat/vert gradients, and regional pumping patterns) ▪ Graph of annual and cumulative change in stored GW volume ▪ Seawater intrusion ▪ Groundwater quality issues ▪ Extent, total, and annual rate of land subsidence ▪ ID of interconnected SW systems, estimated quantity, and timing of system depletions ▪ ID of GW dependent ecosystems		(1)/(2)	Staff and consultants	$250,000	
Water Budget (Article 5, Subarticle 2, §354.18)	▪ Accounting and assessment of total annual GW volume and surface water in/out of basin ▪ Estimate of sustainable yield ▪ Quantify current, historical, and projected water budget		(3)	Primarily consultants	$250,000	
Management Area (MA) Description (Article 5, Subarticle 2, §354.20)	▪ Reason for creation of and map delineating each MA ▪ Minimum Thresholds (MT) and Measurable Objectives (MO) established for each MA ▪ Level of Monitoring and Analysis appropriate for each MA ▪ Explanation of how MA can operate under diff MT and MO without causing Undesirable Results outside the MA		(2)	Management level staff	$100,000 + Management staff in-kind contributions during working sessions	
Sustainable Management Criteria Description (Article 5, Subarticle 3)	▪ Sustainability Goal, Undesirable Results, MT, and MO for each applicable sustainability indicator over the 20-year Plan implementation ▪ Supported by basin conditions, basin setting, and maps		(2)/(3)	Staff and consultants	$150,000 + Management staff in-kind contributions during working sessions	
Monitoring Networks (Article 5, Subarticle 4)	▪ Develop network for collecting sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions ▪ Monitor changes in groundwater conditions relative to MO and MT ▪ Demonstrate progress toward achieving MO and evaluate sustainability indicator and undesirable results ▪ Monitor impacts to the beneficial uses and users ▪ Scientific rationale for the monitoring site selection process ▪ Description of assessment and improvement of monitoring network (in GSP and 5-year assessment reports) – data gaps, local issues and circumstances that limit or prevent monitoring		(1)/(2)	Staff and consultants	$50,000-$350,000	
Projects and Management Actions (Article 5, Subarticle 5)	▪ Tied to each MO and implemented to achieve sustainability goal ▪ Details, status, benefits, and cost of each project and management action		(1)/(2)	Staff, farmers, and local knowledge	$25,000 primarily the collation of all potential projects	

**Coordination Agreements shall be submitted to the Department together with the Plans for the basin and if approved, shall become part of the Plan for each Participating Agency.

ATTACHMENT E. YOLO COUNTY DEMOGRAPHICS AND ACREAGE – DRAFT INFORMATION; WILL CONTINUE TO BE DEVELOPED

Yolo County Demographics and Acreage

- 650,000 acres (1,021 sq. mi / 653,549 acres)
  - Could have table here of eligible entities and affiliated parties by acreage
- 225,000 people

Population Distribution

Table 1. Total Population by City

Jurisdiction	Population
City of Davis	66,656
City of West Sacramento	50,836
City of Winters	6,979
City of Woodland	57,223
Unincorporated County	24,687
Total Population	206,381

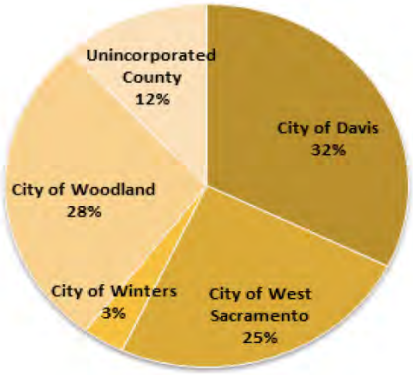


Figure 2. Percent of Population by City

(Acreage will continue to be developed)

LIST OF ELIGIBLE ENTITIES AND AFFILIATED PARTIES	
Eligible Entities	Acreage
City of Davis	7,669
City of West Sacramento	14,618
City of Winters	1,504
City of Woodland	10,017
Dunnigan Water District	10,875
Esparto CSD	530
Madison CSD	62
Reclamation District (RD) 108	23,663
RD 787	9,764
RD 2035	21,099
Yolo County	656,989
Yolo County Flood Control & Water Conservation District	193,563
Affiliated Parties	Acreage
California American Water Company -- Dunnigan	
Colusa Drain Mutual Water Company	
Environmental Party	
University of California, Davis	
Yocha Dehe Wintun Nation	

Yolo County Farm Bureau

Eligible Entities Potentially Not Interested	Acreage
Cacheville Community Service District (CSD)	
Colusa Basin Drainage District	
Knights Landing CSD	
Knights Landing Drainage District***	
North Delta Water Agency	
RD 537	
RD 730	
RD 765	
RD 785	
RD 827	
RD 900	
RD 827	
RD 1600	
Yolo County Housing Authority***	
Woodland Davis Clean Water Agency***	

***Eligible entity, but likely not to participate because of redundancy

ATTACHMENT F: STATE WATER BOARD DRAFT FEE SCHEDULE

Proposed Sustainable Groundwater Management Act (SGMA) Fee Schedule

INTRODUCTION

The State Water Resources Control Board (State Water Board) is conducting a series of stakeholder meetings throughout summer and fall 2016 to assist in the development of a groundwater extraction reporting fee schedule, as required by the Sustainable Groundwater Management Act (SGMA). The objectives of the stakeholder meetings are as follows:

- Engage stakeholders in the SGMA fee schedule development process.
- Explain issues considered in drafting the proposed fee schedule.
- Gain a better understanding of stakeholder interests and concerns.

Following the stakeholder meetings, State Water Board staff will develop and release a draft fee schedule emergency regulation for public comment and hold at least one public meeting to receive public comment on the draft emergency regulation. The State Water Board will consider adoption of the proposed fee schedule emergency regulation in spring 2017. The fee schedule must be effective by July 1, 2017.

BACKGROUND

SGMA requires the formation of local groundwater sustainability agencies (GSAs) in California's high- and medium-priority groundwater basins. Sustainability agencies are required to develop groundwater sustainability plans that will bring basins into sustainability within 20 years of plan implementation. If locals are unable or unwilling to sustainably manage their basin, the State Water Board is authorized to intervene. State intervention can only be triggered by one of the following events:

Date	Trigger
July 1, 2017	Failure to form a GSA.
January 31, 2020	Failure to adopt and/or adequately implement a groundwater sustainability plan for a basin in a critical condition of overdraft.
January 31, 2022	Failure to adopt and/or adequately implement a groundwater sustainability plan in all other high- or medium-priority basins.
January 31, 2025	There are significant depletions of interconnected surface waters and the sustainability plan is not being implemented adequately.

STATE WATER BOARD FEE AUTHORITY

Portions of basins that are not within the management area of a GSA by July 1, 2017, are considered unmanaged areas. Groundwater extractors in unmanaged areas are required to file an annual groundwater extraction report with the State Water Board. (Wat. Code §5202, subd. (a)(2).) If locals fail to form a GSA, fail to develop an adequate sustainability plan, or fail to implement the plan adequately (based on the deadlines outlined above), the State Water Board may designate the basin as probationary and step in to directly manage groundwater extractions in the basin. (Wat. Code §§ 10735.2 & 10735.8.) All extractors in a probationary basin are required to submit an annual groundwater extraction report, although the State Water Board has discretion to exempt certain probationary extractors from reporting if appropriate. (Wat. Code §5202(a)(1).) Each annual extraction report must be accompanied by a fee to cover associated programmatic costs. (Wat. Code §§ 1529.5 & 5202, subd. (f).)

The State Water Board is required to adopt, by emergency regulation, a fee schedule to cover SGMA-related costs. (Wat. Code §1530.) The emergency regulation format allows the State Water Board to update

the fee schedule annually to reflect changing conditions and programmatic costs. It also important to note that the fees described below will not be applicable if local implementation of SGMA is successful.

PROPOSED FEE SCHEDULE

There are three "levels" of State Water Board intervention, each level is associated with greater staff workloads and associated costs.

1. Unmanaged Area Intervention. Unmanaged areas are portions of basins that are outside of a GSA service area. Groundwater extractors in unmanaged areas are required to submit an annual report to the State Water Board detailing monthly groundwater extraction volumes, place of use, and purpose of use, and may be required to submit other information necessary to evaluate the basin.
2. Probationary Basin Intervention. A probationary basin is a basin that the State Water Board has designated to be probationary in accordance with the procedures described in Chapter 11 of SGMA. (Wat. Code §10735, et. seq.) The State Water Board will evaluate conditions in the basin and may designate the basin once one of the probationary triggers described by Water Code section 10735.2 has occurred. Probationary status will result in an increased amount of staff activities as solutions to deficiencies in basin management are developed or additional information necessary for basin management is acquired.
3. Interim Plan Intervention. The State Water Board may need to manage groundwater conditions in a probationary basin if the deficiencies that resulted in probation are not corrected. In such a scenario, the State Water Board will develop and implement an interim plan to manage groundwater extractions. (Wat. Code §10735.8.) The development and implementation of interim plans will require significant staff time, in addition to technical studies or data collection performed under contract.

The draft fee schedule ties the fees to the type of Board activity occurring in the basin, as follows:

Fee Category	Applicable Parties – Reporting Extractors	Fee Amount
Base Filing Fee[a]	Any extractor submitting an extraction report	$100 per well
Fees based on intervention status[a]		
1. Unmanaged Area Rate	Extractors in an unmanaged area.	$10 per acre-foot per year, if metered
		$25 per acre-foot per year, if unmetered
2. Probationary Basin Rate	Extractors in a probationary basin.	$40 per acre-foot per year
3. Interim Plan Rate	Extractors in a probationary basin after the time period identified by § 10735.4 or § 10735.6 (180 days or one year, accordingly).	$55 per acre-foot per year
Fees independent of intervention status[b]		
Late Fee	Extractors that do not file reports by the due date.	25% of total fee amount, accrued monthly
Special Studies Fee	May apply to extractors when basin-specific special studies are required and the probationary or interim plan rates are insufficient. The additional cost of developing special technical studies such as groundwater investigations or modeling will be apportioned to extractors based on volume of water extracted.	

(a) Can apply to de minimis extractors in probationary basins at the Board's discretion.
(b) These fees are paid in addition to the "Fees based on intervention status.

CHALLENGES TO DEVELOPING THE SGMA FEE SCHEDULE

There are two primary challenges in developing the SGMA fee schedule that create difficulties in anticipating programmatic costs: 1) uncertainty regarding the number and scope of unmanaged areas and probationary basins, and 2) the level of reporting compliance.

1) Staff workload, and resulting fees, are contingent on the number and scope of unmanaged areas and probationary basins. However, at this time there is significant uncertainty regarding the number and scope of unmanaged areas and probationary basins. In addition, the State Water Board's authority to designate probationary basins is phased in over a 10-year period and is ongoing from that point forward. Because the Board cannot pre-determine the number of unmanaged areas and probationary basins, it must rely on estimating the level of program activities.

2) State Water Board staff anticipate 30 to 50 percent reporting and fee submittal compliance in the first year of collecting fees; 50 to 60 percent in the second year; and 70 to 80 percent through year five. This anticipated compliance rate is applicable to the total number of extractors that must report, not the number of basins or areas generally in compliance with SGMA deadlines. SGMA authorizes the State Water Board to recover costs over a period of years, which will allow staff to create a workload history to better estimate future fees.

As a note, although there is uncertainty regarding the magnitude of program actions, the nature of the emergency regulations allows the State Water Board to update its fee schedule as the challenges described above are better understood over time.

DISCUSSION ON PROPOSED FEE CATEGORIES

The following questions are aimed at focusing input on elements of the draft fee schedule.

Establishing the Fee Structure

1. What are other options the State Water Board should consider? Examples include a cap on the maximum fee amount, a larger base fee, or tiered rates.

2. Is it appropriate to scale the fees based on volumes of water used? Examples of other options include scaling by irrigated acreage, service area size, or crop type.

Incorporating Incentives

1. Will the late fee incentivize report submittal compliance?

2. Are there are other incentives the State Water Board should consider?

3. Will the metering discount for unmanaged areas incentivize more accurate data reporting?

Fee Stability

1. Is it appropriate to apply the Special Studies Fee to individual basins?

2. Do you have suggestions on how the State Water Board can recover programmatic costs resulting from activities in specific basins during probationary or interim plan periods?

SUPPORTING INFORMATION AND CLARIFICATIONS

Fee Example Scenarios

1. The following table provides examples of how the proposed probationary fee rates for eight hypothetical farms would approximately relate to a fee based on irrigated acreage:

Crop	Irrigated Acreage	Acre Feet of Water Applied Annually Per Acre (DWR(b))	Probationary Rate	Cost per Acre	Total Cost
Alfalfa	150	5.05	$40	$202	$30,300
Almonds	150	3.54	$40	$142	$21,240
Corn	150	2.83	$40	$113	$16,980
Cotton	150	3.09	$40	$124	$18,540
Grapes	150	1.86	$40	$74	$11,160
Misc. Fruit Trees	150	3.3	$40	$132	$19,800
Pistachios	150	3.54	$40	$142	$21,240
Rice	150	4.56	$40	$182	$27,360

(b) State-wide averages, Department of Water Resources, Agricultural Land and Water Use Estimates, 2010

2. The following table provides examples of how the proposed probationary fee rates would apply to a municipal water supplier and industrial user:

Purpose of Use	Example Volume	Probationary Rate	Total Cost
Municipal Water Supply	3,600 acre-feet	$40	$144,000
Semiconductor Factory (Industrial)	5,200 acre-feet	$40	$208,000

De Minimis Extractors

Water Code Section 10721, subdivision (e), defines a de minimis extractor as "a person who extracts, for domestic purposes, two-acre feet or less per year." A person who extracts two acre-feet or less per year for a non-domestic purpose will not be considered a de minimis extractor. Domestic purposes do not include growing commercial crops or supporting commercial livestock. De minimis users are exempt from reporting in unmanaged areas. However Water Code Section 10735.2, subdivision (c)(2), authorizes the State Water Board to require de minimis extractors to report in a probationary basin if necessary. De minimis extractors that are required to report in a probationary basin will only pay the base filing fee and, if applicable, the late fee, but will not pay a per acre-foot rate.

Interim Plans and Groundwater Sustainability Plans

State intervention is intended to be a temporary measure to address conditions of long-term overdraft or significant depletions of interconnected surface waters. An interim plan is not intended for permanent management of a basin. Local efforts to address the deficiencies that caused state intervention will need to be funded by local agencies while groundwater extractors are also paying intervention fees to the State Water Board, likely resulting in the potential scenario of extractors paying both local and state fees.

State Water Board Flexibility during Intervention

SGMA provides the State Water Board flexibility in how intervention proceeds in three important ways:

1. Areas in compliance with the sustainability goal will be excluded from probation. (Wat. Code §10735.2, subd. (e).);
2. Extractors may be exempted from probationary reporting and related fees if appropriate. (Wat. Code §10735.2, subd. (c).); and
3. Successful elements of a GSP will be incorporated into an interim plan. (Wat. Code §10735.8, subd. (e).)

October 8, 2016

Draft GSA Development Principles

Dealing with fear:

It appears that there are two major fears that are preventing interested parties from developing a comfort level in joining a regional GSA. These two fears are:

Major fear of agencies (eligible entities) – ***Loss of jurisdictional authorities***

Major fear of farmers (private well owners) – ***Having a seat at the table (a vote)***

To reduce or eliminate these fears, it is necessary to define the roles and responsibilities of the GSA, Management Areas, and Individual Entities (including "White Areas"). When defining these roles and responsibilities it is helpful to think in terms of the principles that will guide this process.

Principle #1: Yolo County's groundwater is in relatively good shape and has generally been sustainable. It should be a policy of the Yolo GSA member entities to develop positive, creative water management ideas to develop additional water supply, rather than limit or reduce water use to achieve sustainability.

Principle #2: Make decisions at the lowest level possible (Individual Entities). Avoid at all cost the takeover of groundwater management by the State of California.

Principle #3: Use the GSA to do ***REGIONAL*** planning, monitoring and reporting to achieve economic efficiencies.

Principle #4: The first thing that needs to be done after a Yolo GSA is formed is to develop ***water balances*** at the Regional (GSA), Management Area, and Eligible Entity levels. These ***water balances***, along with the Act's Sustainability Criteria (CWC§10721), will be used to define and determine sustainability at all three levels.

Principle #5: Surface water and groundwater are best managed together. Therefore, the existing WRA and the envisioned GSA should be operated as one agency.

Principle #6: Education is key. The SGMA Legislation is very complex. It is important to continue to provide educational materials to interested parties and to also provide opportunities for input and questions from these same parties.

Principle #7: Discuss and define what exactly the GSA will be voting on (and what it WILL NOT be voting on).

These principles are not comprehensive. They were simply developed to provide a better understanding of what the GSA is trying to achieve.

JOINT EXERCISE OF POWERS AGREEMENT
ESTABLISHING THE YOLO SUBBASIN GROUNDWATER AGENCY

THIS AGREEMENT is entered into and effective this 19th day of June, 2017 ("**Effective Date**"), pursuant to the Joint Exercise of Powers Act, Cal. Government Code §§ 6500 *et seq*. ("**JPA Act**") by and among the entities listed in Exhibit A attached hereto and incorporated herein (collectively "**Members**").

RECITALS

A. On August 29, 2014, the California Legislature passed comprehensive groundwater legislation contained in SB 1168, SB 1319 and AB 1739. Collectively, those bills, as subsequently amended, enacted the "Sustainable Groundwater Management Act" ("SGMA"). Governor Brown signed the legislation on September 16, 2014 and it became effective on January 1, 2015.

B. Each of the Members and Affiliated Parties overlies the Yolo Subbasin of the Sacramento Valley Groundwater Basin, California Department of Water Resources Basin No. 5-21.67 as its boundaries may be modified from time to time in accordance with Cal. Water Code Section 10722.2 ("Subbasin").

C. Each of the Members is authorized by SGMA to become, or participate in, a Groundwater Sustainability Agency under SGMA through a joint exercise of powers agreement.

D. The Members desire, through this Agreement, to form the Yolo Subbasin Groundwater Agency, a separate legal entity, for the purpose of acting as the Groundwater Sustainability Agency for the Subbasin. The boundaries of the Agency are depicted on the map attached hereto as Exhibit B and incorporated herein.

E. The mission of the Agency is to provide a dynamic, cost-effective, flexible and collegial organization to ensure compliance with SGMA within the Subbasin.

F. Subject to the reservation of authority in Article 8.5 of this Agreement, the Agency will serve a coordinating and administrative role regarding SGMA compliance within the Subbasin. Each of the Members and Affiliated Parties (or groups of Members and Affiliated Parties) will have initial responsibility for groundwater management within their respective Management Areas as delineated in the Groundwater Sustainability Plan ("GSP") adopted by the Agency.

THEREFORE, in consideration of the mutual promises, covenants and conditions herein set forth, the Members agree as follows:

ARTICLE 1: DEFINITIONS

1.1 **Definitions**. As used in this Agreement, unless the context requires otherwise, the meaning of the terms hereinafter set forth shall be as follows:

a. "**Affiliated Parties**" shall mean those entities that are legally precluded from becoming members of this Agreement but that, after entering into a memorandum of understanding with the Agency, will be granted a voting seat on the Board of Directors pursuant to the terms of this Agreement and the memorandum of understanding. The Affiliated Parties as of the Effective Date are listed in Exhibit C.

b. "**Agency"** shall mean the Yolo Subbasin Groundwater Agency established by this Agreement.

c. "**Agreement**" shall mean this Joint Exercise of Powers Agreement Establishing the Yolo Subbasin Groundwater Agency.

d. "**Board of Directors**" or "**Board**" shall mean the governing body formed to implement this Agreement as established herein.

e. "**DWR**" shall mean the California Department of Water Resources.

f. "**Effective Date**" shall be as set forth in the Preamble of this Agreement.

g. "**Groundwater Sustainability Agency**" or "**GSA**" shall mean an agency enabled by SGMA to regulate portion of the Subbasin cooperatively with all other Groundwater Sustainability Agencies in the Subbasin, in compliance with the terms and provisions of SGMA.

h. "**Groundwater Sustainability Plan**" or "**GSP**" shall have the definition set forth in SGMA.

i. "**GSA Boundary**" shall mean those lands depicted on the map shown in Exhibit B.

j. "**JPA Act**" shall mean the Joint Exercise of Powers Act, Cal. Government Code §§ 6500 et seq.

k. "**Management Area**" shall mean the areas delineated in the GSP for which Members and Affiliated Parties will have initial authority and responsibility for groundwater management in accordance with SGMA.

l. "**Member**" shall mean any of the signatories to this Agreement and "Members" shall mean all of the signatories to this Agreement, collectively. Each of the Members shall be authorized to become, or participate in, a Groundwater Sustainability Agency under SGMA.

m. "**SGMA**" shall mean the California Sustainable Groundwater Management Act of 2014 and all regulations adopted under the legislation (SB 1168, SB 1319 and AB 1739) that collectively comprise the Act, as that legislation and those regulations may be amended or supplemented from time to time.

n. "**Subbasin**" shall mean the Yolo Subbasin of the Sacramento Valley Groundwater Basin, California Department of Water Resources Basin No. 5-21.67 as its boundaries may be modified from time to time in accordance with Cal. Water Code Section 10722.2.

ARTICLE 2: ORGANIZING PRINCIPLES

2.1 The Members and Affiliated Parties intend to work together in mutual cooperation to develop and implement a GSP for the Subbasin in compliance with SGMA.

2.2 To the extent any Member determines, in the future, to become a GSA separate and apart from the Agency, the Agency will allow such Member to become a GSA and the Agency will work cooperatively with such Member to coordinate implementation of SGMA within the Subbasin.

2.3 The Members intend through this Agreement to obtain cost-effective consulting services for the development and implementation of a GSP, in particular for the development of water balances.

ARTICLE 3: FORMATION, PURPOSE AND POWERS

3.1 **Recitals:** The foregoing recitals are incorporated by reference.

3.2 **Certification.** Each Member certifies and declares that it is a legal entity that is authorized to be a party to a joint exercise of powers agreement and to contract with each other for the joint exercise of any common power under Article 1, Chapter 5, Division 7, Title 1, of the Government Code, commencing with section 6500 or other applicable law including but not limited to Cal. Water Code § 10720.3(c).

3.3 **Creation of the Agency.** Pursuant to the JPA Act, the Members hereby form and establish a public entity to be known as the "Yolo Subbasin Groundwater Agency," which shall be a public entity separate and apart from the Members.

3.4 **Designation.** Pursuant to Government Code § 6509, the Members hereby designate the County of Yolo for purposes of determining restrictions upon the manner of exercising the power of the Agency.

3.5 **Purposes of the Agency**. The purposes of the Agency are to:

a. Provide for the joint exercise of powers common to each of the Members and powers granted pursuant to SGMA (subject to the restrictions contained in this Agreement);

b. Cooperatively carry out the purposes of SGMA;

c. Become a GSA for purposes of management of the Subbasin in accordance with SGMA; and

d. Develop, adopt and implement a legally sufficient GSP for the Subbasin, subject to the limitations set forth in this Agreement.

3.6 **Powers of the Agency.** To the extent authorized through the Board of Directors, and subject to the limitations set forth in this Agreement, the Agency shall have and may exercise any and all powers commonly held by the Members in pursuit of the Agency's purposes, as described in Article 3.5, including but not limited to the power:

a. To exercise all powers granted to a GSA under SGMA;

b. To take any action for the benefit of the Members and Affiliated Parties necessary or proper to carry out the purposes of the Agency as provided in this Agreement and to exercise all other powers necessary and incidental to the exercise of the powers set forth herein;

c. To levy, impose and collect reasonable taxes, fees, charges, assessments and other levies to implement the GSP and/or SGMA;

d. To borrow funds and to apply for grants and loans for the funding of activities within the purposes of the Agency;

e. To adopt rules, regulations, policies, bylaws and procedures related to the purposes of the Agency;

f. To sue and be sued; and

g. To issue revenue bonds.

3.7 **Powers Reserved to Members.** Each of the Members reserves the right, in its sole and absolute discretion, to become a GSA and to exercise the powers conferred to a GSA within the Member's boundaries in accordance with Article 6.7 of this Agreement.

3.8 **Relationship of Members and Affiliated Parties to Each Other.** Each Member and each Affiliated Party shall be individually responsible for its own covenants, obligations and liabilities under this Agreement. No Member or Affiliated Party shall be deemed to be the agent of, or under the direction or control of, or otherwise have the right or power to bind, any other Member or Affiliated Party without the express written consent of the Member or Affiliated Party.

3.9 **Term.** This Agreement shall be effective as of the Effective Date and shall remain in effect until terminated in accordance with Article 6.5 of this Agreement.

3.10 **Boundaries of the Agency**. The geographic boundaries of the Agency and that portion of the Subbasin that will be managed by the Agency pursuant to SGMA are depicted in Exhibit B**.**

3.11 **Role of Members and Affiliated Parties.** Each Member and Affiliated Party agrees to undertake such additional proceedings or actions as may be necessary in order to carry out the terms and intent of this Agreement. The support of each Member and each Affiliated Party is required for the success of the Agency. This support will involve the following types of actions:

a. The Members and Affiliated Parties will provide support to the Board of Directors and any third party facilitating the development of the GSP by making available staff time, information and facilities within available resources.

b. Policy support shall be provided by the Members and Affiliated Parties to either approve, or respond quickly to, any recommendations made as to funding shares, operational decisions, fare structures, and other policy areas.

c. Each Member and Affiliated Party shall contribute its share of operational fund allocations, as established and approved by the Board of Directors in the Agency's annual budget.

d. Contributions of public funds and of personnel, services, equipment or property may be made to the Agency by any Member or Affiliated Party for any of the purposes of this Agreement, provided that no repayment will be made by the Agency for such contributions in the absence of a separate written contract between the Agency and the contributing Member or Affiliated Party.

e. To the extent that Members and Affiliated Parties make personnel available to the Agency as contemplated under the provisions of Section 3.11, the Members acknowledge and agree that at all times such personnel shall remain under the exclusive control of the Member or Affiliated Party supplying such personnel. The Agency shall not have any right to control the manner or means in which such personnel perform services. Rather, the Member or Affiliated Party supplying personnel shall have the sole and exclusive authority to do the following:

(i) Make decisions regarding the hiring, retention, discipline or termination of personnel. The Agency will have no discretion over these functions.

(ii) Determine the wages to be paid to personnel, including any pay increases. These amounts shall be determined in accordance with the Member or Affiliated Party's published publicly available pay schedule, if any, and shall be subject to changes thereto approved by its governing body.

(iii) Set the benefits of its personnel, including health and welfare benefits, retirement benefits and leave accruals in accordance with the Member or Affiliated Party's policies.

(iv) Evaluate the performance of its personnel through performance evaluations performed by a management level employee that reports directly to a representative of the Member or Affiliated Party or its governing body.

(v) Perform all other functions related to the service, compensation or benefits of any personnel assigned to perform services on behalf of the Agency.

3.12 **Employees**. The Members do not anticipate that the Agency will have any employees. However, the Agency may do any of the following:

a. Engage one or more Members or third parties to manage any or all of the business of the Agency on terms and conditions acceptable to the Board of Directors as specified in a separate written contract. To the extent that a manager is appointed, the manager shall at all times maintain exclusive control over any employees of the manager assigned to perform services under the manager's contract with the Agency, including, but not limited to, matters related to hiring, probationary periods, disciplinary action, termination, benefits, performance evaluations, salary determinations, promotions and demotions, and leave accruals.

b. The Board shall have the power to contract with competent registered civil engineers and other consultants to investigate and to carefully devise a plan or plans to carry out and fulfill the objects and purposes of SGMA, and complete a GSP.

3.13 **Participation of Affiliated Parties**. The Agency shall allow Affiliated Parties to participate in the governance of the Agency and on its Board of Directors in the same manner as Members, provided that each Affiliated Party agrees, through a memorandum of understanding ("MOU") with the Agency, to adhere to all applicable terms of this Agreement, including the payment of the Affiliated Party's assigned share of operational fund allocations, as established by the Board of Directors in the annual budget. The MOU may include provisions tailored to the unique circumstances or characteristics of the Affiliated Parties. The MOU shall also address, without limitation, the nature and extent of any obligations of the Agency to hold harmless, defend and indemnify Affiliated Parties. The designated representative of an Affiliated Party shall join the Board of Directors as soon as that Affiliated Party has entered into an MOU with the Agency. Affiliated Parties shall have the right to withdraw from participation in the governance of the Agency and on the Board of Directors, subject to the provisions of the MOU between the Agency and that Affiliated Party. Entities not listed in Exhibit C may request to be included as Affiliated Parties, and the Board of Directors shall decide whether to allow such entities to become Affiliated Parties in accordance with Article 6.1.

ARTICLE 4: GOVERNANCE

4.1 **Board of Directors**. The business of the Agency will be conducted by a Board of Directors that is hereby established and that shall be initially composed of one representative from each of the Members and one representative from each of the Affiliated Parties. Without amending this Agreement, the composition of the Board of Directors shall be altered from time to time to reflect the withdrawal or involuntary termination of any Member or Affiliated Party

and/or the admission of any new Member or Affiliated Party. Each Member and each Affiliated Party will appoint one member of the Agency Board of Directors. Each Member and each Affiliated Party may designate one alternate to serve in the absence of that Member's or Affiliated Party's appointed Director. All members of the Agency Board of Directors and all alternates will be required to file a Statement of Economic Interests (FPPC Form 700). Each Member and each Affiliated Party shall notify the Agency in writing of its designated representative on the Agency Board of Directors.

4.2 **Term of Directors.** Each member of the Agency Board of Directors will serve until replaced by the appointing Member or Affiliated Party.

4.3 **Officers.** The Board of Directors shall elect a chairperson, a vice chairperson, a secretary and a treasurer. The chairperson and vice-chairperson shall be directors of the Board and the secretary and treasurer may, but need not, be directors of the Board. The chairperson shall preside at all meetings of the Board and the vice-chairperson shall act as the chairperson in the absence of the chairperson elected by the Board. The treasurer shall meet the qualifications set out in Government Code section 6505.5 as a depositary of funds for the Agency.

4.4 **Powers and Limitations**. All the powers and authority of the Agency shall be exercised by the Board, subject, however, to the rights reserved by the Members and Affiliated Parties as set forth in this Agreement.

4.5 **Quorum.** A majority of the members of the Agency Board of Directors will constitute a quorum.

4.6 **Voting.** Except as to actions identified in Article 4.7, the Agency Board of Directors will conduct all business by majority vote of those directors present. Each member of the Board of Directors will have one (1) vote. Prior to voting, the Members and Affiliated Parties shall endeavor in good faith to reach consensus on the matters to be determined such that any subsequent vote shall be to confirm the consensus of the Members and Affiliated Parties. If any Member or Affiliated Party strongly objects to a consensus-based decision prior to a vote being cast, the Members and Affiliated Parties shall work in good faith to reasonably resolve such strong objection, and, if the same is not resolved collaboratively, then the matter will proceed to a vote for final resolution under this Article 4.6 or Article 4.7, below, as applicable.

4.7 **Supermajority Vote Requirement for Certain Actions.** The following actions will require a two-thirds (2/3) vote by the directors present:

a. Approval of the Agency's annual budget;

b. Decisions related to the levying, imposition or collection of taxes, fees, charges and other levies;

c. Decisions related to the expenditure of funds by the Agency beyond expenditures approved in the Agency's annual budget;

d. Adoption of rules, regulations, policies, bylaws and procedures related to the function of the Agency;

e. Decisions related to the establishment or adjustment of the Members' or Affiliated Parties' obligations for payment of the Agency's operating and administrative costs as provided in Article 5.1;

f. Approval of a GSP;

g. Involuntary termination of a Member or Affiliated Party pursuant to Article 6.3;

h. With respect to the addition of Affiliated Parties other than those listed in Exhibit D, approval of (i) a memorandum of understanding between the Agency and any such Affiliated Parties, (ii) the addition of such Affiliated Parties to this Agreement, and (iii) a voting seat for such Affiliated Parties on the Agency Board of Directors;

i. Amendment of this Agreement; provided, however, that the provisions of Article 6.7 (Rights of Member to Become GSA in Event of Withdrawal or Termination) may be amended only by unanimous vote of the Board of Directors;

j. Modification of the funding amounts specified in Exhibit D;

k. The addition of new Members to this Agreement; and

l. Termination of this Agreement.

4.8 **Meetings.** The Board shall provide for regular and special meetings in accordance with Chapter 9, Division 2, Title 5 of Government Code of the State of California (the "Ralph M Brown Act" commencing at section 54950), and any subsequent amendments of those provisions.

4.9 **By-Laws.** The Board may adopt by-laws to supplement this Agreement. In the event of conflict between this Agreement and the by-laws, the provisions of this Agreement shall govern.

4.10 **Administrator.** The Members hereby designate Yolo County Flood Control and Water Conservation District to serve as administrator of, and keeper of records for, the Agency.

ARTICLE 5: FINANCIAL PROVISIONS

5.1 **Contributions and Expenses:** Members and Affiliated Parties shall share in the general operating and administrative costs of operating the Agency in accordance with the funding amounts set forth in Exhibit D attached hereto and incorporated herein. Each Member and Affiliated Party will be assessed quarterly, beginning on July 1 of each year. Members and Affiliated Parties shall pay assessments within thirty (30) days of receiving assessment notice from the Treasurer. Each Member and each Affiliated Party will be solely responsible for raising funds for payment of the Member's or Affiliated Party's share of the Agency's general operating and administrative costs. The obligation of each Member and each Affiliated Party to make payments under the terms and provision of this Agreement is an individual and several obligation

and not a joint obligation with those of the other Members and Affiliated Parties. Contributions of grant funding, state, federal, or county funding may be provided as funding or a portion of funding on behalf of Members and Affiliated Parties.

5.2 **Liability for Debts.** The Members do not intend through this Agreement to be obligated either jointly or severally for the debts, liabilities or obligations of the Agency, except as may be specifically provided for in Government Code § 895.2 as amended or supplemented; provided, however, that if any Member is held liable for the acts and omissions of the Agency caused by negligent or wrongful acts or omissions occurring in the performance of this Agreement, such Member shall be entitled to contribution from the other Members so that after such contribution each Member bears its proportionate share of the liability in accordance with Article 5.1 and Exhibit D. This Article 5.2 shall not apply to acts or omissions of a Member in implementing the GSP adopted by the Agency within such Member's boundaries or a Management Area managed in whole or in part by such Member.

5.3 **Indemnification.** The Agency shall hold harmless, defend and indemnify the Members and their officers, employees and agents, and members of the Agency Board of Directors, from and against any and all liability, claims, actions, costs, damages or losses of any kind, including death or injury to any person and/or damage to property arising out of the activities of the Agency or its Board, officers, employees or agents under this Agreement. These indemnification obligations shall continue beyond the Term of this Agreement as to any acts or omissions occurring before or under this Agreement or any extension of this Agreement. The obligations of the Agency to hold harmless, defend and indemnify Affiliated Parties, if any, will be addressed in the separate MOUs between the Agency and Affiliated Parties.

5.4 **Repayment of Funds**. No refund or repayment of the initial commitment of funds specified in Article 5.2 will be made to a Member or Affiliated Party ceasing to be a Member or Affiliated Party, whether pursuant to removal by the Board of Directors or pursuant to a voluntary withdrawal. The refund or repayment of any other contribution shall be made in accordance with the terms and conditions upon which the contribution was made, the terms and conditions of this Agreement or other agreement of the Agency and withdrawing Member or Affiliated Party.

5.5 **Budget**. The Agency's fiscal year shall run from July 1 through June 30. Each fiscal year, the Board shall adopt a budget for the Agency for the ensuing fiscal year. Within ninety (90) days of the effective date of this Agreement, the Board shall adopt a budget. Thereafter, a budget shall be adopted no later than June 1 of the preceding fiscal year. A draft budget shall be prepared no later than March 1 of the preceding fiscal year.

5.6 **Alternate Funding Sources.** The Board may obtain State of California or federal grants.

5.7 **Depositary.** The Board shall designate a Treasurer of the Agency, who shall be the depositary and have custody of all money of the Agency, from whatever source, subject to the applicable provisions of any indenture or resolution providing for a trustee or other fiscal agent. All funds of the Agency shall be held in separate accounts in the name of the Agency and

not commingled with funds of any Member or Affiliated Party or any other person or entity. The Treasurer shall perform the duties specified in Government Code §§6505 and 6505.5.

5.8 **Accounting.** Full books and accounts shall be maintained for the Agency in accordance with practices established by, or consistent with, those utilized by the Controller of the State of California for like public entities. The books and records of the Agency shall be open to inspection by the Members and Affiliated Parties at all reasonable times, and by bondholders and lenders as and to the extent provided by resolution or indenture.

5.9 **Audit.** A qualified firm, serving in the capacity of auditor, shall audit the records and the accounts of the Agency annually in accordance with the provisions of section 6505 of the Law. Copies of such audit reports shall be filed with the State Controller and each Member and each Affiliated Party within six months of the end of the Fiscal Year under examination.

5.10 **Expenditures.** All expenditures within the designations and limitations of the applicable approved budget shall be made upon the approval of any officer so authorized by the Agency Board of Directors. The Treasurer shall draw checks or warrants or make payments by other means for claims or disbursements not within an applicable budget only upon the approval and written order of the Board. The Board shall requisition the payment of funds only upon approval of claims or disbursements and requisition for payment in accordance with policies and procedures adopted by the Board.

5.11 **Reconsideration of Voting Structure and Expense Allocation.** No later than the first Board meeting following the two-year anniversary of the Effective Date of this Agreement, the Board of Directors shall consider whether to recommend to the Members that the voting structure described in Article 4.6 and/or the expense allocation provisions described in Article 5.1 and Exhibit D should be modified in any respect. If the Board of Directors recommends modification of Article 4.6, Article 5.1, or Exhibit D, the governing body of each Member and each Affiliated Party shall consider the modifications recommended by the Board of Directors and, within 45 days following the Board recommendation, shall report back to the Board of Directors regarding the Member's or Affiliated Party's position regarding the recommended modifications.

ARTICLE 6: CHANGES TO MEMBERSHIP, WITHDRAWAL AND TERMINATION

6.1 **Changes to Members and Affiliated Parties.** The Agency Board of Directors may, in its sole and absolute discretion, approve the addition of new Members or Affiliated Parties to the Agency by supermajority vote. In the event of Board approval of a new Member the new Member shall execute this Agreement but amendment of this Agreement will not be required. In the event of Board approval of a new Affiliated Party the new Affiliated Party shall execute a memorandum of understanding in accordance with Article 3.13. The Board of Directors shall provide all Members and Affiliated Parties with 30 days' advance written notice prior to any Board action to add a new Member or Affiliated Party.

6.2 **Noncompliance**. In the event any Member or Affiliated Party (1) fails to comply with the terms of this Agreement, or (2) undertakes actions that conflict with or undermine the functioning of the Agency or the preparation or implementation of the GSP, such Member or

Affiliated Party shall be subject to the provisions for involuntary removal of a Member or Affiliated Party set forth in of Article 6.3 of this Agreement. Such actions of a Member or Affiliated Party shall be as determined by the Board of Directors and may include, for example, failure to pay its agreed upon contributions when due, refusal to participate in GSA activities or to provide required monitoring of sustainability indicators; refusal to enforce controls as required by the GSP; refusal to implement any necessary actions as outlined by the approved GSP minimum thresholds that are likely to lead to "undesirable results" under SGMA.

6.3 **Involuntary Termination**. If the Board of Directors determines that a Member or Affiliated Party is in noncompliance as provided in Article 6.2, the Board of Directors may terminate that Member's or Affiliated Party's participation in this Agency, provided that, prior to any such vote, all of the Members and Affiliated Parties shall meet and confer regarding all matters related to the proposed removal. In the event of the involuntary termination of a Member or Affiliated Party, the terminated Member or Affiliated Party shall remain fully responsible for its proportionate share of all financial obligations and liabilities incurred by the Agency prior to the effective date of termination as specified in Article 5.1 and Exhibit D, as existing as of the effective date of termination.

6.4 **Withdrawal of Members and Affiliated Parties.** Subject to the provisions of Article 6.7, a Member or Affiliated Party may, in its sole discretion, unilaterally withdraw from participation in the Agency, effective upon ninety (90) days' prior written notice to the Agency, provided that (a) the withdrawing Member or Affiliated Party will remain responsible for its proportionate share of any obligation or liability duly incurred by the Agency, as specified in Article 5.1 and Exhibit D, as existing as of the effective date of withdrawal. A withdrawing Member or Affiliated Party will not be responsible for any obligation or liability that the Member or Affiliated Party has voted against or has voiced its disapproval on at a Board meeting, providing the Member or Affiliated Party gives notice of its withdrawal from the Agency as soon thereafter as is practicable. In the event the withdrawing Member or Affiliated Party has any rights in any property or has incurred obligations to the Agency, the Member or Affiliated Party may not sell, lease or transfer such rights or be relieved of its obligations, except in accordance with a written agreement executed by it and the Agency. The Agency may not sell, lease, transfer or use any rights of a Member or Affiliated Party who has withdrawn without first obtaining the written consent of the withdrawing Member or Affiliated Party.

6.5 **Termination of Agreement**. This Agreement and the Agency may be terminated by a supermajority vote of the Board of Directors. However, in the event of termination, each of the Members and Affiliated Parties will remain responsible for its proportionate share of any obligation or liability duly incurred by the Agency, in accordance with Article 5.1 and Exhibit D, as existing as of the effective date of termination. Nothing in this Agreement will prevent the Members or Affiliated Parties from withdrawing as provided in this Agreement, or from entering into other joint exercise of power agreements.

6.6 **Disposition of Property Upon Termination**. Upon termination of this Agreement, the assets of the Agency shall be transferred to the Agency's successor, provided that a public entity will succeed the Agency, or in the event that there is no successor public entity, to the Members and Affiliated Parties in proportion to the contributions made by each Member or Affiliated Party. If the successor public entity will not assume all of the Agency's

assets, the Board shall distribute the Agency's assets between the successor entity and the Members and Affiliated Parties in proportion to the any obligation required by Articles 5.1 or 5.6.

6.7 **Rights of Members and Affiliated Parties to Become GSA in Event of Withdrawal or Termination.** Upon withdrawal or involuntary termination of a Member or Affiliated Party, or termination of this Agreement pursuant to Article 6.5, whether occurring before or after June 30, 2017, the withdrawing or terminated Member or Affiliated Party will retain all rights and powers to become or otherwise participate in a GSA for the lands within its boundaries. In such event, the Agency and its remaining Members and Affiliated Parties shall (i) not object to or interfere with the lands in the withdrawing or terminated Member's or Affiliated Party's boundaries being in a GSA, as designated by the withdrawing or terminated Member or Affiliated Party or otherwise; (ii) facilitate such transition to the extent reasonably necessary; and (iii) where the withdrawing Member or Affiliated Party has authority under SGMA to be or participate in a GSA, withdraw from managing that portion of the Subbasin within the boundaries of the withdrawing or terminated Member or Affiliated Party and so notify the California Department of Water Resources. In order to maintain compliance with SGMA in the event of the withdrawal or involuntary termination of a Member or Affiliated Party, where the withdrawing Member or Affiliated Party has authority under SGMA to be or participate in a GSA, the withdrawal or involuntary termination will not be effective until a GSA has been established in accordance with SGMA for those lands overlying the Subbasin affected by the withdrawal or involuntary termination.

6.8 **Use of Data**. Upon withdrawal, any Member or Affiliated Party shall be entitled to use any data or other information developed by the Agency during its time as a Member or Affiliated Party. Further, should a Member or Affiliated Party withdraw from the Agency after completion of the GSP, it shall be entitled to utilize the GSP for future implementation of SGMA within its boundaries.

ARTICLE 7: SPECIAL PROJECTS

7.1 **Special Project Agreements.** Fewer than all of the Members and Affiliated Parties may enter into a special project agreement to achieve any of the purposes or activities authorized by this Agreement, and to share in the expenses and costs of such special project, for example, to share in funding infrastructure improvements within the boundaries of only those Members and Affiliated Parties and their Management Areas. Special project agreements must be in writing and documentation and must be provided to each of the Members and Affiliated Parties.

7.2 **Expenses.** Members and Affiliated Parties that enter into special project agreements agree that any special project expenses incurred for each such special project are the costs of the special project participants, respectively, and not of any other Members or Affiliated Parties not participating in the special project, and the special project expenses shall be paid by the parties to the respective special project agreements.

7.3 **Indemnification of Other Members.** Members and Affiliated Parties participating in special project agreements if conducted by the Agency, shall hold other Members and Affiliated Parties who are not parties to the special project agreement free and harmless from and indemnify each of them against any and all costs, losses, damages, claims and liabilities arising from the special project agreement. The indemnification obligation of Members and Affiliated Parties participating in special project agreements shall be the same as specified in Article 5.2 for Members and Affiliated Parties in general, except that they shall be limited to liabilities incurred for the special project.

ARTICLE 8: ACTIONS BY THE AGENCY WITHIN MANAGEMENT AREAS AND INDIVIDUAL JURISDICTIONS

8.1 **Role of the Agency.** Subject to the reservation of authority set forth in Article 8.5, the Agency will serve a coordinating and administrative role in order to provide for sustainable groundwater management of the Subbasin in a manner that does not limit any Member's or Affiliated Party's rights or authority over its own water supply matters, including, but not limited to, a Member's or Affiliated Part's surface water supplies, groundwater supplies, facilities, operations, water management and financial affairs.

8.2 **Members' and Affiliated Parties' Responsibility within Management Areas and Individual Jurisdictions.** Subject to the reservation of authority in Article 8.5, each of the Members and Affiliated Parties (or groups of Members and Affiliated Parties) will have initial responsibility to implement SGMA and the GSP adopted by the Agency within their respective Management Areas, as delineated in the GSP.

8.3 **Water Budgets.** The GSP will provide for the preparation of water budgets by Members or Affiliated Parties or groups of Members and Affiliated Parties for their respective Management Areas. The GSP will specify the elements to be included in water budgets and the timing for completion.

8.4 **Sustainability.** In the event a water budget prepared in accordance with Article 8.3 shows that groundwater pumping within a Management Area exceeds such area's sustainable yield, as defined in Cal. Water Code § 10721(v) and (w), or an "undesirable result," as defined in Cal. Water Code § 10721(x), exists, the Member or Affiliated Party or group of Members and Affiliated Parties with groundwater management responsibility over such area shall develop and implement a plan to achieve sustainability or eliminate the undesirable result within that area. The GSP will specify the elements to be included in and time requirements for implementation of the plan.

8.5 **Reservation of Authority**. In the event of a failure by a Member or Affiliated Party or group of Members or Affiliated Parties to develop and implement a plan to achieve sustainability or eliminate an undesirable result within a Management Area as provided in Article 8.4, the Agency reserves and retains all requisite authority to (i) develop and implement a plan to achieve sustainability or eliminate an undesirable result, and (ii) allocate the cost of development and implementation of such plan to Members or Affiliated Parties within such

Management Area. The GSP will specify the procedures for development and implementation of a plan by the Agency under such circumstances.

ARTICLE 9: MISCELLANEOUS PROVISIONS

9.1 **Amendments**. This Agreement may be amended from time to time by a supermajority vote of the Board of Directors; provided, however, that the provisions of Article 6.7 (Rights of Member to Become GSA in Event of Withdrawal or Termination) may be amended only by unanimous vote of the Board of Directors.

9.2 **Binding on Successors**. The rights and duties of the Members and Affiliated Parties under this Agreement may not be assigned or delegated without the advance written consent of the Agency (as evidenced by a majority vote of the Board of Directors) and any attempt to assign or delegate such rights or duties in contravention of this Article 9.2 shall be null and void. Any approved assignment or delegation shall be consistent with the terms of any contracts, resolutions, indemnities and other obligations of the Agency then in effect.

9.3 **Notice**. Any notice or instrument required to be given or delivered under this Agreement may be made by: (a) depositing the same in any United States Post Office, postage prepaid, and shall be deemed to have been received at the expiration of 72 hours after its deposit in the United States Post Office; (b) transmission by facsimile copy to the addressee; (c) transmission by electronic mail; or (d) personal delivery to the addresses or facsimile numbers of the Members and Affiliated Parties set forth in Exhibit E to this Agreement.

9.4 **Counterparts**. This Agreement may be executed by the Members in separate counterparts, each of which when so executed and delivered shall be an original. All such counterparts shall together constitute but one and the same instrument.

9.5 **Choice of Law**. This Agreement shall be governed by the laws of the State of California.

9.6 **Severability**. If one or more clauses, sentences, paragraphs or provisions of this Agreement is held to be unlawful, invalid or unenforceable, it is hereby agreed by the Members that the remainder of the Agreement shall not be affected thereby. Such clauses, sentences, paragraphs or provisions shall be deemed reformed so as to be lawful, valid and enforced to the maximum extent possible.

9.7 **Headings**. The paragraph headings used in this Agreement are intended for convenience only and shall not be used in interpreting this Agreement or in determining any of the rights or obligations of the Members to this Agreement.

9.8 **Construction and Interpretation**. This Agreement has been arrived at through negotiation and each Member has had a full and fair opportunity to revise the terms of this Agreement. As a result, the normal rule of construction that any ambiguities are to be resolved

against the drafting Member shall not apply in the construction or interpretation of this Agreement.

9.9 **Entire Agreement.** This Agreement constitutes the entire agreement among the Members and supersedes all prior agreements and understandings, written or oral. This Agreement may only be amended by written instrument executed by all Members.

IN WITNESS WHEREOF, the Members have executed this Agreement on the day and year first above-written to form and establish the Yolo Subbasin Groundwater Agency.

City of Davis

By: _____
Robb Davis, Mayor

ATTEST:

By: _____
Zoe Mirabile, City Clerk

APPROVED AS TO FORM:

By: _____
Harriet Steiner, City Attorney

City of West Sacramento

By: _____
Christopher L. Cabaldon, Mayor

ATTEST:

By: _____
Kryss Rankin, City Clerk

APPROVED AS TO FORM:

By: _____
Jeffrey Mitchell, City Attorney

City of Winters

By: _____
Wade Cowan, Mayor

ATTEST:

By: _____
Nanci G. Mills, City Clerk

APPROVED AS TO FORM:

By: _____
Ethan Walsh, City Attorney

City of Woodland

By: _____
Angel Barajas, Mayor

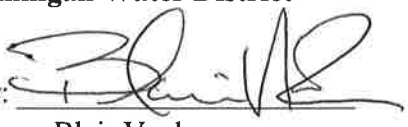
ATTEST:

By: _____
Ana Gonzalez, City Clerk

APPROVED AS TO FORM:

By: _____
Kara Ueda, City Attorney

Dunnigan Water District

By: 
Name: Blair Voelz
Its: President

Esparto Community Services District

By: _____
Name: Charlie Schaupp
Its: Chair

Madison Community Services District

By: _____
Name: Steve Gomez
Its: Chair

Reclamation District 108

By: _____
Name: Frederick "Fritz" Durst
Its: President

Dunnigan Water District

By: _____
Name: Blair Voelz
Its: President

Esparto Community Services District

By: _____
Name: Charlie Schaupp
Its: Chair

Madison Community Services District

By: _____
Name: Steve Gomez
Its: Chair

Reclamation District 108

By: _____
Name: Frederick "Fritz" Durst
Its: President

Dunnigan Water District

By: _____
Name: Blair Voelz
Its: President

Esparto Community Services District

By: _____
Name: Charlie Schaupp
Its: Chair

Madison Community Services District

By: Steven Gomez
Name: Steve Gomez
Its: Chair

Reclamation District 108

By: _____
Name: Frederick "Fritz" Durst
Its: President

Dunnigan Water District

By: _____
Name: Blair Voelz
Its: President

Esparto Community Services District

By: _____
Name: Charlie Schaupp
Its: Chair

Madison Community Services District

By: _____
Name: Steve Gomez
Its: Chair

Reclamation District 108

By: _____
Name: Frederick "Fritz" Durst
Its: President

Reclamation District 537

By: _____
Name: KRISTEN E. PLOMAN
Its: PRESIDENT

Reclamation District 827

By: _____
Name: Daniel F. Ramos
Its: President

Reclamation District 730

By: _____
Name: James Heidrick
Its: Trustee

Reclamation District 1600

By: _____
Name: Kent Lang
Its: President

Reclamation District 765

By: _____
Name:
Its:

Reclamation District 2035

By: _____
Name: Robert Thomas
Its: President

Reclamation District 785

By: _____
Name: Ross Peabody
Its: President

Yocha Dehe Wintun Nation

By: _____
Name: James Kinter
Its: Tribal Secretary

Reclamation District 787

By: _____
Name: Roger Cornwell
Its: President

Yolo County Flood Control and Water Conservation District

By: _____
Name: Erik Vink
Its: Chair

Reclamation District 537

By: _____
Name:
Its:

Reclamation District 827

By: _____
Name:
Its:

Reclamation District 730

By: James Heidrick
Name: James Heidrick
Its: Trustee

Reclamation District 1600

By: _____
Name: Kent Lang
Its: President

Reclamation District 765

By: _____
Name:
Its:

Reclamation District 2035

By: _____
Name: Robert Thomas
Its: President

Reclamation District 785

By: _____
Name: Ross Peabody
Its: President

Yocha Dehe Wintun Nation

By: _____
Name: James Kinter
Its: Tribal Secretary

Reclamation District 787

By: _____
Name: Roger Cornwell
Its: President

Yolo County Flood Control and Water Conservation District

By: _____
Name: Erik Vink
Its: Chair

Reclamation District 537

By: _____
Name:
Its:

Reclamation District 827

By: _____
Name:
Its:

Reclamation District 730

By: _____
Name: James Heidrick
Its: Trustee

Reclamation District 1600

By: _____
Name: Kent Lang
Its: President

Reclamation District 765

By: _____
Name:
Its:

Reclamation District 2035

By: _____
Name: Robert Thomas
Its: President

Reclamation District 785

By: _____
Name: Ross Peabody
Its: President

Yocha Dehe Wintun Nation

By: _____
Name: James Kinter
Its: Tribal Secretary

Reclamation District 787

By: _____
Name: Roger Cornwell
Its: President

Yolo County Flood Control and Water Conservation District

By: _____
Name: Erik Vink
Its: Chair

Reclamation District 537

By: _____
Name:
Its:

Reclamation District 827

By: _____
Name:
Its:

Reclamation District 730

By: _____
Name: James Heidrick
Its: Trustee

Reclamation District 1600

By: _____
Name: Kent Lang
Its: President

Reclamation District 765

By: _____
Name: Doug Dickson
Its: President

Reclamation District 2035

By: _____
Name: Robert Thomas
Its: President

Reclamation District 785

By: _____
Name: Ross Peabody
Its: President

Yocha Dehe Wintun Nation

By: _____
Name: James Kinter
Its: Tribal Secretary

Reclamation District 787

By: _____
Name: Roger Cornwell
Its: President

Yolo County Flood Control and Water Conservation District

By: _____
Name: Erik Vink
Its: Chair

Reclamation District 537

By: _____
Name:
Its:

Reclamation District 827

By: _____
Name:
Its:

Reclamation District 730

By: _____
Name: James Heidrick
Its: Trustee

Reclamation District 1600

By: _____
Name: Kent Lang
Its: President

Reclamation District 765

By: _____
Name:
Its:

Reclamation District 2035

By: _____
Name: Robert Thomas
Its: President

Reclamation District 785

By: _____
Name: Ross Peabody
Its: President

Yocha Dehe Wintun Nation

By: _____
Name: James Kinter
Its: Tribal Secretary

Reclamation District 787

By: _____
Name: Roger Cornwell
Its: President

Yolo County Flood Control and Water Conservation District

By: _____
Name: Erik Vink
Its: Chair

Reclamation District 537

By: _____
Name:
Its:

Reclamation District 827

By: _____
Name:
Its:

Reclamation District 730

By: _____
Name: James Heidrick
Its: Trustee

Reclamation District 1600

By: _____
Name: Kent Lang
Its: President

Reclamation District 765

By: _____
Name:
Its:

Reclamation District 2035

By: _____
Name: Robert Thomas
Its: President

Reclamation District 785

By: _____
Name: Ross Peabody
Its: President

Yocha Dehe Wintun Nation

By: _____
Name: James Kinter
Its: Tribal Secretary

Reclamation District 787

By: _____
Name: Roger Cornwell
Its: President

Yolo County Flood Control and Water Conservation District

By: _____
Name: Erik Vink
Its: Chair

Yolo County

By: _____
Duane Chamberlain, Chair
Board of Supervisors

APPROVED AS TO FORM:

By: _____
Philip J. Pogledich, County Counsel

ATTEST: Julie Dachtler, Deputy Clerk
Board of Supervisors

By: _____
Deputy (SEAL)

Exhibit A
List of Members

Member Agencies
City of Davis
City of West Sacramento
City of Winters
City of Woodland
Dunnigan Water District
Esparto Community Service District (CSD)
Madison CSD
Reclamation District (RD) 108
RD 537
RD 730
RD 765
RD 785
RD 787
RD 827
RD 1600
RD 2035
Yocha Dehe Wintun Nation
Yolo County
Yolo County Flood Control and Water Conservation District

Exhibit B

Map of Agency Boundaries

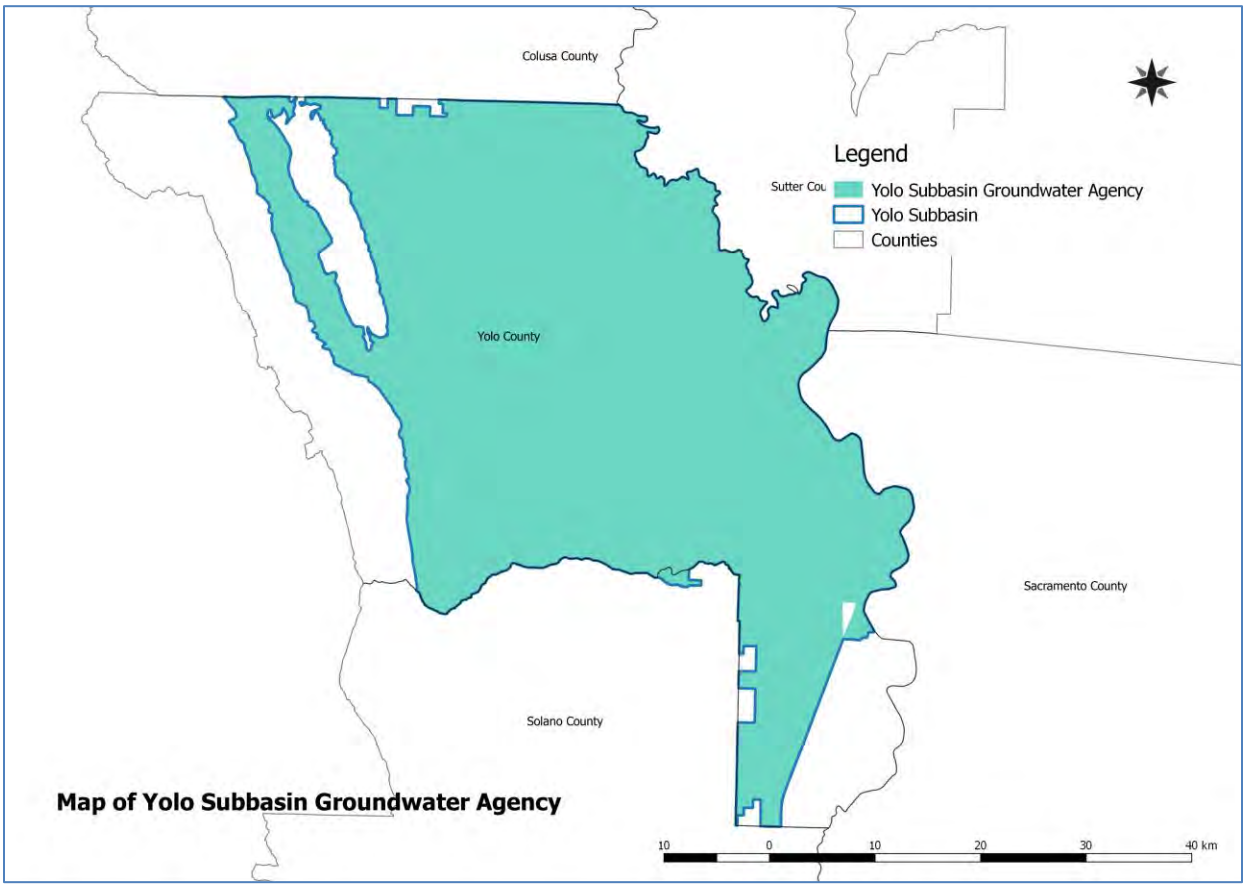


Exhibit C

List of Affiliated Parties

Affiliated Parties
California American Water Company -- Dunnigan
Colusa Drain Mutual Water Company
Environmental Party**
University of California, Davis
Private Pumper Representative as appointed by Yolo County Farm Bureau

**To be determined.

Exhibit D

Funding Amounts

It is proposed that administrative fees in the range of approximately $400,000 to $500,000 per year be collected for the first two years of the GSA. **After two years, the fee structure will be revisited and adjusted as appropriate.**

Key

Blue = JPA Parties and Existing WRA member

Orange = JPA Parties

Entity Contributions	
Municipal Agencies	**$**
City of Davis	$40,000
City of Woodland	$40,000
City of West Sacramento	$40,000
City of Winters	$20,000
Yocha Dehe Wintun Nation	$10,000
Esparto CSD	$5,000
Madison CSD	$5,000
	$160,000

Entity Contributions			
Rural Agencies ($0.50/acre)	0.5	**Acres**	**$**
Yolo County Flood Control & WCD		200,000	$100,000
Yolo County (White Areas)*		160,000	$40,000
Direct Contributions (White Areas)**		40,000	$20,000
Other Contributions from Rural Agencies***			$40,000
Dunnigan Water District		10,700	$5,350
RD 108		23,200	$11,600
RD 2035		18,000	$9,000
RD 537		5,200	$2,600
RD 730		4,498	$2,249
RD 765		1,400	$700
RD 785		3,200	$1,600
RD 787		9,400	$4,700
RD 827		1,225	$613
RD 1600		6,924	$3,462
		483,747	$241,874

**Yolo County is not $0.50/acre*

***Direct Contributions from private pumpers currently residing in "white areas"*

****RD 108, RD 787, RD 2035, and YCFCWCD ($10,000/each)*

Affiliated Parties with Board Voting Seats		
1	Base	**$**
University of California, Davis		$40,000
Colusa Drain Mutual Water Company		$10,000
California American Water Company - Dunnigan		$5,000
Yolo County Farm Bureau		$10,000
Environmental Party - TBD		
		$65,000

Sub Total:	$466,874

Exhibit E
Addresses for Notice

City of Davis
23 Russell Boulevard
Davis, CA 95616

Reclamation District 108
975 Wilson Bend Road
Grimes, CA 95950

Reclamation District 1600
429 First Street
Woodland, CA 95695

City of West Sacramento
1110 West Capitol Avenue
West Sacramento, CA 95691

Reclamation District 537
P.O. Box 822
West Sacramento, CA 95691

Reclamation District 2035
45332 County Road 25
Woodland, CA 95776

City of Winters
318 First Street
Winters, CA 95694

Reclamation District 730
429 First Street
Woodland, CA 95695

Yocha Dehe Wintun Nation
P.O. Box 18
Brooks, CA 95606

City of Woodland
300 First Street
Woodland, CA 95695

Reclamation District 765
1401 Halyard Drive Suite 140
West Sacramento, CA 95691

Yolo County
625 Court Street Room 206
Woodland, CA 95695

Dunnigan Water District
3817 First Street
Dunnigan, CA 95937

Reclamation District 785
429 First Street
Woodland, CA 95695

Yolo County Flood Control and Water Conservation District
34274 State Highway 16
Woodland, CA 95695

Esparto CSD
26490 Woodland Avenue
Esparto, CA 95627

Reclamation District 787
41758 County Road 112
Knights Landing, CA 95645

Madison CSD
2896 Main Street
Madison, CA 95653

Reclamation District 827
P.O. Box 781
West Sacramento, CA 95691

As allowed by Articles 6.1 and 9.4 of this YSGA Joint Powers Agreement, the following New Members were approved by the Board of Directors and formally added to the YSGA in 2019.

Reclamation District 999

By: Tom Slater
Name: Tom Slater
Its: President

Reclamation District 150

By: _____
Name: Warren Bogle
Its: President

Reclamation District 307

By: _____
Name: Pete Dwyer
Its: President

As allowed by Articles 6.1 and 9.4 of this YSGA Joint Powers Agreement, the following New Members were approved by the Board of Directors and formally added to the YSGA in 2019.

Reclamation District 999

By: _____
Name: Tom Slater
Its: President

Reclamation District 150

By: _____
Name: Warren Bogle
Its: President

Reclamation District 307

By: _____
Name: Pete Dwyer
Its: President

As allowed by Articles 6.1 and 9.4 of this YSGA Joint Powers Agreement, the following New Members were approved by the Board of Directors and formally added to the YSGA in 2019.

Reclamation District 999

By: _____
Name: Tom Slater
Its: President

Reclamation District 150

By: _____
Name: Warren Bogle
Its: President

Reclamation District 307

By: _____
Name: Peter G. Dwyer, Jr.
Its: President

MEMORANDUM

TO: YSGA BOARD OF DIRECTORS

FROM: YSGA EXECUTIVE OFFICER

SUBJECT: YOLO SUBBASIN GSP: COMPONENTS

DATE: JUNE 15, 2018

CC: YSGA WORKING GROUP

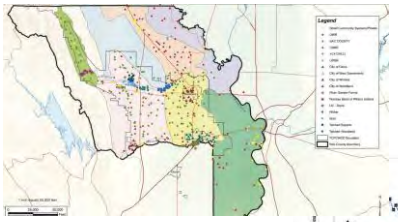
BACKGROUND

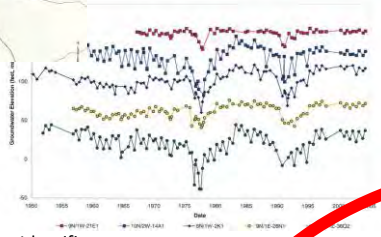
As a simple reference document, YSGA staff have summarized the major components of the Yolo Subbasin GSP planning process and documented them in memoranda. The major components of the GSP planning process are as follows:

1. Water Budget
2. Hydrogeologic Conceptual Model
3. Stakeholder Communication and Engagement
4. Groundwater Monitoring and Reporting
5. Surface Water and Groundwater Modeling
6. Sustainable Management Criteria

A schematic illustrating the relational aspect of each GSP component and memoranda on individual GSP components are provided for Board review. Each component memorandum includes 1) background information, 2) required DWR GSP Regulations, and 3) a draft scope, schedule, and budget for the Yolo Subbasin GSP planning process. A smaller version of the draft schedule as submitted in the DWR Proposition 1 GSP proposal is included and can be accessed on DWR's website at the following link: https://d3.water.ca.gov/owncloud/index.php/s/7xJWyOAFxtyLiHs.

DRAFT





Identifies monitoring adequacy

Improves understanding

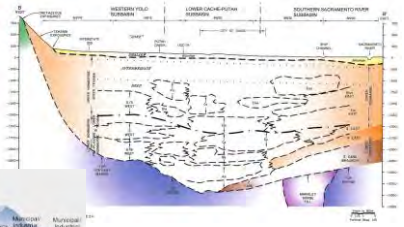
Monitoring

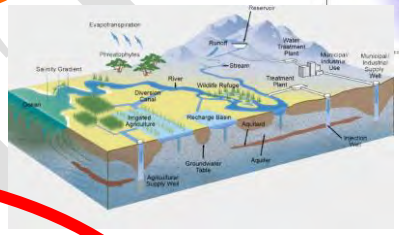
- Locations
- Depths
- Spacing
- Data Gaps

Identify Undesirable Results

Quantify Undesirable Results

Evaluation of Sustainability Indicators and Undesirable Results





Hydrogeologic Conceptual Model of the Subbasin

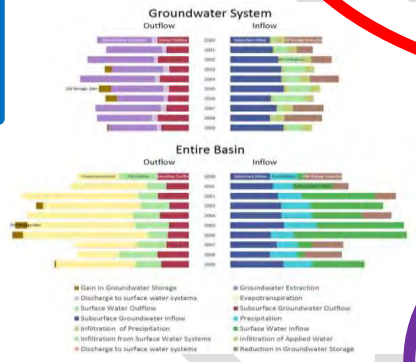
Visual and narrative description of groundwater conditions
Cross sections and 3D renderings
Summary of aquifer properties and conditions
Identification of management areas

Provides architectural framework

Improves understanding

Surface Water and Groundwater Modeling

- Define modeling objectives
- Explore adequacy of existing tools
- Calibrate
- Project future conditions



Quantification

Identify boundary type and locations

Water Budget Evaluation

- Quantify water budget components
- Estimate sustainable yield

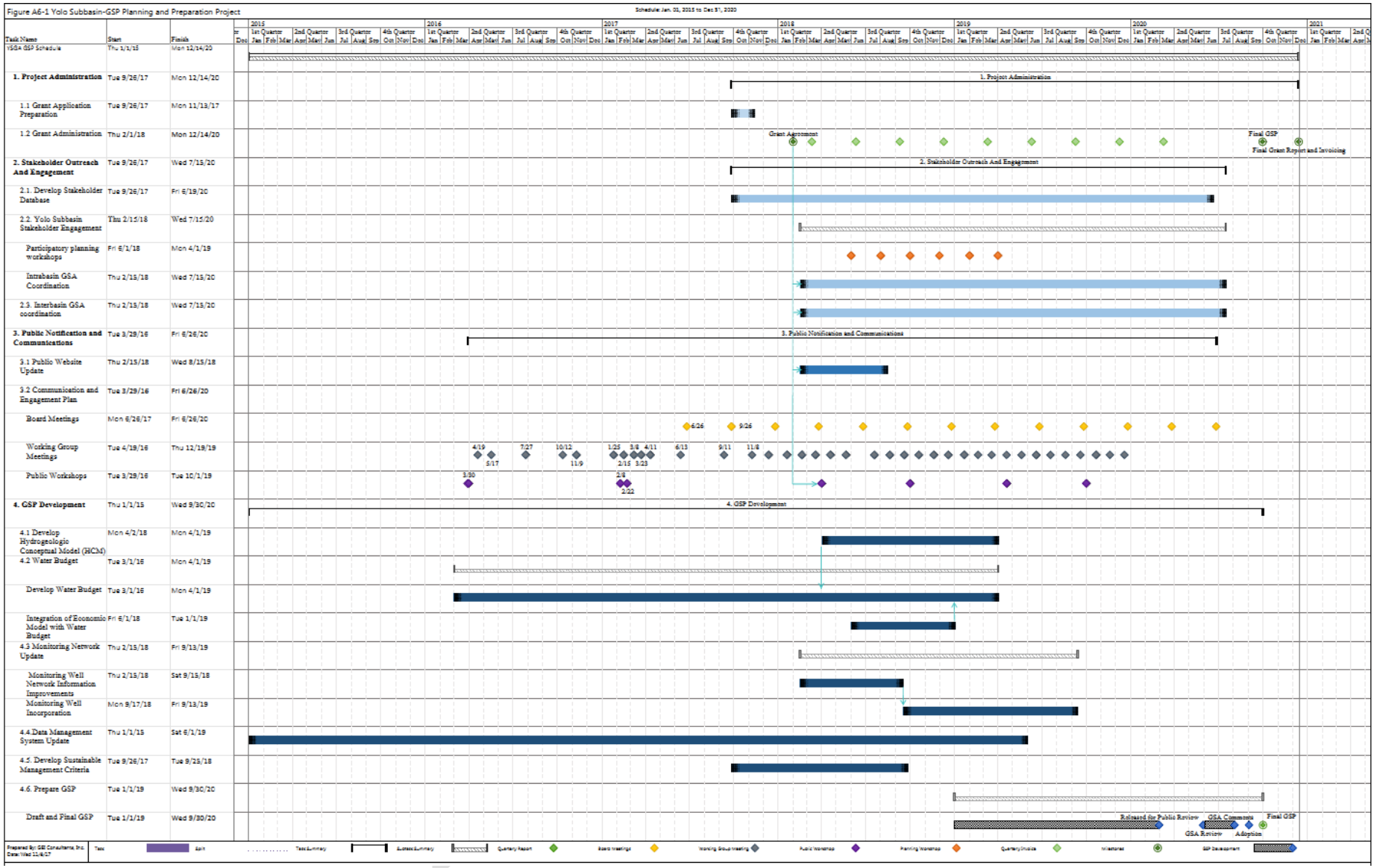
Improve communication and trust

Stakeholder Outreach

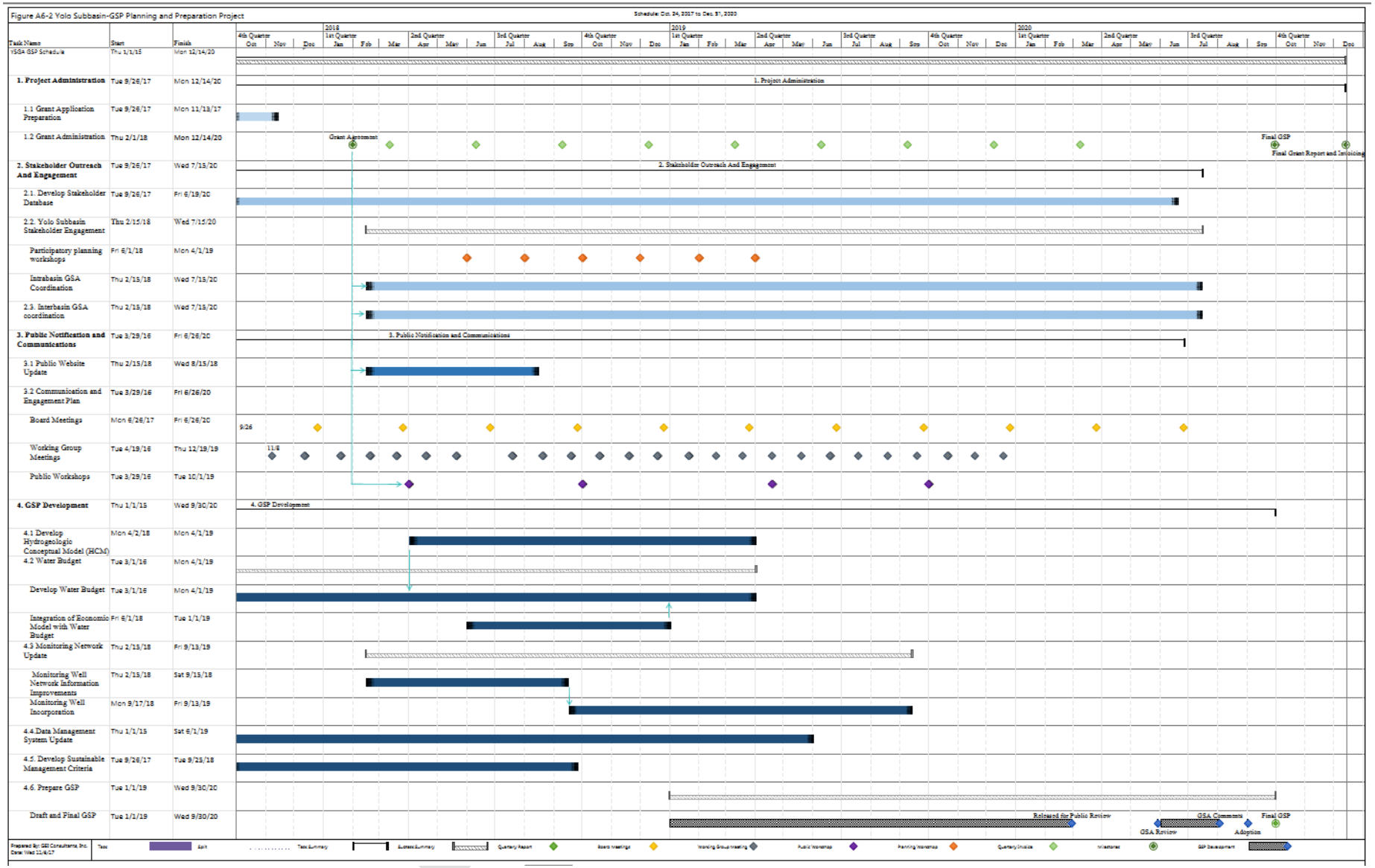
DRAFT

Relational Schematic of GSP Components

DRAFT



Proposition 1 Yolo Subbasin GSP Planning Grant Schedule (1 of 2)



Proposition 1 Yolo Subbasin GSP Planning Grant Schedule (2 of 2)

MEMORANDUM

TO: YSGA BOARD OF DIRECTORS

FROM: YSGA STAFF

SUBJECT: WATER BUDGET

DATE: JUNE 15, 2018

CC: YSGA WORKING GROUP

BACKGROUND

A Water Budget considers the storage and movement of water between the four physical systems of the hydrologic cycle: atmospheric system, land surface system, river and stream system, and groundwater system. A Water Budget is a foundational tool used to account for the total groundwater and surface water entering, being stored, or leaving a basin (DWR HCM BMP, 2016). Additionally, water budget accounting assists water agencies in understanding individual water budget components necessary to support resource decision making.

GSP REGULATIONS

DWR's Groundwater Sustainability Plan (GSP) Regulations require that the GSP include a tabular and graphical form of a Water Budget that provides an accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the basin, including ***historical, current,*** and ***projected*** water budget conditions, and the change in the volume of water stored (GSP Regs §354.18(a)). The Water Budget shall quantify the following:

1. Total surface water entering and leaving a basin by water source type.
2. Inflow to the groundwater system by water source type, including subsurface inflow and infiltration of precipitation, applied water, and surface water systems.
3. Outflows from the groundwater system by water use sector, including evapotranspiration, groundwater extraction, groundwater discharge to surface water sources, and subsurface groundwater outflow.
4. The change in the annual volume of groundwater in storage between seasonal high conditions.
5. An estimate of sustainable yield for the basin.

YOLO SUBBASIN GSP PLANNING PROCESS

The YSGA has chosen to work with the Stockholm Environment Institute (SEI) to develop the Yolo Subbasin Water Budget. SEI's Water Evaluation and Planning model (WEAP) is an excellent (and used by DWR) platform for developing the Water Budget since it is built on a basic principle of water balance accounting. All the processes in the hydrologic cycle can be simulated by WEAP, and as a database, WEAP provides a system for maintaining and updating water demand and supply information. The current model that has been modified

DRAFT

for use in the Yolo Subbasin is an enhancement of a published Cache Creek model built by SEI with the YCFC&WCD in 2011.

With groundwater being a critical component of the Water Budget, it is necessary to simulate respective groundwater balances and their spatial impacts. WEAP on its own simply simulates an aquifer as an underground tank, and when coupled with MODFLOW it is enhanced to more accurately simulate the groundwater system. MODFLOW is the USGS modular finite-difference flow model that is widely used by hydrogeologists around the world to simulate the flow of groundwater through aquifers.

As part of this effort, SEI has culled as much data and information as possible and is currently reaching out to member agencies to obtain the missing details for comprehensively developing the Yolo Subbasin Water Budget. The water budget information will include the quantification of current, historical, and projected water budgets at the subbasin-level (potentially management area-levels); an estimate of sustainable yield; and description of inflows, outflows, and change in storage. The model will also be used to evaluate candidate sustainable management criteria and projects and management actions to assess measure performance for achieving basin-wide sustainability. The Water Budget will take into consideration projected changes in climate, land use, and population, and will be calculated into the future for 50 years under several projections.

Cost Estimate: $443,452 ($208,719 Proposition 1 Grants Funds/$234,733 USDA Grant Funds)

Schedule: January – December 2018

DRAFT

MEMORANDUM

TO: YSGA BOARD OF DIRECTORS

FROM: YSGA STAFF

SUBJECT: HYDROGEOLOGIC CONCEPTUAL MODEL

DATE: JUNE 15, 2018

CC: YSGA WORKING GROUP

DRAFT

BACKGROUND

A Hydrogeologic Conceptual Model (HCM) provides a general understanding of the physical setting, characteristics, and processes that govern groundwater occurrence within the basin. Specifically, an HCM provides 1) an understanding of the general physical characteristics related to regional hydrology, land use, geology and geologic structure, water quality, principal aquifers, and principal aquitards of the basin setting; 2) the context to develop water budgets, mathematical (analytical or numerical) models, and monitoring networks; and 3) a tool for stakeholder outreach and communication (DWR HCM BMP, 2016).

GSP REGULATIONS

DWR's Groundwater Sustainability Plan (GSP) Regulations require that the GSP include a narrative and graphical form of an HCM that provides an overview of the physical basin characteristics and uses of groundwater in the basin and sets the stage for the basin setting (GSP Regs §354.14(a)). The two main types of information that must be included in the HCM:

1. The narrative and graphical representation must clearly portray the **geographic setting, regional geology, basin geometry, general water quality,** and **consumptive uses** in the basin.
2. A series of geographic maps and scaled cross-sections to provide a vertical layering representation and a geographic view of individual datasets including the **topography, geology, soils, recharge and discharge areas, source and point of delivery of imported water supplies,** and **surface water systems** that are significant to management of the basin (DWR HCM BMP, 2016).

YOLO SUBBASIN GSP PLANNING PROCESS

The YSGA has a significant amount of historical data, and numerous technical reports that were produced on behalf of the member agencies. Historical reports and empirical data that have been gathered will be the main source of information used to develop the HCM. A search of reports that have been created in the different parts of the Yolo Subbasin will be conducted during the development of the HCM and Water Budget.

Cost Estimate: $54,000 ($50,000 Proposition 1 Grants Funds/$4,000 Agency Cost Share)

Schedule: May – September 2018

DRAFT

MEMORANDUM

TO: YSGA BOARD OF DIRECTORS

FROM: YSGA STAFF

SUBJECT: STAKEHOLDER COMMUNICATION AND ENGAGEMENT

DATE: JUNE 15, 2018

CC: YSGA WORKING GROUP

DRAFT

BACKGROUND

Under the requirements of SGMA, Groundwater Sustainability Agencies (GSAs) must consider interests of all beneficial uses and users of groundwater. As a result, the GSP development needs to consider effects to other stakeholder groups in or around the groundwater basin with overlapping interests (DWR Guidance Document for GSP Stakeholder Communication and Engagement, 2018).

GSP REGULATIONS

DWR's Groundwater Sustainability Plan (GSP) Regulations require that GSAs document in a communication section of the GSP the opportunities for public engagement and active involvement of diverse social, cultural, and economic elements of the population within the subbasin (GSP Regs §354.10). A description of the beneficial uses and users of groundwater in the subbasin, including the land uses and property interests potentially affected by the use of groundwater in the basin, the types of parties representing those interests, and the nature of consultation with those parties must be documented in the GSP. Additionally, the GSP must include a list of public meetings, and all comments received and responses provided during GSP development.

GSP's Regulations require a communication section to include the following:

1. An explanation of the YSGA's decision-making process.
2. Identification of opportunities for public engagement and a discussion of how public input and response will be used.
3. A description of how the YSGA encourages the active involvement of diverse social, cultural, and economic elements of the population within the subbasin.
4. The method the YSGA shall follow to inform the public about progress implementing the Yolo Subbasin GSP, including the status of projects and actions.

YOLO SUBBASIN GSP PLANNING PROCESS

In addition to the members of the YSGA, all the landowners/groundwater users in the subbasin are considered stakeholders. During the formation of the YSGA, member agencies worked together to develop a list of

interested parties/stakeholders who were notified of meetings and workshops. Since the development of this stakeholder database, the YSGA has updated information on stakeholder participation and scheduled meetings.

Throughout the GSA formation process, stakeholder involvement was facilitated through conducting farmer surveys, information gathering meetings with YSGA entities, public SGMA workshops, and the development of groundwater management case studies. Additionally, the http://yologroundwater.org website has been and continues to be updated with pertinent meeting information.

The stakeholder communication and engagement portion of the Yolo Subbasin GSP is captured in two tasks of the GSP Work Plan: 1) Stakeholder Outreach and Engagement and 2) Public Notification and Communications.

1. The Stakeholder Outreach and Engagement task includes developing a stakeholder database, hosting participatory planning workshops, and coordinating with neighboring GSAs.
2. The Public Notification and Communications task includes updating the public website, developing a Communication and Engagement Plan, and conducting public workshops.

The YSGA will host six participatory planning workshops to facilitate the development and articulation of sustainable management criteria and the respective thresholds, along with projects and management actions that will be necessary for successful local management of the Yolo Subbasin.

The YSGA's Communication and Engagement Plan (Plan) will capture work that has already begun and will build upon previous progress to improve public understanding of the SGMA legislation. The Plan will also present opportunities for public involvement and the dissemination of information to the public. The Plan will likely elaborate on the outline below:

1. Set goals and desired outcomes
2. Identify audiences
3. Audience survey and mapping
4. Message and talking points
5. Venues for engaging
6. Implementation timeline
7. Evaluation and assessment (DWR Guidance Document for GSP Stakeholder Communication and Engagement, 2018).

Cost Estimate: $482,890

$93,281 Proposition 1 Grants Funds
$228,215 USDA Grant Funds
$161,394 Agency Cost Share = $90,794 Historical + $70,600 Future

Schedule: June 2017 – July 2020; Communication and Engagement Plan Draft expected *March 2019*

DRAFT

MEMORANDUM

TO: YSGA BOARD OF DIRECTORS

FROM: YSGA STAFF

SUBJECT: GROUNDWATER MONITORING AND REPORTING

DATE: JUNE 15, 2018

CC: YSGA WORKING GROUP

BACKGROUND

A monitoring network should promote the collection of data of sufficient quality, frequency, and distribution to characterize groundwater and related surface water conditions in the basin and evaluate changing conditions that occur through implementation of the GSP.

GSP REGULATIONS

DWR's Groundwater Sustainability Plan (GSP) Regulations require that the GSP include monitoring protocols adopted by the YSGA for data collection and management, as follows:

1. Monitoring protocols shall be developed according to best management practices.
2. The YSGA may rely on DWR's Monitoring Best Management Practices or may adopt similar monitoring protocols that will yield comparable data.
3. Monitoring protocols shall be reviewed at least every five years as part of the periodic evaluation of the Yolo Subbasin GSP, and modified as necessary. (GSP Regs § 352.2).
4. Monitoring protocols shall include a description of technical standards, data collection methods, and other procedures for monitoring sites (GSP Regs § 354.34).

Additionally, DWR's GSP Regulations require development of monitoring objectives and data reporting requirements for a monitoring network. The monitoring network should be capable of collecting sufficient data to demonstrate short-term, season, and long-term trends in groundwater and relates surface water conditions and yield representative information about groundwater conditions as necessary to evaluate GSP implementation (GSP Regs § 354.32 and § 354.34). The monitoring network objectives shall be implemented to accomplish the following:

1. Demonstrate progress towards achieving measurable objectives described in the GSP.
2. Monitor impacts to the beneficial uses and users of groundwater.
3. Monitor changes in groundwater conditions relative to measurable objectives and minimum thresholds.
4. Quantify annual changes in water budget components.

DRAFT

The YSGA shall determine the density of monitoring sites and frequency of measurements required to demonstrate short-term, seasonal, and long-term trends based on the following factors:

1. Amount of current and projected groundwater use.
2. Aquifer characteristics.
3. Impacts to beneficial uses and users of groundwater and land uses and project interests affected by groundwater production, and adjacent subbasins that could affect the ability of the subbasin to meet the sustainability goal.
4. Whether the YSGA has adequate long-term existing monitoring results to demonstrate an understanding of aquifer response. (GSP Regs § 354.34).

The Yolo Subbasin GSP shall describe the following information about the monitoring network:

1. Scientific rationale for the monitoring site selection process.
2. Consistency with data and reporting standards described in GSP Regs § 352.4 (Data and Reporting Standards).
3. For each sustainability indicator, the quantitative values for the minimum threshold, measurable objective, and interim milestone that will be measured at each monitoring site (or representative site). (GSP Regs § 354.34).

Each monitoring site shall be documented in the GSP on a map, and reported in tabular format, documenting the monitoring site type, frequency of measurement, and purposes for which the monitoring site is being used. The monitoring network must be designed to effectively monitor the sustainability indicators (GSP Regs § 354.34). If desired, the YSGA may designate representative monitoring sites based on requirements discussed in GSP Regulations § 354.36.

An evaluation of the monitoring network must be included in the GSP and each five-year assessment, including determination of uncertainty and whether data gaps affect the GSP in achieving the sustainability goal for the subbasin. The YSGA shall describe measures to fill data gaps before the next five-year assessment and shall adjust the monitoring frequency and distribution to provide an adequate level of detail about site-specific surface water and groundwater conditions and to assess the effectiveness of management actions discussed in GSP Regulations § 354.38.

The YSGA shall develop and maintain a data management system that that can store and report information relevant to the development or implementation of the GSP and monitoring of the Yolo Subbasin (GSP Regs § 352.6).

YOLO SUBBASIN GSP PLANNING PROCESS

The members of the YSGA have an extensive groundwater level monitoring network that has been utilized for over 60 years comprising over 450 monitoring, agricultural, and domestic wells. There are also 12 wells that are outfitted with continuous, real-time telemetry. The data gathered from each agency is currently reported to Max Stevenson (as administrator for the YSGA) and included in the Water Resources Information Database (WRID).

DRAFT

The groundwater monitoring and reporting portion of the Yolo Subbasin GSP is captured in two tasks of the GSP Work Plan: 1) Monitoring Network Update and 2) Data Management System Update.

1. The Monitoring Network Update task involves evaluating and comparing the Yolo Subbasin network wells to the Hydrogeologic Conceptual Model; this comparison will confirm whether the wells provide quality data for development of the sustainable management criteria and for monitoring of measurable objectives. This information will determine how best to upgrade the monitoring network and perform the monitoring required to implement the Yolo Subbasin GSP. Methods to gather missing information will consist of videoing wells, using Real Time Kinetic surveying, and gathering required data for wells missing identification numbers. To address existing data gaps, the YSGA will incorporate up to four real-time monitoring wells and up to ten bi-annual monitoring wells.
2. The Data Management System Update task involves updating the WRID to meet criteria required by SGMA and to enhance WRID functionality. The current WRID interface will be improved to facilitate public dissemination of data and to support the Public Notification and Communication task. The system will be updated to streamline data reporting to DWR for the Yolo Subbasin GSP.

Cost Estimate: $632,500

$386,000 Proposition 1 Grants Funds

$246,500 Agency Cost Share = $222,500 Historical + $24,000 Future

Schedule: February 2018 – September 2019

DRAFT

MEMORANDUM

TO: YSGA BOARD OF DIRECTORS

FROM: YSGA STAFF

SUBJECT: SURFACE WATER AND GROUNDWATER MODELING

DATE: JUNE 15, 2018

CC: YSGA WORKING GROUP

DRAFT

BACKGROUND

Sustainable groundwater management and policy decisions must be based on knowledge of the past and present behavior of the surface and groundwater system, the likely response to future changes and management actions, and the understanding of the uncertainty in those responses. Models provide an important framework that brings together conceptual understanding, data, and science in a hydrologically and geologically consistent manner. Constructing and calibrating the model improves understanding of the critical processes that influence sustainability indicators within the subbasin. In addition, models can estimate and reasonably bound future groundwater conditions, support decision-making about monitoring networks and management actions, and allow the exploration of alternative management approaches. (DWR's Modeling BMP, 2016).

GSP REGULATIONS

The use of models for developing a GSP is highly recommended, but not required. The use of a model will depend on the individual characteristics and complexity of the basin setting, the presence or absence of undesirable results, and the presence or absence of interconnected surface water systems. If a numerical groundwater and surface water model is not used to assess the depletions of interconnected surface water, the GSP must use and describe an equally effective method, tool, or analytical model to identify the location, quantity, and timing of depletions of interconnected surface water (GSP Regs § 354.28).

YOLO SUBBASIN GSP PLANNING PROCESS

As discussed in the Yolo Subbasin GSP: Water Budget Memo, the YSGA has chosen to work with the Stockholm Environment Institute (SEI) to develop the Yolo Subbasin Water Budget. SEI's Water Evaluation and Planning model (WEAP) simulates all processes in the hydrologic cycle and has been coupled with MODFLOW to more accurately simulate the groundwater system. MODFLOW is the USGS modular finite-difference flow model that is widely used by hydrogeologists around the world to simulate the flow of groundwater through aquifers.

The model and participatory workshops will also be used to evaluate candidate sustainable management criteria and projects and management actions to assess how suggested measures may perform as tools for achieving

basin-wide sustainability. The water budget simulations for future conditions will consider projected changes in climate, land use, and population for 50 years from present.

YSGA staff plan to work closely with DWR and The Nature Conservancy for determining the best model and representation of groundwater-surface water interaction in the Yolo Subbasin

Cost Estimate: Embedded in the Water Budget, HCM, Monitoring Network Update, and Stakeholder Communication and Engagement tasks.

Schedule: January 2018 – March 2020

DRAFT

MEMORANDUM

TO: YSGA BOARD OF DIRECTORS

FROM: YSGA STAFF

SUBJECT: SUSTAINABLE MANAGEMENT CRITERIA

DATE: JUNE 15, 2018

CC: YSGA WORKING GROUP

DRAFT

BACKGROUND

The Sustainable Management Criteria term collectively refers to the Sustainability Goal, Undesirable Results, Minimum Thresholds, and Measurable Objectives and is an assessment of sustainability indicators, significant and unreasonable conditions, management areas, and representative monitoring sites. Development of the Sustainable Management Criteria relies upon information about the subbasin developed in the hydrogeologic conceptual model, the description of current and historical groundwater conditions, and the water budget (DWR SMC BMP, 2017).

GSP REGULATIONS

DWR's Groundwater Sustainability Plan (GSP) Regulations contain specific requirements and metrics for each sustainability indicator (GSP Regs §354.28). GSP Regulations require six components of information be documented for each minimum threshold[1], and three components of information be documented for each undesirable result[2].

Specific requirements for the minimum threshold metrics used to quantify each sustainability indicator are listed below:

1. **Chronic lowering of groundwater levels**: a groundwater elevation measured at the representative monitoring site.
2. **Reduction of groundwater storage**: a volume of groundwater that can be withdrawn from the basin or management area, based on measurements from multiple representative monitoring sites, without leading to undesirable results.

[1] A minimum threshold is the quantitative value that represents the groundwater conditions at a representative monitoring site that, when exceeded individually or in combination with minimum thresholds at other monitoring sites, may cause an undesirable result(s) in the subbasin.

[2] Undesirable results occur when conditions related to any of the six sustainability indicators become significant and unreasonable.

3. **Degraded water quality**: water quality measurements that indicate degradation at the monitoring site (can be defined at a site, along the isocontour line, or as a calculated volume).
4. **Land subsidence**: a rate and the extent of land subsidence.
5. **Depletion of interconnected surface waters**: a rate or volume of surface water depletion.

All undesirable results will be based on minimum threshold exceedances and the Yolo Subbasin GSP must define when an undesirable result is triggered. Avoidance of the defined undesirable results must be achieved within 20 years of GSP implementation. (GSP Regs 354.26).

Measurable objectives[3] are set for each sustainability indicator at the same representative monitoring sites and using the same metrics as minimum thresholds. In addition, interim milestones must be defined in five-year increments. Interim milestones must be coordinated with projects and management actions proposed by the YSGA to achieve the sustainability goal. (GSP Regs 354.30).

As one of the final components of GSP development, the YSGA must define the sustainability goal for the entire Yolo Subbasin. The YSGA must succinctly state the objectives and desired conditions of the Yolo Subbasin, how the Subbasin will get to that desired condition, and why the measures planning will lead to success. The sustainability goal is supported by the locally-defined minimum thresholds and undesirable results. Demonstration of the absence of undesirable results supports a determination that the Subbasin is operating within its sustainable yield, and therefore, the sustainability goal has been achieved.

YOLO SUBBASIN GSP PLANNING PROCESS

The development of the Sustainable Management Criteria is a culmination of the Hydrogeologic Conceptual Model, Water Budget, Monitoring Network Update, Data Management System Update, and Stakeholder Communication and Engagement tasks. The results of the WEAP/MODFLOW model, the hydrogeologic conceptual model, and data collected from the monitoring network will be used to inform the stakeholders of current conditions within the subbasin and to provide input for the development of measurable objectives and minimum thresholds for each sustainability indicator.

The criteria will also be based on the information gathered during working group, committee, and entity meetings. After the measurable objectives and minimum thresholds have been established, it may be necessary for the YSGA to develop surface water and groundwater management actions designed to enable the YSGA to achieve its sustainability objectives and avoid the occurrence of undesirable results. These management actions will be evaluated by the YSGA members and may not be necessary for each management area.

Cost Estimate: $197,000 (work is also embedded in other tasks)
$75,000 Proposition 1 Grants Funds
$122,000 Agency Cost Share = $74,000 Historical (subsidence survey) + $48,000 Future

Schedule: September 2017 – September 2019 (originally estimated September 2017 – September 2018)

[3] Measurable objectives are quantitative goals that reflect the subbasin's desired groundwater conditions and allow the YSGA to achieve the sustainability goal.

DRAFT

CALIFORNIA DEPARTMENT OF WATER RESOURCES
SUSTAINABLE GROUNDWATER MANAGEMENT OFFICE

Groundwater Sustainability Agency (GSA) Frequently Asked Questions

The 2014 Sustainable Groundwater Management Act (SGMA) required the formation of groundwater sustainability agencies (GSAs) in the State's high- and medium-priority groundwater basins and subbasins (basins) by the statutory deadline of June 30, 2017. Over 260 GSAs in over 140 basins were formed by that initial planning milestone. However, as the priorities of some basins have changed and numerous requests for basin boundary modifications have been approved, new GSAs will continue to be formed and existing GSAs may adopt changes that must be reflected in DWR's SGMA Portal. Updated GSA Formation Guidelines are available on DWR's Groundwater Sustainability Agency webpage at: https://water.ca.gov/Programs/Groundwater-Management/SGMA-Groundwater-Management.

The following responses and revisions to select frequently asked questions are intended to provide general guidance on new GSA formation, as well as provide information and procedures that should be considered when GSAs modify previously-posted notices. This information is subject to change and replaces the GSA frequently asked questions document published by DWR on January 7, 2016. All GSA notifications are managed on DWR's SGMA Portal, which is available here: https://sgma.water.ca.gov/portal/#gsa.

INITIAL GSA FORMATION NOTIFICATIONS

1. Are low- and very-low-priority basins subject to the same GSA formation requirements and SGMA timelines as high- and medium-priority basins?

No. Low- and very-low-priority basins are not required to form GSAs or develop groundwater sustainability plans (GSPs), but local agencies in those basins are encouraged and authorized to do so. Intervention by the State Water Resources Control Board (State Water Board) does not apply to a basin designated as low or very-low priority. Local agencies in low- and very-low-priority basins can form GSAs and develop GSPs on their own schedule or can update existing (or prepare new) groundwater management plans pursuant to Water Code, Division 6, Part 2.75 (*see* Wat. Code, §§ 10720.7, 10723 *et seq*., 10750 *et seq*.).

2. What are the SGMA requirements if an existing high- or medium-priority basin was reprioritized to low or very-low priority?

A low- or very-low-priority basin is not required to form a GSA or develop a GSP (see Question 1). If a GSA was formed in a high- or medium-priority basin and that basin was reprioritized to low or very-low, the GSA or GSAs in that basin may decide to continue to operate as one or more GSAs and adopt one or more GSPs, but they are not required to. A GSA must notify DWR if it elects to withdraw from managing a basin (*see* Wat. Code, § 10723.8(e)).

3. Which local agencies are eligible to be GSAs?

SGMA defines a "local agency" to mean *a local public agency that has water supply, water management, or land use responsibilities within a groundwater basin* (*see* Wat. Code, § 10721(n)). Any local agency or combination of local agencies overlying a groundwater basin is eligible to become a GSA for that basin.

The State Water Board addresses GSA eligibility questions on its Groundwater Management Program website: https://www.waterboards.ca.gov/water_issues/programs/gmp/eligibility.html

4. What role do mutual water companies or water corporations play in GSA formation?

A water corporation regulated by the Public Utilities Commission or a mutual water company may *participate* in a GSA that has been formed by a local agency or a combination of local agencies, but only a local agency may *form* a GSA. The authorities conferred upon a GSA by SGMA are not conferred to a nongovernmental entity through participation in a GSA (*see* Wat. Code, §§ 10723, 10723.6).

5. Upon deciding to become or form a GSA, what information must a local agency submit to have a complete GSA formation notice?

Within 30 days of deciding to become or form a GSA, the local agency or combination of local agencies shall inform DWR of its decision and its intent to undertake sustainable groundwater management. The notification shall contain all the information required by Water Code section 10723.8(a). DWR will compare maps and GIS shapefiles to determine if a proposed GSA has attempted to form outside of a groundwater basin, is proposing to become a GSA in an area that has already become exclusive to another local agency, or has formed in areas that exceed a local agency's ability to impose fees or regulatory requirements, which may be identified as unmanaged areas by the State Water Board. The GSA formation notice will be reviewed for completeness by DWR staff and, if complete, will be posted on DWR's SGMA Portal and GSA Map Viewer. (*See* Wat. Code, §§ 10721, 10723 *et seq*., and 10726.8.)

6. When does the decision to become a GSA take effect?

For local agencies not deemed exclusive by Water Code section 10723(c), the decision to become a GSA will take effect 90 days after DWR posts the initial notice, provided that no other local agency has filed a GSA formation notice that overlaps all or a portion of the same area within that 90-day period. If overlap is resolved after the 90-day period, the decision to become a GSA will be effective immediately if all applicable Water Code requirements have been met (*see* Wat. Code, § 10723.8). DWR tracks GSA formation overlap and identifies exclusive GSAs on the SGMA Portal. For agencies listed in Water Code section 10723(c), the decision to become a GSA takes effect, within reported statutory boundaries, upon submission of a complete GSA notice to DWR. (*See* Wat. Code, §§ 10723(c), 10723(d), 10723.8, and 10726.8(b).)

7. Must the exclusive local agencies listed in Water Code section 10723 file a GSA formation notice?

Yes. SGMA identifies 18 exclusive local agencies created by statute to manage groundwater that are "deemed exclusive" within their respective statutory boundaries. The "deemed exclusive" status protects the statutory boundaries of the named local agency from encroachment by another local agency seeking to form a GSA. However, a "deemed exclusive" local agency must either notify DWR of

its intent to form a GSA or of its decision to opt-out of being the exclusive GSA. If a "deemed exclusive" local agency submits a notice of intent to form a GSA, because there is no 90-day waiting period during which another agency may file an overlapping notice, the "deemed exclusive" local agency shall be identified as the exclusive GSA as soon as DWR posts that notice. On the other hand, if a "deemed exclusive" agency notifies DWR of its decision to opt out of being the exclusive groundwater management agency, another local agency may file a notice for the area within the statutory boundaries of the "deemed exclusive" local agency (*see* Wat. Code, § 10723(c)).

8. What is an exclusive GSA?

An exclusive GSA is the sole GSA with jurisdiction over the area of a basin that the local agency is managing that is within the service area of the local agency (*see* Wat. Code, § 10723.8(d)). A local agency is presumed to be an exclusive GSA if no other local agency submits a GSA notice indicating an intent to manage some or all of the same area within 90 days of the first agency's notification, or if an overlap situation occurs within 90 days but has been resolved. Once a GSA becomes exclusive DWR will not post another GSA formation notification that covers any portion of an exclusive area (*see* Wat. Code, §§ 10723(c), 10723(d), 10723.8, and 10726.8(b)). Note that local agencies that are "deemed exclusive" by Water Code section 10723(c) are not exclusive GSA's until deciding to form a GSA and providing notice of that decision to DWR.

9. What is "overlap" and how is it created?

If two or more local agencies submit a notice of intent to undertake groundwater management in all or a portion of the same area of a basin within 90 days of the initial posted notice, areas claimed by multiple agencies creates "overlap" that must be resolved before the decision of any of the overlapping agencies to become a GSA can take effect (*see* Wat. Code, § 10723.8). Local agencies are strongly encouraged to collaborate and coordinate their GSA formation efforts prior to submitting a notice to DWR. (Note that overlap does not apply within the statutory jurisdiction of local agencies "deemed exclusive" by Water Code section 10723(c), providing they do not "opt out" of forming a GSA.)

10. How is overlap resolved?

Overlap can be resolved by providing written notice to DWR of an intent to withdraw or modify a posted GSA formation notice to eliminate any overlap in the area proposed to be managed. A notice may be modified if it does not involve a "material change" from the information in the posted notice. If a local agency determines that eliminating the overlap results in a "material change" to its GSA notice, the agency must withdraw the original notice and submit a new notification. A local agency can withdraw a notice using the "Withdraw" function in the SGMA Portal, which will move the GSA formation notice to the "All Withdrawn GSAs" list. That agency will then have to submit a new notice for a new GSA. If a local agency determines that modification to its GSA notice does not constitute a "material change" from the information in the posted notice, that agency can modify its posted notice by logging into the SGMA Portal and uploading necessary changes, which could involve revised maps, GIS shapefiles, resolutions or legal agreements. It is up to a local agency(s) to determine what constitutes a material change when modifying a posted notice. Additional information about modifying posted notices is included in the responses to Questions 20, 21 and 22. (*See* Wat. Code, § 10723 et seq.)

11. Can a local agency form a GSA for a portion of a basin located outside its boundaries?

SGMA states that any local agency or combination of local agencies overlying a groundwater basin may decide to become a GSA for that basin (*see* Wat. Code, § 10723(a)). However, a GSA will only be "exclusive" within the area of the basin within the service area of the local agency that the local agency is managing as described in the initial GSA notice (*see* Wat. Code, § 10723(d)). Furthermore, nothing in the Water Code authorizes a local agency to make a binding determination of the water rights of any person or entity, or to impose fees or regulatory requirements, on activities outside the boundaries of the local agency (*see* Wat. Code, § 10726.8(b)).

Please see Question 2 on the State Water Board's "*Frequently Asked Questions on Groundwater Sustainability Agencies*" document dated November 22, 2017, for a discussion of how the inclusion of areas outside the boundaries of a local agency may be deemed unmanaged by the Board: https://www.waterboards.ca.gov/water_issues/programs/gmp/docs/eligbility/gsa_faq.pdf

12. If overlap in a basin is not resolved will the county be the GSA in the disputed area?

Overlaps occurs if two or more local agencies (including a county) submit a GSA formation notification in all or a portion of the same area in a basin within 90 days of the initial posted notice (see Question 9). If overlap exists, the decision to become a GSA will not take effect unless the overlap is eliminated, potentially creating unmanaged areas in a basin if statutory deadlines have passed. SGMA provides that if there is an area within a high- or medium-priority basin that is not within the management area of an established GSA, the county within which that unmanaged area lies will be presumed to be the GSA for that area (*see* Wat. Code, § 10724(a)). DWR does not regard this provision to apply in situations where a county is responsible for creating the overlap. In the unmanaged areas where the county is presumed to be the GSA, the county must follow the same public notification procedures applicable to all local agencies seeking to become a GSA and submit that notice and other information required by SGMA to DWR (*see* Wat. Code, §§ 10723(b) and 10723.8(a)). However, a county is not required to become a GSA for unmanaged areas and may notify DWR in writing that it will not be the GSA for those unmanaged areas.

Please see Questions 3, 4, and 5 on the State Water Board's "*Frequently Asked Questions on Groundwater Sustainability Agencies*" document dated November 22, 2017. These questions address the State Water Board's opinion related to unmanaged areas and can be read here: https://www.waterboards.ca.gov/water_issues/programs/gmp/docs/eligbility/gsa_faq.pdf

13. What happens if an entire basin is not covered by a GSA(s) by the statutory deadlines?

If a high- or medium-priority basin is not entirely covered by one or more GSAs by the applicable statutory deadline, and no Alternative has been submitted for that basin, the State Water Board, after notice and a public hearing, may designate the basin as probationary (*see* Wat. Code, § 10735.2) and may require the reporting of groundwater extractions (*see* Wat. Code, § 5202).

The State Water Board has developed an interactive *Unmanaged Area Identification Map* that shows the location of unmanaged areas and has provided information related to State intervention on its Groundwater Management Program website. Please review the information on the following website: https://www.waterboards.ca.gov/water_issues/programs/gmp/

14. Must a GSA be formed if a local agency wants to prepare and submit an Alternative Plan, as described in Water Code section 10733.6?

No, but a local agency, including the exclusive local agencies identified in Water Code section 10723(c), must be able to prepare an Alternative Plan for the *entire* basin and submit that Alternative Plan to DWR for review by January 1, 2017, or within two years of being reprioritized as a high- or medium-priority basin. Conversely, if so desired, a GSA can be formed in a basin and that GSA can submit an Alternative Plan rather than a GSP. (*See* Wat. Code, §§ 10723(c), 10733.6.)

15. Must a GSA be formed if portions of a basin are not adjudicated?

A high- or medium-priority basin that includes adjudicated areas must be managed under a GSP or coordinated GSPs, or an Alternative, even though the adjudicated areas already have reporting requirements defined in SGMA (*see* Wat. Code, § 10720.8).

16. Must a local agency exclude federal and tribal lands from its service area when forming a GSA?

No local agency is required to include any particular area within the boundaries of a GSA that it forms; however, SGMA applies to all groundwater basins in California including, to the extent authorized under federal or tribal law, Indian tribes and the federal government (*see* Wat. Code, § 10720.3), and requires that a GSP or combination of GSPs cover the "entire basin" (*see* Wat. Code, §§ 10727, 10733.4). If a GSA includes federal or tribal lands within the boundaries of its GSA, SGMA provides that the federal government or any federally recognized Indian tribe may voluntarily agree to participate in the preparation or administration of a GSP, based on their independent authority.

17. What are the stakeholder outreach responsibilities for local agencies and GSAs?

Prior to initiating the development of a GSP, the GSA shall make available to the public and DWR a written statement describing the manner in which interested parties may participate in the development and implementation of the GSP. In addition, a GSA is authorized to appoint and consult with an advisory committee consisting of interested parties for the purposes of developing and implementing a GSP. SGMA also requires a GSA to encourage the active involvement of diverse social, cultural, and economic elements of the population within the groundwater basin prior to and during the development and implementation of the GSP. (*See* Wat. Code, § 10727.8).

Prior to deciding to become a GSA, a local agency must hold one or more noticed public hearings (*see* Wat. Code, § 10723(b)). SGMA also requires a GSA to consider the interests of all beneficial uses and users of groundwater (*see* Wat. Code, § 10732.2) and to establish and maintain a list of interested persons (*see* Wat. Code, § 10723.4). SGMA authorizes a GSA to allow a water corporation or a mutual water company to participate in the GSA (*see* Wat. Code, § 10723.6). SGMA does not specify how the

GSA undertakes these responsibilities, but compliance with these requirements may provide an opportunity for public participation.

18. When does a GSA get the powers and authorities defined in SGMA?

As stated in Water Code section 10725, a GSA may exercise any of the powers described in Chapter 5 of SGMA, in addition to, and not as a limitation on, any existing authority, if the GSA adopts and submits to DWR a GSP or an Alternative Plan.

19. What are the GSA formation deadlines for basins that were re-prioritized in 2019?

If the priority of a basin changes from low or very-low to medium or high after January 31, 2015, a local agency or combination of local agencies overlying a groundwater basin shall have two years from the date of reprioritization to either establish a GSA or to submit an Alternative to DWR (*see* Wat. Code, § 10722.4(d)(1)). A GSA shall have five years from the date of reprioritization to manage the basin under a GSP (*see* Wat. Code, §10722.4(d)(2)).

MODIFIED GSA FORMATION NOTIFICATIONS

20. Can GSAs in a basin change or restructure after June 30, 2017?

SGMA does not preclude a GSA from making changes to its organizational structure. If a GSA modifies any of the information that SGMA requires be provided to DWR, the GSA will need to submit copies of the amended information to DWR once the decision to restructure a GSA has been finalized. All modifications to a GSA's posted notice must be made through the SGMA Portal. (*See* Wat. Code, §§ 10723 *et seq*., 10726.8, 10728, 10728.2, 10733 *et seq*. and 10735.2.)

21. Once a GSA is formed how can it be modified?

In order to modify a GSA formation notice posted on the SGMA Portal, an authorized user must log into the GSA Formation System, make a determination that the modifications do or do not represent a material change, upload or replace necessary information, and resubmit that notification to DWR for a completeness review. If a GSA wants to modify its boundaries or extend into an adjacent basin, it may require a coordinated effort by multiple GSAs if exclusive GSA boundaries have been established. At the time of this Frequently Asked Questions update, GSAs have inquired about making modifications related to the following scenarios. Each of these scenarios could warrant a GSA modification.

- A local agency has annexed additional land within a basin and wants to include that new land within its GSA. This will require coordination between the affected GSAs.
- The boundaries of a basin have changed and a GSA wants to update its GIS shapefiles to reflect management intent. A GSP Initial Notification may need to be updated, too.
- A GSA with multiple notices in a single basin wants to consolidate its notifications. This will require notifications to be withdrawn and/or modified.
- Two or more existing GSAs want to replace their individual efforts with a joint powers agreement (JPA) – in this case the JPA will be the GSA.
- An existing GSA, which was formed using a JPA or some other legal agreement, wants to add or remove members and associated service area into or from its GSA boundary. This action could require existing notifications to be modified and potentially new notices posted.

- A local agency created a GSA in areas that exceeded its jurisdiction and wants to modify its boundaries to reflect those areas it has the authority to regulate.
- A GSA formed by a memorandum of agreement (MOA) or other legal agreement wants to strengthen its governance structure by replacing it with a JPA.
- The members of a GSA formed by a legal agreement want to disband that coordinated governance structure and become individual GSAs. This action could require the posting of new notices.
- The name of a basin has changed and a GSA needs to reflect that change in an existing resolution or legal agreement. Local agencies should follow their own legal guidelines and processes when making these decisions.

22. Will modifications to an exclusive GSA notice create a new 90-day "waiting period" for the revisions to take effect?

The 90-day waiting period is imposed by SGMA following DWR's posting of the initial GSA notice submitted by a local agency, which gives other local agencies in the basin an opportunity to file GSA notices that overlap the original notice. Because notices to modify an existing GSA are not initial notices, the 90-day waiting period does not automatically apply. However, if a GSA determines that the necessary modifications involve a material change from the information in the posted notice, then the initial GSA notice should be withdrawn and a new notice should be submitted, which would trigger a new 90-day period (*see* Wat. Code, § 10723.8(c)). See also the responses to Questions 6, 7, and 10.

CONTACT US

To learn more about SGMA and GSA formation, please visit DWR's Groundwater Management website: https://www.water.ca.gov/Programs/Groundwater-Management.

Additional questions related to GSAs and DWR's role in posting complete GSA formation notices may be directed to Mark Nordberg, GSA Project Manager, at (916) 651-9673 or Mark.Nordberg@water.ca.gov, or by contacting DWR's Region Offices at sgmp_rc@water.ca.gov.

CALIFORNIA CODE OF REGULATIONS
TITLE 23. WATERS
DIVISION 2. DEPARTMENT OF WATER RESOURCES
CHAPTER 1.5. GROUNDWATER MANAGEMENT
SUBCHAPTER 2. GROUNDWATER SUSTAINABILITY PLANS

ARTICLE 1. Introductory Provisions

§ 350. Authority and Purpose

These regulations specify the components of groundwater sustainability plans, alternatives to groundwater sustainability plans, and coordination agreements prepared pursuant to the Sustainable Groundwater Management Act (Part 2.74 of Division 6 of the Water Code, beginning with Section 10720), and the methods and criteria used by the Department to evaluate those plans, alternatives, and coordination agreements, and information required by the Department to facilitate that evaluation.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10733.2 and 10733.4, Water Code.

§ 350.2. Applicability

(a) The process and standards for an Agency to develop and submit a Plan for evaluation by the Department, and for Department evaluation of that Plan and its implementation, as described in these regulations, are also applicable to multiple Agencies developing multiple Plans, as described in Article 8, and to entities submitting Alternatives, as described in Article 9.

(b) Unless as otherwise noted, section references in these regulations refer to this Subchapter.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10727.6, 10733.2, 10733.4, and 10733.6, Water Code.

§ 350.4. General Principles

Consistent with the State's interest in groundwater sustainability through local management, the following general principles shall guide the Department in the implementation of these regulations.

(a) Groundwater conditions must be adequately defined and monitored to demonstrate that a Plan is achieving the sustainability goal for the basin, and the Department will evaluate the level of detail provided considering the basin setting.

(b) To comply with the Department's statutory mandate to evaluate Plans, Plan implementation, and the effect on Plan implementation on adjacent basins, Plan content information must be sufficiently detailed and readily comparable.

(c) The Department shall evaluate the adequacy of all Plans, including subsequent modifications to Plans, and reports and periodic evaluations based on a substantial compliance standard as described in Article 6, provided that the objectives of the Act are satisfied.

(d) Sustainable management criteria and projects and management actions shall be commensurate with the level of understanding of the basin setting, based on the level of uncertainty and data gaps, as reflected in the Plan.

(e) An Agency shall have the responsibility for adopting a Plan that defines the basin setting and establishes criteria that will maintain or achieve sustainable groundwater management, and the Department shall have the ongoing responsibility to evaluate the adequacy of that Plan and the success of its implementation.

(f) A Plan will be evaluated, and its implementation assessed, consistent with the objective that a basin be sustainably managed within 20 years of Plan implementation without adversely affecting the ability of an adjacent basin to implement its Plan or achieve and maintain its sustainability goal over the planning and implementation horizon.

(g) The Department shall consider the state policy regarding the human right to water when implementing these regulations.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 106.3, 113, 10720.1, 10720.9, 10727.6, 10733, and 10733.2, Water Code.

ARTICLE 2. Definitions

§ 351. Definitions

The definitions in the Sustainable Groundwater Management Act, Bulletin 118, and Subchapter 1 of this Chapter, shall apply to these regulations. In the event of conflicting definitions, the definitions in the Act govern the meanings in this Subchapter. In addition, the following terms used in this Subchapter have the following meanings:

(a) "Agency" refers to a groundwater sustainability agency as defined in the Act.

(b) "Agricultural water management plan" refers to a plan adopted pursuant to the Agricultural Water Management Planning Act as described in Part 2.8 of Division 6 of the Water Code, commencing with Section 10800 et seq.

(c) "Alternative" refers to an alternative to a Plan described in Water Code Section 10733.6.

(d) "Annual report" refers to the report required by Water Code Section 10728.

(e) "Baseline" or "baseline conditions" refer to historic information used to project future conditions for hydrology, water demand, and availability of surface water and to evaluate potential sustainable management practices of a basin.

(f) "Basin" means a groundwater basin or subbasin identified and defined in Bulletin 118 or as modified pursuant to Water Code 10722 et seq.

(g) "Basin setting" refers to the information about the physical setting, characteristics, and current conditions of the basin as described by the Agency in the hydrogeologic conceptual model, the groundwater conditions, and the water budget, pursuant to Subarticle 2 of Article 5.

(h) "Best available science" refers to the use of sufficient and credible information and data, specific to the decision being made and the time frame available for making that decision, that is consistent with scientific and engineering professional standards of practice.

(i) "Best management practice" refers to a practice, or combination of practices, that are designed to achieve sustainable groundwater management and have been determined to be technologically and economically effective, practicable, and based on best available science.

(j) "Board" refers to the State Water Resources Control Board.

(k) "CASGEM" refers to the California Statewide Groundwater Elevation Monitoring Program developed by the Department pursuant to Water Code Section 10920 et seq., or as amended.

(l) "Data gap" refers to a lack of information that significantly affects the understanding of the basin setting or evaluation of the efficacy of Plan implementation, and could limit the ability to assess whether a basin is being sustainably managed.

(m) "Groundwater dependent ecosystem" refers to ecological communities or species that depend on groundwater emerging from aquifers or on groundwater occurring near the ground surface.

(n) "Groundwater flow" refers to the volume and direction of groundwater movement into, out of, or throughout a basin.

(o) “Interconnected surface water” refers to surface water that is hydraulically connected at any point by a continuous saturated zone to the underlying aquifer and the overlying surface water is not completely depleted.

(p) “Interested parties” refers to persons and entities on the list of interested persons established by the Agency pursuant to Water Code Section 10723.4.

(q) “Interim milestone” refers to a target value representing measurable groundwater conditions, in increments of five years, set by an Agency as part of a Plan.

(r) “Management area” refers to an area within a basin for which the Plan may identify different minimum thresholds, measurable objectives, monitoring, or projects and management actions based on differences in water use sector, water source type, geology, aquifer characteristics, or other factors.

(s) “Measurable objectives” refer to specific, quantifiable goals for the maintenance or improvement of specified groundwater conditions that have been included in an adopted Plan to achieve the sustainability goal for the basin.

(t) “Minimum threshold” refers to a numeric value for each sustainability indicator used to define undesirable results.

(u) “NAD83” refers to the North American Datum of 1983 computed by the National Geodetic Survey, or as modified.

(v) “NAVD88” refers to the North American Vertical Datum of 1988 computed by the National Geodetic Survey, or as modified.

(w) “Plain language” means language that the intended audience can readily understand and use because that language is concise, well-organized, uses simple vocabulary, avoids excessive acronyms and technical language, and follows other best practices of plain language writing.

(x) “Plan” refers to a groundwater sustainability plan as defined in the Act.

(y) “Plan implementation” refers to an Agency’s exercise of the powers and authorities described in the Act, which commences after an Agency adopts and submits a Plan or Alternative to the Department and begins exercising such powers and authorities.

(z) “Plan manager” is an employee or authorized representative of an Agency, or Agencies, appointed through a coordination agreement or other agreement, who has been delegated management authority for submitting the Plan and serving as the point of contact between the Agency and the Department.

(aa) “Principal aquifers” refer to aquifers or aquifer systems that store, transmit, and yield significant or economic quantities of groundwater to wells, springs, or surface water systems.

(ab) “Reference point” refers to a permanent, stationary and readily identifiable mark or point on a well, such as the top of casing, from which groundwater level measurements are taken, or other monitoring site.

(ac) “Representative monitoring” refers to a monitoring site within a broader network of sites that typifies one or more conditions within the basin or an area of the basin.

(ad) “Seasonal high” refers to the highest annual static groundwater elevation that is typically measured in the Spring and associated with stable aquifer conditions following a period of lowest annual groundwater demand.

(ae) “Seasonal low” refers to the lowest annual static groundwater elevation that is typically measured in the Summer or Fall, and associated with a period of stable aquifer conditions following a period of highest annual groundwater demand.

(af) “Seawater intrusion” refers to the advancement of seawater into a groundwater supply that results in degradation of water quality in the basin, and includes seawater from any source.

(ag) “Statutory deadline” refers to the date by which an Agency must be managing a basin pursuant to an adopted Plan, as described in Water Code Sections 10720.7 or 10722.4.

(ah) “Sustainability indicator” refers to any of the effects caused by groundwater conditions occurring throughout the basin that, when significant and unreasonable, cause undesirable results, as described in Water Code Section 10721(x).

(ai) “Uncertainty” refers to a lack of understanding of the basin setting that significantly affects an Agency’s ability to develop sustainable management criteria and appropriate projects and management actions in a Plan, or to evaluate the efficacy of Plan implementation, and therefore may limit the ability to assess whether a basin is being sustainably managed.

(aj) “Urban water management plan” refers to a plan adopted pursuant to the Urban Water Management Planning Act as described in Part 2.6 of Division 6 of the Water Code, commencing with Section 10610 et seq.

(ak) “Water source type” represents the source from which water is derived to meet the applied beneficial uses, including groundwater, recycled water, reused water, and surface water sources identified as Central Valley Project, the State Water Project, the Colorado River Project, local supplies, and local imported supplies.

(al) “Water use sector” refers to categories of water demand based on the general land uses to which the water is applied, including urban, industrial, agricultural, managed wetlands, managed recharge, and native vegetation.

(am) “Water year” refers to the period from October 1 through the following September 30, inclusive, as defined in the Act.

(an) “Water year type” refers to the classification provided by the Department to assess the amount of annual precipitation in a basin.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 25, 10720.7, 10721, 10722, 10722.4, 10723, 10727.2, 10728, 10729, 10733.2, 10733.6, and 10924, Water Code.

ARTICLE 3. Technical and Reporting Standards

§ 352. Introduction to Technical and Reporting Standards

This Article describes the monitoring protocols, standards for monitoring sites, and other technical elements related to the development or implementation of a Plan.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Section 10733.2, Water Code.

§ 352.2. Monitoring Protocols

Each Plan shall include monitoring protocols adopted by the Agency for data collection and management, as follows:

(a) Monitoring protocols shall be developed according to best management practices.

(b) The Agency may rely on monitoring protocols included as part of the best management practices developed by the Department, or may adopt similar monitoring protocols that will yield comparable data.

(c) Monitoring protocols shall be reviewed at least every five years as part of the periodic evaluation of the Plan, and modified as necessary.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10727.2, 10728.2, 10729, and 10733.2, Water Code.

§ 352.4. Data and Reporting Standards

(a) The following reporting standards apply to all categories of information required of a Plan, unless otherwise indicated:

(1) Water volumes shall be reported in acre-feet.

(2) Surface water flow shall be reported in cubic feet per second and groundwater flow shall be reported in acre-feet per year.

(3) Field measurements of elevations of groundwater, surface water, and land surface shall be measured and reported in feet to an accuracy of at least 0.1 feet relative to NAVD88, or another national standard that is convertible to NAVD88, and the method of measurement described.

(4) Reference point elevations shall be measured and reported in feet to an accuracy of at least 0.5 feet, or the best available information, relative to NAVD88, or another national standard that is convertible to NAVD88, and the method of measurement described.

(5) Geographic locations shall be reported in GPS coordinates by latitude and longitude in decimal degree to five decimal places, to a minimum accuracy of 30 feet, relative to NAD83, or another national standard that is convertible to NAD83.

(b) Monitoring sites shall include the following information:

(1) A unique site identification number and narrative description of the site location.

(2) A description of the type of monitoring, type of measurement taken, and monitoring frequency.

(3) Location, elevation of the ground surface, and identification and description of the reference point.

(4) A description of the standards used to install the monitoring site. Sites that do not conform to best management practices shall be identified and the nature of the divergence from best management practices described.

(c) The following standards apply to wells:

(1) Wells used to monitor groundwater conditions shall be constructed according to applicable construction standards, and shall provide the following information in both tabular and geodatabase-compatible shapefile form:

(A) CASGEM well identification number. If a CASGEM well identification number has not been issued, appropriate well information shall be entered on forms made available by the Department, as described in Section 353.2.

(B) Well location, elevation of the ground surface and reference point, including a description of the reference point.

(C) A description of the well use, such as public supply, irrigation, domestic, monitoring, or other type of well, whether the well is active or inactive, and whether the well is a single, clustered, nested, or other type of well.

(D) Casing perforations, borehole depth, and total well depth.

(E) Well completion reports, if available, from which the names of private owners have been redacted.

(F) Geophysical logs, well construction diagrams, or other relevant information, if available.

(G) Identification of principal aquifers monitored.

(H) Other relevant well construction information, such as well capacity, casing diameter, or casing modifications, as available.

(2) If an Agency relies on wells that lack casing perforations, borehole depth, or total well depth information to monitor groundwater conditions as part of a Plan, the Agency shall describe a schedule for acquiring monitoring wells with the necessary information, or demonstrate to the Department that such information is not necessary to understand and manage groundwater in the basin.

(3) Well information used to develop the basin setting shall be maintained in the Agency's data management system.

(d) Maps submitted to the Department shall meet the following requirements:

(1) Data layers, shapefiles, geodatabases, and other information provided with each map, shall be submitted electronically to the Department in accordance with the procedures described in Article 4.

(2) Maps shall be clearly labeled and contain a level of detail to ensure that the map is informative and useful.

(3) The datum shall be clearly identified on the maps or in an associated legend.

(e) Hydrographs submitted to the Department shall meet the following requirements:

(1) Hydrographs shall be submitted electronically to the Department in accordance with the procedures described in Article 4.

(2) Hydrographs shall include a unique site identification number and the ground surface elevation for each site.

(3) Hydrographs shall use the same datum and scaling to the greatest extent practical.

(f) Groundwater and surface water models used for a Plan shall meet the following standards:

(1) The model shall include publicly available supporting documentation.

(2) The model shall be based on field or laboratory measurements, or equivalent methods that justify the selected values, and calibrated against site-specific field data.

(3) Groundwater and surface water models developed in support of a Plan after the effective date of these regulations shall consist of public domain open-source software.

(g) The Department may request data input and output files used by the Agency, as necessary. The Department may independently evaluate the appropriateness of model results relied upon by the Agency, and use that evaluation in the Department's assessment of the Plan.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10727.2, 10727.6, and 10733.2, Water Code.

§ 352.6. Data Management System

Each Agency shall develop and maintain a data management system that is capable of storing and reporting information relevant to the development or implementation of the Plan and monitoring of the basin.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10727.2, 10728, 10728.2, and 10733.2, Water Code.

ARTICLE 4. Procedures

§ 353. Introduction to Procedures

This Article describes various procedural issues related to the submission of Plans and public comment to those Plans.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Section 10733.2, Water Code.

§ 353.2. Information Provided by the Department

(a) The Department shall make forms and instructions for submitting Plans, reports, and other information available on its website.

(b) The Department shall provide information, to the extent available, to assist Agencies in the preparation and implementation of Plans, which shall be posted on the Department's website.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10729 and 10733.2, Water Code

§ 353.4. Reporting Provisions

Information required by the Act or this Subchapter, including Plans, Plan amendments, annual reports, and five-year assessments, shall be submitted by each Agency to the Department as follows:

(a) Materials shall be submitted electronically to the Department through an online reporting system, in a format provided by the Department as described in Section 353.2.

(b) Submitted materials shall be accompanied by a transmittal letter signed by the plan manager or other duly authorized person.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10728, 10728.2, 10733.2, 10733.4, 10733.6, 10733.8, and 10737.4, Water Code.

§ 353.6. Initial Notification

(a) Each Agency shall notify the Department, in writing, prior to initiating development of a Plan. The notification shall provide general information about the Agency's process for developing the Plan, including the manner in which interested parties may contact the Agency and participate in the development and implementation of the Plan. The Agency shall make the information publicly available by posting relevant information on the Agency's website.

(b) The Department shall post the initial notification required by this Section, including Agency contact information, on the Department's website within 20 days of receipt.

(c) Upon request, prior to adoption of a Plan, the Department shall provide assistance to an Agency regarding the elements of a Plan required by the Act and this Subchapter, however, the Agency is solely responsible for the development, adoption, and implementation of a Plan that satisfies the requirements of the Act and this Subchapter.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10723.4, 10727.8, 10729, and 10733.2, Water Code.

§ 353.8. Comments

(a) Any person may provide comments to the Department regarding a proposed or adopted Plan.

(b) Pursuant to Water Code Section 10733.4, the Department shall establish a comment period of no less than 60 days for an adopted Plan that has been accepted by the Department for evaluation pursuant to Section 355.2.

(c) In addition to the comment period required by Water Code Section 10733.4, the Department shall accept comments on an Agency's decision to develop a Plan as described in Section 353.6, including comments on elements of a proposed Plan under consideration by the Agency.

(d) Comments shall be submitted to the Department by written notice, with a duplicate copy of the comment provided to the Agency. Organizations or government entities providing comments shall include the name, address, and electronic mail address, if available, of the person or entity providing the comments and information.

(e) Comments received by the Department shall be posted on the Department's website.

(f) The Department is not required to respond to comments, but shall consider comments as part of its evaluation of a Plan.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10727.8, 10733.2, and 10733.4, Water Code.

§ 353.10. Withdrawal or Amendment of Plan

An Agency may withdraw a Plan at any time by providing written notice to the Department, and may amend a Plan at any time pursuant to the requirements of Section 355.10.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10728.4 and 10733.2, Water Code.

ARTICLE 5. Plan Contents

§ 354. Introduction to Plan Contents

This Article describes the required contents of Plans submitted to the Department for evaluation, including administrative information, a description of the basin setting, sustainable management criteria, description of the monitoring network, and projects and management actions.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Section 10733.2, Water Code.

SUBARTICLE 1. Administrative Information

§ 354.2. Introduction to Administrative Information

This Subarticle describes information in the Plan relating to administrative and other general information about the Agency that has adopted the Plan and the area covered by the Plan.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Section 10733.2, Water Code.

§ 354.4. General Information

Each Plan shall include the following general information:

(a) An executive summary written in plain language that provides an overview of the Plan and description of groundwater conditions in the basin.

(b) A list of references and technical studies relied upon by the Agency in developing the Plan. Each Agency shall provide to the Department electronic copies of reports and other documents and materials cited as references that are not generally available to the public.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10733.2 and 10733.4, Water Code.

§ 354.6. Agency Information

When submitting an adopted Plan to the Department, the Agency shall include a copy of the information provided pursuant to Water Code Section 10723.8, with any updates, if necessary, along with the following information:

(a) The name and mailing address of the Agency.

(b) The organization and management structure of the Agency, identifying persons with management authority for implementation of the Plan.

(c) The name and contact information, including the phone number, mailing address and electronic mail address, of the plan manager.

(d) The legal authority of the Agency, with specific reference to citations setting forth the duties, powers, and responsibilities of the Agency, demonstrating that the Agency has the legal authority to implement the Plan.

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

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10723.8, 10727.2, and 10733.2, Water Code.

§ 354.8. Description of Plan Area

Each Plan shall include a description of the geographic areas covered, including the following information:

(a) One or more maps of the basin that depict the following, as applicable:

(1) The area covered by the Plan, delineating areas managed by the Agency as an exclusive Agency and any areas for which the Agency is not an exclusive Agency, and the name and location of any adjacent basins.

(2) Adjudicated areas, other Agencies within the basin, and areas covered by an Alternative.

(3) Jurisdictional boundaries of federal or state land (including the identity of the agency with jurisdiction over that land), tribal land, cities, counties, agencies with water management responsibilities, and areas covered by relevant general plans.

(4) Existing land use designations and the identification of water use sector and water source type.

(5) The density of wells per square mile, by dasymetric or similar mapping techniques, showing the general distribution of agricultural, industrial, and domestic water supply wells in the basin, including de minimis extractors, and the location and extent of communities dependent upon groundwater, utilizing data provided by the Department, as specified in Section 353.2, or the best available information.

(b) A written description of the Plan area, including a summary of the jurisdictional areas and other features depicted on the map.

(c) Identification of existing water resource monitoring and management programs, and description of any such programs the Agency plans to incorporate in its monitoring network or in development of its Plan. The Agency may coordinate with existing water resource monitoring and management programs to incorporate and adopt that program as part of the Plan.

(d) A description of how existing water resource monitoring or management programs may limit operational flexibility in the basin, and how the Plan has been developed to adapt to those limits.

(e) A description of conjunctive use programs in the basin.

(f) A plain language description of the land use elements or topic categories of applicable general plans that includes the following:

(1) A summary of general plans and other land use plans governing the basin.

(2) A general description of how implementation of existing land use plans may change water demands within the basin or affect the ability of the Agency to achieve sustainable groundwater management over the planning and implementation horizon, and how the Plan addresses those potential effects.

(3) A general description of how implementation of the Plan may affect the water supply assumptions of relevant land use plans over the planning and implementation horizon.

(4) A summary of the process for permitting new or replacement wells in the basin, including adopted standards in local well ordinances, zoning codes, and policies contained in adopted land use plans.

(5) To the extent known, the Agency may include information regarding the implementation of land use plans outside the basin that could affect the ability of the Agency to achieve sustainable groundwater management.

(g) A description of any of the additional Plan elements included in Water Code Section 10727.4 that the Agency determines to be appropriate.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10720.3, 10727.2, 10727.4, 10733, and 10733.2, Water Code.

§ 354.10. Notice and Communication

Each Plan shall include a summary of information relating to notification and communication by the Agency with other agencies and interested parties including the following:

(a) A description of the beneficial uses and users of groundwater in the basin, including the land uses and property interests potentially affected by the use of groundwater in the basin, the types of parties representing those interests, and the nature of consultation with those parties.

(b) A list of public meetings at which the Plan was discussed or considered by the Agency.

(c) Comments regarding the Plan received by the Agency and a summary of any responses by the Agency.

(d) A communication section of the Plan that includes the following:

(1) An explanation of the Agency's decision-making process.

(2) Identification of opportunities for public engagement and a discussion of how public input and response will be used.

(3) A description of how the Agency encourages the active involvement of diverse social, cultural, and economic elements of the population within the basin.

(4) The method the Agency shall follow to inform the public about progress implementing the Plan, including the status of projects and actions.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10723.2, 10727.8, 10728.4, and 10733.2, Water Code

SUBARTICLE 2. Basin Setting

§ 354.12. Introduction to Basin Setting

This Subarticle describes the information about the physical setting and characteristics of the basin and current conditions of the basin that shall be part of each Plan, including the identification of data gaps and levels of uncertainty, which comprise the basin setting that serves as the basis for defining and assessing reasonable sustainable management criteria and projects and management actions. Information provided pursuant to this Subarticle shall be prepared by or under the direction of a professional geologist or professional engineer.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Section 10733.2, Water Code.

§ 354.14. Hydrogeologic Conceptual Model

(a) Each Plan shall include a descriptive hydrogeologic conceptual model of the basin based on technical studies and qualified maps that characterizes the physical components and interaction of the surface water and groundwater systems in the basin.

(b) The hydrogeologic conceptual model shall be summarized in a written description that includes the following:

(1) The regional geologic and structural setting of the basin including the immediate surrounding area, as necessary for geologic consistency.

(2) Lateral basin boundaries, including major geologic features that significantly affect groundwater flow.

(3) The definable bottom of the basin.

(4) Principal aquifers and aquitards, including the following information:

(A) Formation names, if defined.

(B) Physical properties of aquifers and aquitards, including the vertical and lateral extent, hydraulic conductivity, and storativity, which may be based on existing technical studies or other best available information.

(C) Structural properties of the basin that restrict groundwater flow within the principal aquifers, including information regarding stratigraphic changes, truncation of units, or other features.

(D) General water quality of the principal aquifers, which may be based on information derived from existing technical studies or regulatory programs.

(E) Identification of the primary use or uses of each aquifer, such as domestic, irrigation, or municipal water supply.

(5) Identification of data gaps and uncertainty within the hydrogeologic conceptual model

(c) The hydrogeologic conceptual model shall be represented graphically by at least two scaled cross-sections that display the information required by this section and are sufficient to depict major stratigraphic and structural features in the basin.

(d) Physical characteristics of the basin shall be represented on one or more maps that depict the following:

(1) Topographic information derived from the U.S. Geological Survey or another reliable source.

(2) Surficial geology derived from a qualified map including the locations of cross-sections required by this Section.

(3) Soil characteristics as described by the appropriate Natural Resources Conservation Service soil survey or other applicable studies.

(4) Delineation of existing recharge areas that substantially contribute to the replenishment of the basin, potential recharge areas, and discharge areas, including significant active springs, seeps, and wetlands within or adjacent to the basin.

(5) Surface water bodies that are significant to the management of the basin.

(6) The source and point of delivery for imported water supplies.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10727.2, 10733, and 10733.2, Water Code.

§ 354.16. Groundwater Conditions

Each Plan shall provide a description of current and historical groundwater conditions in the basin, including data from January 1, 2015, to current conditions, based on the best available information that includes the following:

(a) Groundwater elevation data demonstrating flow directions, lateral and vertical gradients, and regional pumping patterns, including:

(1) Groundwater elevation contour maps depicting the groundwater table or potentiometric surface associated with the current seasonal high and seasonal low for each principal aquifer within the basin.

(2) Hydrographs depicting long-term groundwater elevations, historical highs and lows, and hydraulic gradients between principal aquifers.

(b) A graph depicting estimates of the change in groundwater in storage, based on data, demonstrating the annual and cumulative change in the volume of groundwater in storage between seasonal high groundwater conditions, including the annual groundwater use and water year type.

(c) Seawater intrusion conditions in the basin, including maps and cross-sections of the seawater intrusion front for each principal aquifer.

(d) Groundwater quality issues that may affect the supply and beneficial uses of groundwater, including a description and map of the location of known groundwater contamination sites and plumes.

(e) The extent, cumulative total, and annual rate of land subsidence, including maps depicting total subsidence, utilizing data available from the Department, as specified in Section 353.2, or the best available information.

(f) Identification of interconnected surface water systems within the basin and an estimate of the quantity and timing of depletions of those systems, utilizing data available from the Department, as specified in Section 353.2, or the best available information.

(g) Identification of groundwater dependent ecosystems within the basin, utilizing data available from the Department, as specified in Section 353.2, or the best available information.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10723.2, 10727.2, 10727.4, and 10733.2, Water Code.

§ 354.18. Water Budget

(a) Each Plan shall include a water budget for the basin that provides an accounting and assessment of the total annual volume of groundwater and surface water entering and leaving the basin, including historical, current and projected water budget conditions, and the change in the volume of water stored. Water budget information shall be reported in tabular and graphical form.

(b) The water budget shall quantify the following, either through direct measurements or estimates based on data:

(1) Total surface water entering and leaving a basin by water source type.

(2) Inflow to the groundwater system by water source type, including subsurface groundwater inflow and infiltration of precipitation, applied water, and surface water systems, such as lakes, streams, rivers, canals, springs and conveyance systems.

(3) Outflows from the groundwater system by water use sector, including evapotranspiration, groundwater extraction, groundwater discharge to surface water sources, and subsurface groundwater outflow.

(4) The change in the annual volume of groundwater in storage between seasonal high conditions.

(5) If overdraft conditions occur, as defined in Bulletin 118, the water budget shall include a quantification of overdraft over a period of years during which water year and water supply conditions approximate average conditions.

(6) The water year type associated with the annual supply, demand, and change in groundwater stored.

(7) An estimate of sustainable yield for the basin.

(c) Each Plan shall quantify the current, historical, and projected water budget for the basin as follows:

(1) Current water budget information shall quantify current inflows and outflows for the basin using the most recent hydrology, water supply, water demand, and land use information.

(2) Historical water budget information shall be used to evaluate availability or reliability of past surface water supply deliveries and aquifer response to water supply and demand trends relative to water year type. The historical water budget shall include the following:

(A) A quantitative evaluation of the availability or reliability of historical surface water supply deliveries as a function of the historical planned versus actual annual surface water deliveries, by surface water source and water year type, and based on the most recent ten years of surface water supply information.

(B) A quantitative assessment of the historical water budget, starting with the most recently available information and extending back a minimum of 10 years, or as is sufficient to calibrate and reduce the uncertainty of the tools and methods used to estimate and project future water budget information and future aquifer response to proposed sustainable groundwater management practices over the planning and implementation horizon.

(C) A description of how historical conditions concerning hydrology, water demand, and surface water supply availability or reliability have impacted the ability of the Agency to operate the basin within sustainable yield. Basin hydrology may be characterized and evaluated using water year type.

(3) Projected water budgets shall be used to estimate future baseline conditions of supply, demand, and aquifer response to Plan implementation, and to identify the uncertainties of these projected water budget components. The projected water budget shall utilize the following methodologies and assumptions to estimate future baseline conditions concerning hydrology, water demand and surface water supply availability or reliability over the planning and implementation horizon:

(A) Projected hydrology shall utilize 50 years of historical precipitation, evapotranspiration, and streamflow information as the baseline condition for estimating future hydrology. The projected hydrology information shall also be applied as the baseline condition used to evaluate future scenarios of hydrologic uncertainty associated with projections of climate change and sea level rise.

(B) Projected water demand shall utilize the most recent land use, evapotranspiration, and crop coefficient information as the baseline condition for estimating future water demand. The projected water demand information shall also be applied as the baseline condition used to evaluate future scenarios of water demand uncertainty associated with projected changes in local land use planning, population growth, and climate.

(C) Projected surface water supply shall utilize the most recent water supply information as the baseline condition for estimating future surface water supply. The projected surface water supply shall also be applied as the baseline condition used to evaluate future scenarios of surface water supply availability and reliability as a function of the historical surface water supply identified in Section 354.18(c)(2)(A), and the projected changes in local land use planning, population growth, and climate.

(d) The Agency shall utilize the following information provided, as available, by the Department pursuant to Section 353.2, or other data of comparable quality, to develop the water budget:

(1) Historical water budget information for mean annual temperature, mean annual precipitation, water year type, and land use.

(2) Current water budget information for temperature, water year type, evapotranspiration, and land use.

(3) Projected water budget information for population, population growth, climate change, and sea level rise.

(e) Each Plan shall rely on the best available information and best available science to quantify the water budget for the basin in order to provide an understanding of historical and projected hydrology, water demand, water supply, land use, population, climate change, sea level rise, groundwater and surface water interaction, and subsurface groundwater flow. If a numerical groundwater and surface water model is not used to quantify and evaluate the projected water budget conditions and the potential impacts to beneficial uses and users of groundwater, the Plan shall identify and describe an equally effective method, tool, or analytical model to evaluate projected water budget conditions.

(f) The Department shall provide the California Central Valley Groundwater-Surface Water Simulation Model (C2VSIM) and the Integrated Water Flow Model (IWFM) for use by Agencies in developing the water budget. Each Agency may choose to use a different groundwater and surface water model, pursuant to Section 352.4.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10721, 10723.2, 10727.2, 10727.6, 10729, and 10733.2, Water Code.

§ 354.20. Management Areas

(a) Each Agency may define one or more management areas within a basin if the Agency has determined that creation of management areas will facilitate implementation of the Plan. Management areas may define different minimum thresholds and be operated to different measurable objectives than the basin at large, provided that undesirable results are defined consistently throughout the basin.

(b) A basin that includes one or more management areas shall describe the following in the Plan:

(1) The reason for the creation of each management area.

(2) The minimum thresholds and measurable objectives established for each management area, and an explanation of the rationale for selecting those values, if different from the basin at large.

(3) The level of monitoring and analysis appropriate for each management area.

(4) An explanation of how the management area can operate under different minimum thresholds and measurable objectives without causing undesirable results outside the management area, if applicable.

(c) If a Plan includes one or more management areas, the Plan shall include descriptions, maps, and other information required by this Subarticle sufficient to describe conditions in those areas.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10733.2 and 10733.4, Water Code.

SUBARTICLE 3. Sustainable Management Criteria

§ 354.22. Introduction to Sustainable Management Criteria

This Subarticle describes criteria by which an Agency defines conditions in its Plan that constitute sustainable groundwater management for the basin, including the process by which the Agency shall characterize undesirable results, and establish minimum thresholds and measurable objectives for each applicable sustainability indicator.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Section 10733.2, Water Code.

§ 354.24 Sustainability Goal

Each Agency shall establish in its Plan a sustainability goal for the basin that culminates in the absence of undesirable results within 20 years of the applicable statutory deadline. The Plan shall include a description of the sustainability goal, including information from the basin setting used to establish the sustainability goal, a discussion of the measures that will be implemented to ensure that the basin will be operated within its sustainable yield, and an explanation of how the sustainability goal is likely to be achieved within 20 years of Plan implementation and is likely to be maintained through the planning and implementation horizon.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10721, 10727, 10727.2, 10733.2, and 10733.8, Water Code.

§ 354.26. Undesirable Results

(a) Each Agency shall describe in its Plan the processes and criteria relied upon to define undesirable results applicable to the basin. Undesirable results occur when significant and unreasonable effects for any of the sustainability indicators are caused by groundwater conditions occurring throughout the basin.

(b) The description of undesirable results shall include the following:

(1) The cause of groundwater conditions occurring throughout the basin that would lead to or has led to undesirable results based on information described in the basin setting, and other data or models as appropriate.

(2) The criteria used to define when and where the effects of the groundwater conditions cause undesirable results for each applicable sustainability indicator. The criteria shall

be based on a quantitative description of the combination of minimum threshold exceedances that cause significant and unreasonable effects in the basin.

(3) Potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results.

(c) The Agency may need to evaluate multiple minimum thresholds to determine whether an undesirable result is occurring in the basin. The determination that undesirable results are occurring may depend upon measurements from multiple monitoring sites, rather than a single monitoring site.

(d) An Agency that is able to demonstrate that undesirable results related to one or more sustainability indicators are not present and are not likely to occur in a basin shall not be required to establish criteria for undesirable results related to those sustainability indicators.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10721, 10723.2, 10727.2, 10733.2, and 10733.8, Water Code.

§ 354.28. Minimum Thresholds

(a) Each Agency in its Plan shall establish minimum thresholds that quantify groundwater conditions for each applicable sustainability indicator at each monitoring site or representative monitoring site established pursuant to Section 354.36. The numeric value used to define minimum thresholds shall represent a point in the basin that, if exceeded, may cause undesirable results as described in Section 354.26.

(b) The description of minimum thresholds shall include the following:

(1) The information and criteria relied upon to establish and justify the minimum thresholds for each sustainability indicator. The justification for the minimum threshold shall be supported by information provided in the basin setting, and other data or models as appropriate, and qualified by uncertainty in the understanding of the basin setting.

(2) The relationship between the minimum thresholds for each sustainability indicator, including an explanation of how the Agency has determined that basin conditions at each minimum threshold will avoid undesirable results for each of the sustainability indicators.

(3) How minimum thresholds have been selected to avoid causing undesirable results in adjacent basins or affecting the ability of adjacent basins to achieve sustainability goals.

(4) How minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests.

(5) How state, federal, or local standards relate to the relevant sustainability indicator. If the minimum threshold differs from other regulatory standards, the Agency shall explain the nature of and basis for the difference.

(6) How each minimum threshold will be quantitatively measured, consistent with the monitoring network requirements described in Subarticle 4.

(c) Minimum thresholds for each sustainability indicator shall be defined as follows:

(1) Chronic Lowering of Groundwater Levels. The minimum threshold for chronic lowering of groundwater levels shall be the groundwater elevation indicating a depletion of supply at a given location that may lead to undesirable results. Minimum thresholds for chronic lowering of groundwater levels shall be supported by the following:

(A) The rate of groundwater elevation decline based on historical trends, water year type, and projected water use in the basin.

(B) Potential effects on other sustainability indicators.

(2) Reduction of Groundwater Storage. The minimum threshold for reduction of groundwater storage shall be a total volume of groundwater that can be withdrawn from the basin without causing conditions that may lead to undesirable results. Minimum thresholds for reduction of groundwater storage shall be supported by the sustainable yield of the basin, calculated based on historical trends, water year type, and projected water use in the basin.

(3) Seawater Intrusion. The minimum threshold for seawater intrusion shall be defined by a chloride concentration isocontour for each principal aquifer where seawater intrusion may lead to undesirable results. Minimum thresholds for seawater intrusion shall be supported by the following:

(A) Maps and cross-sections of the chloride concentration isocontour that defines the minimum threshold and measurable objective for each principal aquifer.

(B) A description of how the seawater intrusion minimum threshold considers the effects of current and projected sea levels.

(4) Degraded Water Quality. The minimum threshold for degraded water quality shall be the degradation of water quality, including the migration of contaminant plumes that impair water supplies or other indicator of water quality as determined by the Agency that may lead to undesirable results. The minimum threshold shall be based on the number of supply wells, a volume of water, or a location of an isocontour that exceeds concentrations of constituents determined by the Agency to be of concern for the basin. In setting minimum thresholds for degraded water quality, the Agency shall consider local, state, and federal water quality standards applicable to the basin.

(5) Land Subsidence. The minimum threshold for land subsidence shall be the rate and extent of subsidence that substantially interferes with surface land uses and may lead to undesirable results. Minimum thresholds for land subsidence shall be supported by the following:

(A) Identification of land uses and property interests that have been affected or are likely to be affected by land subsidence in the basin, including an explanation of how the Agency has determined and considered those uses and interests, and the Agency's rationale for establishing minimum thresholds in light of those effects.

(B) Maps and graphs showing the extent and rate of land subsidence in the basin that defines the minimum threshold and measurable objectives.

(6) Depletions of Interconnected Surface Water. The minimum threshold for depletions of interconnected surface water shall be the rate or volume of surface water depletions

caused by groundwater use that has adverse impacts on beneficial uses of the surface water and may lead to undesirable results. The minimum threshold established for depletions of interconnected surface water shall be supported by the following:

(A) The location, quantity, and timing of depletions of interconnected surface water.

(B) A description of the groundwater and surface water model used to quantify surface water depletion. If a numerical groundwater and surface water model is not used to quantify surface water depletion, the Plan shall identify and describe an equally effective method, tool, or analytical model to accomplish the requirements of this Paragraph.

(d) An Agency may establish a representative minimum threshold for groundwater elevation to serve as the value for multiple sustainability indicators, where the Agency can demonstrate that the representative value is a reasonable proxy for multiple individual minimum thresholds as supported by adequate evidence.

(e) An Agency that has demonstrated that undesirable results related to one or more sustainability indicators are not present and are not likely to occur in a basin, as described in Section 354.26, shall not be required to establish minimum thresholds related to those sustainability indicators.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10723.2, 10727.2, 10733, 10733.2, and 10733.8, Water Code.

§ 354.30. Measurable Objectives

(a) Each Agency shall establish measurable objectives, including interim milestones in increments of five years, to achieve the sustainability goal for the basin within 20 years of Plan implementation and to continue to sustainably manage the groundwater basin over the planning and implementation horizon.

(b) Measurable objectives shall be established for each sustainability indicator, based on quantitative values using the same metrics and monitoring sites as are used to define the minimum thresholds.

(c) Measurable objectives shall provide a reasonable margin of operational flexibility under adverse conditions which shall take into consideration components such as historical water budgets, seasonal and long-term trends, and periods of drought, and be commensurate with levels of uncertainty.

(d) An Agency may establish a representative measurable objective for groundwater elevation to serve as the value for multiple sustainability indicators where the Agency can demonstrate that the representative value is a reasonable proxy for multiple individual measurable objectives as supported by adequate evidence.

(e) Each Plan shall describe a reasonable path to achieve the sustainability goal for the basin within 20 years of Plan implementation, including a description of interim milestones for each relevant sustainability indicator, using the same metric as the measurable objective, in increments of five years. The description shall explain how the Plan is likely to maintain sustainable groundwater management over the planning and implementation horizon.

(f) Each Plan may include measurable objectives and interim milestones for additional Plan elements described in Water Code Section 10727.4 where the Agency determines such measures are appropriate for sustainable groundwater management in the basin.

(g) An Agency may establish measurable objectives that exceed the reasonable margin of operational flexibility for the purpose of improving overall conditions in the basin, but failure to achieve those objectives shall not be grounds for a finding of inadequacy of the Plan.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10727.2, 10727.4, and 10733.2, Water Code.

SUBARTICLE 4. Monitoring Networks

§ 354.32. Introduction to Monitoring Networks

This Subarticle describes the monitoring network that shall be developed for each basin, including monitoring objectives, monitoring protocols, and data reporting requirements. The monitoring network shall promote the collection of data of sufficient quality, frequency, and distribution to characterize groundwater and related surface water conditions in the basin and evaluate changing conditions that occur through implementation of the Plan.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Section 10733.2, Water Code.

§ 354.34. Monitoring Network

(a) Each Agency shall develop a monitoring network capable of collecting sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions, and yield representative information about groundwater conditions as necessary to evaluate Plan implementation.

(b) Each Plan shall include a description of the monitoring network objectives for the basin, including an explanation of how the network will be developed and implemented to monitor groundwater and related surface conditions, and the interconnection of surface water and groundwater, with sufficient temporal frequency and spatial density to evaluate the affects and effectiveness of Plan implementation. The monitoring network objectives shall be implemented to accomplish the following:

(1) Demonstrate progress toward achieving measurable objectives described in the Plan.

(2) Monitor impacts to the beneficial uses or users of groundwater.

(3) Monitor changes in groundwater conditions relative to measurable objectives and minimum thresholds.

(4) Quantify annual changes in water budget components.

(c) Each monitoring network shall be designed to accomplish the following for each sustainability indicator:

(1) Chronic Lowering of Groundwater Levels. Demonstrate groundwater occurrence, flow directions, and hydraulic gradients between principal aquifers and surface water features by the following methods:

(A) A sufficient density of monitoring wells to collect representative measurements through depth-discrete perforated intervals to characterize the groundwater table or potentiometric surface for each principal aquifer.

(B) Static groundwater elevation measurements shall be collected at least two times per year, to represent seasonal low and seasonal high groundwater conditions.

(2) Reduction of Groundwater Storage. Provide an estimate of the change in annual groundwater in storage.

(3) Seawater Intrusion. Monitor seawater intrusion using chloride concentrations, or other measurements convertible to chloride concentrations, so that the current and projected rate and extent of seawater intrusion for each applicable principal aquifer may be calculated.

(4) Degraded Water Quality. Collect sufficient spatial and temporal data from each applicable principal aquifer to determine groundwater quality trends for water quality indicators, as determined by the Agency, to address known water quality issues.

(5) Land Subsidence. Identify the rate and extent of land subsidence, which may be measured by extensometers, surveying, remote sensing technology, or other appropriate method.

(6) Depletions of Interconnected Surface Water. Monitor surface water and groundwater, where interconnected surface water conditions exist, to characterize the spatial and temporal exchanges between surface water and groundwater, and to calibrate and apply the tools and methods necessary to calculate depletions of surface water caused by groundwater extractions. The monitoring network shall be able to characterize the following:

(A) Flow conditions including surface water discharge, surface water head, and baseflow contribution.

(B) Identifying the approximate date and location where ephemeral or intermittent flowing streams and rivers cease to flow, if applicable.

(C) Temporal change in conditions due to variations in stream discharge and regional groundwater extraction.

(D) Other factors that may be necessary to identify adverse impacts on beneficial uses of the surface water.

(d) The monitoring network shall be designed to ensure adequate coverage of sustainability indicators. If management areas are established, the quantity and density of monitoring sites in those areas shall be sufficient to evaluate conditions of the basin setting and sustainable management criteria specific to that area.

(e) A Plan may utilize site information and monitoring data from existing sources as part of the monitoring network.

(f) The Agency shall determine the density of monitoring sites and frequency of measurements required to demonstrate short-term, seasonal, and long-term trends based upon the following factors:

(1) Amount of current and projected groundwater use.

(2) Aquifer characteristics, including confined or unconfined aquifer conditions, or other physical characteristics that affect groundwater flow.

(3) Impacts to beneficial uses and users of groundwater and land uses and property interests affected by groundwater production, and adjacent basins that could affect the ability of that basin to meet the sustainability goal.

(4) Whether the Agency has adequate long-term existing monitoring results or other technical information to demonstrate an understanding of aquifer response.

(g) Each Plan shall describe the following information about the monitoring network:

(1) Scientific rationale for the monitoring site selection process.

(2) Consistency with data and reporting standards described in Section 352.4. If a site is not consistent with those standards, the Plan shall explain the necessity of the site to the monitoring network, and how any variation from the standards will not affect the usefulness of the results obtained.

(3) For each sustainability indicator, the quantitative values for the minimum threshold, measurable objective, and interim milestones that will be measured at each monitoring site or representative monitoring sites established pursuant to Section 354.36.

(h) The location and type of each monitoring site within the basin displayed on a map, and reported in tabular format, including information regarding the monitoring site type, frequency of measurement, and the purposes for which the monitoring site is being used.

(i) The monitoring protocols developed by each Agency shall include a description of technical standards, data collection methods, and other procedures or protocols pursuant to Water Code Section 10727.2(f) for monitoring sites or other data collection facilities to ensure that the monitoring network utilizes comparable data and methodologies.

(j) An Agency that has demonstrated that undesirable results related to one or more sustainability indicators are not present and are not likely to occur in a basin, as described in Section 354.26, shall not be required to establish a monitoring network related to those sustainability indicators.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10723.2, 10727.2, 10727.4, 10728, 10733, 10733.2, and 10733.8, Water Code

§ 354.36. Representative Monitoring

Each Agency may designate a subset of monitoring sites as representative of conditions in the basin or an area of the basin, as follows:

(a) Representative monitoring sites may be designated by the Agency as the point at which sustainability indicators are monitored, and for which quantitative values for minimum thresholds, measurable objectives, and interim milestones are defined.

(b) Groundwater elevations may be used as a proxy for monitoring other sustainability indicators if the Agency demonstrates the following:

(1) Significant correlation exists between groundwater elevations and the sustainability indicators for which groundwater elevation measurements serve as a proxy.

(2) Measurable objectives established for groundwater elevation shall include a reasonable margin of operational flexibility taking into consideration the basin setting to avoid undesirable results for the sustainability indicators for which groundwater elevation measurements serve as a proxy.

(c) The designation of a representative monitoring site shall be supported by adequate evidence demonstrating that the site reflects general conditions in the area.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10727.2 and 10733.2, Water Code

§ 354.38. Assessment and Improvement of Monitoring Network

(a) Each Agency shall review the monitoring network and include an evaluation in the Plan and each five-year assessment, including a determination of uncertainty and whether there are data gaps that could affect the ability of the Plan to achieve the sustainability goal for the basin.

(b) Each Agency shall identify data gaps wherever the basin does not contain a sufficient number of monitoring sites, does not monitor sites at a sufficient frequency, or utilizes monitoring sites that are unreliable, including those that do not satisfy minimum standards of the monitoring network adopted by the Agency.

(c) If the monitoring network contains data gaps, the Plan shall include a description of the following:

(1) The location and reason for data gaps in the monitoring network.

(2) Local issues and circumstances that limit or prevent monitoring.

(d) Each Agency shall describe steps that will be taken to fill data gaps before the next five-year assessment, including the location and purpose of newly added or installed monitoring sites.

(e) Each Agency shall adjust the monitoring frequency and density of monitoring sites to provide an adequate level of detail about site-specific surface water and groundwater conditions and to assess the effectiveness of management actions under circumstances that include the following:

(1) Minimum threshold exceedances.

(2) Highly variable spatial or temporal conditions.

(3) Adverse impacts to beneficial uses and users of groundwater.

(4) The potential to adversely affect the ability of an adjacent basin to implement its Plan or impede achievement of sustainability goals in an adjacent basin.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10723.2, 10727.2, 10728.2, 10733, 10733.2, and 10733.8, Water Code

§ 354.40. Reporting Monitoring Data to the Department

Monitoring data shall be stored in the data management system developed pursuant to Section 352.6. A copy of the monitoring data shall be included in the Annual Report and submitted electronically on forms provided by the Department.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10728, 10728.2, 10733.2, and 10733.8, Water Code.

SUBARTICLE 5. Projects and Management Actions

§ 354.42. Introduction to Projects and Management Actions

This Subarticle describes the criteria for projects and management actions to be included in a Plan to meet the sustainability goal for the basin in a manner that can be maintained over the planning and implementation horizon.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Section 10733.2, Water Code.

§ 354.44. Projects and Management Actions

(a) Each Plan shall include a description of the projects and management actions the Agency has determined will achieve the sustainability goal for the basin, including projects and management actions to respond to changing conditions in the basin.

(b) Each Plan shall include a description of the projects and management actions that include the following:

(1) A list of projects and management actions proposed in the Plan with a description of the measurable objective that is expected to benefit from the project or management action. The list shall include projects and management actions that may be utilized to meet interim milestones, the exceedance of minimum thresholds, or where undesirable results have occurred or are imminent. The Plan shall include the following:

(A) A description of the circumstances under which projects or management actions shall be implemented, the criteria that would trigger implementation and termination of projects or management actions, and the process by which the Agency shall determine that conditions requiring the implementation of particular projects or management actions have occurred.

(B) The process by which the Agency shall provide notice to the public and other agencies that the implementation of projects or management actions is being considered or has been implemented, including a description of the actions to be taken.

(2) If overdraft conditions are identified through the analysis required by Section 354.18, the Plan shall describe projects or management actions, including a quantification of demand reduction or other methods, for the mitigation of overdraft.

(3) A summary of the permitting and regulatory process required for each project and management action.

(4) The status of each project and management action, including a time-table for expected initiation and completion, and the accrual of expected benefits.

(5) An explanation of the benefits that are expected to be realized from the project or management action, and how those benefits will be evaluated.

(6) An explanation of how the project or management action will be accomplished. If the projects or management actions rely on water from outside the jurisdiction of the Agency, an explanation of the source and reliability of that water shall be included.

(7) A description of the legal authority required for each project and management action, and the basis for that authority within the Agency.

(8) A description of the estimated cost for each project and management action and a description of how the Agency plans to meet those costs.

(9) A description of the management of groundwater extractions and recharge to ensure that chronic lowering of groundwater levels or depletion of supply during periods of drought is offset by increases in groundwater levels or storage during other periods.

(c) Projects and management actions shall be supported by best available information and best available science.

(d) An Agency shall take into account the level of uncertainty associated with the basin setting when developing projects or management actions.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10727.2, 10727.4, and 10733.2, Water Code.

ARTICLE 6. Department Evaluation and Assessment

§ 355. Introduction to Department Evaluation and Assessment

This Article describes the methodology and criteria used by the Department to evaluate and assess a Plan, periodically evaluate and assess the implementation of a Plan, or evaluate and assess amendments to a Plan.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Section 10733.2, Water Code.

§ 355.2. Department Review of Adopted Plan

(a) The Agency shall submit a copy of the adopted Plan to the Department for evaluation and the Department shall assign a submittal date to the Plan based on the day the Plan is received.

(b) The Department shall post the adopted Plan, submittal date, and materials submitted by the Agency on the Department's website within 20 days of receipt.

(c) The Department shall establish a period of no less than 60 days to receive public comments on the adopted Plan, as described in Section 353.8.

(d) If the Board has jurisdiction over the basin or a portion of the basin pursuant to Water Code Section 10735.2, the Department, after consultation with the Board, may proceed with an evaluation of a Plan.

(e) The Department shall evaluate a Plan within two years of its submittal date and issue a written assessment of the Plan, which shall be posted on the Department's website. The assessment shall include a determination of the status of the Plan, as follows:

(1) Approved. The Department shall approve a Plan that satisfies the requirements of the Act and is in substantial compliance with this Subchapter, based on the criteria described in Section 355.4.

(2) Incomplete. The Department has determined that the Plan has one or more deficiencies that preclude approval, but which may be capable of being corrected by the Agency in a timely manner. An incomplete Plan may be completed and resubmitted to the Department for evaluation as follows:

(A) A Plan that is determined to be incomplete prior to the statutory deadline may be revised and resubmitted to the Department prior to the applicable deadline.

(B) A Plan that is determined to be incomplete after the statutory deadline, or less than 180 days prior to the statutory deadline, may be revised and resubmitted to the Department if the Department has determined that the Plan has minor deficiencies that could be addressed by the Agency in a timely manner through corrective actions, which may be recommended by the Department.

(i) The Department may consult with the Agency to determine the amount of time needed by the Agency to address any deficiencies, not to exceed 180 days from the date the Department issues the assessment.

(ii) No time limit shall apply to address deficiencies to Plans submitted for low or very low priority basins.

(3) Inadequate. The Department shall disapprove a Plan if the Department, after consultation with the board, determines that a Plan is inadequate based on any of the following:

(A) The Plan does not satisfy the requirements of Section 355.4(a), and any deficiencies have not been corrected prior to the statutory deadline.

(B) The Plan contains significant deficiencies based on one or more criteria identified in Section 355.4(b), and any deficiencies have not been corrected prior to the statutory deadline.

(C) The Plan was determined to be incomplete, and the Agency has not taken sufficient actions to correct any deficiencies identified by the Department.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10720.7, 10722.4, 10727, 10733, 10733.2, 10733.4, and 10735.2, Water Code.

§ 355.4. Criteria for Plan Evaluation

The basin shall be sustainably managed within 20 years of the applicable statutory deadline consistent with the objectives of the Act. The Department shall evaluate an adopted Plan for compliance with this requirement as follows:

(a) An adopted Plan must satisfy all of the following conditions:

(1) The Plan was submitted within the statutory deadline, as applicable.

(2) The Plan is complete and includes the information required by the Act and this Subchapter, including a coordination agreement, if required.

(3) The Plan, either on its own or in coordination with other Plans, covers the entire basin.

(4) The Agency has taken corrective actions, within the period described in Section 355.2, to address any deficiencies in the Plan identified by the Department.

(b) The Department shall evaluate a Plan that satisfies the requirements of Subsection (a) to determine whether the Plan, either individually or in coordination with other Plans, complies with the Act and substantially complies with the requirements of this Subchapter. Substantial compliance means that the supporting information is sufficiently detailed and the analyses sufficiently thorough and reasonable, in the judgment of the Department, to evaluate the Plan, and the Department determines that any discrepancy would not materially affect the ability of the Agency to achieve the sustainability goal for the basin, or the ability of the Department to evaluate the likelihood of the Plan to attain that goal. When evaluating whether a Plan is likely to achieve the sustainability goal for the basin, the Department shall consider the following:

(1) Whether the assumptions, criteria, findings, and objectives, including the sustainability goal, undesirable results, minimum thresholds, measurable objectives,

and interim milestones are reasonable and supported by the best available information and best available science.

(2) Whether the Plan identifies reasonable measures and schedules to eliminate data gaps.

(3) Whether sustainable management criteria and projects and management actions are commensurate with the level of understanding of the basin setting, based on the level of uncertainty, as reflected in the Plan.

(4) Whether the interests of the beneficial uses and users of groundwater in the basin, and the land uses and property interests potentially affected by the use of groundwater in the basin, have been considered.

(5) Whether the projects and management actions are feasible and likely to prevent undesirable results and ensure that the basin is operated within its sustainable yield.

(6) Whether the Plan includes a reasonable assessment of overdraft conditions and includes reasonable means to mitigate overdraft, if present.

(7) Whether the Plan will adversely affect the ability of an adjacent basin to implement its Plan or impede achievement of its sustainability goal.

(8) Whether coordination agreements, if required, have been adopted by all relevant parties, and satisfy the requirements of the Act and this Subchapter.

(9) Whether the Agency has the legal authority and financial resources necessary to implement the Plan.

(10) Whether the Agency has adequately responded to comments that raise credible technical or policy issues with the Plan.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10720.7, 10722.4, 10723.2, 10727, 10727.2, 10727.4, 10727.6, 10733, 10733.2, and 10733.4, Water Code.

§ 355.6. Periodic Review of Plan by Department

(a) The Department shall periodically review an approved Plan to ensure the Plan, as implemented, remains consistent with the Act and in substantial compliance with this Subchapter, and is being implemented in a manner that will likely achieve the sustainability goal for the basin.

(b) The Department shall evaluate approved Plans and issue an assessment at least every five years. The Department review shall be based on information provided in the annual reports and the periodic evaluation of the Plan prepared and submitted by the Agency.

(c) The Department shall consider the following in determining whether a Plan and its implementation remain consistent with the Act:

(1) Whether the exceedances of any minimum thresholds or failure to meet any interim milestones are likely to affect the ability of the Agency to achieve the sustainability goal for the basin

(2) Whether the Agency is implementing projects and management actions consistent with the Plan, or that the Agency has demonstrated that actions described in the Plan have been rendered unnecessary based on changing basin conditions or an improved understanding of basin conditions.

(3) Whether the Agency is addressing data gaps and reducing the levels of uncertainty identified in the Plan.

(4) Whether the Plan continues to satisfy the criteria described in Section 355.4.

(d) The Department shall issue a written assessment of the review of the Plan, which shall be posted on the Department's website. The assessment shall include a determination of the status of the Plan, as follows:

(1) Approved. The Department shall approve the implementation of a Plan that remains in conformance with the requirements of the Act and is in substantial compliance with this Subchapter, based on the criteria described in this Section.

(2) Incomplete. The Department has determined that the Plan as implemented has one or more deficiencies that preclude approval, but which may be capable of being corrected by the Agency in a timely manner. An incomplete Plan may be completed and resubmitted to the Department for evaluation as follows:

(A) The Department shall identify deficiencies in the Plan as implemented, and may recommend corrective actions to address those deficiencies.

(B) The Department may consult with the Agency to determine the amount of time needed by the Agency to propose projects or management actions to address any deficiencies, not to exceed 180 days from the date the Department issues its assessment.

(3) Inadequate. The Department shall disapprove the implementation of a Plan if the Department, after consultation with the board, determines that a Plan is inadequate in accordance with Section 355.2.

(e) The Department may request from the Agency any information the Department deems necessary to evaluate the progress toward achieving the sustainability goal and the potential for adverse effects on adjacent basins.

(f) The Department may evaluate the implementation of a Plan at any time to determine whether the Plan is consistent with the objectives of the Act and in substantial compliance with this Subchapter.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10728.2, 10733, 10733.2, 10733.4, and 10733.8, Water Code.

§ 355.8. Department Review of Annual Reports

The Department shall review annual reports as follows:

(a) The Department shall acknowledge the receipt of annual reports by written notice and post the report and related materials on the Department's website within 20 days of receipt.

(b) The Department shall provide written notice to the Agency if additional information is required.

(c) The Department shall review information contained in the annual report to determine whether the Plan is being implemented in a manner that will likely achieve the sustainability goal for the basin, pursuant to Section 355.6.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10728, 10733.2, and 10733.8, Water Code.

§ 355.10. Plan Amendments

(a) Any amendment to a Plan shall be evaluated by the Department for consistency with the requirements of the Act and of this Subchapter.

(b) An Agency may amend a Plan at any time, and submit the amended Plan to the Department for evaluation pursuant to the requirements of this Subchapter.

(c) The Department shall evaluate the amended portions of the Plan and any new information that is relevant to the amendments or other Plan elements. Portions of the Plan that have not been amended will not be evaluated unless the Department determines the proposed amendment may result in changed conditions to other areas or to other aspects of the Plan.

(d) An amendment to a Plan shall be evaluated by the Department as follows:

(1) An amended Plan that has been submitted, but not yet approved by the Department, shall be evaluated during the initial evaluation period, in accordance with Sections 355.2 and 355.4.

(2) An amended Plan that has been approved by the Department, but determined to be incomplete or inadequate as a result of a periodic assessment pursuant to Section 355.6, shall be evaluated in accordance with Sections 355.2 and 355.4.

(3) An amendment to a Plan that has been approved by the Department shall be evaluated in accordance with Section 355.6, except that if the Department does not approve the amendment, the Agency may revise and resubmit another amendment at any time, provided that the status of the Plan remains unchanged.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10727.2, 10728.4, 10733.2, and 10733.8, Water Code.

ARTICLE 7. Annual Reports and Periodic Evaluations by the Agency

§ 356. Introduction to Annual Reports and Periodic Evaluations by the Agency

This Article describes the procedural and substantive requirements for the annual reports and periodic evaluation of Plans prepared by an Agency.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Section 10733.2, Water Code.

§ 356.2. Annual Reports

Each Agency shall submit an annual report to the Department by April 1 of each year following the adoption of the Plan. The annual report shall include the following components for the preceding water year:

(a) General information, including an executive summary and a location map depicting the basin covered by the report.

(b) A detailed description and graphical representation of the following conditions of the basin managed in the Plan:

(1) Groundwater elevation data from monitoring wells identified in the monitoring network shall be analyzed and displayed as follows:

(A) Groundwater elevation contour maps for each principal aquifer in the basin illustrating, at a minimum, the seasonal high and seasonal low groundwater conditions.

(B) Hydrographs of groundwater elevations and water year type using historical data to the greatest extent available, including from January 1, 2015, to current reporting year.

(2) Groundwater extraction for the preceding water year. Data shall be collected using the best available measurement methods and shall be presented in a table that summarizes groundwater extractions by water use sector, and identifies the method of measurement (direct or estimate) and accuracy of measurements, and a map that illustrates the general location and volume of groundwater extractions.

(3) Surface water supply used or available for use, for groundwater recharge or in-lieu use shall be reported based on quantitative data that describes the annual volume and sources for the preceding water year.

(4) Total water use shall be collected using the best available measurement methods and shall be reported in a table that summarizes total water use by water use sector, water source type, and identifies the method of measurement (direct or estimate) and accuracy of measurements. Existing water use data from the most recent Urban Water Management Plans or Agricultural Water Management Plans within the basin may be used, as long as the data are reported by water year.

(5) Change in groundwater in storage shall include the following:

(A) Change in groundwater in storage maps for each principal aquifer in the basin.

(B) A graph depicting water year type, groundwater use, the annual change in groundwater in storage, and the cumulative change in groundwater in storage for the basin based on historical data to the greatest extent available, including from January 1, 2015, to the current reporting year.

(c) A description of progress towards implementing the Plan, including achieving interim milestones, and implementation of projects or management actions since the previous annual report.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10727.2, 10728, and 10733.2, Water Code.

§ 356.4. Periodic Evaluation by Agency

Each Agency shall evaluate its Plan at least every five years and whenever the Plan is amended, and provide a written assessment to the Department. The assessment shall describe whether the Plan implementation, including implementation of projects and management actions, are meeting the sustainability goal in the basin, and shall include the following:

(a) A description of current groundwater conditions for each applicable sustainability indicator relative to measurable objectives, interim milestones and minimum thresholds.

(b) A description of the implementation of any projects or management actions, and the effect on groundwater conditions resulting from those projects or management actions.

(c) Elements of the Plan, including the basin setting, management areas, or the identification of undesirable results and the setting of minimum thresholds and measurable objectives, shall be reconsidered and revisions proposed, if necessary.

(d) An evaluation of the basin setting in light of significant new information or changes in water use, and an explanation of any significant changes. If the Agency's evaluation shows that the basin is experiencing overdraft conditions, the Agency shall include an assessment of measures to mitigate that overdraft.

(e) A description of the monitoring network within the basin, including whether data gaps exist, or any areas within the basin are represented by data that does not satisfy the requirements of Sections 352.4 and 354.34(c). The description shall include the following:

(1) An assessment of monitoring network function with an analysis of data collected to date, identification of data gaps, and the actions necessary to improve the monitoring network, consistent with the requirements of Section 354.38.

(2) If the Agency identifies data gaps, the Plan shall describe a program for the acquisition of additional data sources, including an estimate of the timing of that acquisition, and for incorporation of newly obtained information into the Plan.

(3) The Plan shall prioritize the installation of new data collection facilities and analysis of new data based on the needs of the basin.

(f) A description of significant new information that has been made available since Plan adoption or amendment, or the last five-year assessment. The description shall also include whether new information warrants changes to any aspect of the Plan, including the

evaluation of the basin setting, measurable objectives, minimum thresholds, or the criteria defining undesirable results.

(g) A description of relevant actions taken by the Agency, including a summary of regulations or ordinances related to the Plan.

(h) Information describing any enforcement or legal actions taken by the Agency in furtherance of the sustainability goal for the basin.

(i) A description of completed or proposed Plan amendments.

(j) Where appropriate, a summary of coordination that occurred between multiple Agencies in a single basin, Agencies in hydrologically connected basins, and land use agencies.

(k) Other information the Agency deems appropriate, along with any information required by the Department to conduct a periodic review as required by Water Code Section 10733.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10727.2, 10728, 10728.2, 10733.2, and 10733.8, Water Code.

ARTICLE 8. Interagency Agreements

§ 357. Introduction to Interagency Agreements

This Article describes the requirements for coordination agreements between Agencies within a basin developed pursuant to Water Code Section 10727.6, and voluntary interbasin agreements.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Section 10733.2, Water Code.

§ 357.2. Interbasin Agreements

Two or more Agencies may enter into an agreement to establish compatible sustainability goals and understanding regarding fundamental elements of the Plans of each Agency as they relate to sustainable groundwater management. Interbasin agreements may be included in the Plan to support a finding that implementation of the Plan will not adversely affect an adjacent basin's ability to implement its Plan or impede the ability to achieve its sustainability goal. Interbasin agreements should facilitate the exchange of technical information between Agencies and include a process to resolve disputes concerning the interpretation of that information. Interbasin agreements may include any information the participating Agencies deem appropriate, such as the following:

(a) General information:

(1) Identity of each basin participating in and covered by the terms of the agreement.

(2) A list of the Agencies or other public agencies or other entities with groundwater management responsibilities in each basin.

(3) A list of the Plans, Alternatives, or adjudicated areas in each basin.

(b) Technical information:

(1) An estimate of groundwater flow across basin boundaries, including consistent and coordinated data, methods and assumptions.

(2) An estimate of stream-aquifer interactions at boundaries.

(3) A common understanding of the geology and hydrology of the basins and the hydraulic connectivity as it applies to the Agency's determination of groundwater flow across basin boundaries and description of the different assumptions utilized by different Plans and how the Agencies reconciled those differences.

(4) Sustainable management criteria and a monitoring network that would confirm that no adverse impacts result from the implementation of the Plans of any party to the agreement. If minimum thresholds or measurable objectives differ substantially between basins, the agreement should specify how the Agencies will reconcile those differences and manage the basins to avoid undesirable results. The Agreement should identify the differences that the parties consider significant and include a plan and schedule to reduce uncertainties to collectively resolve those uncertainties and differences.

(c) A description of the process for identifying and resolving conflicts between Agencies that are parties to the agreement.

(d) Interbasin agreements submitted to the Department shall be posted on the Department's website.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10727.2, 10733, and 10733.2, Water Code.

§ 357.4. Coordination Agreements

(a) Agencies intending to develop and implement multiple Plans pursuant to Water Code Section 10727(b)(3) shall enter into a coordination agreement to ensure that the Plans are developed and implemented utilizing the same data and methodologies, and that elements of the Plans necessary to achieve the sustainability goal for the basin are based upon consistent interpretations of the basin setting.

(b) Coordination agreements shall describe the following:

(1) A point of contact with the Department.

(2) The responsibilities of each Agency for meeting the terms of the agreement, the procedures for the timely exchange of information between Agencies, and procedures for resolving conflicts between Agencies.

(3) How the Agencies have used the same data and methodologies for assumptions described in Water Code Section 10727.6 to prepare coordinated Plans, including the following:

(A) Groundwater elevation data, supported by the quality, frequency, and spatial distribution of data in the monitoring network and the monitoring objectives as described in Subarticle 4 of Article 5.

(B) A coordinated water budget for the basin, as described in Section 354.18, including groundwater extraction data, surface water supply, total water use, and change in groundwater in storage.

(C) Sustainable yield for the basin, supported by a description of the undesirable results for the basin, and an explanation of how the minimum thresholds and measureable objectives defined by each Plan relate to those undesirable results, based on information described in the basin setting.

(c) The coordination agreement shall explain how the Plans implemented together, satisfy the requirements of the Act and are in substantial compliance with this Subchapter

(d) The coordination agreement shall describe a process for submitting all Plans, Plan amendments, supporting information, all monitoring data and other pertinent information, along with annual reports and periodic evaluations.

(e) The coordination agreement shall describe a coordinated data management system for the basin, as described in Section 352.6.

(f) Coordination agreements shall identify adjudicated areas within the basin, and any local agencies that have adopted an Alternative that has been accepted by the Department. If an Agency forms in a basin managed by an Alternative, the Agency shall evaluate the

agreement with the Alternative prepared pursuant to Section 358.2 and determine whether it satisfies the requirements of this Section.

(g) The coordination agreement shall be submitted to the Department together with the Plans for the basin and, if approved, shall become part of the Plan for each participating Agency.

(h) The Department shall evaluate a coordination agreement for compliance with the procedural and technical requirements of this Section, to ensure that the agreement is binding on all parties, and that provisions of the agreement are sufficient to address any disputes between or among parties to the agreement.

(i) Coordination agreements shall be reviewed as part of the five-year assessment, revised as necessary, dated, and signed by all parties.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10721, 10727.2, 10727.6, 10733, 10733.2, 10733.4, and 10733.8, Water Code.

ARTICLE 9. Alternatives

§ 358. Introduction to Alternatives

This Article describes the methodology and criteria for the submission and evaluation of Alternatives.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Section 10733.2, Water Code.

§ 358.2. Alternatives to Groundwater Sustainability Plans

(a) The entity that submits an Alternative shall demonstrate that the Alternative applies to the entire basin and satisfies the requirements of Water Code Section 10733.6.

(b) An Alternative shall be submitted to the Department by January 1, 2017, and every five years thereafter. A local agency or party directed by a court that submits an Alternative based on an adjudication action described in Water Code Section 10737.4 may submit the adjudication action to the Department for evaluation after January 1, 2017.

(c) An Alternative submitted to the Department shall include the following information:

(1) An Alternative submitted pursuant to Water Code Section 10733.6(b)(1) shall include a copy of the groundwater management plan.

(2) An Alternative submitted pursuant to Water Code Section 10733.6(b)(2) that is not an adjudicated area described in Water Code Section 10720.8 shall include the following:

(A) Information demonstrating that the adjudication submitted to the Department as an Alternative is a comprehensive adjudication as defined by Chapter 7 of Title 10 of Part 2 of the Code of Civil Procedure (commencing with Section 830).

(B) A copy of the proposed stipulated judgment.

(3) An Alternative submitted pursuant to Water Code Section 10733.6(b)(3) shall provide information that demonstrates the basin has operated within its sustainable yield over a period of at least 10 years. Data submitted in support of this Alternative shall include continuous data from the end of that 10-year period to current conditions.

(d) The entity submitting an Alternative shall explain how the elements of the Alternative are functionally equivalent to the elements of a Plan required by Articles 5 and 7 of this Subchapter and are sufficient to demonstrate the ability of the Alternative to achieve the objectives of the Act.

(e) After an Alternative has been approved by the Department, if one or more Plans are adopted within the basin, the Alternative shall be revised, as necessary, to reflect any changes that may have resulted from adoption of the Plan, and the local agency responsible for the Alternative and Agency responsible for the Plan shall enter into an agreement that satisfies the requirements of Section 357.4.

(f) Any person may provide comments to the Department regarding an Alternative in a manner consistent with Section 353.8.

Note: Authority cited: Section 10733.2, Water Code.

Reference: Sections 10727, 10727.2, 10733, 10733.2, 10733.6, 10733.8, and 10737.4, Water Code.

§ 358.4. Department Evaluation of Alternatives

The Department shall evaluate an Alternative submitted in lieu of a Plan as follows:

(a) An Alternative must satisfy all of the following conditions:

(1) The Alternative was submitted within the statutory period established by Water Code Section 10733.6, if applicable.

(2) The Alternative is within a basin that is in compliance with Part 2.11 of Water Code (commencing with Section 10920), or as amended.

(3) The Alternative is complete and includes the information required by the Act and this Subchapter.

(4) The Alternative covers the entire basin.

(b) The Department shall evaluate an Alternative that satisfies the requirements of Subsection (a) in accordance with Sections 355.2, 355.4(b), and Section 355.6, as applicable, to determine whether the Alternative complies with the objectives of the Act.

Note: Authority cited: Section 10733.2, Water Code.

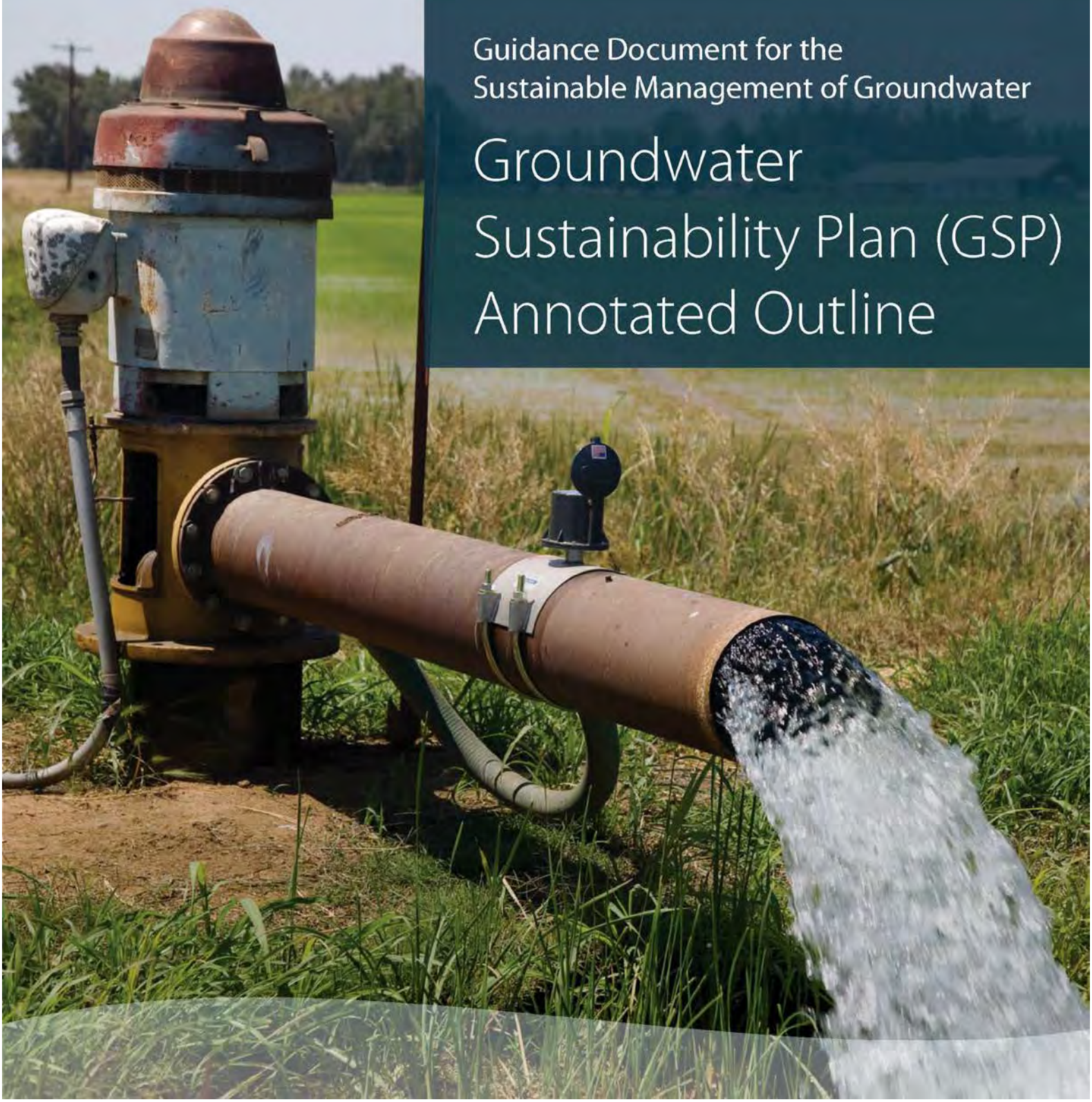
Reference: Sections 10733.2, 10733.6, and 10733.8, Water Code.

California Department of Water Resources
Sustainable Groundwater Management Program

December 2016

Guidance Document for the
Sustainable Management of Groundwater

Groundwater Sustainability Plan (GSP) Annotated Outline



Guidance Document for the Sustainable Management of Groundwater

Groundwater Sustainability Plan (GSP) Annotated Outline

December 2016

The objective of this Guidance Document is to provide Groundwater Sustainability Agencies (GSAs) and other stakeholders an example **Groundwater Sustainability Plan (GSP) Annotated Outline** to aid in GSP development and standardize future reporting.

The GSP Annotated Outline is only intended to be a guide. GSAs have the option of using this information as they develop a GSP. The content provided here does not create any new requirements or obligations for the GSA or other stakeholders.

Guidance Documents are not a substitute for the GSP Emergency Regulations (GSP Regulations) or the Sustainable Groundwater Management Act (SGMA). Those GSAs developing a GSP are strongly encouraged to fully read the GSP Regulations and SGMA. In addition, using this Guidance Document to develop a GSP does not equate to an approval determination by DWR.

Context with GSP Regulations and SGMA

The GSP Annotated Outline can be used by GSAs, in conjunction with the *Preparation Checklist for GSP Submittal Guidance Document*, to develop a GSP and determine if the GSP (or coordinated GSPs) meets the minimum requirements of the GSP Regulations and statutory provisions of SGMA. The detailed requirements of a GSP may be found in the GSP Regulations, primarily in Article 5 – Plan Contents, and in SGMA, primarily in Chapter 6 beginning with California Water Code Section 10727. All references to GSP Regulations relate to Title 23 of the California Code of Regulations, Division 2, Chapter 1.5, and Subchapter 2. All references to SGMA relate to California Water Code sections in Division 6, Part 2.74.

California Department of Water Resources
Sustainable Groundwater Management Program
1416 Ninth Street
P.O. Box 942836
Sacramento, CA 94236-0001
www.water.ca.gov/groundwater

Potential Groundwater Sustainability Plan Outline

Executive Summary *(Reg. § 354.4)*

1.0 Introduction

1.1 Purpose of the Groundwater Sustainability Plan (GSP or Plan)

1.2 Sustainability Goal

1.3 Agency Information *(Reg. § 354.6)*

1.3.1 Organization and Management Structure of the Groundwater Sustainability Agency (GSA or Agency)

1.3.2 Legal Authority of the GSA

1.3.3 Estimated Cost of Implementing the GSP and the GSA's Approach to Meet Costs

1.4 GSP Organization

- Description of how the GSP is organized
- Preparation Checklist for GSP Submittal

2.0 Plan Area and Basin Setting

2.1 Description of the Plan Area *(Reg. § 354.8)*

2.1.1 Summary of Jurisdictional Areas and Other Features *(Reg. § 354.8 b)*

- Map(s) *(Reg. § 354.8 a)*:
  - Area covered by GSP
  - Adjudicated areas, other Agencies within the basin, and areas covered by an Alternative
  - Jurisdictional boundaries of federal or State land
  - Existing land use designations
  - Density of wells per square mile

2.1.2 Water Resources Monitoring and Management Programs *(Reg. § 354.8 c, d, e)*

- Description of water resources monitoring and management programs
  - Description of how monitoring networks of those programs will be incorporated into the GSP
  - Descriptions of how those programs may limit operation flexibility in the basin
  - Description of conjunctive use programs

2.1.3 Land Use Elements or Topic Categories of Applicable General Plans *(Reg. § 354.8 f)*

- Summary of general plans and other land use plans
  - Information could include crop types and acreages, urban land designation, and identification of open spaces.
- Description of how implementation of the GSP may change water demands or affect achievement of sustainability and how the GSP addresses those effects
- Description of how implementation of the GSP may affect the water supply assumptions of relevant land use plans
- Summary of the process for permitting new or replacement wells in the basin
- Information regarding the implementation of land use plans outside the basin that could affect the ability of the Agency to achieve sustainable groundwater management

2.1.4 Additional GSP Elements *(Reg. § 354.8 g)*

- Control of saline water intrusion
- Wellhead protection
- Migration of contaminated groundwater
- Well abandonment and well destruction program
- Replenishment of groundwater extractions
- Conjunctive use and underground storage
- Well construction policies

- Groundwater contamination cleanup, recharge, diversions to storage, conservation, water recycling, conveyance, and extraction projects
- Efficient water management practices
- Relationships with State and federal regulatory agencies
- Land use plans and efforts to coordinate with land use planning agencies to assess activities that potentially create risks to groundwater quality or quantity
- Impacts on groundwater dependent ecosystems

2.1.5 **Notice and Communication *(Reg. § 354.10)***

- Description of beneficial uses and users in the basin
- A Communications Section that describes:
  - Decision-making processes
  - Public engagement opportunities
  - Encouraging active involvement
  - Informing the public on GSP implementation progress

2.2 Basin Setting

2.2.1 **Hydrogeologic Conceptual Model *(Reg. § 354.14)***

- Graphical and narrative description of the physical components of the basin
- At least two scaled cross-sections
- Map(s) of physical characteristics
  - Topographic information
  - Surficial geology
  - Soil characteristics
  - Delineation of existing recharge areas that substantially contribute to the replenishment of the basin, potential recharge areas, and discharge areas
  - Surface water bodies
  - Source and point of delivery for local and imported water supplies

2.2.2 Current and Historical Groundwater Conditions *(Reg. § 354.16)*

- Groundwater elevation data
- Estimate of groundwater storage
- Seawater intrusion conditions
- Groundwater quality issues
- Land subsidence conditions
- Identification of interconnected surface water systems
- Identification of groundwater-dependent ecosystems
    - Including potentially related factors such as instream flow requirements, threatened and endangered species, and critical habitat.

2.2.3 Water Budget Information *(Reg. § 354.18)*

- Description of inflows, outflows, and change in storage
- Quantification of overdraft (as applicable)
- Estimate of sustainable yield
- Quantification of current, historical, and projected water budget
- Description of surface water supply used or available for use for groundwater recharge or in-lieu use

2.2.4 Management Areas (as Applicable) *(Reg. § 354.20)*

- Reason for creation of each management area
- Level of monitoring and analysis
- Description of management areas
- Explanation of how management of management areas will not cause undesirable results outside the management area

3.0 Sustainable Management Criteria

3.1 Sustainability Goal *(Reg. § 354.24)*

- Description of sustainability goal, including:
    - Information from the basin setting used to establish the sustainability goal
    - Discussion of the measures that will be implemented to ensure that the basin will be operated within its sustainable yield

- Explanation of how the sustainability goal is likely to be achieved within 20 years of Plan implementation and is likely to be maintained through the planning and implementation horizon

3.2 Measureable Objectives *(Reg. § 354.30)*

- Description of each measureable objective and how the measurable objectives were established for each relevant sustainability indicator
- Description of how a reasonable margin of safety was established for each measureable objective
- Description of a reasonable path to achieve and maintain the sustainability goal including a description of interim milestones for each relevant sustainability indicator
  - Measurable Objective for Sustainability Indicator 1
    - Interim Milestone at 5 years
    - Interim Milestone at 10 years
    - Interim milestone at 15 years
    - Milestone at 20 years
  - Measurable Objective for Sustainability Indicator 2
    - Interim Milestone at 5 years
    - Interim Milestone at 10 years
    - Interim milestone at 15 years
    - Milestone at 20 years
  - Measurable Objective for Sustainability Indicator X
- If management areas are used, a description of *(Reg. § 354.20 b)*:
  - The measurable objectives established for each management area, and an explanation of the rationale for selecting those values, if different from the basin at large.
  - An explanation of how the management area can operate under different measurable objectives without causing undesirable results outside the management area, if applicable.

3.3 Minimum Thresholds *(Reg. § 354.28)*

- Description of each minimum threshold and how they were established for each relevant sustainability indicator

- Relationship for each sustainability indicator
- Description of how minimum thresholds have been selected to avoid causing undesirable results
- Description of how minimum thresholds may affect the interests of beneficial uses and users of groundwater or land uses and property interests.
- Standards related to sustainability indicators
- How each minimum threshold will be quantitatively measured for each relevant sustainability indicator
- If management areas are used, a description of *(Reg. § 354.20 b)*:
    - The minimum thresholds established for each management area, and an explanation of the rationale for selecting those values, if different from the basin at large.
    - An explanation of how the management area can operate under different minimum thresholds without causing undesirable results outside the management area, if applicable.

3.4 Undesirable Results *(Reg. § 354.26)*

- Description of undesirable results for any of the sustainability indicators
- Cause of groundwater conditions that would lead to undesirable results
- Criteria used to define undesirable results based on minimum thresholds
- Potential effects on the beneficial uses and users of groundwater, on land uses and property interests, and other potential effects that may occur or are occurring from undesirable results

3.5 Monitoring Network

3.5.1 Description of Monitoring Network *(Reg. § 354.34)*

- Description of how the monitoring network is capable of collecting sufficient data to demonstrate short-term, seasonal, and long-term trends in groundwater and related surface conditions, and yield representative information about

groundwater conditions as necessary to evaluate Plan implementation

- Description of monitoring network objectives including explanation of how the network will be developed and implemented to monitor:
    - Groundwater and related surface conditions
    - Interconnection of surface water and groundwater
- Description of how implementation of the monitoring network objectives demonstrate progress toward achieving the measureable objectives, monitor impacts to beneficial uses or users of groundwater, monitor changes in groundwater conditions, and quantify annual changes in water budget components
- Description of how the monitoring network is designed to accomplish the following for each sustainability indicator:
    - Chronic Lowering of Groundwater Levels. Demonstrate groundwater occurrence, flow directions, and hydraulic gradients between principal aquifers and surface water features
    - Reduction of Groundwater Storage. Estimate the change in annual groundwater in storage
    - Seawater Intrusion. Monitor seawater intrusion
    - Degraded Water Quality. Determine groundwater quality trends
    - Land Subsidence. Identify the rate and extent of land subsidence
    - Depletions of Interconnected Surface Water. Calculate depletions of surface water caused by groundwater extractions
- Description of how the monitoring plan provides adequate coverage of the sustainability indicators
- Density of monitoring sites and frequency of measurements required to demonstrate short-term, seasonal, and long-term trends

- Scientific rational (or reason) for site selection
- Consistency with data and reporting standards
- Corresponding sustainability indicator, minimum threshold, measureable objective, and interim milestone
- Location and type of each site on a map
- If management areas are used, a description of the level of monitoring and analysis appropriate for each management area. *(Reg. § 354.20 b)*

3.5.2 Monitoring Protocols for Data Collection and Monitoring *(Reg. § 352.2)*

- Description of technical standards, data collection methods, and other procedures or protocols to ensure comparable data and methodologies.

3.5.3 Representative Monitoring *(Reg. § 354.36)*

- Description of representative sites if designated
- Demonstration of adequacy of using groundwater elevations as proxy for other sustainability indicators
- Adequate evidence demonstrating site reflects general conditions in the area

3.5.4 Assessment and Improvement of Monitoring Network *(Reg. § 354.38)*

- Review and evaluation of the monitoring network
- Identification and description of data gaps
- Description of steps to fill data gaps
- Description of monitoring frequency and density of sites

4.0 Projects and Management Actions to Achieve Sustainability Goal *(Reg. § 354.44)*

4.1 Project #1 Description

- Measureable objective that is expected to benefit from the project or management action
- Circumstances for implementation

- Public noticing
- Overdraft mitigation projects and management actions
- Permitting and regulatory process
- Time-table for initiation and completion, and the accrual of expected benefits
- Expected benefits and how they will be evaluated
- How the project or management action will be accomplished. If the projects or management actions rely on water from outside the jurisdiction of the Agency, an explanation of the source and reliability of that water shall be included.
- Legal authority required
- Estimated costs for the projects and managements and plans to meet those costs (economic analysis and finance strategy for projects and management actions)
- Management of groundwater extractions and recharge
- Relationship to additional GSP elements as described in Water Code §10727.4.

4.2 Project #2 Description

4.3 Project #X Description

5.0 Plan Implementation

5.1 Estimate of GSP Implementation Costs *(Reg. § 354.6)*

5.2 Schedule for Implementation

5.3 Annual Reporting

- GSA's plan for required annual reporting

5.4 Periodic Evaluations

- GSA's process for required periodic evaluations

6.0 References and Technical Studies *(Reg. § 354.4)*

Appendices

- Interbasin and Coordination Agreements (as applicable) *(Reg. § 357)*
- Contact Information for Plan Manager and GSA Mailing Address *(Reg. § 354.6)*
- List of Public Meetings *(Reg. § 354.10)*
- Technical Appendices
- Groundwater Model Documentation
- Comments and Responses *(Reg. § 354.10)*

MARCH 2023

Guidance for Sustainable Groundwater Management Act Implementation:

Considerations for Identifying and Addressing Drinking Water Well Impacts

DEPARTMENT OF WATER RESOURCES • STATE OF CALIFORNIA •

Guidance for Sustainable Groundwater Management Act Implementation:

Considerations for Identifying and Addressing Drinking Water Well Impacts

MARCH 2023

Use of this document

The objective of this document is to provide guidance and technical assistance[1] to groundwater sustainability agencies (GSAs) for identifying and addressing drinking water well impacts while implementing and updating their groundwater sustainability plans (GSPs or Plans) under the Sustainable Groundwater Management Act (SGMA). The technical assistance provided in this document may be used by GSAs to guide their consideration of drinking water well users during SGMA implementation and when updating, assessing, or amending their GSPs. This document does not prescribe specific methods that GSAs must use, but it provides technical information and guidance on strategies to consider that may be protective of drinking water well users as GSAs move forward with SGMA implementation. GSAs are encouraged to consider this guidance and its applicability to their basins; however, conformance with specific approaches in this document will not automatically guarantee approval of a GSP by the Department of Water Resources (DWR or Department). Conversely, while the Department believes the approaches presented here likely have broad and general value when implementing SGMA in basins, a GSA need not conform or limit its approach to those contained in this document in order to gain Plan approval. Depending on circumstances in basins, other approaches may also be appropriate. To further assist GSAs, this document also provides links to an online toolkit containing current technical resources and examples of financial assistance to guide GSAs in addressing drinking water well impacts.

CALIFORNIA DEPARTMENT OF
WATER RESOURCES

715 P Street
Sacramento, CA 95814
water.ca.gov

1 CWC § 10729 et seq.

CONTENTS

1. BACKGROUND

Enacted into law in 2014, the Sustainable Groundwater Management Act (SGMA) is the primary means to implement the state policy that "…groundwater resources be managed sustainably for long-term reliability and multiple economic, social, and environmental benefits for current and future beneficial uses."[2] Under SGMA, groundwater sustainability agencies (GSAs) must consider all beneficial uses and users in a groundwater basin when developing and implementing their locally-developed groundwater sustainability plans (GSPs or Plans). Drinking water well users, which can include municipal entities, small communities, and individual domestic wells[3], have been identified and are considered beneficial users in all medium and high priority basins and can experience adverse effects such as dry wells, deteriorated water quality, and well damage from land subsidence when excessive groundwater extraction occurs.[4] Each groundwater basin is unique in climate, geology, and land use and therefore the magnitude and scope of potential effects from groundwater extractions and the approach to groundwater management are also unique.

Longstanding state law and policy, codified since at least 1943, states that the use of water for domestic purposes is the highest use of water.[5] In 2013, the state enacted a related policy that "… every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes."[6] SGMA was passed, in part, to protect communities (i.e., domestic users (de minimis), drinking water systems) from adverse effects of unmanaged groundwater extractions on their drinking water wells and supplies.[7] When administering and implementing SGMA, the Department of Water Resources (DWR or Department) considers these policies[8], which emphasize the importance of drinking water beneficial uses and users.

SGMA authorizes and encourages the Department to provide technical assistance to GSAs and entities that extract or use groundwater.[9] DWR is providing this guidance and technical assistance based on its review of GSPs, primarily for the critically overdrafted basins in 2020 and the various approaches that GSAs have employed to address impacts to drinking water well users. The goal of this document is to support and assist GSAs as they implement and prepare for periodic updates of their GSPs to fully consider how to appropriately address impacts to drinking water well users as part of SGMA implementation. The objectives of this document are:

1. Clarify how interests of drinking water well users are identified and may be addressed consistent with SGMA and the GSP Regulations.
2. Identify tools and resources that can be used by GSAs to enhance implementation of their GSPs and updates to their GSPs related to drinking water well users.
3. Identify and facilitate opportunities for coordination on drinking water well issues among local agencies and county departments with water management responsibilities in a basin and identify state programs to support and facilitate GSAs and local agencies in their coordination efforts.

2 CWC § 113.
3 Drinking water users may broadly refer, as applicable, to the well (property) owners, renters, residents, or tribes that rely on groundwater for household purposes.
4 Stats. 2014, c. 347 (AB 1739) § 1 (a)(3).
5 CWC § 106.
6 CWC § 106.3.
7 AB1739 § 1 (a)(4).
8 23 CCR § 350.4 (g).
9 CWC § 10729 et seq.

1.1 Online Toolkit Accompanying This Document

Since SGMA was enacted, the Department has developed a wide range of technical and planning assistance resources to support GSAs in improving their understanding of their groundwater basin, engaging with interested parties, and identifying financial resources or funding opportunities for implementation of their GSPs. In addition, other state agencies, such as the State Water Resources Control Board (State Water Board), have developed tools that could be useful to GSAs in addressing impacts to drinking water well users. Relevant tools and resources from DWR and other state agencies have been centralized and posted via online "toolkits" which are organized with the same headings and topics as used in this guidance document. The Department will periodically update the toolkits as new resources, information, and funding become available. Links to the relevant toolkits can be found throughout the document wherever the following toolkit icon is found:

Considerations for Identifying and Addressing Drinking Water Well Impacts Toolkits

2. DRINKING WATER UNDER SGMA

One of the founding principles of SGMA is that groundwater resources are most effectively managed at the local or regional level.[10] GSPs are planning documents describing long-term management approaches crafted with both technical and policy considerations. SGMA's preference and design for "local control" gives GSAs the primary authority to debate and establish local policies as they develop and implement their GSPs.

GSP Regulations require GSAs to develop a sustainability goal for their basin that culminates in the absence of undesirable results within 20 years of Plan adoption and implementation.[11] Undesirable results are present when significant and unreasonable effects occur for any of the six sustainability indicators.[12] In defining the undesirable results for the basin, beneficial uses and users of groundwater must be considered, which includes drinking water well users. GSAs are to describe the potential effects based on the technical information presented in the basin setting.[13] Undesirable results are quantified and monitored by using measurements in their established monitoring networks. GSPs must set a minimum threshold value at each representative monitoring site (RMS) which is a "numeric value…that, if exceeded, may [emphasis added] cause undesirable results."[14] An undesirable result is triggered when "…the combination of minimum threshold exceedances … cause significant and unreasonable effects in the basin."[15] Furthermore, the GSP Regulations require the GSP to describe "[h]ow minimum thresholds *may* affect the interests of beneficial uses and users of groundwater or land uses and property interests."[16] Finally, the GSP must define a measurable objective, which is a quantitative goal that reflects the GSA's desired groundwater conditions for the basin. [17] The GSP must present a set of projects and management actions that will assist in achieving the basin's sustainability

10 AB1739 § 1 (a)(8).
11 23 CCR § 354.24.
12 Sustainability indicators under SGMA consist of chronic lowering of groundwater levels, reduction of groundwater storage, seawater intrusion, degraded water quality, land subsidence, and depletion of interconnected surface water.
13 23 CCR § 354.26.
14 23 CCR § 354.28 (a).
15 23 CCR § 354.26 (b)(2).
16 23 CCR § 354.28 (b)(4).
17 23 CCR § 351(s).

goal[18] within 20 years of the implementation of the initial Plan submission, as well as maintained through the 50-year planning and implementation horizon. [19]

Based on the above requirements, GSAs are to use the best available science, establish local management policy based on that science, consider impacts to all beneficial uses and users (including drinking water well users), and "…achieve sustainable groundwater management."[20] DWR, when evaluating GSPs for substantial compliance with the GSP Regulations, is required to determine whether Plans identify a reasonable pathway toward achieving sustainability in the required timeframe and whether the interests of beneficial uses and users, including drinking water well users, have been considered.[21]

GSAs have submitted their initial Plans, but they are required to provide annual reports and periodically update their GSPs at least every five years to document and assess progress toward achieving their sustainability goal.[22] The requirements to submit these reports and regular updates acknowledge that groundwater planning and sustainable groundwater management are likely best achieved through an adaptive, iterative process and that GSPs will need to be adjusted as conditions change, new data become available, and the efficacy of projects and management actions are better understood. The figure on the next page shows a conceptual progression of adaptive management under SGMA, a cycle which GSAs may follow multiple times during the planning and implementation horizon. The following subsections describe each component of this adaptive management framework and how GSAs can consider the interests of drinking water well users at each step through implementation of their GSPs and describe the relevant GSP Regulations. Additionally, DWR's GSP determinations provide examples of how DWR evaluates the adequacy and substantial compliance with the GSP Regulations of GSPs based on locally established policies, procedures, variable basin conditions, and available data throughout the state.

2.1 Identify Drinking Water Well Users

Has drinking water been identified as a beneficial use in the basin and is there a thorough understanding of the location and construction details of drinking water supply wells?

The GSP Regulations require GSAs to identify the interests of all beneficial uses and users of water, which includes all drinking water well users, and specifically to map the density of wells per square mile as well as the location and extent of communities dependent on groundwater.[23] Understanding the locations of drinking water wells in a basin is foundational to considering these uses and users. Furthermore, in addition to well location, well depth and construction details, persons or populations served, and other information is likely necessary to effectively evaluate and monitor how changing groundwater elevations or water quality conditions in the principal aquifers may impact these uses and users within specific basins.

CWC § 10723.2

"The groundwater sustainability agency shall consider the interests of all beneficial uses and users of groundwater…"

23 CCR § 354.10

"Each Plan shall include a summary of information relating to notification and communication by the [groundwater sustainability] Agency with other agencies and interested parties, including…" (a) "A description of the beneficial uses and users of groundwater in the basin, including the land uses and property interests potentially affected by the use of groundwater in the basin, the types of parties representing those interests, and the nature of consultation with those parties."

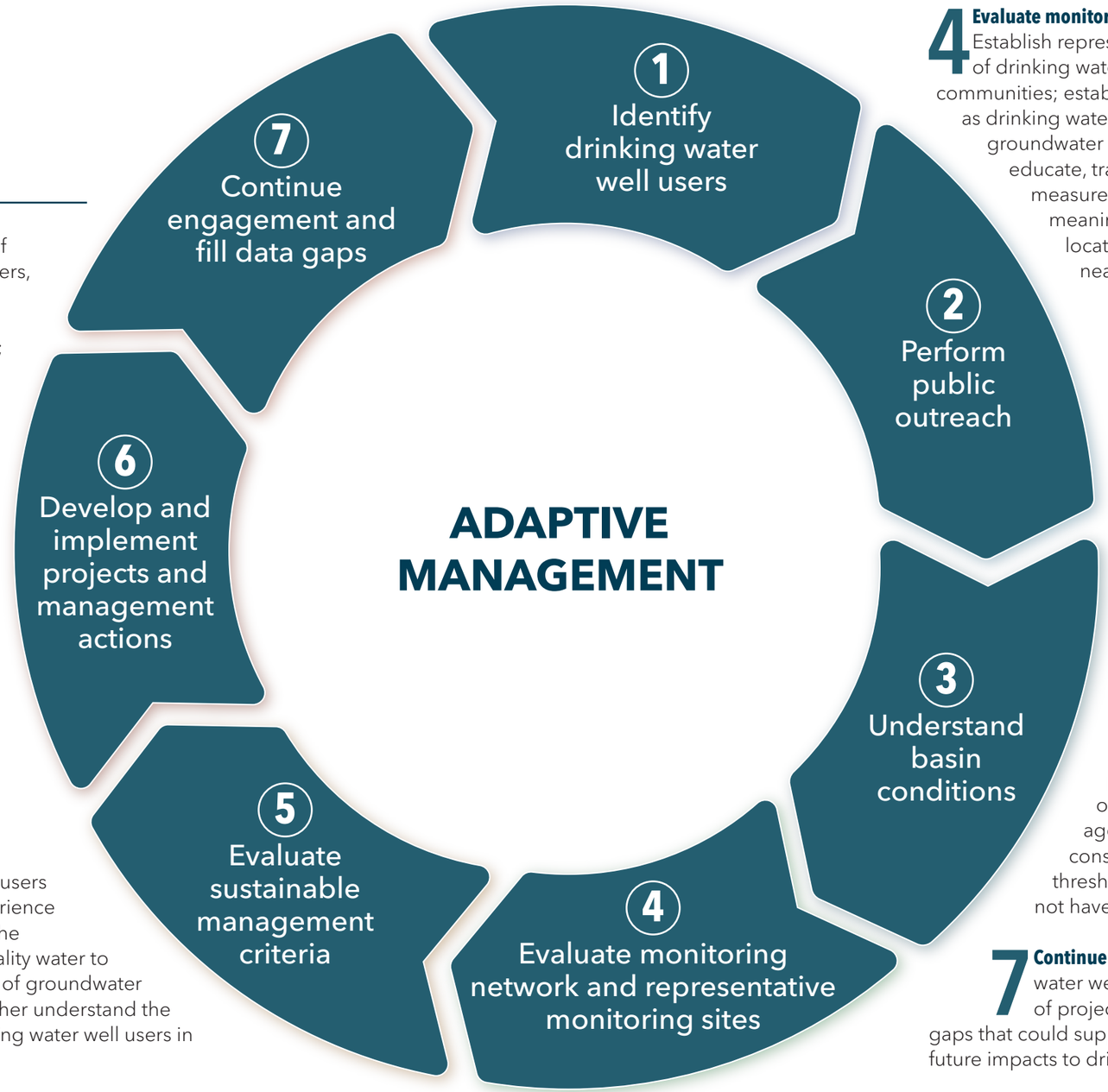
18 23 CCR §§ 354.42 and 354.44.
19 23 CCR § 354.24.
20 23 CCR § 350.4(e).
21 23 CCR § 355.4 (b)(4).
22 23 CCR § 356.4.
23 23 CCR § 354.8 (a)(5).

Considering Drinking Water Users Throughout SGMA Implementation

1 Identify drinking water well users: Identify all types of drinking water well users, including de minimis users, domestic wells, state small water systems, small water systems, public and community water systems, and Tribes that rely on groundwater for drinking water; do not exclude known drinking water well users; establish a thorough understanding of the location and construction details of all drinking water wells.

2 Perform public outreach: Direct outreach to drinking water well users with a meaningful approach for how to engage and involve community members and organizations in decision-making; meet the community in suitable locations and at times when community members are available; communicate in the preferred language of drinking water well users; provide materials so community members can engage and understand technical information for a non-technical audience.

3 Understand basin conditions: Conduct well susceptibility or vulnerability analyses for all drinking water well users; do not exclude subsets of drinking water well users in assessing groundwater conditions; analyze the number of drinking water well users and/or percentage of users in the basin that may experience impacts if future water level conditions were to reach the minimum threshold; analyze the potential for poor quality water to affect drinking water well users in the future as a result of groundwater pumping in association with Plan implementation; further understand the basin conditions of the shallow aquifers used by drinking water well users in relation to the entirety of the basin.



4 Evaluate monitoring network and representative monitoring sites: Establish representative monitoring sites near high densities of drinking water well users, DACs, SDACs, or other rural communities; establish representative wells with similar depths as drinking water wells to be able to monitor and measure groundwater levels and conditions for drinking water well users; educate, train, and empower drinking water well owners to measure water levels, report to GSA, and understand the meaning of groundwater levels and conditions at their well locations, including what the minimum threshold is at or near their well's location.

5 Evaluate sustainable management criteria: Establish and revise sustainable management criteria based on analysis of understanding of basin conditions and considering potential impacts to drinking water well users; if minimum thresholds are set below 2015 groundwater levels, consider projects and management actions to address impacts or carefully justify how unaddressed impacts are consistent with the basin's sustainability goal.

6 Develop and implement projects and management actions: Support drinking water well users to have a long-term, reliable water supply with projects and management actions that address impacts; avoid projects and management actions that exclude certain drinking water well users and ensure that the benefits of projects and management actions are not arbitrary or inequitable; coordinate with local well permitting agencies to ensure new drinking water wells are constructed to provide reliable supply under minimum threshold conditions and that new, large supply wells will not have impacts on nearby drinking water wells.

7 Continue engagement and fill data gaps: Engage drinking water well users during Plan updates and implementation of projects and management actions; continue filling data gaps that could support and improve the understanding of current and future impacts to drinking water well users.

- **Enhance and maintain a thorough drinking water well inventory.** Many previously submitted GSPs relied on readily accessible, statewide tools to understand and identify drinking water wells in their basins. However, these datasets have limitations and GSAs are encouraged to refine their well inventory to fill data gaps for their basin. This can be achieved using local records, surveys, and/or outreach to water systems, communities, and residents to develop a comprehensive understanding of drinking water well locations and construction and service details within their basin.

Relevant data, information, and resources to support GSAs in identifying drinking water well users are available in the Identifying Drinking Water Well Users Section of the Toolkit

2.2 Perform Public Outreach

Are drinking water well users and interests being informed and engaged throughout implementation and when updates are made to the GSPs?

Performing and documenting outreach is a requirement for GSPs, which must describe the parties that represent drinking water well users and detail the nature of consultation between the GSA and those parties.[24] For consideration, drinking water well users may not be represented or organized in consolidated ways that allow for GSAs to consult with and consider their interests in a single meeting or by meeting with one organization. Furthermore, small water systems typically do not have significant resources or staff, and domestic wells are often a one-well per household system. To alleviate these communication challenges, non-governmental organizations (NGOs) and community-based organizations (CBOs) can represent on behalf of these uses and users. Oftentimes, CBOs operate locally at venues such as churches or community facilities like public libraries, but these organizations may not be present in all areas of the state. Other local or municipal agencies (e.g., city, county, or health departments) may also have information or communication pathways to understand and consult with drinking water well users and well owners. Depending on the specific circumstances in their basins, GSAs may need to consider the following additional ways to meet their obligations to communicate and consult with and consider drinking water well users:

- Perform direct outreach to drinking water well users within their basins.
- Leverage existing communication and consultation pathways established by other existing entities such as NGOs, CBOs, or other local or municipal agencies.
- Coordinate Senate Bill (SB) 552 implementation. Counties fulfilling their responsibilities under SB 552 (described in Section 4.2) are also performing outreach to domestic users and small water systems through local drought task forces. Close coordination between GSAs and counties may therefore increase available information and understanding and foster coordinated activities related to emergency response and projects to build long-term resilience for drinking water well users.

Relevant data, information, and resources to support GSAs in performing public outreach are available in the Public Outreach Section of the Toolkit

24 23 CCR § 354.10 (a).

2.3 Understand Basin Conditions

Is there thorough understanding and analysis of historic, current, and future groundwater conditions and identified locations of wells that may go dry, have potential for water quality impairments, or impacts due to seawater intrusion or land subsidence?

GSP Regulations require GSAs to assess potential future impacts to drinking water well users, including how sustainable management criteria and minimum thresholds may affect drinking water uses and users, land uses, and property interests.[25] Understanding the location and nature of potential future impacts is critical to taking proactive measures to avoid or minimize those impacts and achieve sustainable groundwater management. Potential activities to achieve and demonstrate this understanding as part of GSP implementation could include:

- **Perform a shallow well analysis.** Many previously submitted GSPs used a shallow well analysis to establish sustainable management criteria in their basins. These analyses typically included reviewing production well locations in relation to representative monitoring sites, known well construction information such as well screen and total depth, and describing the beneficial use of the identified shallow wells in the vicinity of each representative monitoring site. In this way, a shallow well analysis informs the GSA when establishing sustainable management criteria by providing an evaluation and disclosure of the potential impacts to shallow production wells, including drinking water well users, of potential groundwater management approaches.

- **Project future groundwater conditions and forecast potential impacts to drinking water well users.** Methodologies to complete such analyses may vary, with some basins leveraging their calibrated numerical models and other basins using simpler methods, such as Geographic Information System (GIS) or spreadsheet analyses. The analysis may identify wells at risk of going dry, experiencing a degradation of water quality, experiencing land subsidence, and/or experiencing seawater intrusion. In particular, the analysis should evaluate the potential impacts at minimum thresholds.[26] If a GSA identifies potential impacts to drinking water wells caused by groundwater extractions projected to occur under intended management of the

23 CCR § 354.16

"Each Plan shall provide a description of current and historical groundwater conditions in the basin, including data from January 1, 2015, to current conditions, based on the best available information that includes…"(d) "… [g]roundwater quality issues that may affect the supply and beneficial uses of groundwater…"

23 CCR § 354.18

(e) "Each Plan shall rely on the best available information and best available science to quantify the water budget for the basin in order to provide an understanding of historical and projected hydrology, water demand, water supply, land use, population, climate change, sea level rise, groundwater and surface water interaction, and subsurface groundwater flow. If a numerical groundwater and surface water model is not used to quantify and evaluate the projected water budget conditions and the potential impact to beneficial uses and users of groundwater, the Plan shall identify and describe an equally effective method, tool, or analytical model to evaluate projected water budget conditions."

CWC § 10721 (e)

"'De minimis extractor' means a person who extracts, for domestic purposes, two acre-feet or less per year."

25 23 CCR §§ 354.18 (e), 354.26 (b)(3), and 354.28 (b)(4).
26 23 CCR §§ 354.28(b)(4).

basin, including impacts to de minimis users[27] and disadvantaged communities, those impacts should be described in the GSP and periodic updates.[28] At a minimum, GSAs should disclose anticipated conditions and work with counties and other entities to respond, and/or implement projects and management actions to assist the identified users or avoid the adverse conditions.

- **Provide data and support to other local entities.** Well owners, counties, drillers, or other interested parties may need to better understand current and potential projected basin conditions, and GSAs should support them with information about sustainable management criteria, monitoring reports, and other data, customized to a particular well site.

Relevant data, information, and resources to support GSAs in understanding basin conditions are available in the Understanding Basin Conditions Section of the Toolkit

2.4 Evaluate Monitoring Network and Representative Monitoring Sites

Do the monitoring networks for the Plan area contain sites that will monitor impacts to drinking water uses and users?

GSP Regulations require GSAs to develop a monitoring network to monitor groundwater management, including impacts to all beneficial uses and users of groundwater, which includes all categories of drinking water well users.[29] Groundwater level and water quality monitoring is particularly important for drinking water users to observe trends in groundwater conditions and anticipate where and when potential drinking water or well impacts may occur. To effectively monitor impacts to drinking water uses and users in their basins, GSAs may need to consider the following when establishing, refining, or evaluating their monitoring network:

23 CCR § 354.34

(a) "Each Agency shall develop a monitoring network capable of collecting sufficient data to demonstrate short-term, seasonal, and long-term trends…"
(b) "…The monitoring network objectives shall be implemented to…"
(2) "Monitor impacts to the beneficial uses or users of groundwater."
(f) "The Agency shall determine the density of monitoring sites and frequency of measurements to demonstrate short-term, seasonal, and long-term trends based upon…"
(3) "Impacts to beneficial uses and users of groundwater and land uses and property interests affected by groundwater production…"

23 CCR § 354.36

(a) "Representative monitoring sites may be designated by the Agency as the point at which sustainability indicators are monitored, and for which quantitative values for minimum thresholds, measurable objectives, and interim milestones are defined."
(c) "The designation of a representative monitoring site shall be supported by adequate evidence demonstrating that the site reflects general conditions in the area."

23 CCR § 354.38

(e) "Each Agency shall adjust the monitoring frequency and density of monitoring sites to provide an adequate level of detail about site-specific surface water and groundwater conditions and to assess the effectiveness of management actions under circumstances that include…"
(3) "Adverse impacts to beneficial uses and users of groundwater."

27 De minimis users are defined in CWC § 10721 (e) as domestic users that extract less than 2 acre-feet per year.
28 CWC § 10723.2 and 23 CCR §§ 354.26(b)(3), 354.28(b)(4), 354.34(b)(2), 354.34(f)(3), 354.38(e)(3), 355.4(b)(4).
29 23 CCR § 354.34 (b)(2).

Considerations for Groundwater Level Monitoring Network

- **Establish monitoring network based on local conditions.** The monitoring network should consider the major geologic features that affect groundwater flow in the basin, which include the principal aquifers and aquitards, faults, and folds,[30] and should include monitoring sites that will represent conditions experienced by drinking water well users identified in Section 2.1 above. This monitoring network should be of a sufficient density to collect measurements through depth-discrete perforated intervals to characterize the groundwater table or potentiometric surfaces for each principal aquifer. Monitoring sites and networks should also inform planning by supporting characterization of seasonal low and seasonal high groundwater conditions.

- **Evaluate areas needing more monitoring and enhance networks.** Identify areas in need of additional monitoring sites or increased monitoring frequency, such as areas currently experiencing declining water levels, dry wells, or issues due to land subsidence. Using well location and depth information described in Section 2.1, evaluate if monitoring sites and selected representative monitoring sites are adequately located, in distance and depth, to monitor groundwater conditions affecting drinking water user wells.

Considerations for Groundwater Quality Monitoring Network

- **Utilize existing water quality monitoring.** Understand and utilize existing water quality monitoring programs when appropriate. Use of existing monitoring programs could, among other potential benefits, save resources, allow for more thorough monitoring when used in conjunction with new monitoring sites added by GSA(s), and provide additional data to characterize basin conditions, understand basin interactions, and reveal long-term or historic trends. If leveraging other water quality monitoring programs for compliance with SGMA, GSPs should explain the correlation and how the requirements of the other programs satisfy the requirements of SGMA and the GSP Regulations.[31]

- **Evaluate the adequacy of monitoring.** GSAs should evaluate the established monitoring frequencies for constituents or other water quality criteria to ensure that the monitoring will effectively identify trends and allow timely management actions.

Considerations for Representative Monitoring Sites

- **Evaluate adequacy of representative monitoring sites to observe potential effects to drinking water well users.** Using well location and depth information described in Section 2.1 and from the established monitoring network, evaluate if selected representative monitoring sites adequately reflect general conditions in the area and can sufficiently monitor groundwater conditions that may affect drinking water uses and users and associated wells.

30 23 CCR § 354.14 (b)(4)(C).
31 23 CCR § 354.34 (e), 23 CCR § 354.34 (g)(1), 23 CCR § 354.34 (g)(2).

Relevant data, information, and resources to support GSAs in establishing monitoring networks and representative monitoring sites are available in the Monitoring Network Section of the Toolkit

2.5 Evaluate Sustainable Management Criteria

Do the sustainable management criteria in the GSP seek to avoid or minimize impacts to drinking water well users?

The sustainable management criteria section in a GSP defines conditions within the basin which constitute sustainable groundwater management, which SGMA defines as the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results related to the six sustainability indicators.[32] As described in the introduction to Section 2, defining sustainable management criteria consists of four components:

- Sustainability Goal[33]
- Undesirable Results[34]
- Minimum Thresholds[35]
- Measurable Objectives[36]

Four of the six sustainability indicators[37] are potentially applicable to drinking water well users:

- Chronic lowering of groundwater levels
- Seawater intrusion
- Degraded water quality
- Land subsidence

The potential effects of these indicators on drinking water uses and users and how a GSP may structure its criteria for these indicators in consideration of drinking water uses and users are discussed in the subsections below.

Relevant data, information, and resources to support GSAs in evaluating sustainable management criteria are available in the Sustainable Management Criteria Section of the Toolkit

32 Sustainability indicators under SGMA consist of chronic lowering of groundwater levels, reduction of groundwater storage, seawater intrusion, degraded water quality, land subsidence, and depletion of interconnected surface water.
33 23 CCR § 354.24.
34 23 CCR § 354.26.
35 23 CCR § 354.28.
36 23 CCR § 354.30.
37 Groundwater storage could potentially affect drinking water users in various ways, including storage lost to aquifer compaction due to subsidence. However, for simplicity this document discusses lowering of groundwater levels and subsidence since they are the root causes of changes in storage.

2.5.1 Chronic Lowering of Groundwater Levels

Domestic and small water system wells are typically drilled shallower than larger agricultural and municipal wells and are often the first to experience the effects of declining water levels, potentially leaving drinking water users and well owners with increased operating or maintenance costs, changes in water quality, or lacking an adequate drinking water supply. While SGMA does not require that all impacts to individual drinking water well users be avoided or mitigated, SGMA and other state laws and policies do require deliberate and careful consideration and a well-supported management approach regarding potential impacts to these users. Attempts to ignore or dismiss such impacts are inconsistent with the intent of SGMA and GSP Regulations. In recognition of the seriousness with which such issues need to be considered and addressed in GSPs, DWR has noted in its determinations how drinking water issues have been addressed in submitted GSPs. DWR's evaluations are on a case-by-case basis using basin-specific circumstances and the management approach of specific Plans. DWR's GSP evaluations[38] elaborate on basin-specific recommendations, and, in conjunction with the guidance in this document, serve as additional insight for how GSAs may address drinking water wells in their basin plans and updates.

The GSP Regulations require GSPs to analyze and disclose the effects of their selected undesirable results and minimum thresholds on beneficial uses and users of groundwater in a basin, which includes drinking water well users.[39] To do so, an adequate understanding of the location and construction details of the drinking water supply wells in the basin is needed, as described in Section 2.1 above. A well impact analysis that uses information on known drinking water supply wells and uses the minimum thresholds at monitoring network sites (which should be located near, and be representative of conditions experienced by, drinking water well users) is encouraged to demonstrate and disclose an adequate understanding of potential impacts to drinking water well users.[40] Results of this analysis should be compared to what is considered significant and unreasonable effects for the basin and convey when undesirable results are encountered.

SGMA does not require that GSPs address undesirable results that occurred prior to and were not corrected by January 1, 2015.[41] Therefore, some GSPs may not contain projects or management actions for previous (prior to 2015) impacts to drinking water wells. However, if minimum thresholds would allow water levels to drop and to potentially cause new undesirable results, and projects and management actions are not proposed that will address the impacts, the GSP should contain a thorough discussion, with supporting facts and rationale, explaining how and why the GSA did not include specific actions to address drinking water impacts from continued groundwater lowering below previous pre-SGMA levels. Such rationale could include, but is not limited to, economic analyses and descriptions of how such lowering is consistent with the GSP's sustainability goal. Conversely, if a GSA maintains that its GSP is not required to address certain impacts to drinking water wells that are considered undesirable results, the GSA should precisely describe those potential impacts and conditions in its basin and explain how it determined they fall within the exclusion provided in CWC § 10727.2(b)(4). Under CWC §10727.2(b)(4), GSAs are not required to address certain previous undesirable results, but they do have discretionary authority to do so if desired.

Based on a well impact analysis, if a portion of drinking water wells are at risk of losing access to adequate drinking water, the GSAs are encouraged to develop and implement projects and management actions to address the potential impacts. Section 2.6 below contains guidance for

38 Available on the SGMA Portal: https://sgma.water.ca.gov/portal/gsp/status.
39 23 CCR §§ 354.26 (b)(3) and 354.28 (b)(4).
40 23 CCR § 354.28 (b)(4).
41 Water Code § 10727.2 (b)(4).

projects and management actions GSAs may want to consider. Furthermore, coordination with counties implementing SB 552, which has requirements related to addressing impacts to drinking water well users, is encouraged as described in Section 4.2 below.

If a GSP proposes a management strategy that relies on a well mitigation program to justify the lowering of groundwater levels that may cause adverse effects to drinking water well users, the GSA must provide enough detail and evidence for DWR to determine whether the mitigation is feasible and likely to prevent undesirable results (e.g, describe the scope of the program, including a timeline for implementation, and how users impacted by continued groundwater level decline will be addressed).[42] With every basin and management approach being unique, the need and scale of such a mitigation program will vary from basin to basin. However, such a program should be reasonably structured so that it does not arbitrarily or inequitably exclude certain drinking water well users and GSAs should be cautious in program requirements that may exclude users based on age of well, location, socioeconomic status, demographics, and other relevant factors.

Relevant data, information, and resources to support GSAs in evaluating their chronic lowering of groundwater levels sustainable management criteria are available in the Chronic Lowering of Groundwater Levels Section of the Toolkit

2.5.2 Seawater Intrusion

Seawater intrusion has the potential to affect drinking water well users in coastal areas. GSP Regulations require that minimum thresholds be based on a chloride concentration isocontour for each principal aquifer and be based on current and projected sea levels.[43] In consideration of drinking water wells that are near an area that may be at risk of experiencing seawater intrusion, GSAs may consider the following guidance:

- **Evaluate if minimum threshold isocontour values are consistent with drinking water uses.** Regulated drinking water systems have a recommended maximum contaminant level for chloride of 250 milligrams per liter[44] and GSAs may consider this an appropriate guideline for drinking water purposes.

- **Establish monitoring wells screened at a similar depth as drinking water wells.** These wells that are used to generate the chloride isocontours should be screened similarly to drinking water wells, since seawater intrusion will vary with depth based on geology and seawater density.

- **Establish sentinel wells.** Monitoring wells on the seaward side of the proposed isocontours should be considered for monitoring. If they are placed strategically, they could allow early detection of intrusion fronts if it is progressing landward.

- **Use electrical conductivity (EC) measurements to better understand seawater intrusion conditions.** EC can serve as a surrogate for seawater intrusion and is a relatively easy and cost-effective measurement to gather in the field. Electrical conductivity transducers can be

42 23 CCR 355.4(b)(5).
43 23 CCR § 354.28 (c)(3).
44 22 CCR § 64449 Table B.

installed in the screen of monitoring wells and record measurements at regular intervals. Frequent measurements can provide valuable insight on how seawater intrusion may change seasonally or based on aquifer stresses.

- **Use geophysics to better understand seawater intrusion conditions.** Geophysical techniques are available that can assist GSAs with understanding and mapping seawater intrusion. Electromagnetic geophysical methods are sensitive to the high electrical conductivity associated with seawater-saturated sediments and are a commonly used method for mapping seawater intrusion. The airborne electromagnetic (AEM) method can be used to map the lateral extent of seawater intrusion in agricultural areas that are not densely populated and provide seawater intrusion interpretations to depths up to 1,000 feet below surface. Towed electromagnetic (t-TEM) methods can be deployed in smaller open spaces and provide seawater intrusion interpretations to depths up to 300 feet. Finally, the electromagnetic tomography (ERT) method can be deployed along coastlines by installing sensors in an array and provides seawater intrusion interpretations to depths that are dependent on the length of the sensor array (typically depths up to 600 feet).

Relevant data, information, and resources to support GSAs in evaluating their seawater intrusion sustainable management criteria are available in the Seawater Intrusion Section of the Toolkit

2.5.3 Degradation of Water Quality

GSP Regulations require that the GSA consider local, state, and federal drinking water quality standards applicable to the basin.[45] Existing water quality standards may include, but are not limited to, those established by the State Water Board's Division of Drinking Water, the Regional Water Quality Control Board's (RWQCB's) basin plan(s), Irrigated Lands Regulatory Program (ILRP), and/or Central Valley Salinity Alternatives for Long-Term Sustainability (CV-SALTS).[46] The GSA may rely on water quality programs for monitoring, but should consider additional monitoring in areas where the drinking water wells are screened at different depths from the program's wells or where there is no existing monitoring.

- **Reevaluate constituents of concern (COCs).** The GSP Regulations require that the GSA set minimum thresholds for water quality degradation that impairs water supplies, which includes drinking water supplies.[47] Therefore, the GSA should describe what groundwater conditions are considered suitable for drinking water use and identify a set of COCs that may affect that suitability and need to be monitored.[48] A reasonable starting point is to review constituents regulated by the State Water Board's Division of Drinking Water with a drinking water standard, evaluate previously collected groundwater quality data in the basin, and identify constituents that may have values elevated above screening thresholds[49], increasing trends, and/or values greater than or at drinking water standards. The selected COCs should be supported by the

45 23 CCR § 354.28 (c)(4).
46 23 CCR § 354.28 (c)(4).
47 23 CCR § 354.28 (c)(4).
48 23 CCR § 354.28 (c)(4).
49 See the Degradation of Water Quality Section of the Toolkit

groundwater conditions section of the GSP. Additional constituents that could be reasonably anticipated based on land uses and hydrogeologic conditions in the basin can be considered as potential COCs.

As mentioned above, domestic and small water system wells are often drilled shallower than larger wells and may be more susceptible to poor water quality from land use activities. Water quality degradation can result from non-point sources such as broad application of fertilizer or pesticides on agricultural lands or from point sources such as concentrated animal feeding operations or contaminated sites from spills or leaks. GSP Regulations require that the GSA consider the potential impact of migrating contaminant plumes when identifying COCs and minimum thresholds.[50] Many locations with contaminated groundwater and contamination plumes are actively regulated by local, state, or federal agencies under various authorities. GSAs should coordinate with these agencies to understand how groundwater management in the basin may be impacting ongoing regulatory activities and overall water quality that may affect drinking water well users in the basin. Such water quality issues, either from contamination or from natural sources, emphasize the need for good monitoring that is representative of conditions experienced by drinking water wells and described in Section 2.4 above.

Relevant data, information, and resources to support GSAs in evaluating their degradation of water quality sustainable management criteria are available in the Degradation of Water Quality Section of the Toolkit

2.5.4 Land Subsidence

GSP Regulations require that GSAs present the best available information to document conditions related to land subsidence in the basin.[51] The GSP must set minimum thresholds at a rate and extent that avoids substantial interference with land uses.[52] To support this, many GSAs have identified infrastructure that are sensitive to changes in ground surface elevation such as canals, aqueducts, pipelines, wastewater systems, railways, roads, and bridges. However, wells are also susceptible to damage from subsidence. Subsidence can cause well casing to collapse, above-ground equipment to fail, and damage sanitary seals that can cause a well to fail or contaminants to enter the well. GSAs should consider the following to protect drinking water well users from these effects:

- **Identify wells that may be susceptible to subsidence.** Both the location and depth of wells in a basin should be determined and considered to understand if they are constructed through clay layer(s) where subsidence-causing compaction may occur and potentially damage wells.
- **Consider drinking water wells when revising sustainable management criteria.** As mentioned above, various types of infrastructure may be at risk of damage due to subsidence and drinking water wells should be considered in revising sustainable management criteria.
- **Monitor for subsidence in areas with drinking water wells.** The subsidence monitoring network should not exclude areas with drinking water wells.

50 23 CCR § 354.28 (c)(4).
51 23 CCR § 354.16 (e).
52 23 CCR § 354.28 (c)(5).

Relevant data, information, and resources to support GSAs in evaluating their land subsidence sustainable management criteria are available in the Land Subsidence Section of the Toolkit

2.6 Develop and Implement Projects and Management Actions

Are there projects and management actions proposed and being implemented that will avoid or minimize impacts to drinking water well users?

The GSP Regulations require GSPs to identify projects and management actions that will achieve the sustainability goal for the basin.[53] GSAs, local agencies, and NGOs or CBOs may benefit from coordination and potential partnerships to plan and prioritize projects and management actions in their respective basins. Examples of the benefits of these partnerships could include identification of details on what will be achieved with a project, who will implement the project, and how a project will be managed.

Some projects and management actions may be proposed and implemented to respond to near-term effects, including emergency needs and drought impacts, where drinking water well users may lose access to adequate drinking water supply. Such actions could include bottled water, tanked water, and treatment measures. These responses should be closely coordinated with local and state emergency authorities along with counties implementing their drought planning responsibilities under SB 552. However, GSAs should also focus on measures that will avoid these conditions and promote long-term sustainability.

Examples of the types of projects and management actions that, depending on circumstances in a basin, could achieve reliable, long-term supplies for drinking water well users include:

- **Management actions**
  - Demand reduction surrounding communities reliant on groundwater for drinking water
  - Adjusting the location of demand, such as creating buffer zones for drinking water users
  - Managed aquifer recharge near communities to replenish shallow aquifers, with considerations of potential water quality effects

- **Alternate supply projects**
  - Shifting drinking water well users to surface water supplies
  - Consolidation of drinking water users into existing community and municipal systems
  - Establishing new community water systems
  - Drilling new wells for drinking water users

- **Well modification projects**
  - Lowering pumps in existing drinking water wells
  - Rehabilitating existing drinking water wells
  - Deepening existing drinking water wells

- **Treatment projects**
  - Point of use or point of entry treatment for drinking water users

The list above is not exhaustive and the types of projects and management actions that may be feasible will vary from basin to basin as determined by the GSAs. When developing or implementing

53 23 CCR §§ 354.24 and 354.44 (a).

such actions, GSAs should strive to include all drinking water well users and should carefully consider any requirements so that assistance to drinking water users is not administered arbitrarily or inequitably as elaborated in Section 2.5.1 above.

GSAs may need to prioritize their projects and management actions. Prioritization factors could include:

- Effectiveness
- Number of users benefitted
- Permitting and environmental considerations
- Water rights
- Cost

Based on the established priority, GSPs should describe the circumstances under which the projects and management actions will be implemented as required by GSP Regulations.[54] However, projects and management actions are often best implemented proactively, meaning GSAs should not necessarily wait for triggering events. Similar to other disasters, once the emergency conditions that impair drinking water supplies are present, it may be too late to implement some of the projects and management actions that would have avoided the impacts had they been implemented sooner.

GSAs may want to engage drillers and well permitting agencies to make sure they are able to determine the minimum threshold at a particular well site if the site is within a medium or high priority basin. Knowing the depth of the minimum threshold will allow them to:

- Inform existing well owners of the level of risk that their well could go dry or experience issues associated with water levels declining to the minimum threshold and allow well owners to take proactive measures
- Inform or require owners and drillers of new wells to drill to a depth which would continue to provide an adequate supply at minimum threshold conditions
- Assess whether a new supply well may have impacts on nearby drinking water wells

Relevant data, information, and resources to support GSAs in developing and implementing projects and management actions are available in the Projects and Management Actions Section of the Toolkit

2.6.1 Funding

Funding to support both short-term emergency efforts and long-term solutions that build resilience may be available from many public sources at the local, county, state, and federal levels. Numerous funding programs require that recipients (GSAs) match the requested grant funding, either in dollars or "in-kind" services.

2.6.1.1 Costs of Addressing Drinking Water Impacts

Specific costs for projects, management actions, and assistance to impacted drinking water well users will depend on the nature, type, and scale of a given project. The Framework for a Drinking Water Well Impact Mitigation Program (2022)[55] provides estimates for well activities such as diagnostics,

54 23 CCR § 345.44 (b)(1)(A).
55 Available at: https://www.selfhelpenterprises.org/wp-content/uploads/2022/07/Well-Mitigation-English.pdf

pump lowering, and new well drilling. While these estimates give an approximation of potential costs to well owners, they can vary widely depending on the size and depth of well, material costs, and other market forces.

2.6.1.2 Funding Sources

Most public financial assistance programs change frequently as the sources of funding for these programs have specific requirements on how and when the dollars must be spent. The website toolkit connected with this document serves as a resource for GSAs and parties whose drinking water sources have been impacted. It will be updated regularly to provide the most current and accurate information regarding applicable financial assistance programs.

2.6.1.2.1 State and Federal Grants and Loans

While there are many relevant financial assistance programs, this section highlights some state and federal funding programs that are likely to continue to be available into the future. The federal and state governments maintain websites that serve as clearinghouses for available funding programs, and DWR and the Sustainable Groundwater Management (SGM) Program also maintain funding websites. Each of these websites are listed below and additional funding programs can be found via internet search of the terms "drinking water", "domestic well", "small community water systems", or simply "water" or "groundwater".

- **Federal:** https://www.grants.gov/
- **California Statewide:** https://www.grants.ca.gov/
- **DWR:** https://water.ca.gov/Work-With-Us/Grants-And-Loans
- **SGM Program:** https://water.ca.gov/work-with-us/grants-and-loans/sustainable-groundwater

2.6.1.2.2 GSA Fees and Assessments

SGMA gives GSAs the authority to levy fees and assessments based on usage, acreage, or other criteria.[56] Some GSAs have already implemented such fees and assessments and others may do so as they implement their GSPs. Such revenue sources may be necessary to implement GSPs and projects and management actions because state, federal, and other funding sources typically have requirements of the types of activities that can be funded and often require cost match or repayment of loans. GSAs may need to explore different fee and assessment processes depending on their governance structure and other relevant laws or policies.

Relevant and current information about potential funding approaches and opportunities are available in the Funding Section of the Toolkit

2.7 Continue Engagement and Fill Data Gaps

Are drinking water well users and interests continually being informed and engaged during GSP implementation activities such as projects and management actions, annual reports, and updates to GSPs?

As GSAs move forward with implementation of their GSPs, keeping the public informed of Plan progress, basin conditions, and the status of projects and management actions is critical[57] and may

56 Water Code §§ 10725 et seq. and 10730 et seq.
57 23 CCR § 354.44 (b)(1)(B).

foster greater community understanding and support of GSA efforts. In basins that identify the potential for impacts to drinking water well users, either during the development of the GSP or through evaluation of new monitoring data, refinements of numerical models, or other mechanisms, ongoing public outreach to engage drinking water well users may provide opportunities to receive feedback and identify creative solutions to address these challenges. Ongoing public outreach with drinking water well users is important to inventory wells in the basin, provide educational materials on well infrastructure and maintenance, involve drinking water users so they can understand groundwater planning and management efforts, and inform them how and with whom to communicate if impacts occur to their wells.

GSAs have data gaps identified in their GSPs, and as part of implementation should be working to fill those gaps and any additional gaps that may have been identified after GSP adoption. GSAs should provide information regarding those data gaps that are filled in annual reports and periodic updates of the GSPs. Such data gaps could help address or further identify potential effects on drinking water users and continual engagement with drinking water users on the changes in the GSPs is encouraged.

Relevant data, information, and resources to support GSAs in performing ongoing public outreach and filling data gaps are available in the Public Outreach and Filling Data Gaps Sections of the Toolkit

3. TOOLS AND RESOURCES

The toolkits on the website are organized to support the guidance presented in Section 2 and aligned with the overall outline of this document. The toolkits are intended to be dynamic and will be updated as new information is available.

The toolkits contain links to reference documents, websites, data, and online tools that have been developed under various state programs. The toolkits focus on state resources, but the website also contains a link to the Groundwater Exchange, which is a useful portal for accessing non-state tools and resources related to groundwater management.

Considerations for Identifying and Addressing Drinking Water Well Impacts Toolkits

4. COMPLEMENTARY PROGRAMS AND INITIATIVES

Complementary programs and initiatives exist that can be aligned to help address impacts to drinking water well users. Alignment and coordination with these initiatives can aid GSAs in the understanding and development of processes for determining if groundwater management and extraction is resulting in impacts to drinking water well users. The initiatives that might be most useful to the GSAs when developing and implementing their GSPs and associated reports and updates include the Drinking Water Principles and Strategies document, SB 552 (Drought Planning for Small

Water Suppliers and Rural Communities), local government general plans, well permitting, and other relevant programs within the basin.

Relevant information, about complementary programs and initiatives are available in the Complementary Programs and Initiatives Section of the Toolkit

4.1 Groundwater Management Principles and Strategies

To fulfill an April 2021 Emergency Proclamation by the Governor, DWR, in coordination with the State Water Board, developed Groundwater Management Principles and Strategies to Monitor, Analyze, and Minimize Impacts to Drinking Water Wells: A Framework for State Action to Support Drought Resilient Communities (Groundwater Management Principles and Strategies). The principles and strategies document provides a shared, interagency framework that captures key actions the state will pursue to help address and minimize impacts to drinking water well users. Strategy 6.2 of the Groundwater Management Principles and Strategies, identifies that the state will, "develop guidance for local agencies to collaborate on mitigation strategies and actions to offset impacts of groundwater pumping and management on drinking water well users in partnership with local agencies and NGOs [Non-Governmental Organizations]". Additional strategies outlined in the Groundwater Management Principles and Strategies document are featured as items in the online toolkit associated with this guidance document. The status of other principles and strategies can be found at the program website https://water.ca.gov/Programs/Groundwater-Management/Drinking-Water-Well.

4.2 Senate Bill 552: Drought Planning for Small Water Providers and Rural Communities

In response to drought conditions, the State Legislature passed SB 552 in September 2021, also known as Drought Planning for Small Water Suppliers and Rural Communities. SB 552 requires state and local governments to share the responsibility for preparing and acting in the case of a water shortage event. Specifically, the law requires small water suppliers (15 to 3,000 connections and serving less than 3,000 acre-feet per year) to develop a water shortage contingency plan and requires counties to assemble a standing drought task force to facilitate drought planning, response and management, and to develop drought resilience plans to prepare for water shortage for state small water systems (serving 5 to 14 connections), domestic wells, and other privately supplied homes within the county's jurisdiction. The requirements of SB 552 were also identified in the Groundwater Management Principles and Strategies document described above, as part of the state's actions that will help address drinking water needs. The nexus of the two programs (SGMA and SB 552) and their differences, including that SGMA applies only to groundwater basins and SB 552 is statewide, is documented and illustrated in a fact sheet on alignment and coordination between the two programs.

Prior to planning or implementing activities to address drinking water impacts, GSAs are encouraged to begin coordination with other local entities such as local water systems and counties. Small water suppliers will have water shortage contingency plans for compliance with SB 552[58] as a stand-alone plan and larger suppliers will have a drought contingency plan as part of their urban water management plans. Under SB 552, counties will have a drought resilience plan that addresses domestic wells either as a stand-alone or as part of an existing county plan such as a local hazard mitigation plan, emergency operations plan, climate action plan, or general plan. The drought

58 DWR's SB 552 website: https://water.ca.gov/Programs/Water-Use-And-Efficiency/SB-552

resilience plan has elements that focus on short-term response as well as long-term strategies, so coordination between GSAs and counties is important.

At a minimum, GSAs should identify who is the county contact for emergency response and/or responsible for drought resilience plans, invite them to be part of the GSP implementation process, and inform them of GSP implementation activities related to drinking water users, and identify opportunities for collaboration on projects and management actions.

4.3 General Plans

Coordination with cities and counties (planning agencies) and their associated general or land use plans can be leveraged to aid GSAs in understanding and avoiding future land use changes that could increase groundwater demand and could result in impacts from groundwater management and extraction practices on drinking water well users. As per California Government Code, "it is vital that there be close coordination and consultation between California's water supply or management agencies and California's land use approval agencies to ensure that proper water supply and management planning occurs to accommodate projects that will result in increased demands on water supplies or impact water resources management."[59]

When a city or county proposes to adopt or substantially amend a general plan, the GSA should receive notification and subsequently provide the planning agency their GSP as well as a report on the anticipated effects of the general plan adoption or amendment on the implementation of the GSP.[60,61] Similarly, a GSP shall "take into account the most recent planning assumptions stated in local general plans of jurisdictions overlying the basin"[62] and "include a description of the consideration given to the applicable county and city general plans and…an assessment of how the groundwater sustainability plan may affect those plans."[63]

Specifically, GSPs shall include description of how the land use elements of general plans, or land use plans, "may change water demands within the basin or affect the ability of the [GSA] to achieve sustainable groundwater management over the planning and implementation horizon, and how the [GSP] addresses those potential effects."[64] . This codified coordination between planning agencies and groundwater management agencies helps to ensure bilateral decision-making regarding existing and future water supplies, demands, and their associated potential impacts on drinking water uses and users.

4.4 Well Permitting

Regulatory authority over well construction, alteration, and destruction typically rests with local jurisdictions, such as the county department of environmental health. However, some cities or water agencies may have gained the well permitting authority for their jurisdictions. GSAs should coordinate closely with these well permitting agencies to ensure that local well ordinances and well permitting processes are consistent with implementation of the GSP and will support sustainability. GSAs should identify the contacts at the well permitting agencies in their basin, invite them to be part of the GSP implementation and modification process, and inform them of GSP implementation activities.

A previous statewide drought emergency executive order required well permitting agencies to obtain written verification from GSAs that a proposed new well or well modification would not "…

59 Government Code § 65352.5(a).
60 Select additional information may be required as per Government Code § 65352.5(d)(2).
61 Government Code § 65352.5(d)(1) and 65352.5(d)(3).
62 Water Code § 10726.9.
63 Water Code § 10727.2(g).
64 23 CCR § 354.8(f)(3).

interfere with the production and functioning of existing nearby wells…", "…cause subsidence…", or "…be inconsistent with any sustainable groundwater management program".[65] As discussed in Section 2.6 above, this type of coordination is intended to help ensure that during drought periods: new wells won't affect nearby drinking water wells, exacerbating drought impacts and potentially leaving them without an adequate drinking water supply. Permitting agencies, drillers, and owners of new wells in high and medium priority groundwater basins should know the depth of the groundwater level minimum threshold at the well site and should construct the well deeper than the minimum threshold, as identified in the GSP.

4.5 Other Relevant Programs

Listed below are a set of other programs that GSAs may want to coordinate with on issues related to impacts to drinking water well users.

- **RWQCBs** – There are nine Regional Water Quality Control Boards throughout the state with each board making decisions for water quality in their region, including setting standards, issuing waste discharge requirements, determining compliance with those requirements, and taking appropriate enforcement actions.
- **GAMA** – The Groundwater Ambient Monitoring and Assessment Program under the State Water Board SWRCB is a comprehensive groundwater quality monitoring program and collaborates with the RWQCBs, DWR, the Department of Pesticide Regulations, U.S. Geological Survey, Lawrence Livermore National Laboratory, and cooperates with local water agencies and well owners to collect water quality information and make the data available to the public.
- **DDW** – The Division of Drinking Water is a program of the State Water Board that regulates public drinking water systems.
- **SAFER** – The Safe and Affordable Funding for Equity and Resilience is a State Water Board program under DDW which focuses on short- and long-term drinking water solutions through the identification of "at risk" systems and wells, providing grants and loans, encouraging community engagement, and, when necessary, regulation and enforcement.
- **ILRP** – The Irrigated Lands Regulatory Program is a State Water Board program designed to prevent agricultural runoff from impairing surface waters, and later included the addition of groundwater regulations.
- **CV-SALTS** – The Central Valley Salinity Alternatives for Long-Term Sustainability is a cooperative effort among regulators, permittees, environmental interests, and other parties to create a comprehensive Central Valley Salinity Management Plan.

65 Executive Order N-7-22 Action 9.