Delta-Mendota Subbasin Coordination Committee Rotation Process

Coordination Agreement Section 5.2.1(b)

"The positions of Chairperson and Vice Chairperson shall rotate among the GSP Groups on an annual basis according to alphabetical order, with the first rotation beginning on the date the first Chairperson is selected. The schedule for rotation among the GSP Groups will be set at the first meeting after the Chairperson is appointed and reviewed and adjusted annually. A GSP Group Representative may waive designation as Chairperson. In such a case the Chairperson office would rotate to the next designated entity."

The first Chairperson (Vince Lucchesi) and first Vice Chairperson (Ben Fenters) were selected during the January 14th Coordination Committee. Below are two schedule options for officer rotation:

Delta-Mendota Subbasin Coordination Committee Officers				
	Option 1		**Option 2**	
Year	**Chair**	**Vice Chair**	**Chair**	**Vice Chair**
2019	N-C 1	N-C 2	N-C 1	N-C 2
2020	N-C 2	SJREC 1	SJREC 1	SJREC 2
2021	SJREC 1	SJREC 2	Aliso	Farmers
2022	SJREC 2	Aliso	Fresno	Grassland
2023	Aliso	Farmers	N-C 1	N-C 2
2024	Farmers	Fresno	SJREC 1	SJREC 2
2025	Fresno	Grassland	Aliso	Farmers
2026	Grassland	N-C 1	Fresno	Grassland
2027	N-C 1	N-C 2	N-C 1	N-C 2

Delta-Mendota Subbasin Coordination Committee

Monday, January 13, 2020, 9:30 AM
San Luis & Delta-Mendota Water Authority Boardroom
842 6th Street, Los Banos, CA

Meeting Minutes

Coordination Committee Members and Alternates Present

Vince Lucchesi – Patterson Irrigation District/Northern Delta-Mendota Region
Ben Fenters – San Luis Water District/Central Delta-Mendota Region (Phone)
Lacey McBride – Merced County/Central Delta-Mendota Region
Jarrett Martin – Central California Irrigation District/SJREC
Jim Stilwell – Farmers Water District
Augustine Ramirez – Fresno County
Ric Ortega – Grassland Water District
Joe Hopkins – Aliso Water District/Provost & Pritchard

San Luis & Delta-Mendota Water Authority Members Present

Seth Harris
Joyce Machado
J. Scott Petersen
Claire Howard – Provost & Pritchard (Phone)

Others Present

Leslie Dumas – Woodard & Curran
Chris Rogers – Central California Irrigation District
Kyle Hill – Central California Irrigation District
Larry Harris – Turner Island Water District (Phone)
Ellen Wehr – Grassland Water District (Phone)
Rick Iger – Provost & Pritchard (Phone)
Andrew Francis – Luhdorff & Scalmanini Consulting Engineers (Phone)
Christina Guzman – Fresno County (Phone)
Juan Cadena – Pancohe Water District (Phone)
Jessica Johnson – Baker Manock & Jensen (Phone)

1. **Call to Order/Roll Call**

   Vince Lucchesi/PID called the meeting to order at 9:33 AM.

2. **Committee to Consider Corrections or Additions to the Agenda of Items, as authorized by Government Code Section 54950 et seq.**

   No corrections or additions were made to the agenda of items.

3. **Opportunity for Public Comment**

No public comments were received.

4. **Committee to Consider Approval of December 9, 2019 Coordination Committee Meeting Minutes**

The Committee reviewed the minutes from the December 9th Coordination Committee meeting; no changes were proposed. Jarrett Martin/CCID provided the motion and Ric Ortega/Grassland seconded. The motion passed unanimously.

5. **Committee to Consider Approval of November 2019 Budget to Actual Report, Harris/Neves**

Seth Harris/SLDMWA presented the budget to actual report, and explained that the report includes Woodard & Curran contract expenses through December 27th as well as projected expenses for their work for January and February 2020. The Committee considered approval of the budget to actual. Ric Ortega/Grassland provided the motion and Augie Ramirez/Fresno seconded. The motion passed unanimously.

6. **Committee to Consider Approval of New Delta-Mendota Subbasin Plan Manager and Secretary, Harris**

The Committee discussed approval of the Delta-Mendota Subbasin Plan Manager and Secretary following Andrew Garcia's departure from SLDMWA. Seth Harris/SLDMWA explained that he is currently listed as the Plan Manager and point of contact for the Subbasin, but wants to seek approval from the Coordination Committee to confirm this role.

The Committee considered approval of Seth Harris and SLDMWA as the acting Plan Manager and Secretary. The Northern and Central Management Committee representatives abstained their votes because these Management Committees had not previously considered approval of this item. This item was considered for approval by roll call:

- Northern Delta-Mendota Region – Abstained
- Central Delta-Mendota Region – Abstained
- San Joaquin River Exchange Contractors – Aye
- Farmers Water District – Aye
- Fresno County – Aye
- Grassland Water District – Aye
- Aliso Water District – Aye

The motion passed 5/0/2.

7. **Committee to Consider Approval of Technical Working Group Recommendation for Update to Common Chapter Regarding Sustainability Indicators for Fresno and Farmers GSPs, Dumas**

Leslie Dumas/W&C explained that Fresno and Farmers GSP Groups have made revisions to their sustainable management criteria (SMC) that are not included in the Common Chapter (and are only included in their respective GSPs). Leslie explained that the Technical Working Group had previously discussed this item on January 6th, and determined that an errata sheet could be developed and included in the final uploaded GSPs that explains the revisions to the SMC data in the Common Chapter, and that this errata sheet could be included in each GSP upload. The Committee determined that the each GSP Group needs to have the same version of the Common

Chapter uploaded to the SGMA Portal, and expressed concern that the majority of GSAs have already adopted the Common Chapter in its current form, which does not include revisions or an errata sheet for this data.

Subsequent conversation revealed that all the GSP Groups, including the Fresno and Farmers GSP Groups, have included the originally-agreed upon version of the Common Chapter in their GSPs and therefore no further action is required on this item. The Committee further decided to defer further discussion on how and when to amend the Common Chapter to a future meeting.

8. **Committee to Consider Approval of Next Steps for 2020 Annual Report, Dumas**

   a. **Format and Scope of Delta-Mendota Subbasin Summary Page or Combined Annual Report**

The Committee discussed the option of developing a single Subbasin-level Annual Report since many of the required graphics will be presented at a Subbasin-level. Leslie Dumas/W&C reminded the Committee that each GSP Group will provide the required numerical data, an evaluation of their respective sustainable management criteria relative to Subbasin status, and an overview of implementation efforts. Leslie is developing a template for review by the Coordination Committee and Technical Working Group members that is based on the SJREC and Northern & Central DM GSP Annual Report templates for consideration in use of the Subbasin-level Annual Report. She will circulate this template and request feedback by the end of the month.

The Committee also discussed that each GSP Group will upload all data into the Subbasin data management system (DMS) by mid-February. A primary objective of the DMS is for it to automate as much of the Annual Report as possible.

   b. **Graphics for Annual Report from Data Management System**

Leslie explained that the Technical Working Group had discussed the level of detail reflected in the graphics included in the Annual Report. The Committee reviewed example graphics for the Annual Report and approved the formats shared. These graphics fulfill requirements outlined in the SGMA Regulations for:

- 356.2(a) a Subbasin location map,
- 356.2(b)(2) general groundwater extraction location and volume,
- 356.2(b)(5)(A) change in storage for each principal aquifer, and
- 356.2(b)(5)(B) a graph depicting water year type, groundwater use, and annual and cumulative change in storage

   c. **Data Management System Definitions**

The Committee discussed that the DMS should reference "explanations" rather than "definitions." These explanations and locations are almost complete.

   d. **Process for Estimating Lower Aquifer Change in Storage**

The Committee determined that lower aquifer change in storage will be determined based on land surface elevation utilizing the same estimation process as was used in developing the GSPs.

The Committee considered approval of these items for the Annual Report. The Northern and Central Management Committee representatives abstained their votes because these

Management Committees had not previously considered approval of this item. This item was considered for approval by roll call:

- Northern Delta-Mendota Region – Abstained
- Central Delta-Mendota Region – Abstained
- San Joaquin River Exchange Contractors – Aye
- Farmers Water District – Aye
- Fresno County – Aye
- Grassland Water District – Aye
- Aliso Water District – Aye

The motion passed 5/0/2.

9. Committee to Discuss Status of GSP Uploads, Dumas

Leslie Dumas/W&C asked each GSP Group for their status on their respective GSP upload process. Jarrett Martin/CCID confirmed that the San Joaquin River Exchange Contractors GSP has been uploaded; Grassland and Aliso GSPs are targeting a final upload by January 17th; Northern & Central DM GSP is targeting a final upload by January 16th; Farmers and Fresno GSPs are targeting a final upload by January 22nd.

10. Committee to Discuss Scope of Post-GSP Submittal Outreach and Coordination, Dumas

a. Newsletter/Mailchimp

b. Quarterly Open House

c. News Blast for GSP Adoption and Implementation Starting February 1st

The Committee discussed post-GSP submittal outreach. Leslie Dumas/W&C reminded the Committee that outreach within the implementation phase should continue to be consistent and coordinated as during the GSP development phase. The Committee discussed that a Subbasin-wide newsletter will be shared in January to wrap up the GSP development portion of outreach. In February, a newsletter will be shared that kicks off GSP implementation, the DWR public comment period, and highlights any relevant upcoming dates. The Coordination Committee members agreed to continue with the newsletters as part of the ongoing outreach efforts.

11. Committee to Discuss Proposition 68 Grant, Dumas/Harris

a. Reminder for Resolutions in Support of WSID as Applicant from Each GSA

Leslie Dumas/W&C reminded the Committee to collect authorized Proposition 68 resolutions from each GSA. Once compiled, these resolutions will be submitted to DWR to accompany the previously submitted Proposition 68 grant application.

b. Discuss Initiation of Proposition 68 Project

Jarrett Martin/CCID explained that the SJREC are initiating the well inventory project outlined in the Proposition 68 application by coordinating with Ken Schmidt specifically for the SJREC GSP region. Leslie explained that while she is confident the Subbasin will received the grant funding, any work that begins prior to funding being confirmed will be at-risk. In order for these projects to proceed at a Subbasin-level, approval will be needed from all GSAs to authorize at-risk project initiation.

12. Committee to Discuss Draft MOI with Merced for Future Interbasin Coordination, Dumas/Harris

The Committee discussed opportunities for interbasin coordination and referenced a draft memorandum of intent with Merced Subbasin that was developed using a previously authorized agreement between Merced and Turlock Subbasins. The Committee acknowledged that any agreements the Delta-Mendota Subbasin authorizes for continued interbasin coordination will be authorized after the Delta-Mendota GSPs are submitted to DWR. This topic will be revisited in future meetings to discuss the intent of interbasin coordination specific to Merced Subbasin as well as objectives for other neighboring subbasins.

13. Committee to Discuss Coordination Committee Meeting Frequency, Harris

Seth Harris/SLDMWA explained that Coordination Committee meetings will continue every month through Annual Report development and submission. After this, the Coordination Committee can revisit their intended meeting frequency.

14. Committee to Discuss Interbasin Meeting Frequency, Harris

Jarrett Martin/CCID explained that he will continue to reach out to Chowchilla and Madera Subbasins regarding a next opportunity for an interbasin meeting. Seth Harris/SLDMWA noted that additional interbasin coordination can proceed by coordinating through specific Delta-Mendota Subbasin GSP groups, although all GSP groups will be invited to participate. Interbasin meetings will be revisited following GSP submission to the Committee's goals and next steps.

15. Committee to Discuss Report on DWR Basin Prioritization and Scoring, Dumas

Leslie Dumas/W&C explained that DWR recently released updated basin prioritization and scoring information and that the scoring for the Delta-Mendota Subbasin anticipates a 57.51% population growth by 2040. She explained that this information on population projection may not be fully reflective of anticipated population changes and that the GSAs should keep an eye on this in case DWR chooses to use this same prioritization scoring for other groundwater management initiatives.

16. Committee to Discuss Use of New Conference Call Line, Harris

Seth Harris/SLDMWA shared that he will look into opening a free conference call line for future SGMA meetings. He will confirm that this new line will not have any limits for number of participants.

17. Next Steps

- All GSP Groups are on track for final GSP upload by the January 31st deadline
- The Northern & Central Delta-Mendota Management Committees will approve the items that they had to abstain on during this meeting
- Representatives will review the Annual Report template distributed by Leslie
- The Coordination Committee will discuss processes for developing coordinated comments on other GSPSs during DWR's public comment period and for addressing comment letters received by the Delta-Mendota Subbasin GSPs following GSP submission and the 60-day public review period
- All GSAs must share authorized Proposition 68 resolutions with Leslie by the end of February
- Seth Harris will confirm use of new conference line

18. Reports Pursuant to Government Code Section 54954.2(a)(3)

No topics were discussed under this item.

19. ADJOURNMENT

The meeting was adjourned at 12:34 PM.

SAN LUIS & DELTA-MENDOTA WATER AUTHORITY

P O Box 2157 Los Banos, CA 93635
(209) 826-9696 Phone (209) 826-9698 Fax

MEMO

TO: Delta-Mendota Subbasin Coordination Committee
FROM: Seth Harris, SLDMWA
SUBJECT: Coordination Committee Budget to Actual
DATE: February 10, 2020 Committee Meeting

Budget:
Overall budgeted expenditures for the Coordination Committee are $621,282.
Budget for Woodard & Curran contract expenses is $511,615.

Expenses:
SLDMWA expenses through January 2020 are $92,054 or 16% of expenses.
Woodard & Curran invoices through December 2019 total $458,538 or 78% of expenses.
Woodard & Curran projected remaining expenses through February 2020 total $34,738 or 6% of expenses.

Bottom Line (Excluding Budget Additions):
Budget remaining for Coordination Committee is $35,952 or 6%.

SAN LUIS & DELTA-MENDOTA WATER AUTHORITY
MARCH 1, 2018 - FEBRUARY 29, 2020
SUSTAINABLE GROUNDWATER MANAGEMENT ACT COORDINATED EXPENSES

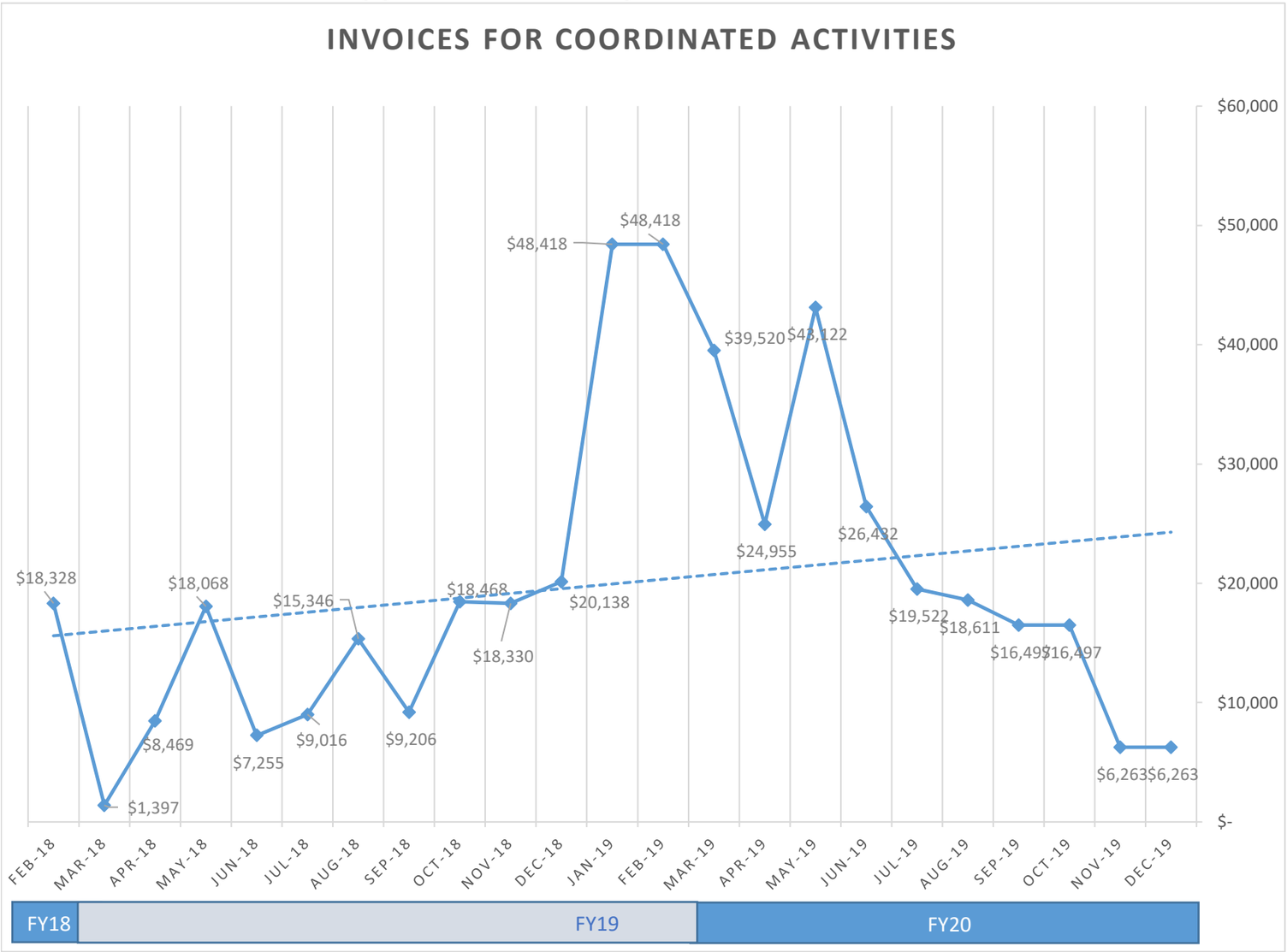
Report Period thru January 31, 2020
***Subject to Rounding**

EXPENDITURES		Overall Budget	Previous Expenses	Expenses from 3/1/19	Pending	Total Expenses to Date	Amount Remaining	% of Budget Spent	% of Amt Complete	Expenses Through
Legal										
		$ -	$ 2,006	$ 1,071	$ -	$ 3,077	$ (3,077)			1/31/2020
Authority Salaries & Outside Admin Costs										
Includes 30% for payroll costs		$ 109,667	$ 41,536	$ 44,999	$ -	$ 86,535	$ 23,132	79%		1/31/2020
Other Services and Expenses										
Meetings, Telephone, Travel, etc.		$ -	$ 1,539	$ 903	$ -	$ 2,442	$ (2,442)			1/31/2020
Contracts										
Task 1	Funding Administration (Cat 1)	$ 47,660	$ 20,943	$ 33,043	$ -	$ 53,986	$ (6,326)	113%	70%	12/31/2019
Task 2	Data Management (Cat 1)	$ 41,902	$ 5,080	$ 13,860	$ -	$ 18,940	$ 22,962	45%	62%	12/31/2019
Task 5	Intrabasin Coordination	$ 273,943	$ 184,475	$ 135,354	$ -	$ 319,829	$ (45,886)	117%	75%	12/31/2019
Task 6	Interbasin Coordination	$ 95,030	$ 11,440	$ 5,365	$ -	$ 16,805	$ 78,225	18%	76%	12/31/2019
	(Includes Coordinated Water Budget)									
Task 9	Outreach and Education	$ 10,640	$ 18,919	$ 564	$ -	$ 19,483	$ (8,843)	183%	75%	12/31/2019
Task 12	Prop 68 Grant Application	$ 42,440	$ -	$ 29,495	$ -	$ 29,495	$ 12,945	69%	70%	12/31/2019
	W&C Projected Expenses				$ 34,738	$ 34,738	$ (34,738)			2/29/2020
	subtotal	*$ 511,615*	*$ 240,857*	*$ 217,681*	*$ 34,738*	*$ 493,276*	*$ 40,132*	96%		
	OVERALL TOTAL	$ 621,282	$ 285,938	$ 264,654	$ 34,738	$ 585,330	$ 35,952	94%	57%	

Revenues Collected through Invoicing	$ 187,005.64	
Invoice Revenues Outstanding	$ 26,561.86	
Category 2 Revenues Received (Reimbursement Package 1)	$ 818,954.29	Reimbursement 1 received for GSP development for N-C DM ($443,361.60), Aliso ($107,074.71), and SJREC ($268,517.98)
Category 2 Revenues Disbursed (Reimbursement Package 1)	$ (818,954.29)	
Category 2 Revenues Received (Reimbursement Package 2)	$ 269,265.10	Reimbursement 2 received for GSP development for Grassland ($123,933.38) Farmers ($112,621.50), and SJREC ($32,710.22)
Category 2 Revenues Disbursed (Reimbursement Package 2)	$ (269,265.10)	

Coordination Committee Expenses

Invoices Approved February 2018 to December 2019



FY18	Feb-18	$	18,328
FY19	Mar-18	$	1,397
	Apr-18	$	8,469
	May-18	$	18,068
	Jun-18	$	7,255
	Jul-18	$	9,016
	Aug-18	$	15,346
	Sep-18	$	9,206
	Oct-18	$	18,468
	Nov-18	$	18,330
	Dec-18	$	20,138
	Jan-19	$	48,418
	Feb-19	$	48,418
FY20	Mar-19	$	39,520
	Apr-19	$	24,955
	May-19	$	43,122
	Jun-19	$	26,432
	Jul-19	$	19,522
	Aug-19	$	18,611
	Sep-19	$	16,497
	Oct-19	$	16,497
	Nov-19	$	6,263
	Dec-19	$	6,263
Invoiced Contract Total		$	458,538
W&C Projected Costs		$	34,738
SLDMWA Expenses to Date		$	92,054
Coordinated Expenses to Date		$	585,330
Total Overall Budget		$	621,282
Total Budget Remaining		$	35,952

*Subject to Rounding

MEMORANDUM

TO: Delta-Mendota Subbasin Coordination Committee

FROM: Seth Harris, Water Resources Coordinator

DATE: February 10, 2020

RE: Increase to Fiscal Year 2020 SGMA Services Activity Agreement Budgets and Amendment to GSP Development Contract for Coordinated Activities

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BACKGROUND

The San Luis & Delta-Mendota Water Authority is coordinating the development of six Groundwater Sustainability Plans (**GSPs**) for the participating GSP Groups within the Delta-Mendota Subbasin (**Subbasin**). The Delta-Mendota Subbasin is categorized as a high-priority critically overdraft subbasin, so it is required to submit GSPs by January 31, 2020 and begin implementation of these GSPs starting February 1, 2020. The six Delta-Mendota GSPs were successfully submitted on January 23, 2020.

Woodard & Curran is the primary consultant leading the GSP development efforts in the Northern & Central Delta-Mendota Region and also supports the Delta-Mendota Subbasin Coordination Committee, which consists of representatives from each GSP Group in the Subbasin. The consultant services agreement and task order outlining this support expired on January 31, 2020. In order for the Coordination Committee's activities in the Subbasin to continue to receive needed support through the Woodard & Curran team, it is necessary to increase the Fiscal Year 2020 contract budget and extend the timing of the GSP development contract. The proposed budget increase and contract amendment include tasks for the Northern & Central Delta-Mendota Region GSP development, Subbasin coordinated activities, and ongoing grant management within the Subbasin. The items outlined for ongoing grant management are recoverable through the current grant agreement.

The tasks covered under the proposed Fiscal Year 2020 budget increase and contract amendment for the Subbasin coordinated activities include coordination for the Subbasin-level Annual Report, supporting and attending regular Coordination Committee, Technical Working Group, and DMS coordination meetings through February 2020, and ongoing subconsultant invoicing through February 2020.

The Northern and Central Management Committees voted to recommend approval of this budget increase and contract amendment authorization for the SLDMWA Board of Directors during the January 30th Joint Northern and Central Delta-Mendota Region Management Committees meeting. The SLDMWA Board of Directors approved this increase during the February 6th SLDMWA Board of Directors meeting contingent upon approval by the Coordination Committee during the February 10th Coordination Committee meeting.

ISSUE FOR DECISION

Whether the Coordination Committee should approve an increase to the Fiscal Year 2020 SGMA Activity Agreements budget related to coordinated activities and authorize an amendment to the consultant services agreement with Woodard & Curran for GSP development.

RECOMMENDATION

Staff recommends the proposed Fiscal Year 2020 budget increase and consultant services agreement amendment.

ANALYSIS / IMPLICATIONS

The proposed budget increase and contract amendment will allow Woodard & Curran services to continue to ensure compliance of SGMA regulations and necessary grant administration within the Delta-Mendota Subbasin.

The SLDMWA Board of Directors approved this budget increase and contract amendment during the February 6th Board meeting. This Board approval is contingent upon the Coordination Committee's approval of the coordinated costs during the February 10th Coordination Committee meeting.

BUDGET

The proposed Fiscal Year 2020 budget increase and contract amendment that the Coordination Committee is considering for approval include coordination for the Subbasin-level Annual Report, supporting and attending regular Coordination Committee, Technical Working Group, and DMS coordination meetings through February 2020, and ongoing subconsultant invoicing through February 2020.

The proposed Fiscal Year 2020 budget increase that the Coordination Committee is considering for approval is $13,744 ($2,291 for each of the six GSP Groups). Tasks included in this component are coordination for the Subbasin-level Annual Report, consistent with direction received by staff from the Committee to proceed with a coordinated Annual Report. These activities will continue through submittal of the Annual Report by April 1, 2020. This coordinated activities budget also includes budget for Woodard & Curran to support and attend February meetings for the Coordination Committee, Technical Working Group, and DMS coordination through February 2020 and ongoing subconsultant invoicing through February 2020.

The proposed increase for the Fiscal Year 2020 budget also includes grant administration activities related to the current grant agreement. The total proposed increase for these tasks is $238,557. Activities within this component are fully reimbursable by Category 1 funding. This budget increase will allow the Woodard & Curran team to continue its coordination role as it pertains to grant management. This budget will also cover Woodard & Curran's sub-consultants and their respective projects: Houston Engineering, Inc's work related to the Coordinated Data Management System and Stantec's work related to facilitation and outreach. Activities within this component will continue through the end of May 2020.

Estimated Effort to Completion
February 2020 (except for continued Grant Admin through May 2020)

Task/Work Item		Leslie Dumas	Natalie Cochran	Ian Jaffe	Admin	ODCs	
Unit Rate		$282	$187	$221	$110		
1	Upload monitoring site data and time series data to SGMA Monitoring Module	4	16				- through February 2020
2	General communication/coordination - NCDM	24	10				- through February 2020
11	Coordination for Subbasin-level Annual Report	16	16				- coordination, preparation of common written sections (e.g. ExSum)
12	General communication - Coord	20				$600	- general coordination; Feb coordination committee meeting, TWG meetings; DMS coordination; and subconsultant invoicing.
3	Jan/Feb Invoicing and progress reports	1		6	3		- general coordination relating to grant management through completion (estimated to be May 2020). All of these charges should be recoverable under the grant agreement
4	Complete Reimbursement Package #4			8			
5	Reimbursement Package #5			40			
6	Final Grant Proposal Report	4		40			
7	Reimbursement Package #6 - Retention Request			40			
8	Grant management coordination	8		32			
13	Completion of Cat1 - DMS work (HEI)					$69,499	- through May 2020
14	Completion of Cat1- Tech Assist work (Stantec)	12				$124,992	- through May 2020

Total No. of Hours - NCDM	28	26	0	0	
Total Est Labor Costs - NCDM	$12,758				
Total ODCs - NCDM	$0				
Total Est Cost - NCDM	$12,758				
Total No. of Hours - Coord	36	16	0	0	
Total Est Labor Costs - Coord	$13,144				
Total ODCs - Coord	$600				
Total Est Cost - Coord	$13,744	$2,291	<= Each GSP Group cost		
Total No. of Hours - Grant Funded	25	0	166	3	
Total Est Labor Costs - Grant Funded	$44,066				
Total ODCs - Grant Funded	$194,491				
Total Est Cost - Grant Funded	$238,557				

DELTA-MENDOTA SUBBASIN ANNUAL REPORT

Executive Summary

TO BE WRITTEN AND IMPORTED EXTERNALLY (Coordinated Effort)

General Information

Commented [LD1]: Stock section; WY number auto populated by DMS

The Groundwater Sustainability Agencies (GSAs) comprising the Delta-Mendota Subbasin have prepared this Annual Report for Water Year XXXX (WYXXXX) in compliance with California Code of Regulations (CCR) Title 23, Division 2, Chapter 1.5, Subchapter 2, Article 7 Annual Reports and Periodic Evaluations by the Agency. CCR 23 §356.2 outlines the annual report's required content.

The Delta-Mendota Subbasin (DWR Basin 5-022.07) is located in the San Joaquin Valley Groundwater Basin and adjoins nine (9) subbasins of the San Joaquin Valley Groundwater Basin. The Delta-Mendota Subbasin boundaries generally corresponds to DWR's California's Groundwater Bulletin 118 – Update 2003 (Bulletin 118) groundwater basin boundaries. The western San Joaquin Valley is a highly agricultural region with an economy dependent on that industry. There are no large cities or industries in the Delta-Mendota Subbasin to provide an alternative economic base; hence the availability of Central Valley Project (CVP) imported supplies and surface water supplies (primarily from the San Joaquin and Kings Rivers) are essential elements to the economic health of the region. Other uses of CVP and surface water in the Subbasin are for municipal and industrial (M&I) purposes and wildlife refuge water supply. The Delta-Mendota Subbasins, and the six Groundwater Sustainability Plan (GSP) regions it contains, are shown in Figure 1.

Groundwater is a key component of overall water supplies in the Delta-Mendota Subbasin. Agricultural and wildlife refuge needs may be supplemented by groundwater for areas with access to CVP water. Other landowners within the Subbasin may rely wholly on groundwater for irrigation and/or potable purposes. Municipal and industrial (M&I) water use, which is a small share of total water use in the Subbasin, occurs primarily within the cities and predominantly uses groundwater to meet those demands. The largest M&I use areas in the Delta-Mendota Subbasin, based on 2015 population estimates from the U.S. Census Bureau, are the cities of Patterson (population 21,498) and Los Banos (population 37,457) (U.S. Census Bureau, 2015). Smaller communities in the Subbasin include Grayson, Tranquillity, Mendota, Firebaugh, Dos Palos, Santa Nella, Newman, Gustine, Crows Landing, Westley, Volta and Vernalis, all of which have economies greatly dependent on agricultural production.

This annual report is broken into the following six sections:

- Groundwater Elevation Data (1)
- Groundwater Extraction Data (2)
- Surface Water Supply (3)

- Total Water Use/ Consumptive Use (4)
- Change in Groundwater Storage (5)
- Plan Implementation (6)

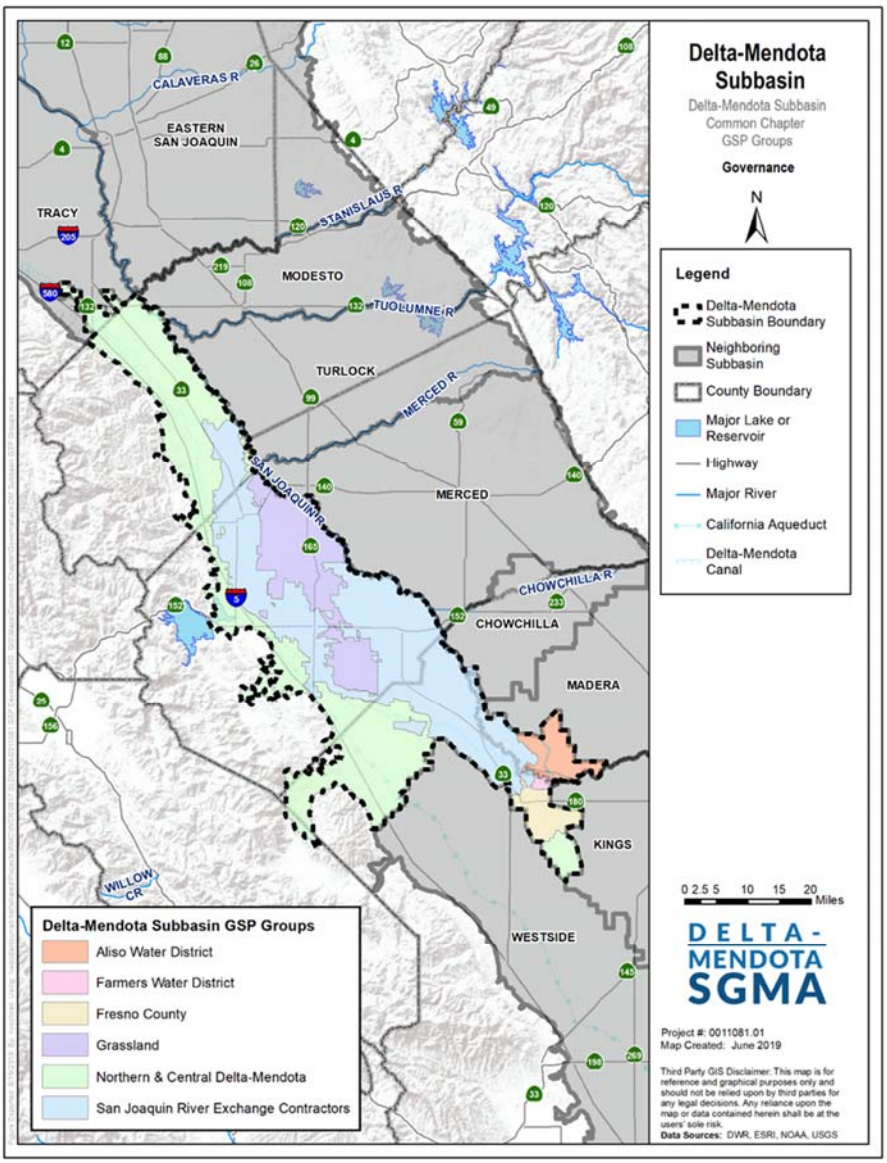
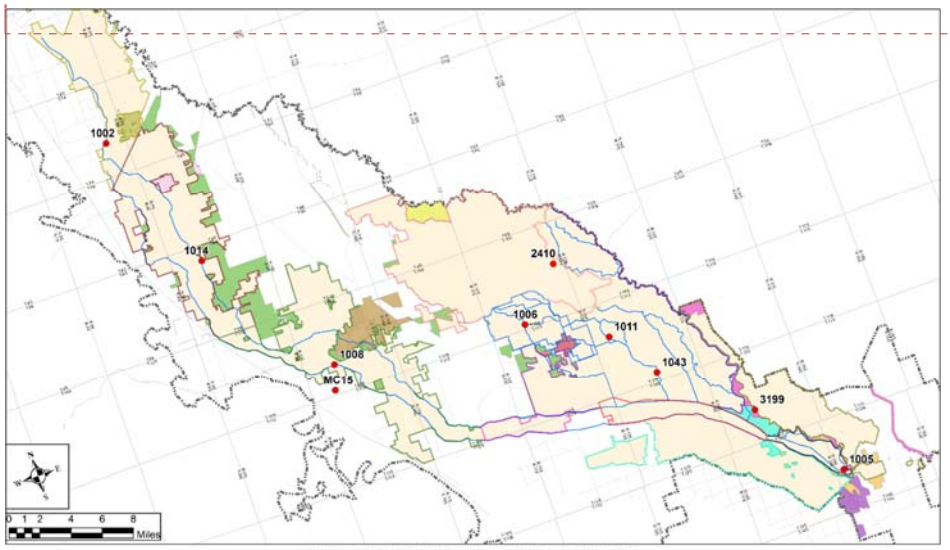


Figure 1: Delta-Mendota Subbasin and GSP Regions

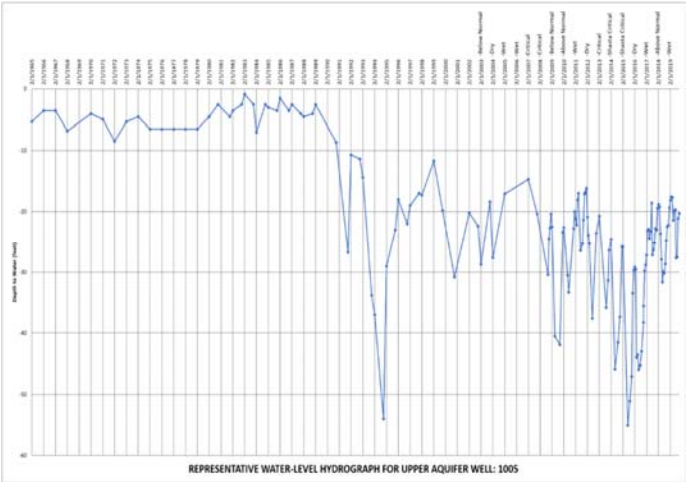
1. Groundwater Elevation Data

Groundwater elevation data is presented below as groundwater surface elevation contour maps. These maps were generated from collected data to illustrate the seasonal high and seasonal low conditions in each principal aquifer (Upper Aquifer and Lower Aquifer) in the Delta-Mendota Subbasin. Hydrographs of groundwater elevations indicating water year type are also included below for each well in the Subbasin's representative monitoring network for groundwater levels.

ADD TEXT HERE DESCRIBING THE CURRENT GROUNDWATER ELEVATION CONDITIONS (e.g. PUMPING DEPRESSIONS) AND SIGNIFCANT CHANGE IN CONDITIONS FROM PRIOR CONTOUR MAPS



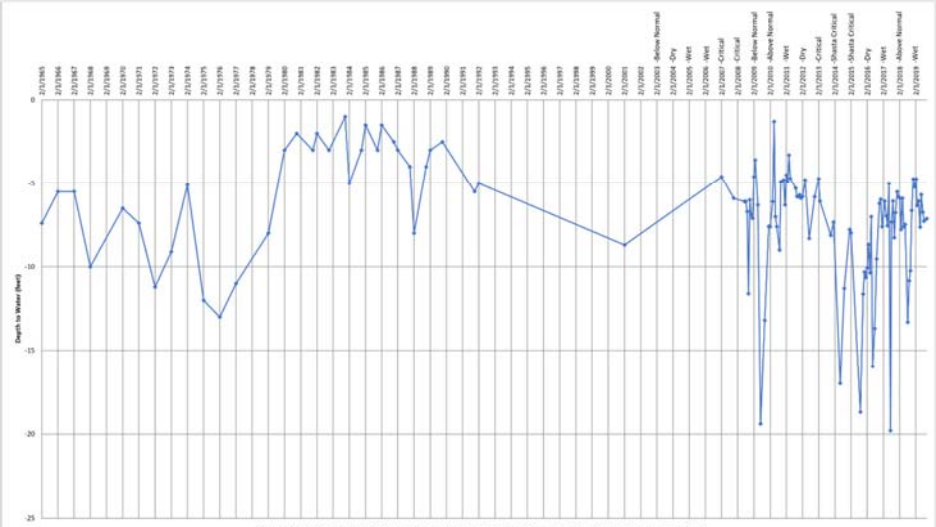
REPRESENTATIVE WELL SITE LOCATIONS



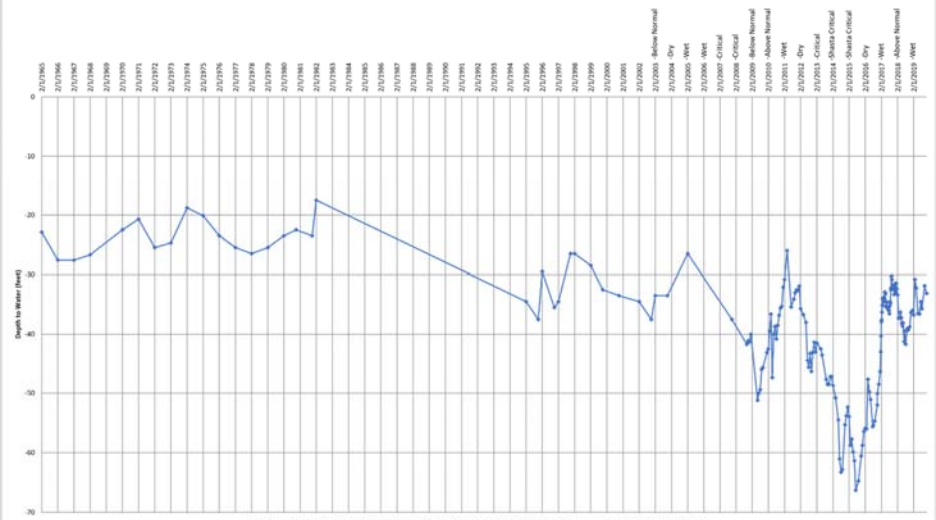
REPRESENTATIVE WATER-LEVEL HYDROGRAPH FOR UPPER AQUIFER WELL: 1005

Commented [LD2]: Included in this section are WSE maps for both principal aquifers, a Subbasin map showing the representative monitoring locations, and hydrographs for each representative monitoring location for water levels.

Hydrographs for all representative monitoring locations will be auto generated by the DMS



REPRESENTATIVE WATER-LEVEL HYDROGRAPH FOR UPPER AQUIFER WELL: 1006



REPRESENTATIVE WATER-LEVEL HYDROGRAPH FOR UPPER AQUIFER WELL: 1008

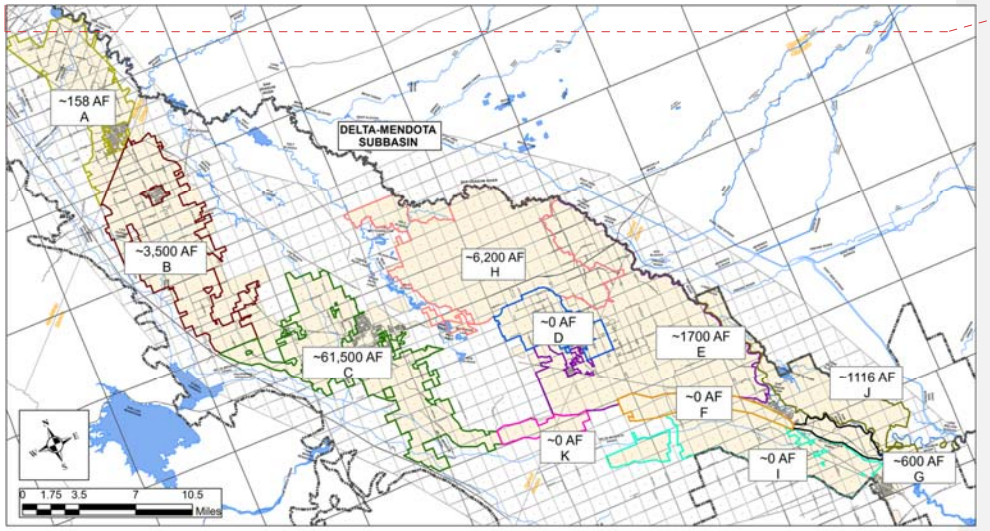
THERE WILL BE MORE HYDROGRAPHS AUTO-GENERATED BY THE DMS, ONLY INCLUDED A FEW AS EXAMPLE.

2. Groundwater Extraction Data

The following groundwater extraction data are a combination of direct measurements and estimates from each of the six GSP Regions in the Delta-Mendota Subbasin. The accuracy of the measurements and estimates vary on a site-by-site basis and range from 0 to XX%.

Groundwater Extraction (Acre-Feet)			
Water Use Sector	**2019 WY Total**	**Measurement Method (Direct or Estimate)**	**Measurement Accuracy (%)**
Urban/Domestic/Municipal	24,878	Estimate	N/A
Industrial	5,062	Estimate	N/A
Agricultural	67,800	Estimate	N/A
Managed Wetlands	3,664	Estimate	N/A
Outside Subbasin	0	Estimate	N/A

Commented [LD3]: This table auto-populated by DMS



GROUNDWATER EXTRACTIONS BY MANAGEMENT AREA (2018 - 2019)

Commented [LD4]: This figure (below) would be a map of the subbasin showing 'reporting areas' – either GSA areas, management areas or other areas used to estimate groundwater extractions. (A new base map would be prepared for use in both the groundwater extraction and change in storage graphics.) A box within or pointing to each area will contain the volume of groundwater extractions during the reporting WY

3. Surface Water Supply for Recharge

Surface water supply used or available for use, for groundwater recharge or in-lieu use is reported as quantitate data describing annual volume and water sources. The following surface water supply data are a combination of direct measurements and estimates from each of the six GSP Regions in the Delta-Mendota Subbasin. The accuracy of the measurements and estimates vary on a site-by-site basis and range from 0 to XX%.

Surface Water Supply (Acre-Feet)			
Surface Water Source	**2019 WY Total**	**Measurement Method (Direct or Estimate)**	**Measurement Accuracy (%)**
Imported	729,394	Estimate	N/A
Surface Water - River	0	Estimate	N/A
Surface Water - Creek	0	Estimate	N/A

N/A – Not Applicable
River - Kings and/or San Joaquin Rivers
Creek - Any naturally-occurring surface water course other than the Kings or San Joaquin Rivers

Commented [LD5]: This table auto-populated by DMS

4. Total Water Use

Total water use by water use sector and supply is shown in the tables below. These data are a combination of direct measurements and estimates from each of the six GSP Regions in the Delta-Mendota Subbasin. The accuracy of the measurements and estimates vary on a site-by-site basis and range from 0 to XX %.

Summary of Total Water Use (Acre-Feet)			
Total Water Use	**2019 WY Total**	**Measurement Method (Direct or Estimate)**	**Measurement Accuracy (%)**
Urban/Domestic/Municipal			
Groundwater	###	Estimate	N/A
Imported Surface Water			
Surface Water – River			
Surface Water Creek			
Total			
Industrial			
Groundwater	###		
Imported Surface Water			
Surface Water – River			
Surface Water Creek			
Total			
Agricultural			
Groundwater	###		
Imported Surface Water			
Surface Water – River			
Surface Water Creek			
Total			
Managed Wetlands			
Groundwater	###		
Imported Surface Water			
Surface Water – River			
Surface Water Creek			
Total			
Managed Recharge			

Commented [LD6]: This table auto-populated by DMS

Summary of Total Water Use (Acre-Feet)			
Total Water Use	**2019 WY Total**	**Measurement Method (Direct or Estimate)**	**Measurement Accuracy (%)**
Groundwater	###		
Imported Surface Water			
Surface Water – River			
Surface Water Creek			
Total			
Native Vegetation			
Groundwater	###		
Imported Surface Water			
Surface Water – River			
Surface Water Creek			
Total			
Outside Subbasin			
Groundwater	###		
Imported Surface Water			
Surface Water – River			
Surface Water Creek			
Total			

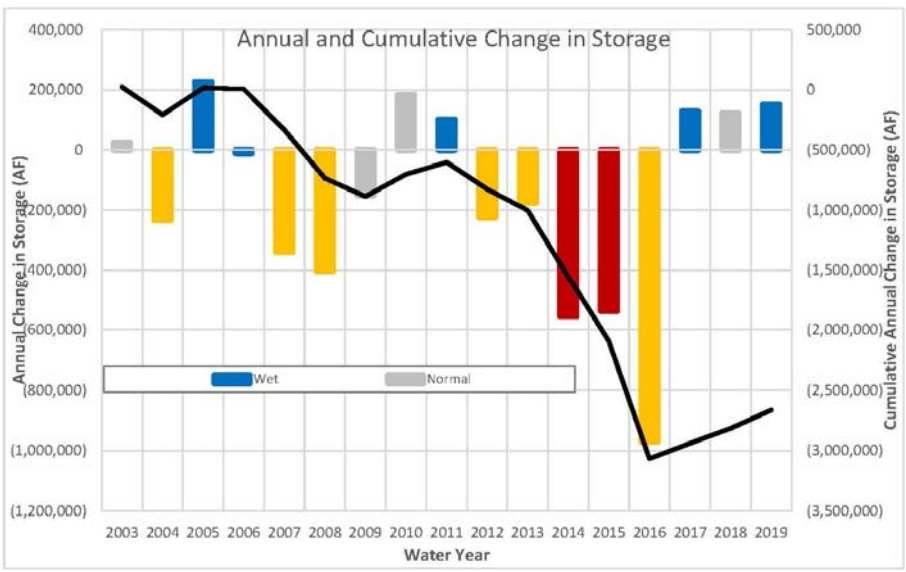
Commented [LD6]: This table auto-populated by DMS

5. Change in Groundwater Storage

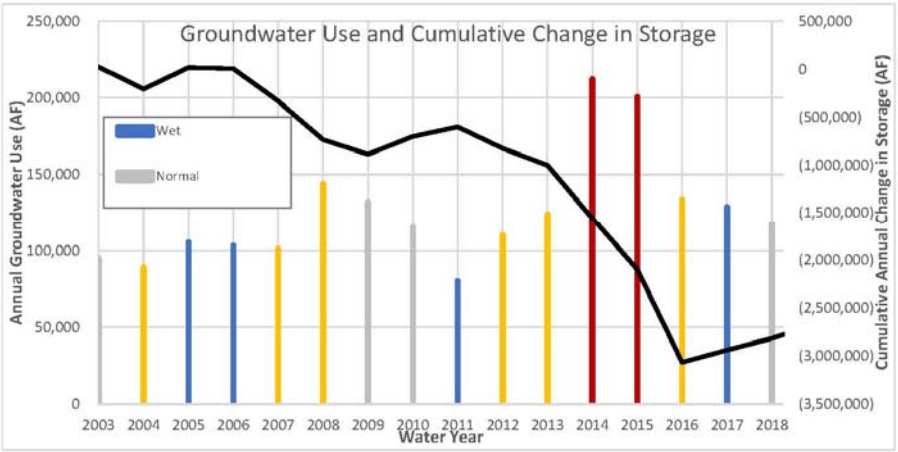
The change in groundwater storage for the Delta-Mendota Subbasin is shown below in a series of graphs depicting groundwater use and annual change in groundwater storage from 2015 – 2019 with cumulative change in storage. Figure X also shows the change in storage by principal aquifer.

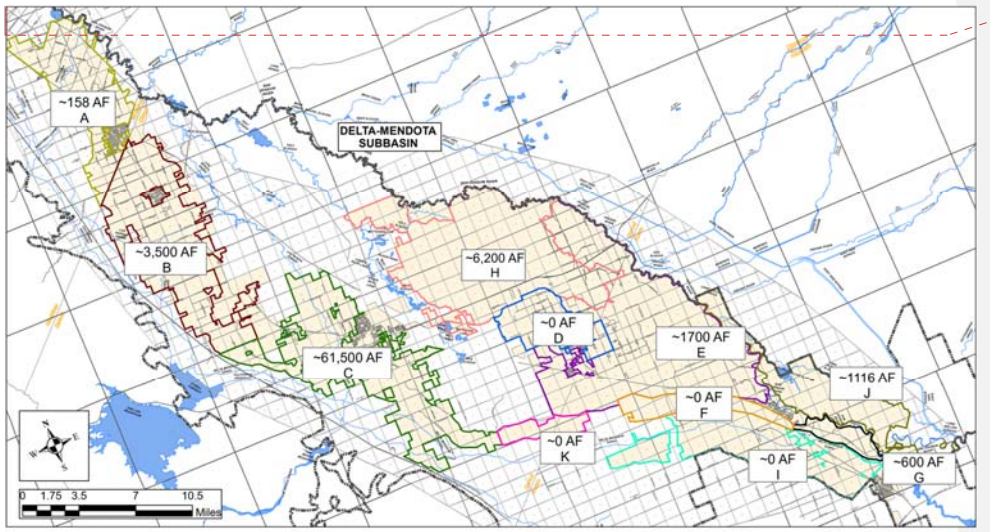
Change in Storage (Acre-Feet)	
Principal Aquifer	**2019 WY Change in Storage**
Upper Aquifer	729,394
Lower Aquifer	5,216
Total	82,591

Commented [LD7]: This table auto-populated by DMS



Commented [LD8]: Note that the color bars denote water year type (a reporting requirement). The legend got cut off in this graphic and in the next graph





GROUNDWATER EXTRACTIONS BY MANAGEMENT AREA (2018 - 2019)

Commented [LD9]: This map would use the same base map as the groundwater extraction map but the call-out boxes would have two numbers, likely different colors, representing the change in storage in each principal aquifer.

6. Plan Implementation

The following describes each of the six GSP Group's progress toward implementing their respective plan, including progress towards achieving interim milestones and the implementation of projects and management actions. Cumulatively, these efforts provide the required advancement towards achieving and maintaining groundwater sustainability in the Delta-Mendota Subbasin.

ADD SUMMARY STATEMENT OF SUBBASIN-WIDE STATUS – THIS WOULD BE PREPARED EXTERNAL TO THE DMS-GENERATED ANNUAL REPORT

6.1 Northern & Central Delta-Mendota GSP Region Progress

ADD TEXT HERE FROM DM DMS

6.2 San Joaquin River Exchange Contractors GSP Region Progress

ADD TEXT HERE FROM DM DMS

6.3 Grassland GSP Region Progress

ADD TEXT HERE FROM DM DMS

6.4 Aliso GSP Region Progress

ADD TEXT HERE FROM DM DMS

6.5 Farmers GSP Region Progress

ADD TEXT HERE FROM DM DMS

6.6 Fresno Management Areas A & B GSP Region Progress

ADD TEXT HERE FROM DM DMS

Commented [LD10]: Revise subsection titles to match GSP titles

Commented [LD11]: These comment sections (one for each GSP) would be input into the DMS by the GSP Group and auto-populated here in the report

January 29, 2020

Wade Crowfoot
Secretary, California Natural Resources Agency
1416 9th St.
Sacramento CA 95814

Karla Nemeth
Director, California Department of Natural Resources
1416 9th St.
Sacramento CA 95814

Taryn Ravazzini
Deputy Director, California Department of Natural Resources
1416 9th St.
Sacramento CA 95814

Subject: Key Findings from a Review of 31 Public Draft Groundwater Sustainability Plans

Dear Secretary Crowfoot, Director Nemeth, and Deputy Director Ravazzini;

The undersigned organizations non-profit organizations who are deeply engaged in and committed to the successful implementation of the Sustainable Groundwater Management Act (SGMA) because we understand that groundwater is a critical piece of a resilient California water portfolio, particularly in light of our changing climate. Because California's water and economy are interconnected, the sustainable management of each basin is of interest to both local communities and the state as a whole.

Pursuant to California Water Code (CWC) § 10723.8(a)(4) and § 10723.2, as part of Sustainable Groundwater Management Act (SGMA) compliance, a Groundwater Sustainability Agency (GSA) must consider the interests of all beneficial uses and users of groundwater as part of developing and implementing a Groundwater Sustainability Plan (GSP or Plan), including environmental users of groundwater and disadvantaged communities (DACs). Because sustainable groundwater conditions are to be defined locally, engagement of all beneficial users - especially DACs and environmental users - is a necessary component of the process.

To assess whether beneficial users are being engaged and how that engagement is being incorporated into plans, our organizations, with the support of Water Foundation, conducted a detailed review of 31 Public Draft GSPs that were developed for the following 16 critically overdrafted basins and subbasins:

- Chowchilla Subbasin (DWR 5-22.05)

- Delta-Mendota Subbasin (DWR 5-22.07)
- Eastern San Joaquin Groundwater Subbasin (DWR 5-22.01)
- Indian Wells Valley Groundwater Basin (DWR 6-54)
- Kaweah Subbasin (DWR 5-22.11)
- Kern County Subbasin (DWR 5-22.14)
- Kings Subbasin (DWR 5-22.08)
- Madera Subbasin (DWR 5-22.06)
- Merced Subbasin (DWR 5-22.04)
- Paso Robles Subbasin (DWR 3-04.06)
- Pleasant Valley Basin (DWR 4-06)
- Salinas Valley – 180/400-Foot Aquifer Subbasin (DWR 3-04.01)
- Santa Cruz Mid-County Groundwater Basin (DWR 3-001)
- Tulare Lake Subbasin (DWR 5-22.12)
- Tule Subbasin (DWR 5-22.13)
- Westside Subbasin (DWR 5-22.09)

Our organizations provided in-depth comments on each draft GSP on issues pertaining to environmental beneficial users of groundwater and DACs (California Code of Regulations [CCR] 23 § 355.4(b)(4) and CWC §10723.2), providing constructive input to the GSA to support revision of the draft GSPs prior to the January 31, 2020 statutory deadline for submittal to the California Department of Water Resources (DWR or Department) [CWC § 10720.7(1)(1)].

In order to facilitate the review of the draft GSPs, we developed a form (i.e., the GSP Review Form) to provide structure and consistency across our reviews, and used these forms as the basis of the comments we submitted to the GSAs. We also posted our letters to the SGMA Portal as comments on each GSP's initial notification.

The intent of this letter is to summarize the key findings and takeaways from our review to aid DWR's evaluation GSPs. Accordingly, we are providing two attachments to this letter:

- **Attachment A** is a blank version of the GSP Review Form. Minor modifications were made to this form throughout the review process, and thus the forms submitted to GSAs early in the review process may differ slightly from the attached version.
- **Attachment B** is a table summarizing the results of our review of the 31 draft GSPs (specifically, the answers to the yes/no questions included in the GSP Review Forms).

The issues identified in Attachment B and discussed below reflect issues that we highlighted in our comment letters to GSAs. Given that we have provided the GSAs with these comments, it is our hope that many of the issues identified here will be addressed in final versions submitted to DWR, pursuant to CCR 23 § 354.10. Notice and Communication.

In our review we considered DWR's criteria for plan evaluation from §355.4 of the Regulations. The following paragraphs are particularly relevant for our areas of concern:

(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.

(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.

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

In reviewing plans with these criteria in mind, we identified three major areas of concern:

1. **Despite legal requirements, the identification and engagement of environmental and disadvantaged groundwater users has been uneven and often inadequate;**
2. **The shortcomings in identifying and engaging beneficial users in many plans has resulted in inadequate evaluation of impacts to DACs, groundwater dependent ecosystems (GDEs) and beneficial users of surface water;**
3. **If left unaddressed, the shortcomings in identifying and evaluating impacts to beneficial users could lead to the adoption of plans that do not meet sustainability requirements.**

1. Despite legal requirements, the identification and engagement of environmental and disadvantaged groundwater users has been uneven and often inadequate.

a. <u>In many cases, the duration and timing of the GSP public review process did not support the incorporation of meaningful public input</u>

The GSP Regulations do not specify a specific duration for public comment on the draft GSPs.[1] As a result, the length of the draft GSP public review periods varied greatly. Of the GSPs we reviewed and tracked, approximately 45% of GSAs provided a 90-day comment period, approximately 20% provided a 60-day public comment period, and approximately 35% provided less than a 60-day comment period. Given the size, complexity, and importance of these documents, short public comment review periods are not sufficient for all interested stakeholders to fully review, evaluate and provide substantive comments. Further, the deadlines for public comment were not always clearly identified.

Pursuant to 23 CCR § 355.4(b)(10), DWR must make a determination of "Whether the Agency has adequately responded to comments that raise credible technical or policy issues with the Plan." Many public review periods ended in December 2019, leaving very little time for GSAs to make changes to the

[1] CWC § 10728.4. Adoption or Amendment of Plan Following Public Hearing: "A groundwater sustainability agency may adopt or amend a groundwater sustainability plan after a public hearing, held at least 90 days after providing notice to a city or county within the area of the proposed plan or amendment. The groundwater sustainability agency shall review and consider comments from any city or county that receives notice pursuant to this section and shall consult with a city or county that requests consultation within 30 days of receipt of the notice. Nothing in this section is intended to preclude an agency and a city or county from otherwise consulting or commenting regarding the adoption or amendment of a plan."

GSPs in response to the public comments received and still meet the January 31, 2020 deadline, particularly given the time needed to adopt a Plan and complete the submission process. Some GSAs even acknowledged this at their adoption hearings, explaining that detailed comments received could not be considered and addressed in the time available prior to GSA board adoption. Leaving insufficient time to make appropriate changes based on public comments, including those that raise credible technical or policy issues per 23 CCR § 355.4(b)(10), negates the objective of holding a public review and comment period. In these cases, the public review and comment process as implemented by GSAs did not meet the needs of the public or the intent of the process.

Recommendations:

- ***In consideration of the truncated review process for many of the draft plans and the length and complexity of the plans themselves, we ask DWR to consider extending the public comment period for final plans submitted to the Department well beyond the 60-day minimum specified in statute.***
- ***Given the variation in public comment periods, we suggest that DWR update its regulations to provide more specific direction to ensure a minimum of 90 days for public comment on complete draft GSPs and a minimum of 45 days for the GSA to integrate feedback prior to GSA board adoption of a Plan. Similar direction should be provided for plan updates.***

b. Many draft GSPs did not accurately identify environmental and DAC beneficial users of groundwater or interconnected surface waters (ISWs).

The GSP Regulations require that GSAs "consider the interests of all beneficial uses and users of groundwater" in the basin, including environmental users of groundwater, and DACs (including those served by private domestic wells or small community water systems), per CWC § 10723.2.

Of the 31 GSPs reviewed, 87% identified that DACs were beneficial users of groundwater within their respective Plan Areas. Although DWR made the DAC Mapping tool available for public use, over half of the GSPs either did not use this as a resource, or did not clearly cite the source(s) used to determine whether DACs were present in the Plan Area, including whether data was considered at the Census Place, Census Block Group, and/or Census Tract level. The GSAs should clearly document the data they used to evaluate the presence or absence of DACs, and clearly map the locations and extents of DACs. This should be done in order to fully describe, and make transparent to the public, the beneficial uses and users of groundwater, per 23 CCR § 354.10(a).

Only half of the draft GSPs reviewed clearly identified environmental users as beneficial users of groundwater. Based on our review, we believe that the majority of draft GSPs did not sufficiently evaluate the presence of GDEs and/or did not thoroughly present the data to support their conclusions on the presence and extent of GDEs. Many GSAs did not fully utilize relevant publicly available resources, including: (1) DWR's Natural Communities Commonly Associated with Groundwater (NCCAG) Dataset Viewer,[2] (2) The Nature Conservancy's GDEs under the SGMA Guidance for Preparing GSPs,[3] and (3) Groundwater Resource Hub Freshwater Species List.[4] Thus, we believe that on the whole, the areas identified as confirmed or potential GDEs in the draft GSPs are likely to underrepresent the actual extent of these ecosystems.

[2] https://gis.water.ca.gov/app/NCDatasetViewer/
[3] https://www.scienceforconservation.org/assets/downloads/GDEsUnderSGMA.pdf
[4] https://groundwaterresourcehub.org/sgma-tools/environmental-surface-water-beneficiaries/

The first step in identifying GDEs is to use local groundwater data to confirm whether mapped features in the NC dataset are supported by groundwater. Many GSPs ignored basic hydrologic principles when identifying the presence of GDEs. The common issues included (listed in general order of prevalence):

- Depth to groundwater maps were either not presented or little explanation was given to indicate how the maps were prepared. Accurate contours of depth-to-groundwater along streams and other land surface depressions where GDEs are commonly found are essential. The first step in developing depth to groundwater contours should be contouring groundwater elevations, and then subtracting this layer from land surface elevations from a Digital Elevation Model (DEM) to estimate depth to groundwater contours across the landscape.
- Seasonal and interannual groundwater conditions were not characterized. Fluctuations in the groundwater regime should be characterized in space and time to improve understanding of the seasonal and interannual groundwater variability in GDEs. Depth to groundwater data from multiple seasons and water year types (e.g., wet, dry, average, drought) should be used to determine the range of depth to groundwater around NC dataset polygons.
- Inappropriate groundwater wells were chosen to characterize conditions at GDE units. For example, wells tapping deep aquifers, or wells without sufficient well construction information, were used to exclude GDE units from further consideration based on depth to groundwater measurements.
- GDEs were eliminated based on dependence on surface water flows. However, ecosystems often rely on both groundwater and surface water. Adverse impacts can occur to GDEs due to pumping that further separates groundwater from surface water.

If insufficient data are available to describe groundwater conditions within or near potential GDE units, GSAs should include those areas in the GSP until data gaps are reconciled in the monitoring network.

Only about 30% of GSPs reviewed included a complete evaluation of interconnected surface waters, including maps identifying gaining and losing stream reaches. None of the reviewed GSPs appear to have adequately quantified stream depletions seasonally. ISWs are best estimated by first determining which reaches are completely disconnected from groundwater. This approach would involve comparing groundwater elevations with a land surface Digital Elevation Model that could identify which surface waters have groundwater consistently below surface water features, such that an unsaturated zone would separate surface water from groundwater. Rarely did draft GSPs cross-sections and/or corresponding hydrographs show the relationship between the stream channels and the depth to groundwater at wells near the stream. The regulations [23 CCR §351(o)] define ISWs as "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." "At any point" has both a spatial and temporal component. Even short durations of interconnections of groundwater and surface water can be crucial for surface water flow and supporting environmental users of groundwater and surface water.

As a result of ignoring or excluding GDEs and ISWs in the basin setting portion of the plan, many important ecological resources were not considered, as required, in subsequent sections of the GSP. This will inevitably lead to negative impacts to these natural resources, which could be as severe as irreversible loss of habitat or species.

Few GSPs transparently mapped the location of key beneficial users, including DACs, GDEs and environmental beneficial users of surface water, relative to the location of the proposed monitoring sites. Mapping this information is necessary to assess whether the monitoring network is adequate to

"monitor impacts to the beneficial uses or users of groundwater," per 23 CCR § 354.34(b)(2). Because these users are not considered in developing the monitoring network, impacts will continue to be unreported or underreported.

Recommendation: A key determinant in Plan adequacy should be whether monitoring sites are adequate, in terms of location, number and depth, to detect impacts to beneficial uses and users of groundwater - including DACS, GDEs, and ISWs.

c. <u>DAC and environmental representatives were not formally included on stakeholder advisory committees</u>

CWC § 10727.8 (a) allows GSAs to "appoint and consult with an advisory committee consisting of interested parties for the purposes of developing and implementing a groundwater sustainability plan." While many GSAs report that Stakeholder Advisory Committees (SAC) were formed to support and provide input into the GSP development process, the draft GSPs typically did not include details of who the SAC members were, and what organizations or interests they represent. Based on the information presented in the GSPs reviewed, only 18% of GSPs were clear that they had a SAC and that the membership included DAC representatives. While additional stakeholder advisory committees may have included DAC representation, such information was not clearly presented in the draft GSPs and thus it appears that DACs were, for the most part, not included in the SAC process. Draft GSPs are similarly unclear as to the extent environmental users and representative organizations were included in the process. Understanding the extent that DACs and environmental users were included in SACs and other aspects of GSP development will be important in order for DWR to make a determination under 23 CCR § 355.4(b)(4) as to "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."

Recommendation: DWR should update its regulations - or at minimum issue new guidance - to ensure that the structure, membership and role of any stakeholder advisory committee be included in the communications plan and Plan updates and that all beneficial users are represented.

2. The shortcomings in identifying and engaging beneficial users has resulted in inadequate evaluation of impacts to DACs, GDEs and beneficial users of surface water.

a. <u>Most draft GSPs do not fully evaluate the impacts to beneficial users in their development of sustainable management criteria for chronic lowering of water levels</u>

GSAs must consider potential impacts to beneficial uses in the development of their GSPs, including in the development and description of undesirable results [23 CCR § 354.26(b)(3)], minimum thresholds [23 CCR § 354.28(b)(4)], and monitoring networks [23 CCR § 354.34(f)(3) and 23 CCR §354.38(e)(3)].

Given that many drinking water wells, GDEs and ISWs depend on the shallow portion of the managed aquifer, these users represent some of the most vulnerable groundwater users because they will be the first to suffer as groundwater levels decline.

Based on the reviewed GSPs, the methods used by GSAs to develop and set water level measurable objectives (MOs) generally fell into one of the following categories (listed in general order of frequency):

- Relative to projected future water levels taking into account some level of projects and management actions to mitigate groundwater declines.
- Relative to projected future water levels assuming current practices continue, with no assumed projects and management actions.
- Relative to observed historic low (drought) water levels.
- Relative to an assumed period of sustained drought conditions.
- Relative to seawater intrusion conditions.

In some areas, the selected MOs reflect increased water levels relative to current conditions; however, in many areas the MOs reflect continued declines in water levels, often on the order of 50 to 100 feet lower than current conditions and exceeding 150 feet lower than current conditions in some areas.

Based on the reviewed GSPs, the methods used by GSAs to develop and set their water level minimum thresholds (MTs) generally fell into one of the following categories (listed in general order of frequency):

- Relative to an assumed period of sustained drought conditions.
- Relative to projected future water levels assuming current practices continue, with no assumed projects and management actions.
- Relative to observed historic low (drought) water levels.
- Relative to well impacts or dewatering of wells based on well construction information.

In some areas, the selected MTs also reflect increased water levels relative to current conditions. However, the MTs in most areas reflect substantial continued declines in water levels, often on the order of 100 feet lower than current conditions and exceeding 300 feet lower than current conditions in some areas.

In addition to the values set as MTs, it is also important to note that many GSAs have defined undesirable results (URs) associated with chronic lowering of water levels to occur only when MTs are exceeded at multiple monitoring points and/or only when they have been exceeded for a multi-year period. Taken with the fact that the MT values were rarely developed with specific consideration for impacts to vulnerable beneficial users (DAC drinking water users and GDEs), we are concerned that the actual impacts will be far greater than those analyzed and presented in the GSPs.

Based on our review, when MO and MT values are compared spatially on a map, there are, in some cases, steep gradients that would be created between nearby wells – both within a given Plan Area and between adjacent management areas and basins – that may not be achievable or realistic. This information is rarely presented clearly in the draft GSPs, and is not acknowledged and discussed.

Recommendation: In order to meet the "substantial compliance" requirements for plan adequacy, plans should be required to:

- ***Calculate and transparently present on maps the anticipated decline in water levels for MOs and MTs (separately) relative to current groundwater conditions. These maps should clearly identify the locations of beneficial users, including DACs, populations dependent on domestic***

wells for drinking water, small community water systems, known and potential GDEs, and beneficial users of surface water.

- ***Include maps reflecting anticipated water level contours if MO and MT values are met at all monitoring locations, including anticipated effects of MOs and MTs set by adjacent GSAs. Include a discussion of anticipated changes in groundwater gradients and the effects this can have on beneficial users, including the potential for changes in water quality.***
- ***Identify the location and number of domestic wells that would be anticipated to be impacted at the MOs and MTs, utilizing well construction information available in DWR's Well Completion Report Map Application. Include an estimate of the population anticipated to be affected under these conditions.***
- ***Identify the location and number of public water system wells that would be anticipated to be impacted at the MOs and MTs. Include an estimate of the population anticipated to be affected under these conditions.***
- ***If Undesirable Results (URs) are defined as being when a certain percentage of wells exceed their MTs, the GSP should evaluate potential scenarios where these conditions are met, and quantify and present the anticipated impacts to beneficial users (domestic well users, small community water system customers, GDEs, and DACs) at these conditions.***

The information needed to perform these analyses should be readily available to the GSAs, given the content already compiled for the development of the GSP. If the analyses are incomplete, the GSAs should reasonably be able to provide this within a 180-day period [consistent with a minor deficiency under 23 CCR § 355.2(e)(2)(b)].

b. <u>The draft GSPs do not fully evaluate the impacts to beneficial users in their development of sustainable management criteria for degraded water quality</u>

GSAs must consider potential impacts to beneficial users in the development of their GSPs, including in the development and description of undesirable results [23 CCR § 354.26(b)(3)], minimum thresholds [23 CCR § 354.28(b)(4)], and monitoring networks [23 CCR § 354.34(f)(3) and 23 CCR §354.38(e)(3)].

Based on the reviewed GSPs, the methods used by GSAs to develop and set their water quality MOs and MTs generally fell into one or more of the following categories:

- Drinking water standards (typically California Maximum Contaminant Levels [MCLs] and Secondary MCLs [SMCLs]).
- Agricultural standards.
- Prevention of increasing concentrations.

The regulations require that DWR make a determination of "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," per 23 CCR § 355.4(b)(3).

While many GSPs identified MOs and MTs for at least one water quality constituent, in approximately half of the GSPs reviewed, the presented information was insufficient to clearly identify the water quality MOs and MTs, and where they would be applied. For example, some GSAs defined the MOs and MTs as a certain level of increase relative to a baseline period, but do not clearly present the baseline values or

calculate and present the concentrations that would be the actual criteria value. In other cases, the draft GSPs described that either drinking water standards or agricultural standards would be used depending on each representative monitoring well's use, but the draft GSP does not clearly identify which set of standards will be used for specific representative monitoring wells. Thus, in many cases, it is not clear how the GSA intends to define and meet sustainability with respect to degraded water quality or how the monitoring network will be used to monitor impacts to the beneficial uses or users of groundwater [23 CCR § 354.34(b)(2)].

Recommendations:

- ***DWR should, in consultation with the State Water Resources Control Board, update SGMA regulations to more clearly specify minimum water quality requirements for GSPs.***
- ***DWR should, in consultation with the State Board, develop best management practices for incorporating water quality into GSPs.***

c. Most draft GSP water budgets do not include outflows for all required water use sectors

The regulations require that water budgets quantify "Outflows from the groundwater system by water use sector" [23 CCR § 354.18(b)(3)] and define water use sector as "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**" [23 CCR § 351(al)]. The regulations further require that "water budget information shall be reported in tabular and graphical form" [23 CCR § 354.18(a)].

As with many aspects of the GSPs, there is a broad range of ways that GSAs have developed and presented their water budgets. Only about half of the GSPs we reviewed clearly included and presented demands for drinking water users (urban and otherwise) in the future water budgets, and only about 20% of GSPs included demands by domestic well users in the future water budget. While agricultural demands are typically quantified and well identified in future water budgets, only approximately 30% of GSPs clearly quantified and included demands for native vegetation in the projected water budgets. Similarly, most GSPs with large managed wetland complexes did not account for managed wetland water demands in current or projected water budgets. Where drinking water and native vegetation demands may have been included in GSA water budgets, such information was not clearly presented in tabular and/or graphical form, and thus it appears that the water budgets presented in the draft GSPs do not account for all groundwater outflows per 23 CCR § 354.18(b)(3).

Recommendation: DWR should clarify that GSAs are required to quantify and present the water use sector demands in their historical, current, and projected water budgets, in tabular format, with individual line items for each water use sector, including urban (drinking water), managed wetlands, and native vegetation. The information needed to perform these analyses is readily available to the GSAs, given the content already compiled for the development of the GSP. GSAs should reasonably be able to provide this within a 180-day period [consistent with a minor deficiency under 23 CCR § 355.2(e)(2)(b)].

d. Most draft GSP water budgets do not adequately integrate climate change projections

The regulations require GSAs "…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." [23CC § 354.18 (e)].

While most of the draft Plans explicitly incorporated climate change into their projected water budgets, less than half of the reviewed Plans (42%) considered multiple climate change scenarios. Given the uncertainty on precipitation projections, it is important to develop multiple scenarios that account not only for wetter and drier periods, but also for intraannual and interannual hydroclimate shifts, such as the change in the ratio of precipitation falling as rain versus snow, or the timing and volume of winter and spring runoff. Seventy-one percent of the GSPs we reviewed explicitly incorporated climate projections into their future precipitation and evapotranspiration estimations; even fewer basins incorporated climate projections for surface water inflows (42%) and outflows (58%). Considering that evapotranspiration may be the leading outflow mechanism in some basins, it is vital to correctly account for it in projected water budgets.

It is critical that GSPs integrate climate change into all elements of the water budgets in order to rely on the best available information for setting MOs, MTs, and sustainable management criteria. If the water budgets are incomplete, then there is increased uncertainty in virtually every subsequent calculation used to plan for projects, derive measurable objectives, and set minimum thresholds. Plans that do not adequately include climate change projections may underestimate future impacts on ecosystems and interconnected surface water or overestimate the value of management actions or sustainability projects.

Recommendations:

- ***Require the integration of climate change projections in every element of the water budget.***
- ***Update requirements for project management actions to estimate benefits under climate change scenarios. Management actions should show benefits under multiple future scenarios; this requires that they be designed in a way that allows the flexibility to adapt to a broad range of hydroclimate futures.***

3. If left unaddressed, the shortcomings in identifying beneficial users and evaluating the impacts of continued groundwater overdraft on them could lead to the adoption of plans that do not meet sustainability requirements.

a. <u>The draft GSPs do not fully demonstrate whether projects and management actions are likely to prevent undesirable results</u>

The regulations require that DWR make a determination of "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" [23 CCR § 355.4(b)(5)]. Based on our review, the potential benefits and impacts to DACs, domestic well users, and GDEs are not well identified or discussed in most of the draft GSPs we reviewed (i.e., only about 25% of GSPs clearly discuss these for DACs), and thus DWR does not have sufficient information to determine whether projects and management actions are feasible to prevent undesirable results.

Below is a summary of the proportion of draft GSPs that identified various types of demand management and supply augmentation projects in their planned projects and management actions. The most commonly identified supply augmentation projects are recharge projects.

Identified Demand Management Measures	Yes	No	N/A
Irrigation efficiency program	42%	32%	3%
Ag land fallowing (voluntary or mandatory)	55%	19%	3%
Pumping allocation/restriction	61%	13%	3%
Pumping fees/fines	48%	26%	3%
Development of a water market/credit system	48%	26%	3%
Prohibition on new well construction	16%	58%	3%
Limits on municipal pumping	13%	58%	6%
Limits on domestic well pumping	3%	71%	3%
Other	39%	35%	3%
Identified Supply Augmentation Projects	**Yes**	**No**	**N/A**
Increasing existing water supplies	45%	29%	3%
Obtaining new water supplies	52%	23%	3%
Increasing surface water storage	42%	32%	3%
Groundwater recharge projects – District or Regional level	71%	3%	3%
On-farm recharge	32%	42%	3%
Conjunctive use of surface water	42%	32%	3%
Developing/utilizing recycled water	29%	45%	3%
Stormwater capture and reuse	45%	29%	3%
Increasing operational flexibility (e.g., new interties and conveyance)	48%	26%	3%
Other	19%	55%	3%
Note that because minor modifications were made to the form over the course of the review process, the forms submitted to GSAs early in the review process did not include this analysis, and thus figures may not add up to 100%			

While groundwater recharge projects will be an essential part of groundwater sustainability, recharge projects have the potential to mobilize contaminants, including by mobilizing surface and shallow soil contaminants through percolation, spreading existing contaminant plumes by altering the groundwater flow gradient, and mobilizing naturally occurring compounds through changes in geochemistry due to the introduction of a different water type, among other mechanisms.

As recommended in the 2019 Stanford *A Guide to Water Quality Requirements Under the Sustainable Groundwater Management Act,* "In addition to complying with any regulatory requirements, GSAs undertaking recharge or other active management actions should consider developing a sufficient understanding of the interactions between subsurface geology, geochemistry and GSP projects in their basin. The development of sufficient monitoring networks, capable of detecting changes in groundwater quality conditions related to active management, will be critical to understanding these interactions."[5]

Recommendation: ***DWR should require that GSPs explicitly describe how risks to water quality and beneficial users will be evaluated and monitored as a part of each identified recharge project, consistent with the 23 CCR § 354.34(b)(2) requirement to "monitor impacts to the beneficial uses or users of groundwater" and to demonstrate that projects and management actions are likely to***

[5] Stanford, 2019. *A Guide to Water Quality Requirements Under the Sustainable Groundwater Management Act,* Spring 2019.

prevent undesirable results. This should be included in regulatory updates and BMP development (in consultation with the State Board) recommended elsewhere in this letter.

b. GSAs should develop and implement domestic well mitigation programs

Very few draft GSPs (approximately 16%) include an analysis of how many domestic supply wells are expected to go dry with declining water levels, despite the fact that water level MOs and MTs are often 100 feet or more below current conditions. GSAs are required to analyze these impacts under 23 CCR §254.26(b)(3) and § 254.28(b)(4), but based on our review have typically not done so.

Domestic wells tend to be shallower than agricultural and public supply wells, and as such are more vulnerable to dewatering and other impacts (e.g., clogging due to microbial growth) than deeper wells. Given the significant declines in water levels anticipated in many areas, it is likely that domestic wells will be disproportionately affected as water levels decline. Therefore, in order to mitigate against the undesirable result of community members losing access to drinking water, GSAs should identify a program to mitigate such impacts to these key beneficial users. About 20% of GSPs we reviewed identified any sort of DAC or domestic well impact mitigation program.

Such a program could include a combination of replacing impacted wells with new, deeper wells and/or connecting domestic users to a public water system. Key considerations for establishing such a program should include:

- A strong preference for connecting current domestic well users to a public water system, whenever possible. Public water systems have an obligation to test water quality for water served, and although the public water systems in this area typically have limited resources, they do have a greater ability to install treatment systems to address water quality impacts, recoup funds for litigable contamination such as 1,2,3-trichloropropane, and apply for and receive grant funding for beneficial projects. Because of this, public water systems, including small community water systems, provide a more reliable drinking water source than privately-owned domestic wells.
- A secure and reliable local funding source and mechanism for implementation of such a mitigation program needs to be identified. While grant or emergency funding could potentially be available for such a program when needed, the availability of these funds is not certain. A more secure funding mechanism could be the establishment of a reserve fund that is paid into on an annual basis and accrues funds that would then be available as water levels drop in the future.
- The implementation of a mitigation program should be triggered before wells begin to become unusable, so that funding will be available, and the necessary planning and contracting will be completed such that the necessary construction will be implemented without unnecessarily leaving community members without access to drinking water. Thus, the program should be designed to be proactive, rather than reactive.
- A well mitigation program should not be established only in case of emergency. Droughts are becoming more and more frequent and severe, and as such should be included as part of the long-term sustainability planning by GSAs.

Recommendation: DWR should require GSAs to evaluate the anticipated impacts to domestic well users per 23 CCR §254.26(b)(3) and § 254.28(b)(4), and if domestic well users are likely to be impacted,

GSAs should be required to develop and implement a domestic well mitigation program to avoid the significant and unreasonable result of communities losing drinking water.

We appreciate the opportunity to provide these recommendations, and would be happy to meet with staff to discuss our vision for implementation.

Sincerely,

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CC E. Joaquin Esquivel, Chair of the State Water Resources Control Board
Eileen Sobeck, Executive Director of the State Water Resources Control Board
Jared Blumenfeld, Secretary, Cal EPA
Kristin Peer, Deputy Secretary and Special Counsel for Water Policy at the California Environmental Protection Agency
Chuck Bonham, Director of the California Department of Fish and Wildlife
Karen Ross, Secretary of the California Department of Food and Agriculture

Table CC-14: Delta-Mendota Subbasin SMC for Chronic Lowering of Groundwater Levels

GSP Group	Aliso Water District	Farmers Water District	Fresno County	Grassland	Northern & Central Delta-Mendota	San Joaquin River Exchange Contractors
Definition of Undesirable Results	Significant and unreasonable chronic change in in water levels, as defined by each GSP Group, that has an impact on the beneficial users of groundwater in the Subbasin through either intra- and/or inter-basin actions					
Definition of Significant and Unreasonable	Aliso is not currently experiencing significant and unreasonable effects of reduction in water levels or aquifer storage in the Upper Aquifer. Significant and unreasonable effects would be accelerated rates of subsidence as productive layers in the Upper Aquifer above the Corcoran Clay are depleted, especially in areas with deep or composite wells. Accelerated rates of subsidence may occur If 30% of the wells in the monitoring zone exceed the minimum threshold value on a 4-year consecutive average under normal or average year conditions.	Groundwater levels dropping below Minimum Threshold values for 25% of representative sites for two consecutive years~~Groundwater elevations dropping below historic lows (2015-2016)~~	Groundwater levels dropping below Minimum Threshold values for 25% of representative sites for two consecutive years~~Groundwater elevations dropping below historic lows (2015-2016)~~	Lowering of groundwater levels would lead to increased costs associated with higher total lift, lowering pumps, need to drill deeper wells or costs securing alternative water sources. Impacts to habitat would require mitigation, including alternative water supplies and habitat restoration.	Groundwater elevations dropping below the Minimum Threshold criteria at 40% of representative monitoring locations concurrently over a given water year resulting in shallow domestic wells going dry in the same subregion as the representative monitoring points in violation, higher pumping costs, and/or the need to modify wells to obtain groundwater.	The San Joaquin River Exchange Contractors (SJREC) GSP Group has a positive impact on the aquifer and is unlikely to cause Significant and/or Unreasonable lowering of groundwater levels. Triggers have been established to recover aquifer water levels before nearing an Undesirable Result. Currently, an approximation of 25% below historic low for each management area is used to indicate an Undesirable Result which will be refined based on annual updates and integration with other GSP Groups.
Sustainability Goal for Sustainability Criterion	To maintain the historic hydrological cycle and expand access to surface water during flood years for replenishment of the Upper Aquifer.	Maintain seasonal highs and lows. Prevent trend of decreasing groundwater levels.	Maintain seasonal highs and lows. Prevent trend of decreasing groundwater levels.	Maintain water levels and storage sufficient to meet operational storage in each the Upper Aquifer and Lower Aquifer.	Maintain water levels sufficient to meet operational storage as well as 3-year drought buffer storage.	Maintain historic water levels to meet demand of the beneficial users.
5-Year Interim Goals	Year 5: Maintain groundwater elevations comparable to historic hydrologic highs and lows Year 10: Maintain groundwater elevations comparable to historic hydrologic highs and lows Year 15: Maintain groundwater elevations comparable to historic hydrologic highs and lows	Projection from current water levels (post 2016) to measurable objectives~~Year 5: < Minimum Threshold~~ ~~Year 10: < Minimum Threshold~~ ~~Year 15: < Minimum Threshold~~	Projection from current water levels (post 2016) to measurable objectives~~Year 5: < Minimum Threshold~~ ~~Year 10: < Minimum Threshold~~ ~~Year 15: < Minimum Threshold~~	Year 5: WSE > Measurable Objective Year 10: WSE > Measurable Objective Year 15: WSE > Measurable Objective	Year 5: Maintain groundwater elevations comparable to 2012 through 2017 hydrologic highs and lows Year 10: Maintain groundwater elevations comparable to 2012 through 2017 hydrologic highs and lows Year 15: Maintain groundwater elevations comparable to 2012 through 2017 hydrologic highs and lows	Year 5: Maintain current water levels, SJREC GSP Group is sustainable. Year 10: Maintain current water levels, SJREC GSP Group is sustainable. Year 15: Maintain current water levels, SJREC GSP Group is sustainable.
Minimum Threshold	The minimum threshold is to provide a 100-foot of buffer from the top of the Corcoran Clay to the top of the water table	Maximum decline observed over historic period applied to measurable objective~~Upper Aquifer~~ ~~Season Low > 126 feet below ground surface (ft bgs)~~ ~~Season High > 57 ft bgs~~ ~~Lower Aquifer~~ ~~Season Low >213 ft bgs~~ ~~Season High > 185 ft bgs~~	Maximum decline observed over historic period applied to measurable objective~~Upper Aquifer~~ ~~Season Low > 63 feet below ground surface (ft bgs)~~ ~~Season High > 55 ft bgs~~ ~~Lower Aquifer~~ ~~Season Low >213 ft bgs~~ ~~Season High > 185 ft bgs~~	Upper Aquifer: 20% lowered water elevation from recent historic low (set at each monitoring site). Lower Aquifer: Lower aquifer representative monitoring wells have been identified for the monitoring network. However, no historic data exists. The Grassland Plan Area participants will monitor the site and with the gathered data, intend to establish meaningful interim goals, measurable objectives, and minimum thresholds in future GSP Updates.	Upper Aquifer: Hydrologic low Lower Aquifer: 95% of historic low	The SJREC GSP Group is sustainable. The SJREC GSP Group is unlikely to cause groundwater overdraft. As a result of this and historical groundwater management, trigger levels have been established for a representative site in each management area. If water levels drop below the established trigger level, no transfers of groundwater outside the area are allowed. This management has been in place for parts of the Subbasin for years and has proven effective to preserve a healthy aquifer.

GSP Group	Aliso Water District	Farmers Water District	Fresno County	Grassland	Northern & Central Delta-Mendota	San Joaquin River Exchange Contractors
Measurable Objective	The measurable objective is site specific and tied to water levels in long term hydrographs. The average rate in decline in each well was projected out until 2040 when water levels should begin to stabilize over the long term.	2015 seasonal high~~Maintain seasonal highs and lows above minimum thresholds.~~	2015 seasonal high~~Maintain seasonal highs and lows above minimum thresholds.~~	Upper Aquifer: Recent historic low (set at each monitoring site Lower Aquifer: Lower aquifer representative monitoring wells have been identified for the monitoring network. However, no historic data exists. The Grassland Plan Area participants will monitor the site and with the gathered data, intend to establish meaningful interim goals, measurable objectives, and minimum thresholds in future GSP Updates.	Both Aquifers: Seasonal historic high average, Spring 2012 or Spring 2017, whichever elevation is lowest or where data exists.	Operate groundwater levels between the effective root zone and the Minimum Threshold.

Table CC-15: Delta-Mendota Subbasin SMC for Reduction in Groundwater Storage

GSP Group	Aliso Water District	Farmers Water District	Fresno County	Grassland	Northern & Central Delta-Mendota	San Joaquin River Exchange Contractors
Definition of Undesirable Results	Significant and unreasonable chronic decrease in groundwater storage, as defined by each GSP Group, that has an impact on the beneficial users of groundwater in the Subbasin through either intra- and/or inter-basin actions					
Definition of Significant and Unreasonable	Aliso is not currently experiencing significant and unreasonable effects of reduction in water levels or aquifer storage in the Upper Aquifer. Significant and unreasonable effects would be accelerated rates of subsidence as productive layers in the Upper Aquifer above the Corcoran Clay are depleted, especially in areas with deep or composite wells. Accelerated rates of subsidence may occur if 30% of the wells in the monitoring zone exceed the minimum threshold value on a 4-year consecutive average under normal or average year conditions.	Groundwater decline exceeding Minimum Threshold value for two consecutive years~~Depletion of storage greater than the 2012-2016 period.~~	Groundwater decline exceeding Minimum Threshold value for two consecutive years~~Depletion of storage greater than the 2012-2016.~~	Insufficient water storage to develop necessary water to maintain critical habitat. Reduction in storage would lead to increased costs associated with higher total lift, lowering pumps, need to drill deeper wells or costs securing alternative water sources. Impacts to habitat would require mitigation, including alternative water supplies and habitat restoration.	If water levels are managed to meet the Minimum Thresholds, the Northern & Central Delta-Mendota Region GSP Group does not anticipate long-term reductions in storage. And, through coordination with other GSP Groups in the Subbasin, additional projects and/or management actions will be implemented to prevent the long-term decline in storage.	The San Joaquin River Exchange Contractors (SJREC) GSP Group has a positive impact on the aquifer and is unlikely to cause Significant and/or Unreasonable reduction of groundwater storage. Triggers have been established to recover aquifer water levels before nearing an Undesirable Result. Currently, an approximation of 25% below historic low water levels for each management area coupled with a determined storage coefficient, is used to indicate an Undesirable Result which will be refined based on annual updates and integration with other GSP Groups.
Sustainability Goal for Sustainability Criterion	To expand access to surface water during flood years for replenishment of the Upper Aquifer by working with neighbors in both Delta-Mendota and Madera subbasins where overdraft is occurring.	Minimize storage change during extended dry periods.	Minimize storage change during extended dry periods.	Maintain water levels and storage sufficient to meet operational demand.	Maintain water levels sufficient to meet operational storage as well as 3-year drought buffer storage.	Maintain historic water storage to meet demand of the beneficial users.
5-Year Interim Goals	Year 5: Maintain groundwater elevations comparable to historic hydrologic highs and lows Year 10: Maintain groundwater elevations comparable to historic hydrologic highs and lows Year 15: Maintain groundwater elevations comparable to historic hydrologic highs and lows	Loss of temporary surplus between current water levels (Post 2016) and Measurable Objective for groundwater elevations~~Year 5: < Minimum Threshold~~ ~~Year 10: < Minimum Threshold~~ ~~Year 15: < Minimum Threshold~~	Loss of temporary surplus between current water levels (Post 2016) and Measurable Objective for groundwater elevations~~Year 5: < Minimum Threshold~~ ~~Year 10: < Minimum Threshold~~ ~~Year 15: < Minimum Threshold~~	Year 5: WSE > Measurable Objective Year 10: WSE > Measurable Objective Year 15: WSE > Measurable Objective	Year 5: Maintain groundwater elevations comparable to 2012 through 2017 hydrologic highs and lows Year 10: Maintain groundwater elevations comparable to 2012 through 2017 hydrologic highs and lows Year 15: Maintain groundwater elevations comparable to 2012 through 2017 hydrologic highs and lows	Year 5: Maintain current water levels, SJREC GSP Group is sustainable Year 10: Maintain current water levels, SJREC GSP Group is sustainable Year 15: Maintain current water levels, SJREC GSP Group is sustainable
Minimum Threshold	The minimum threshold is to provide a 100-foot of buffer from the top of the Corcoran Clay to the top of the water table.	Upper Aquifer Storage Loss of >11,000 acre-feet (AF) from over extended dry period~~Upper Aquifer Storage Loss of >12,000 acre-feet (AF) from over extended dry period~~ Lower Aquifer Storage Loss of >4,400 AF over extended dry period~~Lower Aquifer Storage Loss of >4600 AF over extended dry period~~	Upper Aquifer Storage Loss of >110,000 acre-feet (AF) over extended dry period ~~Upper Aquifer Storage Loss of >90,000 acre-feet (AF) over extended dry period~~ Lower Aquifer Storage Loss of >38,000 AF over extended dry period~~Lower Aquifer Storage Loss of >55,000 AF over extended dry period~~	Upper Aquifer: 20% lowered water elevation from recent historic low (set at each monitoring site). Lower Aquifer: Lower aquifer representative monitoring wells have been identified for the monitoring network. However, no historic data exists. The Grassland Plan Area participants will monitor the site and with the gathered data, intend to establish meaningful interim goals, measurable objectives, and minimum thresholds in future GSP Updates.	Upper Aquifer: Hydrologic low Lower Aquifer: 95% of historic low	The SJREC GSP Group is sustainable. The SJREC GSP Group is unlikely to cause groundwater overdraft. As a result of this and historical groundwater management, trigger levels have been established for a representative site in each management area. If water levels drop below the established trigger level, no transfers of groundwater outside the area are allowed. This management has been in place for parts of the Subbasin for years and has proven effective to preserve a healthy aquifer.

GSP Group	Aliso Water District	Farmers Water District	Fresno County	Grassland	Northern & Central Delta-Mendota	San Joaquin River Exchange Contractors
Measurable Objective	The measurable objective is site specific and tied to water levels in long term hydrographs. The average rate in decline in each well was projected out until 2040 when water levels should begin to stabilize over the long term.	Long term average change of 0 AF/year	Long term average change of 0 AF/year	Upper Aquifer: Recent historic low (set at each monitoring site). Lower Aquifer: Four lower aquifer representative monitoring sites have been identified at a multi-completion well. However, no historic data exists. The Grassland Plan Area participants will monitor the site and with the gathered data, intend to establish meaningful interim goals, measurable objectives, and minimum thresholds in future GSP Updates.	Both Aquifers: Seasonal historic high average, Spring 2012 or Spring 2017, whichever elevation is lowest or where data exists.	Operate groundwater levels between the effective root zone and the Minimum Threshold which will maintain groundwater storage.

Table CC-16: Delta-Mendota Subbasin SMC for Degraded Water Quality

GSP Group	Aliso Water District	Farmers Water District	Fresno County	Grassland	Northern & Central Delta-Mendota	San Joaquin River Exchange Contractors
Definition of Undesirable Results	Significant and unreasonable degradation of groundwater quality, as defined by each GSP Group, that has an impact on the beneficial users of groundwater in the Subbasin through either intra- and/or inter-basin actions and/or activities					
Definition of Significant and Unreasonable	Aliso is not experiencing any significant and unreasonable impacts of water quality. Significant and unreasonable is defined as a reduction in crop production due to water quality issues and if 30% of the wells exceed the minimum threshold value on a 4-year consecutive average without treatment.	Groundwater quality values exceeding Minimum Threshold values for 25% of representative sites for two consecutive years~~(1) Continued migration of the Steffens plume (elevated Total dissolved solids [TDS]) in Upper Aquifer both within Management Area A and towards Farmers Water District. (2) Unreasonable rates of migration of groundwater in the Upper Aquifer with naturally-occurring elevated concentrations of total dissolved solids in Management Area B. (3) Potential effects on the beneficial uses of groundwater include agricultural and domestic uses. (4) Degraded water quality in the Fresno Slough effect beneficial users of surface water~~	Groundwater quality values exceeding Minimum Threshold values for 25% of representative sites for two consecutive years~~(1) Impairment of groundwater quality from the migration of the Steffens Plume from Fresno County's Management Area A. Impacts from the Steffens plume impacts Farmers Water District's ability to utilize groundwater for adjacent use and discharge into the Mendota Pool. (2) Potential effects on the beneficial users of groundwater include water quality levels that impact crops and drinking water standards for domestic uses. (3) Degraded water quality in the Fresno Slough effecting beneficial users of surface water.~~	Degradation of groundwater quality resulting in reduced ability to develop and manage groundwater for habitat productivity.	(1) Exceedance of maximum contaminant levels (MCLs) or water quality objectives (WQOs) for irrigation in public water systems for three (3) consecutive sampling events in non-drought years or the additional degradation of current groundwater quality where current groundwater quality exceeds the MCLs or WQOs for irrigation. (2) Water quality degradation due to recharge projects that exceeds 20% of the aquifer's assimilative capacity for one or more constituents without justification of a greater public benefit achieved	Migration of contamination plume that makes the water unusable for beneficial use
Sustainability Goal for Sustainability Criterion	Maintain Current Water Quality	Prevent further degradation of groundwater quality from the Steffens Plume migrating from Fresno County Management Area A~~Contain the Spreckels Plume and maintain historical rates of saline front migration~~	Contain the Spreckels Plume and maintain historical rates of saline front migration~~Prevent further degradation of groundwater quality from the Steffens Plume migrating from Fresno County Management Area A~~	Maintain groundwater quality suitable for habitat	Maintain existing water quality in all aquifers	Monitor existing groundwater contamination sites and engage to ensure cleanup and abatement orders are consistent with the San Joaquin River Exchange Contractors (SJREC) GSP Group. Work with upslope drainage area to reduce the migration of saline water into the SJREC GSP Group
5-Year Interim Goals	Year 5: Maintain groundwater elevations comparable to historic hydrologic highs and lows Year 10: Maintain groundwater elevations comparable to historic hydrologic highs and lows Year 15: Maintain groundwater elevations comparable to historic hydrologic highs and lows	Year 5: 1,130 mg/L TDS Year 10: 1,060 mg/L TDS Year 15: 990 mg/L TDS~~Year 5: Average annual rate of degradation of 30 milligrams per liter (mg/L) TDS for saline front Year 10: Average annual rate of degradation of 30 mg/L TDS for saline front Year 15: Average annual rate of degradation of 30 mg/L TDS for saline front~~ ~~Spreckels Steffens plume dependent on Central Valley Regional Water Quality Control Board (CV-RWQCB) Cleanup and Abatement Order (CAO) actions~~.	Historic annual rate of TDS increase (same as MO) OR projection from MT to MO.~~Year 5: 1000 milligrams per liter (mg/L) total dissolved solids (TDS) Year 10: 800 mg/L TDS Year 15: 700 mg/L TDS~~	Year 5: < Measurable Objective Year 10: < Measurable Objective Year 15: < Measurable Objective	Year 5: Maintain 2003-2017 groundwater quality range Year 10: Maintain 2003-2017 groundwater quality range Year 15: Maintain 2003-2017 groundwater quality range	Continue mitigation efforts on the migration of saline water from upslope drainage.
Minimum Threshold	Electrical Conductivity (EC) - 4.5 deciSiemens per meter (dS/m)* Chlorine (Cl) - 13.3 milliequivalents per liter (meq/L)* NO_3-N - 30 milligrams per liter (mg/L)**	1,200 mg/L TDS~~Average annual rate of degradation of 60 mg/L TDS for saline front. Threshold for Steffens plume determined by CV-RWQCB~~.	Historic annual rate of TDS increase + maximum single year increase in TDS. OR maxium historic TDS concentration + 100 mg/L~~TDS concentration of 1100 mg/L~~	Production Wellhead thresholds: Total dissolved solids (TDS) 2,500 milligrams per liter (mg/L) in both aquifers	NO3 – 10 mg/L as N (Primary MCL) TDS – 1,000 mg/L (Secondary MCL) Boron – 0.7 mg/L (WQO for irrigation) or current groundwater quality where it exceeds MCLs or WQOs for irrigation as of December 2018	The minimum threshold is defined as the amount of poor-quality groundwater that is greater than what can be successfully managed through the management actions

GSP Group	Aliso Water District	Farmers Water District	Fresno County	Grassland	Northern & Central Delta-Mendota	San Joaquin River Exchange Contractors
Measurable Objective	EC - 0.75-1.0 dS/m, based on JM Lord and FAO 100% yield for grapes and almonds. Cl - 3.0 meq/L, based on JM Lord minimum recommendations NO_3-N - >5 mg/L, based on FAO Section 5.1, sensitive crop tolerance	920 mg/L TDS~~Average annual rate of degradation of 20 mg/L TDS for saline front. Measurable objective for Steffens plume will be determined by CV-RWQCB as part of a CAO.~~	Historic annual rate of TDS increase OR background concentration established in Central Valley Regional Water Quality Control Board Cleanup and Abatement Orders for the former Spreckels Sugar Company.~~TDS concentration equivalent to background concentrations (approximately 500 mg/L, depending on Cleanup and Abatement Order [CAO] from Central Valley Regional Water Quality Control Board [CV-RWQCB] for Steffens Plume).~~	Upper Aquifer: Production Wellhead thresholds: 20% increase from max historic electrical conductivity (EC) concentration Lower Aquifer: Lower aquifer representative water quality monitoring sites have been identified; however, no historic data exists. The Grassland Plan Area participants will monitor the site and with the gathered data, intend to establish meaningful interim goals and measurable objectives in future GSP Updates.	2003-2017 groundwater quality range conditions by GSP sub-region	Mitigate impacts of the migration of saline groundwater from lands upslope of the SJREC GSP

* Based on Food and Agriculture Organization (FAO) 50% yield for grapes
** Based on FAO Section 5.1 typical crop tolerance

Table CC-17: Delta-Mendota Subbasin SMC for Land Subsidence

GSP Group	Aliso Water District	Farmers Water District	Fresno County	Grassland	Northern & Central Delta-Mendota			San Joaquin River Exchange Contractors
					West Stanislaus Irrigation District-Patterson Irrigation District Management Area	Tranquillity Irrigation District Management Area	Remaining Plan Area	
Definition of Undesirable Results	Changes in ground surface elevation that cause damage to critical infrastructure that would cause significant and unreasonable reductions of conveyance capacity, damage to personal property, impacts to natural resources or create conditions that threaten public health and safety							
Definition of Significant and Unreasonable	Aliso is not currently experiencing any significant and unreasonable effects of subsidence. Significant and unreasonable impacts are assumed to occur when the levees within the District have subsided to an elevation causing impacts to the water carrying capacity of the San Joaquin River and Chowchilla Bypass beyond their design flow rates, causing significant and unreasonable flooding or crop damage.	Damage to infrastructure and loss of conveyance capacity in neighboring Groundwater Sustainability Agencies (GSAs). Exceeding Minimum Threshold value for two consecutive years	Damage to infrastructure, loss of conveyance capacity, and potential inability to flood or drain by gravity and associated habitat impacts. Exceeding Minimum Threshold value for two consecutive years	Damage to infrastructure, permanent loss of conveyance capacity beyond mitigation, and potential inability to flood or drain by gravity and associated habitat impacts.	Impacts to laterals from differential settlement that reduces the ability to deliver surface water supplies.	Inadequate freeboard on levee system in wet years as a result of significant additional land subsidence resulting from groundwater extractions.	Increases in 2014-2016 subsidence rates due to groundwater pumping in two or more subregions that results in 50% loss of standup capacity and/or 75% overtopping of lining in the Delta-Mendota Canal as a result of inelastic land subsidence.	Reduction in the conveyance capacity for water distribution and/or damage to critical infrastructure
Sustainability Goal for Sustainability Criterion	Expand access to surface water during flood years for replenishment of the Upper Aquifer by working with neighbors in both the Delta-Mendota and Madera subbasins where subsidence is occurring.	No contribution to lower aquifer compaction.	No contribution to lower aquifer compaction.	No permanent reduction in conveyance and ability to manage habitat.	No additional subsidence as a result of future groundwater extraction	No additional subsidence as a result of future groundwater extraction.	Minimal additional subsidence (0.005 ft/yr) as a result of future groundwater extraction in the Delta-Mendota Subbasin beyond December 2019 surface elevations	The San Joaquin River Exchange Contractors (SJREC) are experiencing subsidence originating outside of the SJREC GSP Group area. The SJREC GSP Group will work with neighbors to mitigate subsidence impacts on SJREC's facilities.
5-Year Interim Goals	Interim goals established at 0.5-feet of additional subsidence per 5-year interim goal period.	Same as MO~~Year 5: -0.0088 ft~~ ~~Year 10: -0.0065 ft~~ ~~Year 15: -0.0043 ft~~	Same as MO~~Year 5: at~~ ~~Fordel-Ext: -0.015 ft~~ ~~P304-PBO: -0.084 ft~~ ~~Year 10: at~~ ~~Fordel-Ext: -0.013 ft~~ ~~P304-PBO: -0.068 ft~~ ~~Year 15: at~~ ~~Fordel-Ext: -0.011 ft~~ ~~P304-PBO: -0.0065 ft~~	The Grassland Plan area is not causing subsidence and will work with neighbors to achieve Subbasin-wide sustainability. Year 5: > Measurable Objective Year 10: > Measurable Objective Year 15: > Measurable Objective	Year 5: Establish Minimum Threshold and Measurable Objective for this parameter Year 10: To be determined (TBD) in 2025 GSP update based on additional data analysis Year 15: TBD in 2025 GSP update based on additional data analysis	Year 5: -0.15 ft/yr Year 10: -0.11 ft/yr Year 15: -0.08 ft/yr	Year 5: - North: -0.12 ft/yr - North-Central: -0.18 ft/yr - Central: -0.15 ft/yr - South-Central: -0.10 ft/yr - South: -0.15 ft/yr Year 10: - North: -0.12 ft/yr - North-Central: -0.09 ft/yr - Central: -0.09 ft/yr - South-Central: -0.06 ft/yr - South: -0.11 ft/yr Year 15: - North: -0.11 ft/yr - North-Central: -0.01 ft/yr - Central: -0.03 ft/yr - South-Central: -0.01 ft/yr - South: -0.08 ft/yr	N/A – SJREC is not causing subsidence and will work with neighbors to achieve the subbasin-wide sustainability goal by 2040.

GSP Group	Aliso Water District	Farmers Water District	Fresno County	Grassland	Northern & Central Delta-Mendota			San Joaquin River Exchange Contractors
					West Stanislaus Irrigation District-Patterson Irrigation District Management Area	Tranquillity Irrigation District Management Area	Remaining Plan Area	
Minimum Threshold	The minimum threshold is set to not exceed the current rate of subsidence of 0.2 feet/year or 4.0 feet total by 2040	Upper Aquifer: 0.017 ft/year~~0.011 ft~~ Total Subsidence: 0.1 ft/year	Upper Aquifer: 0.011 ft/year~~Target additional subsidence at two subsidence monitoring points:~~ ~~- Fordel-Ext: -0.017 ft~~ ~~- P304-PBO: -0.1 ft~~ Total Subsidence: 0.1 ft/year	The minimum threshold is not to exceed, on average, the historic annual average rate of subsidence from December 2011 to December 2015 as defined at each representative subsidence monitoring site: - Point 108: -0.11 ft/yr - Point 152: -0.15 ft/yr - Point 137: -0.13 ft/yr	Acceptable loss in distribution capacity as a result of subsidence resulting from groundwater pumping as based on a future capacity study *Numerical value for this criterion to be determined based on data collection between 2020 and 2025	4 feet of additional subsidence (compared to 2019 levee elevation)	Target rate/goal by sub-region (average 2014-2016 elevation change from Delta-Mendota Canal survey): - North: -0.13 ft/yr - North-Central: -0.26 ft/yr - Central: -0.21 ft/yr - South-Central: -0.15 ft/yr - South: -0.18 ft/yr	SJREC has lost capacity in several conveyance facilities and is spending millions of dollars rehabilitating some of those facilities. The Minimum Threshold is that which doesn't reduce SJREC's conveyance capacity without appropriate mitigation. In other words, zero subsidence without mitigation.
Measurable Objective	The Measurable Objective is set to be the more restrictive of the two Significant and Unreasonable scenarios. It is assumed that significant impacts will cause flooding and crop damage will be 1/2 of the current design minimum freeboard of 4 feet (therefore 2 feet).	Upper Aquifer: 0.009 ft/year~~0.002 ft~~ Total Subsidence: 0.036 ft/year	Upper Aquifer: 0.002 ft/year~~Target additional subsidence at two subsidence monitoring points:~~ ~~- Fordel-Ext: -0.0086 ft~~ ~~- P304-PBO: -0.036 ft~~ Total Subsidence: 0.036 ft/year	The measurable objective is not to exceed, on average, the historic annual average rate of subsidence from December 2011 to December 2018, defined at each respective site: - Point 108: -0.08 ft/yr - Point 152: -0.1 ft/yr - Point 137: -0.11 ft/yr	No loss in distribution capacity as a result of subsidence resulting from groundwater pumping *Numerical value for this criterion to be determined based on data collection between 2020 and 2025	2 feet of additional subsidence (compared to 2019 levee)	Target rate/goal by subregion (average 2016-2018 elevation change from Delta-Mendota Canal survey): - North: -0.11 ft/yr - North-Central: -0.01 ft/yr - Central: -0.03 ft/yr - South-Central: -0.01 ft/yr - South: -0.08 ft/yr	The measurable objective for land subsidence is to significantly reduce inelastic land subsidence to less than 0.005 ft/year

Table CC-18: Delta-Mendota Subbasin SMC for Depletions of Interconnected Surface Water

GSP Group	Aliso Water District	Farmers Water District	Fresno County	Grassland	Northern & Central Delta-Mendota	San Joaquin River Exchange Contractors
Definition of Undesirable Results	Depletions of interconnected surface water, as defined by each GSP Group, that have significant and unreasonable adverse impacts on the beneficial uses of surface water					
Definition of Significant and Unreasonable	Aliso Water District groundwater pumping does not influence surface water depletion. Landowners within the District are limited by the Herminghaus Agreement and similar pumping restrictions along the San Joaquin River that prevent pumping from above the A-Clay. Additionally, the primary aquifer, where groundwater pumping occurs, is disconnected from surface water source. A significant and unreasonable result would be a reduction in water availability to downstream beneficial users beyond what was experienced in similar water years in recent history as a result of groundwater extractions.	(1) San Joaquin River Restoration Project (SJRRP) operations and groundwater extractions from the Upper Aquifer that will influence stream depletion along San Joaquin River (2) Water level measurements along the San Joaquin River in the shallow zone of the Upper Aquifer to determine degree of vertical gradient (3) Potential degradation to groundwater dependent ecosystems (GDEs) along San Joaquin River primarily dependent on SJRRP operations of San Joaquin River flows since groundwater pumping expected to remain stable and consistent with historical (pre-SJRRP) levels Exceeding Minimum Threshold value for two consecutive years	Decrease in surface water stage in Mendota Pool from Bureau of Reclamation and Central California Irrigation District (CCID) operations that impact groundwater dependent ecosystems (GDEs) and operations in Mendota Wildlife Area. Exceeding Minimum Threshold value for two consecutive years	The Grassland Plan Area groundwater pumping does not influence surface water depletion. Reduction of interconnected surface water bodies and associated groundwater dependent ecosystems (GDEs), requiring reduction in groundwater pumping (no management activities have depleted interconnected surface water in the Grassland Plan Area within the Historic Period). A significant and unreasonable undesirable result would regard impaired habitat directly associated with interconnected surface waters.	Where interconnected stretches of surface water are identified, an X%* increase in depletions of surface water as a result of groundwater pumping. *The percent increase in depletions is to be determined from monitoring data collected between 2020 and 2025 and associated analyses of these data.	When groundwater extraction directly decreases streamflow in losing stretch of the San Joaquin River.
Sustainability Goal for Sustainability Criterion	Similar reductions in water availability to downstream beneficial users as was experienced in similar water years in recent history as a result of groundwater extractions.	Minimize downward gradient in the San Joaquin River	Maintain stage in Mendota Pool near historic average~~Maintain stage in Mendota Pool between 12.75 and 13 feet.~~	No reduction in interconnected surface water bodies or associated GDEs due to GGSA pumping.	No loss of productive agriculture due to an inability to pump groundwater.	Mitigate observed reductions of interconnected surface and groundwater due to pumping in the San Joaquin River Exchange Contractors (SJREC) GSP Group area.
5-Year Interim Goals	Not Applicable	Year 5: gradient of -0.44 Year 10: gradient of -0.49 Year 15: gradient of -0.54~~Year 5: gradient of -1.1~~ ~~Year 10: gradient of -0.99~~ ~~Year 15: gradient of -0.83~~ All gradients measured at monitoring site SJRRP-09-55, 55b~~All gradients measured at monitoring site SJRRP-09-55, 55b~~	Same as Measurable Objective~~Year 5: Mendota Pool staff gage reading of 7.4 ft~~ ~~Year 10: Mendota Pool staff gage reading of 9.1 ft~~ ~~Year 15: Mendota Pool staff gage reading of 11.3 ft~~	Year 5: WSE > Measurable Objective (Upper Aquifer) Year 10: WSE > Measurable Objective (Upper Aquifer) Year 15: WSE > Measurable Objective (Upper Aquifer)	Year 5: Establish Minimum Threshold and Measurable Objective for this parameter Year 10: To be determined (TBD) in 2025 GSP update based on additional data analysis Year 15: TBD in 2025 GSP update based on additional data analysis	Year 5: Mitigate depleted interconnected surface water in the San Joaquin River Year 10: Mitigate depleted interconnected surface water in the San Joaquin River Year 15: Mitigate depleted interconnected surface water in the San Joaquin River
Minimum Threshold	Not Applicable Similar reductions in water availability to downstream beneficial users as was experienced in similar water years in recent history as a result of groundwater extractions.	Gradient of -1.17 at monitoring site SJRRP-09-55, 55b~~Gradient of -1.3 at monitoring site SJRRP-09-55, 55b~~	Mendota Pool staff gage reading of 13 ft.~~Mendota Pool staff gage reading of 5.4 ft~~	20% lowered water elevation from recent historic low (set at each monitoring site).	An X%* increase in surface water depletions along interconnected stretches of surface water as a result of groundwater pumping. *The percent increase in depletions is to	Observed increase in seepage from the San Joaquin River due to groundwater extractions in the SJREC GSP Group area. The SJREC plan to work with the counties to restrict perforating wells above the first encountered restrictive clay layer (near the San Joaquin River) to

GSP Group	Aliso Water District	Farmers Water District	Fresno County	Grassland	Northern & Central Delta-Mendota	San Joaquin River Exchange Contractors
					be determined from monitoring data collected between 2020 and 2025 and associated analyses of these data.	prevent induced seepage similar to the established operations defined in the Herminghaus Agreement on Reach 2 of the San Joaquin River.
Measurable Objective	Not Applicable. Similar reductions in water availability to downstream beneficial users as was experienced in similar water years in recent history as a result of groundwater extractions.	Gradient of -0.60 at monitoring site SJRRP-09-55, 55b~~Gradient of -0.67 at monitoring site SJRRP-09-55, 55b~~	Mendota Pool staff gage reading of 14 ft~~Mendota Pool staff gage reading of 13.5 ft~~	Recent historic low (set at each monitoring site).	No increased depletions of surface water as a result of groundwater pumping.	Same as Minimum Threshold

Budget Templates

Table 5B – Grant Proposal Summary Budget (Multiple Components)

Grant Proposal Title: **Delta-Mendota Subbasin Supplemental GSP Development**

Applicant: **West Stanislaus Irrigation District Groundwater Sustainability Agency**

Grant Proposal serves a need of a DA?: ☒ Yes ☐ No

Local Cost Share requested: ☐ 25% ☐ 15% ☐ 10% ☒ 0%

Budget Categories	(a) Requested Grant Amount	(b) Local Cost Share: Non-State Fund Source[1]	(c) Total Cost	(d) % Local Cost Share (Col (b) / Col (c))
Component 1: Grant Administration	$50,000	$0	$50,000	0%
Component 2: Well Census and Inventory	$100,000	$0	$100,000	0%
Component 3: Subsidence Characterization and Project Feasibility Determination	$100,000	$0	$100,000	0%
Component 4: Supplemental GSP Development Funding	$250,000	$0	$250,000	0%
Grand Total *Sum rows (1) through (n) for each column*	**$500,000**	**$0**	**$500,000**	**0%**

[1] Sources of funding: *A 100% cost share waiver has been requested.*