



Council Agenda Report

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Cost Center: 6001
For Agenda of: December 8, 2020
Placement: Consent
Estimated Time: NA

FROM: Aaron Floyd, Utilities Director
Prepared By: Mychal Boerman, Utilities Deputy Director - Water

SUBJECT: SUSTAINABLE GROUNDWATER MANAGEMENT ACT (SGMA)
 GROUNDWATER SUSTAINABILITY PLAN UPDATE

RECOMMENDATION

Acting as the City of San Luis Obispo Groundwater Sustainability Agency, receive and file an update on Sustainable Groundwater Management Act (SGMA) Groundwater Sustainability Plan (GSP) development, including the Draft Communication and Engagement Plan, Draft Data Management Plan, and Draft Chapters 1-6 of the Groundwater Sustainability Plan.

REPORT-IN-BRIEF

This report briefly outlines Sustainable Groundwater Management Act requirements related to the production of a Groundwater Sustainability Plan and briefly describes the first six Draft Groundwater Sustainability Plan chapters, as well as associated technical memos and supporting documents. Key initial findings indicate that the portion of the groundwater basin which underlays the City has not experienced continued lowering of groundwater levels, or other undesirable results that are generally associated with Sustainable Groundwater Management Act regulations. However, adjacent portions of the groundwater basin in the Edna Valley area have experienced continued groundwater level decline and will require groundwater basin management actions such as reductions in groundwater pumping, increased conservation, improved irrigation efficiency, agricultural irrigation reductions, and/or water supply augmentation projects. With continued stakeholder input, quantifiable management actions will be defined within the upcoming Groundwater Sustainability Plan chapters and will be returned to the City of San Luis Obispo Groundwater Sustainability Agency for adoption in early 2022.

DISCUSSION

Background

The Sustainable Groundwater Management Act (SGMA) requires sustainable groundwater management in all high and medium priority groundwater basins, including the high priority San Luis Obispo Valley Groundwater Basin (SLO Basin). The SLO Basin, which underlays the City

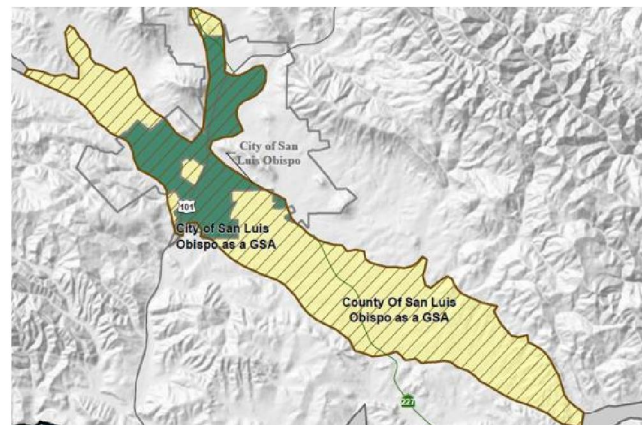


Figure 1 - Overview of the SLO Basin

and unincorporated areas outside of the City, was designated high priority by the State due to several factors including the documented lowering of groundwater levels in the eastern portion of the basin, near Edna Valley, and the relatively large number of people overlying the basin in the western (City of San Luis Obispo) portion of the basin.

SGMA first required the formation of Groundwater Sustainability Agencies (GSAs) by June 2017. The City of San Luis Obispo (City) and the County of San Luis Obispo (County), completed the GSA formation process, resulting in full coverage of the SLO Basin. The City and County GSAs are working together to develop a Groundwater Sustainability Plan (GSP) that covers the entire SLO Basin. This Groundwater Sustainability Plan needs to be adopted by January 31, 2022. Once adopted by both the City and the County GSAs, and approved by Department of Water Resources (DWR), implementation of the Groundwater Sustainability Plan will occur and will include quantifiable objectives and will achieve groundwater sustainability by 2042.

A Groundwater Sustainability Commission (GSC), comprised of significant potential users of groundwater in the SLO Basin, was formed as an advisory body to the City and County GSAs. On the recommendation of this Groundwater Sustainability Commission, this report is intended to inform the City GSA and public on the progress made to date in the development of the Groundwater Sustainability Plan.



Figure 2 - SGMA Timeline

Communication and Engagement Plan

Public engagement and stakeholder involvement will be critical to the success of a Groundwater Sustainability Plan. The Communication and Engagement Plan (C&E Plan) (Attachment A) describes the planned activities for engaging interested parties in SGMA implementation efforts in the San Luis Obispo Valley Basin.

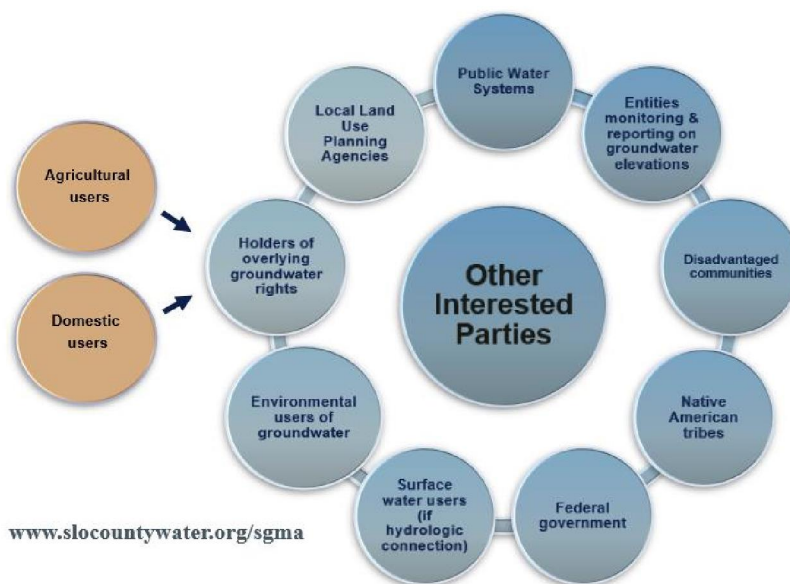


Figure 3 – SGMA Stakeholders

It is designed to meet the stakeholder engagement requirements of SGMA and GSP regulations while ensuring local stakeholders are educated, engaged, and given opportunities to participate and to provide feedback. The general purpose of the C&E Plan is to facilitate effective communication and engagement with the multiple and varied stakeholders in the San Luis Obispo Valley Basin.

The C&E Plan outlines programs designed to engage stakeholders through a series of public workshops, opportunities for comment at public meetings, education through quarterly digital newsletters, and the use of a user-friendly Groundwater Communication Portal that acts as a hub for SGMA related communications and engagement opportunities. Although COVID-19 related closures have impacted the ability for in-person workshops, public participation has increased through the utilization of virtual meetings during the pandemic.

Data Management Plan

Development of a Data Management System (DMS) is required to ensure adequate groundwater data tracking per SGMA regulations. This data includes well locations, water level data, and well construction information. The City GSA and County GSA opted to draft a Data Management Plan (DMP) (Attachment B) to capture SGMA data handling requirements, identify data needs and sources, describe the data structure that will be used, and outline the process for collection, review, and upload of data. Since each groundwater basin that is subject to SGMA has twenty years to achieve sustainability, well thought out and well documented data management will be essential to achieving compliance as an organization experiences technological and staffing changes over time.

Brief Summary of GSP Chapters 1-6

The chapter summaries presented in this report are draft chapters and are subject to change as comments are received from local agencies and the public regarding the contents. Full chapters are provided as attachments to this staff report and are as follows:

Chapter 1: Introduction to the SLO Basin GSP (Attachment C)

Chapter 2: Agency Formation (Attachment C)

Chapter 3: Description of Plan Area (Attachment D)

Chapter 4: Basin Setting (Attachment D)

Chapter 5: Groundwater Conditions (Attachment E)

Chapter 6: Water Budget (Attachment F)

Chapter 1: Introduction to the SLO Basin GSP

Chapter 1 is largely administrative in nature and is designed to give the reader background information related to why the GSP is being developed. This chapter outlines the purpose of developing the GSP, a high level description of the SLO Basin, and an explanation of how the Department of Water Resources prioritizes basins throughout the state and why the SLO Basin is categorized as a high priority basin. The reader will find information in this chapter that will set the stage for a better understanding of the need for a GSP.

Chapter 2 - Agency Formation

Chapter 2 of the GSP outlines agency information and management structure, including information related to the creation of the City Groundwater Sustainability Agency and the County of San Luis Obispo Groundwater Sustainability Agency. This chapter also discusses the formation of the Groundwater Sustainability Commission, which acts as an advisory body to the City GSA and County GSA, as well as the development of a Memorandum of Agreement (MOA) between the two agencies (Attachment G). The MOA's purpose is for the City GSA and County GSA, with input from other GSC members, to coordinate in the preparation of a single GSP for the entire SLO Basin. Figure 4 below demonstrates the governance structure outlined in the MOA. It is important to note that the City GSA and County GSA are responsible for independently adopting the GSP and implementing the GSP within their respective service areas¹.

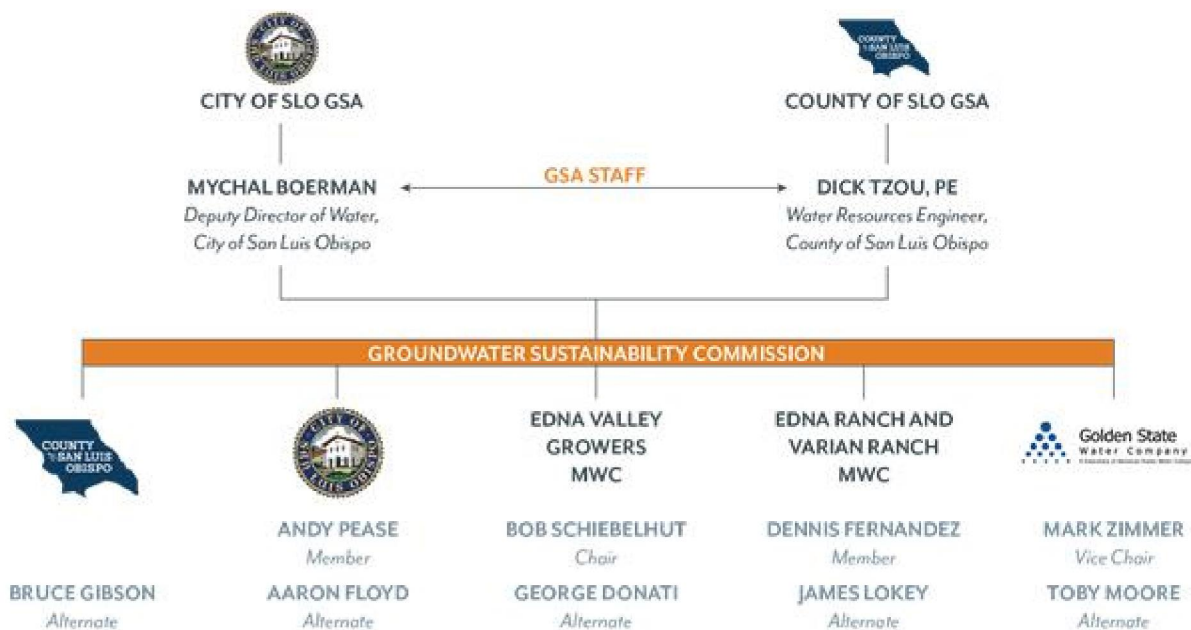


Figure 4 – Local SGMA Governance Structure

Chapter 3: Description of Plan Area

Chapter 3 provides an introduction to the SLO Basin with a description of the jurisdictional areas that overlie the basin, details about existing City and County land use plans, density of groundwater wells within the basin, and a detailed description of active groundwater and surface water monitoring and management programs. Not unlike Chapter 1 and Chapter 2, this chapter helps document information that will assist in decision making as subsequent GSP chapters are developed.

¹ City and County GSP adoption requires a simple majority vote.

Chapter 4: Basin Setting

Chapter 4 of the GSP is a technical chapter that describes the regional and local basin geology, groundwater aquifer information, and surface water body information. This chapter defines the physical extent and limitations of the SLO Basin as well as the importance of how surface water and groundwater interact locally. Various maps within the chapter document details about the groundwater basin such as infiltration rates within different areas of the basin, bedrock elevations, and land subsidence risk. Additionally, this chapter provides a series of cross-sectional diagrams that document the various types of geologic layers of different parts of the SLO Basin.

Chapter 5: Groundwater Conditions

Following SGMA regulations, Groundwater Sustainability Agencies must develop and implement a Groundwater Sustainability Plan for managing and using groundwater without causing six specific undesirable results. These undesirable results are defined as: the chronic lowering of groundwater elevations, groundwater storage reductions, seawater intrusion, land subsidence, the depletion of interconnected surface waters, and the degradation of groundwater quality. These undesirable results are also referred to as sustainability indicators. The organization of Chapter 5 aligns with the six sustainability indicators specified in the GSP regulations.

Chapter 5 describes the current and historical groundwater conditions in the SLO Basin, including a series of maps showing groundwater flow direction and groundwater level contours over several decades, allowing for the visualization of changes in groundwater elevation over time. These maps document that areas within City limits have not experienced significant reductions in groundwater elevation, and thus groundwater storage, over the examined period of time. On the contrary, areas within the Edna Valley area of the SLO Basin have experienced significant, continual declines in groundwater elevation over time. The stability in groundwater elevation within City limits can be attributed to the City's increased surface water use for potable needs, a reduction in total water demand, and the substantial reduction in groundwater use since the early 1990s. On the contrary, the Edna Valley area's declining water levels can be largely attributed to increases in agricultural operations over time.

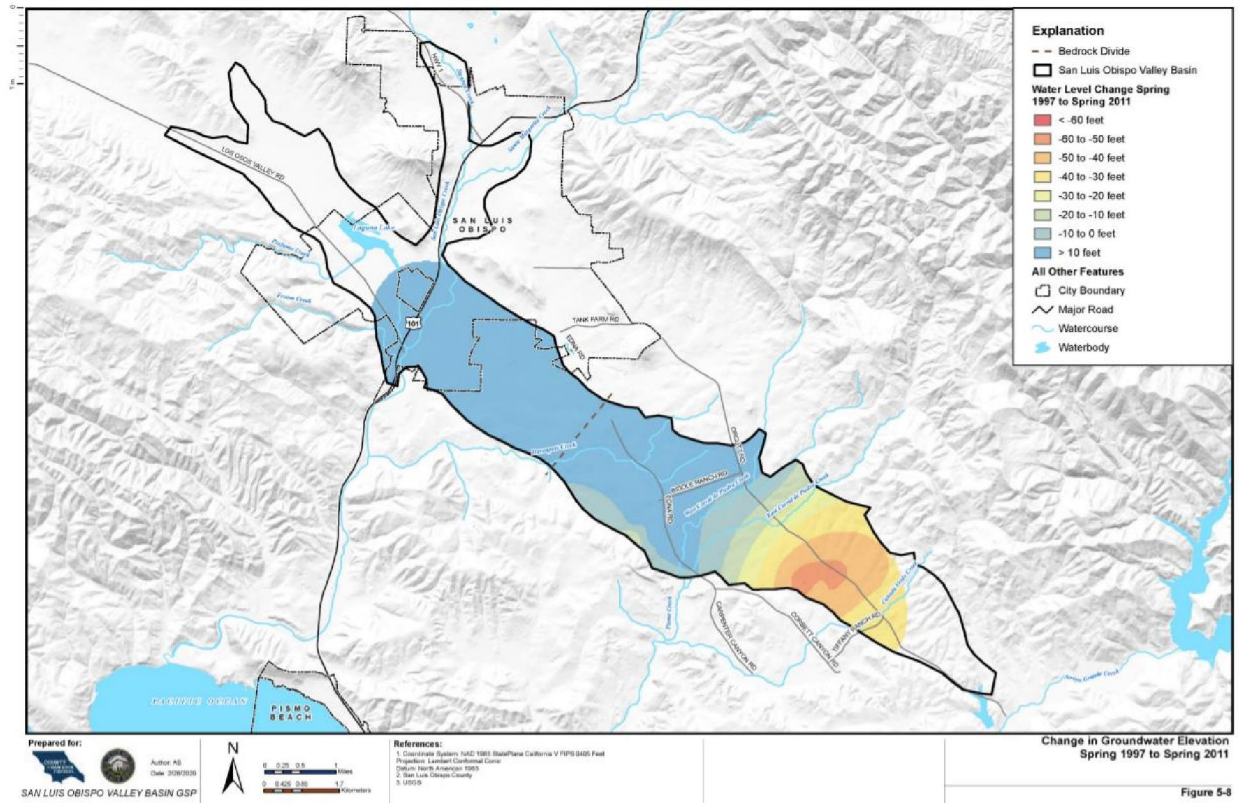


Figure 5- Changes in Groundwater Elevation from 1997 - 2011

Just as pumping groundwater for domestic and agricultural uses can remove water from a groundwater basin, infiltration of rain, subsurface inflow from surrounding bedrock, and percolation of streamflow from local creeks can return water to the groundwater basin. This chapter qualitatively describes these, and other various groundwater recharge and discharge types within the SLO Basin.

Following discussions related to the connection between groundwater and stream flows, the chapter addresses groundwater quality within the basin. While SGMA is not designed to resolve any specific groundwater contamination issues, it is important that the actions within a GSP not allow for the worsening or exacerbation of groundwater quality issues.

Chapter 6: Water Budget

Chapter 6 takes the description of water flowing in and out of a basin and attempts to quantify this flow volumetrically. The purpose of a “water budget” is to provide an accounting and assessment of the total annual volume of groundwater and surface water entering and leaving a basin. A water budget identifies and quantifies various components of the hydrologic cycle within a user-defined area, in this case the SLO Basin. Water circulates between the atmospheric system, land surface system, surface water bodies, and the groundwater system, as shown in Figure 6.

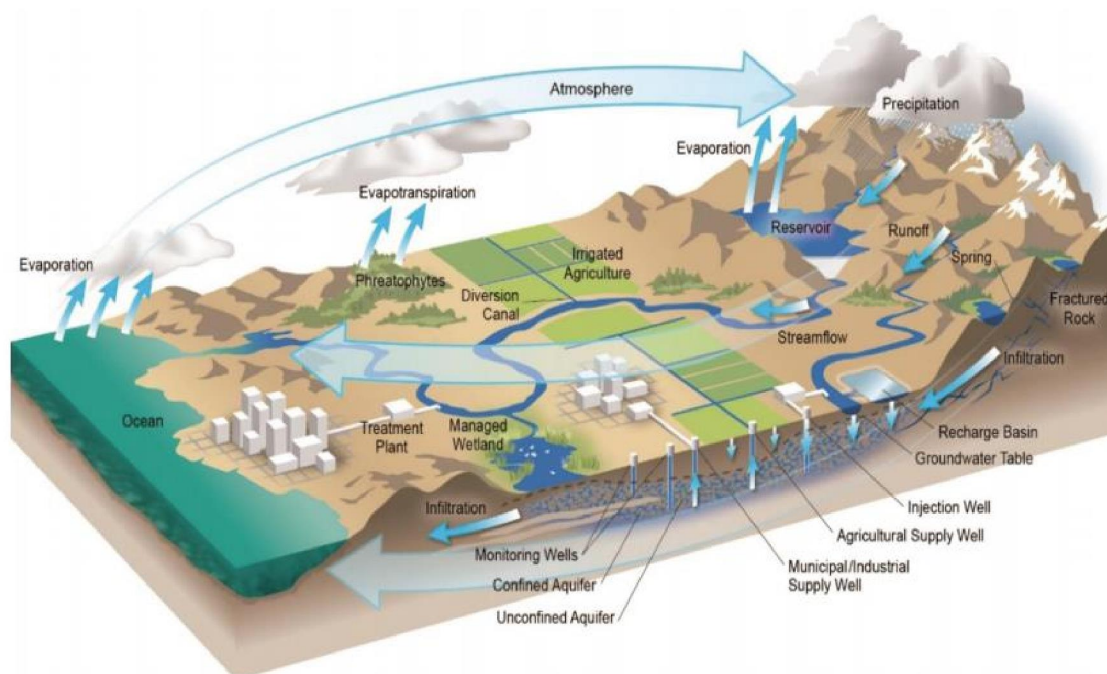


Figure 6 – The Hydrologic Cycle. Source: Department of Water Resources (Water Budget BMP, 2016)

This chapter of the GSP provides an accounting and assessment of the total annual volume of groundwater and surface water entering (inflow) and leaving (outflow) the SLO Basin for historical and current conditions, as well as future conditions with climate change and management actions. The current water budget developed for this chapter was prepared for the two subareas that cover the SLO Basin, the San Luis Valley subarea and the Edna Valley subarea, both individually and combined into a single water budget for the entire Basin. This water budget results in estimates of the preliminary sustainable yield and overdraft, or surplus, for both subareas and for the entire Basin which are outlined in Table 1 and Table 2 below. The water budget equation used within this chapter to account for available water is as follows:

$$\text{Inflow} - \text{Outflow} = \text{Change In Storage}$$

Table 1 – Preliminary Sustainable Yield Estimate (Acre-Feet / Year)	
San Luis Valley Subarea	2,500
Edna Valley Subarea	3,300
Basin Total	5,800

Table 2 – Estimated Overdraft (Acre-Feet / Year)	
San Luis Valley Subarea	-700*
Edna Valley Subarea	1,100
Basin Total	400

*Surplus water available

Next Steps

Through the first six GSP chapters, no major decisions have been made regarding long-term management of the SLO Basin. The first six chapters have largely served to define an effective governance structure, ensure all stakeholders are included in the GSP development process, and to compile data that will help to better understand local basin geology and groundwater conditions. Chapters 7 and 8, which are currently being drafted, set goals for where groundwater levels should be maintained in the SLO Basin and establish a groundwater monitoring network which will be used to track progress toward meeting these goals. These management goals will become the basis for defining what sustainability looks like in the SLO Basin.

In 2021, Chapters 9 and 10 will be drafted, which identify the projects and management actions that will need to be undertaken in order for the basin to achieve sustainability by 2042. These projects and management actions may consist of strategies such as reductions in groundwater pumping, conservation, irrigation efficiencies, agricultural irrigation reductions, and water supply augmentation efforts. Figure 7 below summarizes the five major steps to the GSP development process and where we are currently in the drafting process.



Figure 7 – GSP Development Steps

As Chapter 9 is drafted, augmentation projects will look at all locally available water to potentially supplement supplies in the Edna Valley area. It is likely that delivery of a portion of the City's recycled water supplies will be examined as one of many potential projects and management strategies. When examining augmentation projects and other management actions, it is important to remember that while SGMA goals are not required to be met until 2042, they will need to be perpetually maintained after 2042. Thus, the City must ensure that any participation in management actions, does not prohibit the City from meeting future in-City water demand, even after 2042.

ENVIRONMENTAL REVIEW

The California Environmental Quality Act (CEQA) does not apply to the recommended action, because the action does not constitute a “Project” under CEQA Guidelines Sec. 15378.

FISCAL IMPACTS

Budgeted: NA

Budget Year: NA

Funding Identified: NA

There is no fiscal impact with the actions before Council. Staff time dedicated to the SGMA effort are incorporated in the annual budget appropriations.

ALTERNATIVES

Request staff return to the City Council, acting as the GSA, with additional information regarding GSP development.

Attachments:

a - Draft Communication and Engagement Plan

b - Draft Data Management Plan

c - COUNCIL READING FILE - Draft GSP Chapters 1-2

d - COUNCIL READING FILE - Draft GSP Chapters 3-4

e - COUNCIL READING FILE - Draft GSP Chapter 5

f - COUNCIL READING FILE - Draft GSP Chapter 6

g - COUNCIL READING FILE - City and County GSP MOA

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Communication and Engagement Plan

for Groundwater Sustainability Plan Development
in the San Luis Obispo Valley Groundwater Basin

Prepared for San Luis Obispo County

June 5, 2019

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The Sustainable Groundwater Management Act (SGMA) requires local governments and water agencies in California’s high- and medium-priority groundwater basins, as defined by the California Department of Water Resources (DWR), to form Groundwater Sustainability Agencies (GSAs) and operate under a Groundwater Sustainability Plan (GSP) by the year 2022. Basins subject to critical conditions of overdraft must begin to manage groundwater under a GSP sooner – by January 31, 2020.

This Communication and Engagement Plan (C&E Plan) describes the planned activities for engaging interested parties in SGMA implementation efforts in the San Luis Obispo Valley Basin. It is designed to meet the stakeholder engagement requirements of SGMA and the GSP Regulations. The ultimate purpose of the document is to facilitate effective communication and engagement with the multiple and varied stakeholders in the San Luis Obispo Valley Basin.

Structure of this C&E Plan

DWR defines the purpose of its Stakeholder *Communication and Engagement Guidance Document* (C&E Guidance Document) to:

- Demonstrate how a GSA can effectively communicate and engage with multiple and varied stakeholders
- Identify the methods and tools to support communication and engagement
- Identify how a GSA can conduct meaningful engagement to develop a GSP

The C&E Guidance Document describes DWR’s seven-step process for communication and engagement:

1. ***Set Goals and Desired Outcomes***
2. ***Identify Your Stakeholders***
3. ***Stakeholder Survey and Mapping***
4. ***Messages and Talking Points***
5. ***Venues for Engaging***
6. ***Implementation Timeline***
7. ***Evaluation and Assessment***

This C&E Plan is organized to follow the steps suggested above and shown in **Figure 1**.

Figure 1. Engagement Steps from DWR GSP Stakeholder and Engagement Guidance Document



1. Introduction to the San Luis Obispo Valley Basin

The San Luis Obispo Valley Basin (Groundwater Basin 3-009¹) is situated in the San Luis and Edna Valleys in central to southwest San Luis Obispo County. The basin overlies an area of approximately 12,700 acres and is part of the Central Coast Watershed. It is bound on the northeast by the Santa Lucia Range, on the southwest by the San Luis Range, and on all other sides by contact with impermeable Miocene and Franciscan Group rocks. A rise in bedrock south of the San Luis Obispo Airport has created two separate subsurface drainage systems known as the San Luis Valley subbasin and the Edna Valley subbasin. The Edna Valley subbasin covers approximately 4,700 acres and is entirely within the unincorporated San Luis Obispo County (County). The San Luis Valley subbasin spans approximately 8,000 acres and includes both the unincorporated county and city of San Luis Obispo (City).

- **City of San Luis Obispo.** The City of San Luis Obispo is located near the intersection of Highway 101 and Hwy 1. A portion of the City is located within the basin. The City's land uses consist primarily of commercial and residential areas.
- **San Luis Obispo County.** San Luis Obispo County is located in the southern region of California between approximately San Miguel and Santa Maria. The entire basin is located within the County. The County's land uses consist of commercial, agricultural, residential, and undeveloped lands.

The primary sources of water supply for uses in the basin include groundwater from the San Luis Obispo Valley Basin and surface water from the Whale Rock Reservoir, Salinas Reservoir, the Nacimiento Water Project, and recycled water through the City's Water Recycling Program.²

Water users in the basin include municipalities, communities, rural domestic residences, and industrial, environmental, and agricultural users. The major water purveyors are the Edna Valley Growers Mutual Water Company, Varian Ranch Mutual Water Company, Edna Ranch Mutual Water Company, and Golden State Water Company.

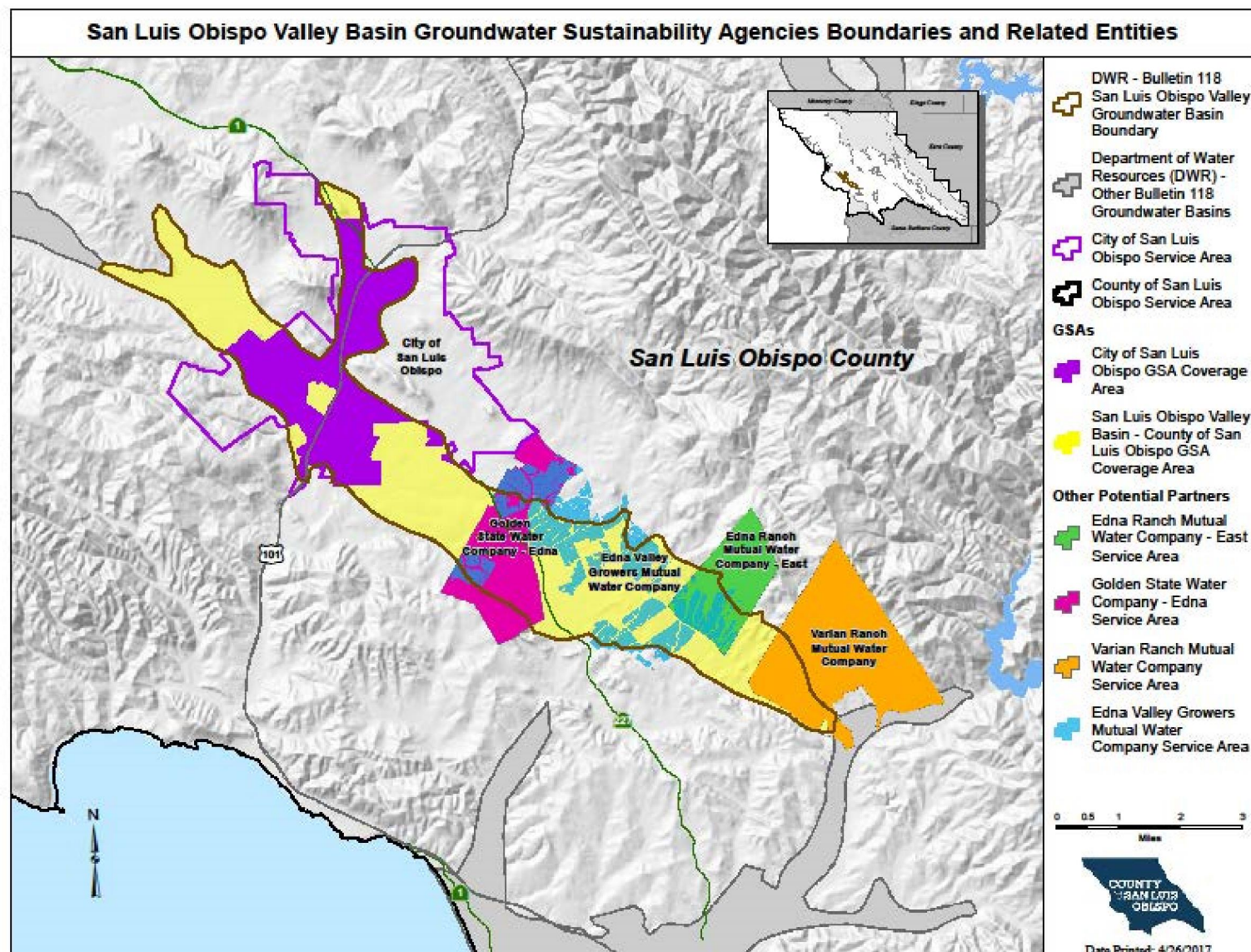
Figure 2 shows the location of the San Luis Obispo Valley Basin and the GSA boundaries.

¹ As identified and delineated in California Department of Water Resources Bulletin 118

<https://water.ca.gov/Programs/Groundwater-Management/Bulletin-118>

² <https://www.slocity.org/government/departments-directory/utilities-department/water/water-sources/recycled-water>

Figure 2. San Luis Obispo Valley Basin Groundwater Sustainability Agency Boundary



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2. Goals and Desired Outcomes

The goal of this C&E Plan is to describe the planned activities for engaging interested parties in SGMA implementation efforts in the San Luis Obispo Valley Basin and to provide opportunities for interested parties to participate in GSP development. This plan serves as a roadmap to support achieving the desired outcomes identified below.

- **Educate the public about the importance of the GSP and the value of their input.** Stakeholder input is a critical part of the GSP development process. Basin stakeholders define the values of the local community and priorities for groundwater management. This valuable input identifies the unique concerns of the stakeholders and guides decision-making and development of projects and management actions. The C&E Plan is designed to encourage stakeholder participation and to disseminate information about GSP development.
- **Engage a diverse group of stakeholders.** The C&E Plan is developed with thoughtful consideration about how to engage the diverse array of stakeholders in the basin. One size does not fit all when it comes to stakeholder engagement. The C&E Plan outlines multiple venues for communication with varied audiences.
- **Make stakeholder participation easy and accessible.** One way to increase engagement is to make participation easy for the stakeholders. The opportunities for stakeholders to engage in GSP development should be clear and easily accessible. The C&E Plan provides methods to make engagement easy for stakeholders.
- **Allow interested parties the opportunity to provide meaningful input.** Aligning the engagement schedule with the GSP development schedule allows stakeholders to engage at key decision points in the GSP development process. Public meetings will inform interested parties about what decisions need to be made, provide relevant technical information, and request feedback.
- **Provide a roadmap for GSA leadership.** The C&E Plan provides a clear roadmap and schedule for GSA leaders to follow, keeping engagement efforts consistent among stakeholders and on track throughout the duration of the project.

The goal and desired outcomes listed above are the drivers for this planning document. They inform and shape the remainder of this C&E Plan.

3. GSP Participants and the Decision-Making Process

Everyone in the basin has a role to play in GSP development. Generally, participants fall into one of the following groups.

- GSA Leadership
- Technical Experts
- Interested Parties

Each of these groups provide a unique contribution to the GSP.

GSA Leadership

To comply with SGMA, two GSAs were formed to manage the groundwater resources of the San Luis Obispo Valley Basin in a sustainable manner as directed under a GSP that must be prepared by 2022 and implemented for the next 40 years

- City of San Luis Obispo Groundwater Sustainability Agency
- San Luis Obispo Valley Basin - County of San Luis Obispo Groundwater Sustainability Agency

In January 2018, the City and the County entered into a Memorandum of Agreement (MOA) with the Edna Valley Growers Mutual Water Company, Varian Ranch Mutual Water Company, Edna Ranch Mutual Water Company, and Golden State Water Company to prepare a single GSP for the San Luis Obispo Valley Basin, establishing the Groundwater Sustainability Commission (GSC or Commission). The GSC serves as an advisory committee to the San Luis Obispo City Council and County of San Luis Obispo Board of Supervisors.

The GSC has five members as shown in **Table 1**.

Table 1. Commission Membership

San Luis Obispo Valley Groundwater Sustainability Commission Members
• One member representing the City • One member representing the County • One member representing Edna Valley Growers Mutual Water Company • One member collectively representing Varian Ranch Mutual Water Company and Edna Ranch Mutual Water Company • One member representing Golden State Water Company

All meetings of the Commission are open to the public and interested parties are encouraged to attend. The Commission will make recommendations to the City Council and County Board of Supervisors regarding GSP development (e.g., recommendation to adopt). A public Notice of Intent to adopt the GSP and a public hearing will be held prior to adoption of the GSP. The final decision-making power to adopt the GSP will be executed separately by the City Council and County Board of Supervisors.

Technical Experts

Technical experts are there to provide subject matter expertise on highly complex issues about the basin and surrounding basins and to inform the Commission and interested parties about the benefits and consequences of potential projects and management actions identified in GSP development. Technical experts may include outside consultants or staff of agencies that are signatories to the MOA. Section 3.2 of the MOA outlines how the City and County will retain consultant services.

Interested Parties

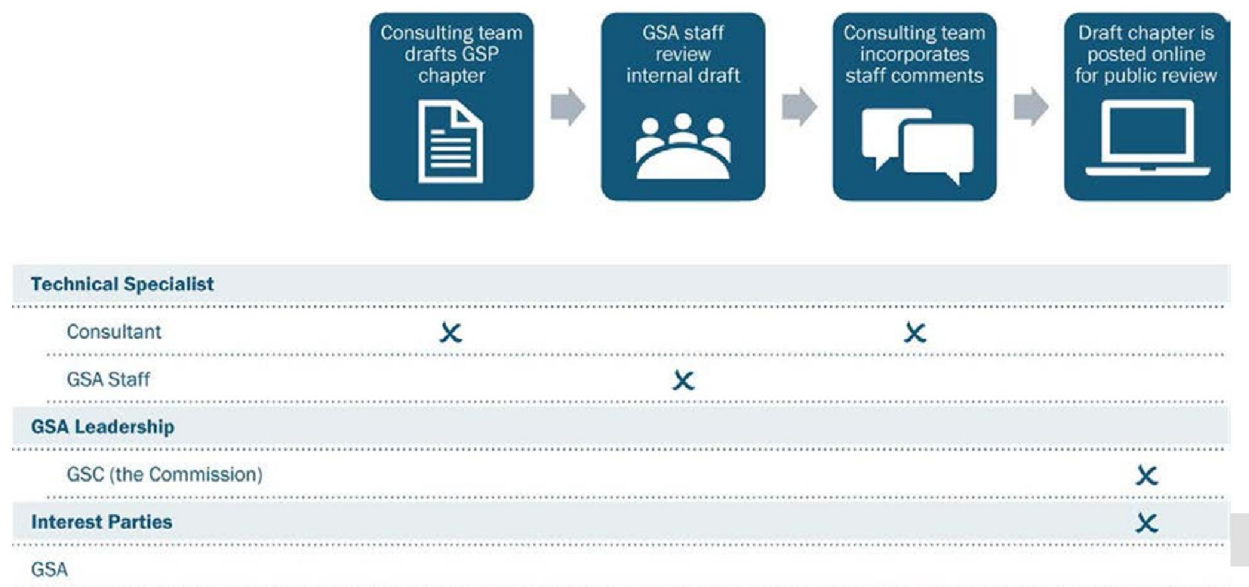
Interested parties consist of beneficial users of groundwater, stakeholders, and anyone affected/impacted by groundwater in and around basin. The interested parties may represent environmental interests, Native American tribes, agricultural interests, urban groundwater users, etc. *GSA Leadership* and *Technical Experts* provide information to interested parties through the engagement venues and tools described in this plan. The interested parties provide input regarding the priorities and values of the community and the likelihood of the success of proposed project concepts and the hurdles that must be overcome to achieve groundwater sustainability. Interested parties may also include agencies, such as the U.S. Department of Fish and Wildlife, with an interest in sustainable groundwater management in the basin. Interested parties can participate in the GSP development process by attending public meetings, commenting on draft documents, and participating in workshops. More information on interested parties is included in **Section 4. Stakeholder Groups**.

GSP Chapter Review Process

The San Luis Obispo Valley Basin GSAs formulated a process for reviewing draft GSP chapters, as illustrated in **Figure 3**. GSA leadership, technical experts, and interested parties have an opportunity to provide feedback on each chapter of the GSP at varying stages of the review process.

The individual chapters will be prepared by the consulting team with input from GSA staff. After the draft chapters have been approved by the Commission they will be posted on the Portal to begin a minimum 30-day comment period. Specific dates will be provided for each draft document to allow for adequate review. Public comments will be submitted through the Portal and all comments received will be available for review. The comments will be reviewed by the technical experts and be considered for inclusion in the draft GSP.

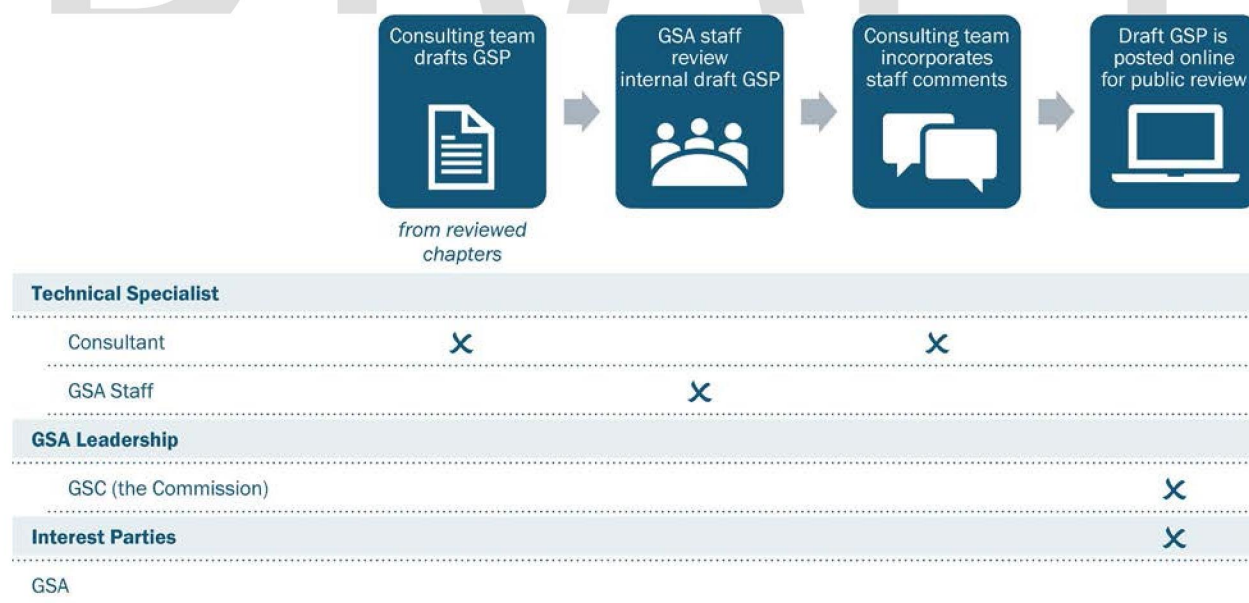
Figure 3. GSP Chapter Review Process



GSP Review Process

Comments collected during public review of draft chapters will be considered when revising the chapters for the Draft GSP. After the draft GSP has been approved by the Commission it will be posted on the Portal to begin an additional minimum 30-day comment period. The roles of the GSP participants in preparation of the Final Draft GSP will follow the steps shown in Figure 4.

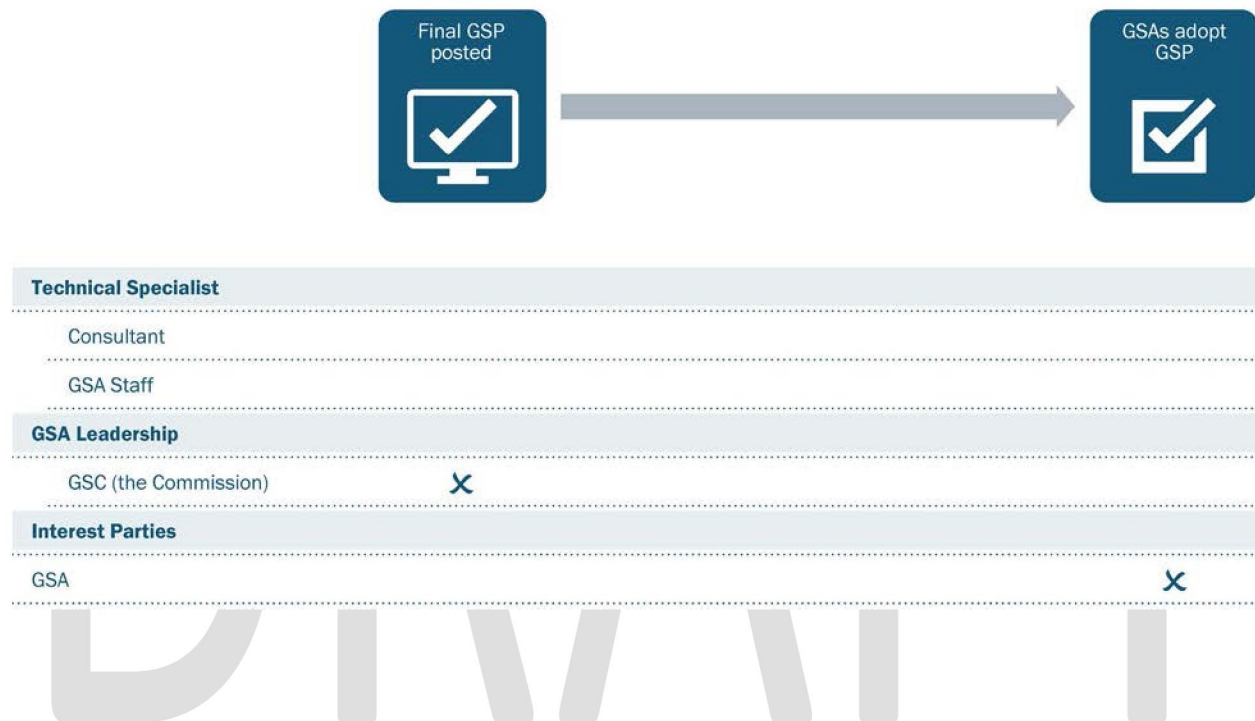
Figure 4. GSP Review Process



GSP Adoption Process

Once the GSP has been finalized, the Commission will make a recommendation to the GSAs to adopt the GSP. The City of San Luis Obispo City Council and San Luis Obispo County Board of Supervisors will then consider adoption of the GSP. The GSP participants with responsibilities in this phase are shown in Figure 5.

Figure 5. GSP Adoption Process



4. Stakeholder Groups

Pursuant to California Water Code sections 10723.8 and 10723.2, the San Luis Obispo Valley Basin GSAs will consider throughout the project the interests of all beneficial uses and users of groundwater, as well as those that are responsible for implementing the actions developed within the basin's GSP. The San Luis Obispo Valley Basin GSAs are committed to an open public review and feedback process, including active and open discussions with all interested parties during the GSP development process. **Appendix A** includes the initial list of interested parties submitted to the California Department of Water Resources at the time of the GSA's formation. The list includes parties grouped by the categories below.

- Agencies
- Water corporations regulated by PUC or a Mutual Water Company
- Agricultural users
- Domestic well owners
- Municipal well operators
- Public water systems
- Local land use planning agencies
- Environmental users of groundwater
- Surface water users
- Federal government
- California Native American tribes
- Disadvantaged Communities

Stakeholder Group Identification

The stakeholder list provided in **Appendix A** was used to form the Basin's initial interested parties list. The interested parties list was expanded by adding information collected via the SGMA interest e-mail list hosted on the County's website.³ The SGMA interest e-mail list has been online for more than one year and over 280 parties have indicated interest in being added to the Basin's mailing list.

Once signed up for the interest list, parties are contacted via email when events related to GSP development are scheduled for the San Luis Obispo Valley Basin. The interested parties list will continue to expand as people answer the stakeholder survey (**Section 5**) and are encouraged to sign up for communications via the Groundwater Communication Portal described below.

Groundwater Communication Portal

A web-based outreach tool called the San Luis Obispo Valley Basin Groundwater Communication Portal (Portal) electronically notifies interested parties when the GSAs host events regarding groundwater management. The Portal is used to grow and maintain the interested parties list described above. Interested parties can add themselves to the interest list and access draft chapters for review at any time by registering for portal access at [to be added once domain name has been purchased].

³ [https://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-\(SGMA\)/San-Luis-Obispo-Valley-Groundwater-Basin.aspx](https://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-(SGMA)/San-Luis-Obispo-Valley-Groundwater-Basin.aspx)

The Portal will track outreach engagements such as Commission meetings and communications with individuals or groups of stakeholders involved in the development of the GSP and store the information in a database for GSA retrieval. The database will include meeting dates, locations, times, and documents such as meeting agendas. A description of the Portal and its functions is provided in ***Appendix B.***

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5. Stakeholder Survey

DWR created a stakeholder survey template hosted at the Communication and Engagement Digital Toolkit⁴ webpage. The survey is designed to learn about stakeholder interests, issues, and challenges. The survey may include the following questions:

- Are you familiar with SGMA regulations?
- Are you currently engaged in activity or discussions regarding groundwater management in this region?
- Do you own or manage land in this region?
- Do you manage water resources? If yes, what is your role?
- What is your primary interest in land or water resources management?
- Do you have concerns about groundwater management? If so, what are they?
- Do you have recommendations regarding groundwater management? If so, what are they?
- What else do you want us to know?
- Who else should we listen to?

The survey has been customized for San Luis Obispo Valley Basin GSP development and is included as **Appendix C**. The survey is scheduled to be distributed to interested parties in Summer 2019. The results of the survey will be used to inform this plan and will be included in the Final C&E Plan submitted with the Final GSP.

⁴ <https://water.ca.gov/Programs/Groundwater-Management/Assistance-and-Engagement>

6. Venues and Tools: Opportunities for Engagement

The San Luis Obispo Valley GSAs aim to encourage stakeholders with diverse social, cultural, and economic backgrounds to be actively involved in the GSP development. To achieve this goal, *focused engagement* and thoughtfully selected *venues and tools* should be employed.

Focused Engagement

The initial list of interested parties that was imported into the Portal from the County's SGMA email interest list included 290 entries. To support the diversity of elements and ensure we engage with potentially underrepresented communities on the list, the groups below will be given focused attention when choosing venues and tools for engagement.

- Disadvantaged Communities.** The City is recognized as a Disadvantaged Community (DAC).⁵ Meetings will be held in proximity to this area to allow easy access for interested parties. Information about GSP development and meeting dates/times will be posted in areas that the City has found to be successful in reaching underrepresented populations in previous outreach efforts. These areas include public events such as the Farmer's Market, City kiosks at City facilities such as the finance office where utility bills are paid, the parks and recreation department where after-school programs are coordinated, and other City facilities such as the Senior Citizens Center.
- Bilingual Residents.** The GSAs will gather information regarding the languages spoken in the communities within the basin and provide translation services for the languages as appropriate per the Dymally-Alatorre Bilingual Service Act.
- Tribal Governments.** Per SGMA §10720.3(c), any federally recognized Indian tribe may voluntarily agree to participate in the planning, financing, and management of groundwater basins. There are no federally recognized Native American tribes within the geographic boundaries of the San Luis Obispo Valley Basin. However, the Northern Chumash Tribal Council community encompasses the County area. Therefore, the San Luis Obispo Valley GSAs will refer to DWR's [Engagement with Tribal Governments Guidance Document](#) and will contact the tribal representative to invite participation in GSP development.

Stakeholder Workshops

Stakeholder workshops are designed to create opportunities for stakeholders and other interested parties to provide meaningful input during GSP chapter development. The workshop schedule is aligned with the GSP development schedule (**Appendix D**) for this purpose. The workshops will be led by technical experts such as consultants or GSA staff. Workshop dates will vary based on when input is deemed most useful. Suggestions for optimizing the benefit of the workshops are listed below.

- Choose workshop venues, dates, and times to maximize stakeholder participation.
- Use the Portal to inform interested parties about workshops during GSP development.

⁵ Per DWR Disadvantaged Communities Mapping Tool at <https://gis.water.ca.gov/app/dacs/>; accessed May 28, 2019

- Announce the Portal at stakeholder workshops and encourage attendees to sign up.

Groundwater Sustainability Commission Meetings

Regular meetings of the Groundwater Sustainability Commission provide an opportunity for City and County staff, participating parties, and their consultants to present updates on the status of GSP development. Meetings are scheduled every three months (quarterly). See the GSP development schedule (**Appendix D**) for planned dates. An interested party may sign up on the emailing list using the Portal to receive updates on meeting dates and times. Meetings of the Groundwater Sustainability Commission are subject to the Brown Act and are open to the public.

Public Notices and Hearings

Meeting notices will be sent in advance of stakeholder workshops and Commission meetings. SGMA requires a publicly noticed hearing at three distinct points in GSP development:

- At GSA formation §10723(b) – this process is complete
- When a GSP is adopted or amended (§10728.4)
- Before imposing or increasing fees

Public Draft GSP Documents

When draft GSP component documents (e.g., chapters) are released by the Commission, they will also be posted to the Portal and will be open for public comment. A comment form will be available on the Portal to submit comments on draft documents by chapter and section. These comments will be considered when revising the public draft documents and finalizing the Final Draft GSP chapters.

Tools for Communication

Initially, the GSAs anticipate producing the informational materials listed below.

GSA Website

The County has a webpage dedicated to SGMA implementation in the San Luis Obispo Valley Basin. Both the City and County websites point to this page⁶ to share information on GSP development. The site will be supplemented by the Portal as discussed below.

Groundwater Communication Portal (Portal)

The GSAs will use the San Luis Obispo Valley Basin Portal as a tool to communicate with interested parties. The Portal will store interested party information and distribute e-mail invitations for events posted to the calendar, these events may include GSC meetings, workshops, and other outreach events. There are additional tools within the Portal that will be used to enhance communication. These tools include the following:

- **E-Blast.** E-mails will be sent to interested parties for those who sign up for email notifications on the Portal using the e-blast tool. E-blasts will be effective for sending reminders of upcoming deadlines, such as the close of a survey or comment period.
- **Public Comment Form.** During public comment periods, a form will be available on the Portal for interested parties to submit comments on draft GSP documents. The form allows comments

⁶ [https://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-\(SGMA\)/San-Luis-Obispo-Valley-Groundwater-Basin.aspx](https://www.slocounty.ca.gov/Departments/Public-Works/Committees-Programs/Sustainable-Groundwater-Management-Act-(SGMA)/San-Luis-Obispo-Valley-Groundwater-Basin.aspx)

by chapter and automatically stores the information for GSA review, reducing the risk of misplaced comments.

Direct Mailing

Communications about GSP development will be sent only in digital format. For those who don't have access online or prefer to receive direct postal mailings, the agenda and agenda packet will be mailed to those who request it. There may be times when a direct postal mailing is appropriate. The County sent a mailer in May 2019 to provide information about the next two Commission meetings. The mailer also includes a request form for the recipient to fill out and return to the County if he/she desires to receive notification of future events via postal mail. A copy of the mailer is provided as **Appendix E**.

Outreach Materials

Given previous outreach efforts within City limits, the City does not believe a direct mail piece would be effective in reaching community members or the DAC population. To reach these community members, the City plans to direct outreach efforts for SGMA meetings to online resources, public events such as a Farmer's Market, and with outreach at several City kiosks at City facilities including the finance office where utility bills are paid, the parks and recreation department where after-school programs are coordinated, and at other City facilities such as the Senior Citizens Center.

FAQ

A frequently asked questions (FAQ) document will be created and updated periodically throughout the GSP development. The FAQ will address questions about SGMA, San Luis Obispo Valley Basin GSAs, and the development of the GSP. Updates to the FAQ will be posted on the Portal and on the County and City websites.

7. Evaluation and Assessment

The activities identified in this C&E Plan are designed to meet the goals and objectives identified in **Section 2**. Below, **Table 3** lists tasks compiled from the contents of this C&E Plan. This is a working list that will be modified and updated as needed throughout GSP development.

Table 3. Outreach Tasks

C&E Plan Section	Task	Description
4	Launch Groundwater Communication Portal (GCP)	Link to Portal from existing website, announce URL at Commission meeting, post future meetings to calendar, send invitations
5	Conduct Stakeholder Survey	Modify DWR's stakeholder survey for this basin, collect stakeholder feedback via custom survey (Appendix C)
6	Assess need for translation services	Document the GSA determination of what constitutes a substantial number of non-English speaking people per the Dymally-Alatorre Bilingual Service Act and the level to which translation services will be provided
6	Public Postings	Post information about GSP development and meetings in public spaces within the City limits such as Farmer's Market and City facilities
6	Conduct Stakeholder Workshops	Conduct stakeholder workshops per the GSP Development Schedule (Appendix D)
6	Public Notices	Send meeting notices in advance of stakeholder meetings, including Commission meetings
6	Direct Mailing	Send direct mail to land owners in unincorporated areas of the basin to announce GSP development and Commission meetings. Stakeholders who request it may have the agenda and agenda packet sent to them
6	Hold a public hearing for GSP adoption	Per SGMA § 10728.4, give 60-day notice and hold a public hearing to adopt the final GSP before submitting to DWR
6	Include GCP URL on printed materials	Educate public about where they can find information and updates related to groundwater management in the basin
6	Announce GCP at public meetings	Educate public about where they can find information and updates related to groundwater management in the basin (GCP)

Like the list above, this C&E Plan is a living document to be updated as needed throughout GSP development. Successful use and implementation of the task list and C&E Plan will indicate success.

8. Appendices

Appendix A.	Stakeholder lists submitted at time of GSA formations
Appendix B.	Groundwater Communication Portal (GCP)
Appendix C.	San Luis Obispo Valley Basin Stakeholder Survey
Appendix D.	GSP Development Schedule
Appendix E.	Postal Mailer: Groundwater Sustainability Plan Update
Appendix F.	References

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Appendix A.

Stakeholder lists submitted at time of GSA formations

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GSA Formation**Exhibit D: List of Beneficial Users****Initial List of Interested Parties within the San Luis Obispo Valley Basin**

Pursuant to the California Water Code Section 10723.2, the San Luis Obispo Valley Basin – County of San Luis Obispo Groundwater Sustainability Agency, in coordination with other GSAs within the San Luis Obispo Valley Groundwater Basin (Basin), will consider the interest of all beneficial uses and users, as well as those responsible for implementing a Groundwater Sustainability Plan (GSP). The County of San Luis Obispo has developed a list of interested parties and will revise the list as needed throughout the development of the GSP. An initial list of stakeholders and interested parties within the proposed San Luis Obispo Valley Basin – County of San Luis Obispo GSA service area, as defined in the water code, follows.

Agency:

County of San Luis Obispo
 San Luis Obispo County Flood Control & Water Conservation District
 City of San Luis Obispo
 Coastal San Luis Resource Conservation District

Water Corporations Regulated by PUC or a Mutual Water Company:

Edna Ranch Mutual Water Company - East
 Golden State Water Company - Edna
 Varian Ranch Mutual Water Company
 Edna Valley Growers Mutual Water Company
 Maxwellton Mutual Water

Agricultural users:

Individual agricultural landowners
 Farm Bureau
 Coastal San Luis Obispo Resource Conservation District
 UC Cooperative Extension
 USDA Conservation Service
 USDA Farm Service Agency
 Grower-Shipper Association
 SLO Wine Country Association

Domestic well owners:

Individual rural residential/suburban landowners
 Tiffany Ranch
 O'Conner Way

Municipal well operators:

Covered in other categories

Public water systems:

(per EHS records)
 141 Suburban Road Water Supply
 200 Suburban Road Water Supply
 Bear Valley Water Company

GSA Formation**Exhibit D: List of Beneficial Users****Initial List of Interested Parties within the San Luis Obispo Valley Basin**

Buttonwood Industrial Park- Inactive
 CB&I Constructors Inc
 Chevron - Tank Farm
 Congregation Beth David
 Copeland S Investments
 East Airport Fiero Lane Water Company
 Edna Valley Vineyard
 Elks Lodge #322
 Ernie Ball Inc
 Fiero Lane Water Company
 Hidden Hills Mobilodge
 Higuera Apartments
 Holdgrafer & Associates
 Horizon Lane Water Supply
 Irish Hills
 J M Sims Water Supply
 Jespersen Ranch
 Laureate Water Company
 Madonna Inn Water Company
 Noll Properties Industrial Park
 Paragon Triangle Water Supply
 Poly Ranch
 R. Howard Strabaugh Inc
 San Luis Business Park
 San Luis Sourdough - Inactive
 San Luis Water & Power
 SLO County Farm Bureau
 SLO Partners
 Sunset Drive-In Snack Bar
 Tank Farm Business Park
 Tank Farm Industrial Plaza
 Tiger Water Supply
 Toyota San Luis Obispo
 Vachell Water System
 Wallace Water Systems
 Whitson Industrial Park
 Williams Water Company
 Edna Ranch West (not in basin)

Local land use planning agencies:

City of San Luis Obispo
 County of San Luis Obispo
 San Luis Obispo Council of Government (SLO COG)

GSA Formation

Exhibit D: List of Beneficial Users

Initial List of Interested Parties within the San Luis Obispo Valley Basin

Environmental users of groundwater:

Central Coast Salmon Enhancement
The Nature Conservancy

Surface water users:

Individual agricultural landowners
City of San Luis Obispo
Central Coast Salmon Enhancement

Federal government:

U.S. Fish & Wildlife

California Native American tribes:

Chumash – no specific water uses in area

Disadvantaged communities:

Covered under other categories

Appendix B.

Groundwater Communication Portal (Portal)

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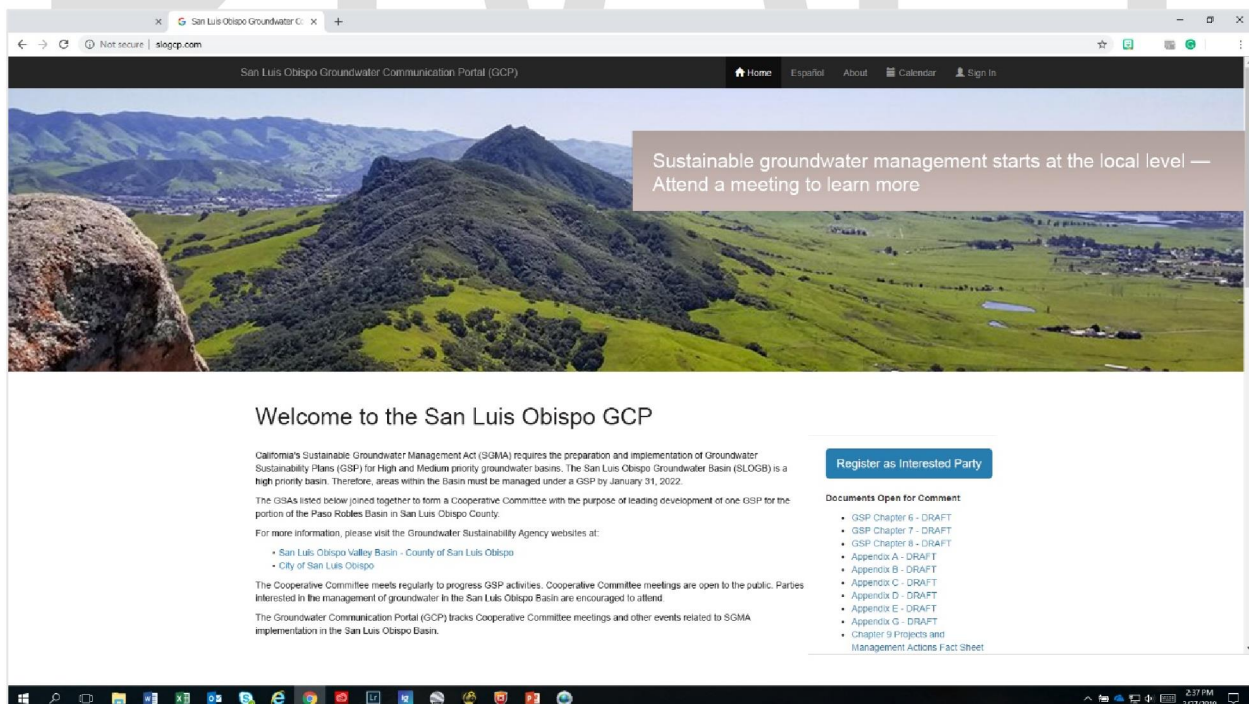
San Luis Obispo Valley Basin Groundwater Communication Portal (Portal)

GEI Consultants developed a tool to help our clients with their SGMA outreach efforts. The tool, referred to as the Groundwater Communication Portal (Portal), can be customized for any groundwater basin to track engagement efforts. The GCP is a web-based tool where you can post events and automatically inform interested parties with the click of a button. Interested parties can register with the GCP to stay informed about events related to GSP development and register for individual events to receive updates.

The GCP serves as a repository for all information about GSA meetings and interested parties. Storing all stakeholder engagement information in one place will be beneficial both for creating the communications section of the GSP and for continued tracking of outreach efforts moving forward to GSP 5-year updates and implementation. The Portal's administrative functions include report generation, so you can easily generate your list of interested parties or details about events (e.g., who was notified). Administrators may also add attachments to the events, including items such as meeting agendas, minutes, and sign-in sheets.

Portal Features

- Maintain the GSAs' list of interested parties
- Allow interested parties to self-register
- Post meeting details and documents
- Automatically notify interested parties with the click of a button
- Track who was notified and who replied to your invitation
- View a calendar of events
- Send e-mail blasts
- Track outreach efforts with a communication log
- Upload project documents and collect public comments



Appendix C.

San Luis Obispo Valley Basin Stakeholder Survey

(not included in this draft)

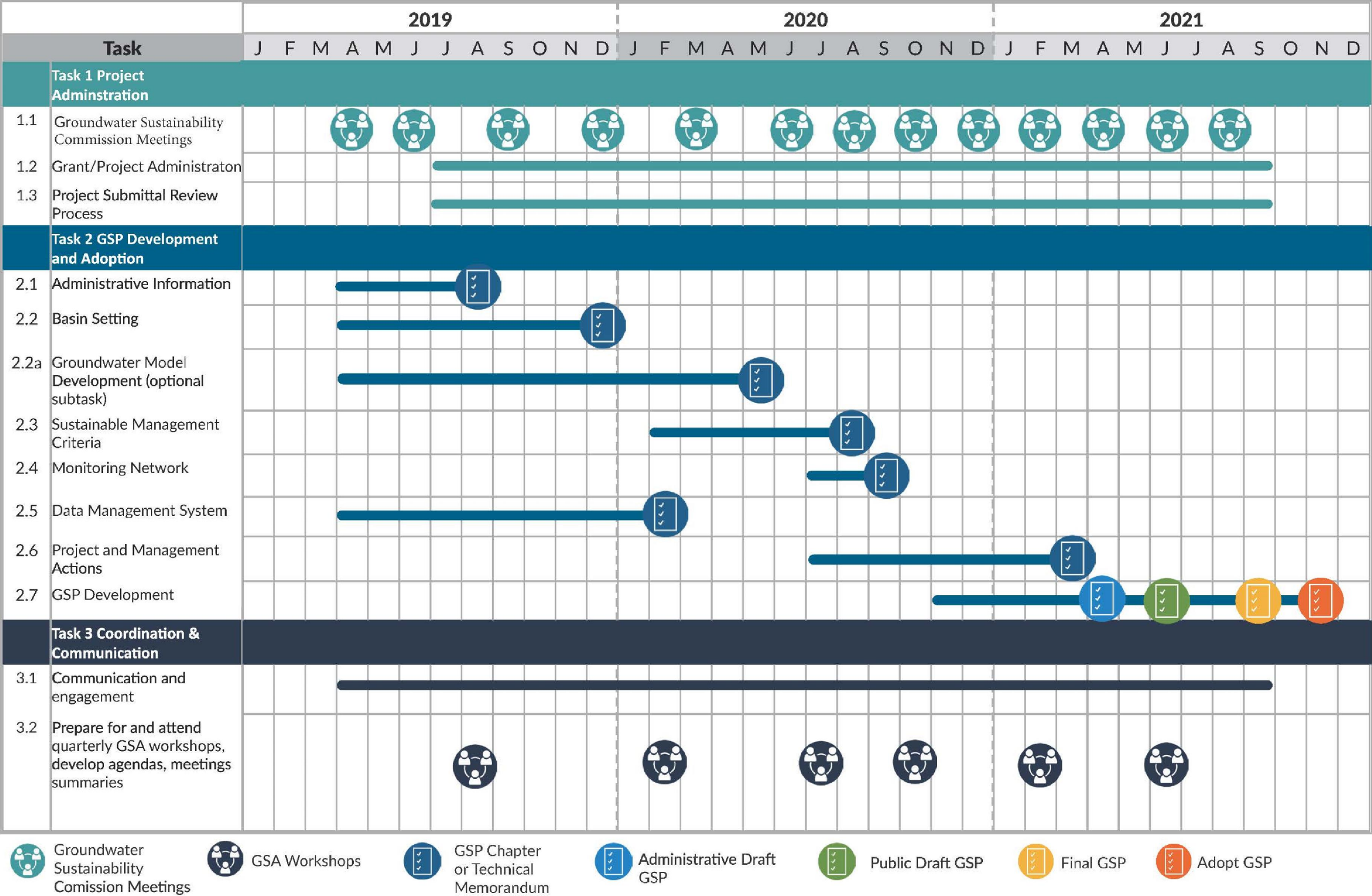
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Appendix D.

GSP Development Schedule

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PROJECT SCHEDULE



Appendix E.

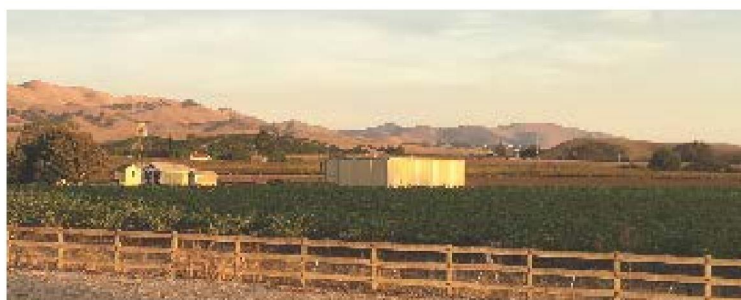
Postal Mailer: Groundwater Sustainability Plan Update

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SLO Basin Groundwater Sustainability Plan Update

The Groundwater Sustainability Commission (GSC) for the San Luis Obispo Valley Groundwater Basin (SLO Basin) is preparing a Groundwater Sustainability Plan (GSP). The purpose of the GSP is to sustainably manage our groundwater resources and meet the requirements of the Sustainable Groundwater Management Act (SGMA). All interested stakeholders and members of the public are encouraged to participate to help guide the GSP development process.



The GSC held a meeting on April 4, 2019 to initiate and provide an overview of the GSP process. The SLO Basin's pathway to sustainability through the development of a GSP is described below.



Upcoming Meetings

JUNE 2019

- » **Wednesday, June 12 || 3:30 pm**
Groundwater Sustainability Commission Meeting
 - Draft Communication and Engagement Plan
 - Groundwater Communications Portal Debut
 - Integrated Groundwater-Surface Water Model

AUGUST 2019

- » **Date and Time: TBD**
Groundwater Sustainability Agency Workshop

June 12 meeting located at:

SLO City/County Library
995 Palm Street
San Luis Obispo, CA 93401

If you would like to receive email notification, please sign up for the SGMA Email List at: www.slocounty.ca.gov/slobasin

At this website you can also find out information about progress to-date and all posted agendas and meeting materials.

Postal Mailing List Request Form San Luis Obispo Valley Basin - County of San Luis Obispo Groundwater Sustainability Agency

If you wish to receive meeting notification and printed meeting materials by postal mail, please provide your contact information below: (please check one)

- ☐ Agenda
- ☐ Agenda Packet (a fee may be applied)
(includes the agenda)

Name _____

Company _____

Address _____

City, State, Zip _____

Please tear along the dotted line and return this Postal Mailing List Request Form to:

Dick Tzou
San Luis Obispo County Public Works Department
County Government Center, Room 206
San Luis Obispo, CA 93408

Email: dtzou@co.slo.ca.us | Phone: (805) 781-4473



Appendix F.

References

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Stakeholder Communication and Engagement Guidance Document for Groundwater Sustainability Plan, Department of Water Resources, January 2018

Engagement with Tribal Governments Guidance Document for Sustainable Management of Groundwater, Department of Water Resources, June 2017

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**San Luis Obispo Valley Basin
Data Management Plan**

Data Management System to
Support Implementation of the
Sustainable Groundwater
Management Act

Prepared for:

County of San Luis Obispo GSA
City of San Luis Obispo GSA

Prepared by:

GEI Consultants
2868 Prospect Park Drive, Suite 400
Sacramento, CA 95670

August 31, 2020

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1. Introduction

The purpose of this Data Management Plan (DMP) is to describe the planned Data Management System (DMS) and the process for collection, review, and upload of data used to develop a Groundwater Sustainability Plan (GSP) for the San Luis Obispo Valley Groundwater Basin (SLO Basin). This document does not provide final specifications for a complete DMS. Rather, it describes the data needed to comply with SGMA, the method to be used for data collection, and the plan for DMS development.

1.1 SGMA DMS Requirements

The Sustainable Groundwater Management Act (SGMA) requires development of a DMS. The DMS stores data relevant to development of a groundwater basin's GSP as defined by the GSP Regulations (California Code of Regulations, Title 23, Division 2, Chapter 1.5, Subchapter 2).

The GSP Regulations give general guidelines for a DMS:

§ 352.6. Data Management System

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

Note: Authority cited: Section 10733.2, Water Code.

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

§ 352.4. Data and Reporting Standards

(c) The following standards apply to wells:

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

Note: Authority cited: Section 10733.2, Water Code.

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

§ 354.40. Reporting Monitoring Data to the Department

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

Note: Authority cited: Section 10733.2, Water Code.

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

To comply with SGMA, the SLO Basin DMS will store data that is relevant to development and implementation of the GSP as well as for monitoring and reporting purposes.

2. Data Needs for SGMA

The SLO Basin is in San Luis Obispo County, California. The county spans multiple groundwater basins – 6 of which are engaged in SGMA activity. Each basin complying with SGMA is required to store data in a DMS. Rather than host several systems, a county-wide DMS will be implemented to support county data initiatives for SGMA and other non-SGMA data initiatives.

Figure 1. Groundwater Basins in San Luis Obispo County¹



SGMA defines sustainable groundwater management as “the management and use of groundwater in a manner that can be maintained during the planning and implementation horizon without causing undesirable results.”² Furthermore, SGMA outlines six undesirable results as follows:³

One or more of the following effects caused by groundwater conditions occurring throughout the basin:

(1) Chronic lowering of groundwater levels indicating a significant and unreasonable depletion of supply if continued over the planning and implementation horizon. Overdraft during a period of drought is not sufficient to

¹ Source: California Department of Water Resources, [SGMA Data Viewer](#), accessed August 14, 2020.

² §10721(v)

³ §10721(x)

establish a chronic lowering of groundwater levels if extractions and groundwater recharge are managed as necessary to ensure that reductions in groundwater levels or storage during a period of drought are offset by increases in groundwater levels or storage during other periods.

(2) Significant and unreasonable reduction of groundwater storage.

(3) Significant and unreasonable seawater intrusion.

(4) Significant and unreasonable degraded water quality, including the migration of contaminant plumes that impair water supplies.

(5) Significant and unreasonable land subsidence that substantially interferes with surface land uses.

(6) Depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water.

The presence or absence of the six undesirable results in a groundwater basin is determined by monitoring and reviewing data for six sustainability indicators (one for each undesirable result). A set of associated measurable objective and minimum threshold will be assigned for each indicator and will be included in the DMS.

There are multiple metrics by which the sustainability indicators may be observed. The sustainability indicators and their respective metrics, as defined in the GSP Regulations and described by the California Department of Water Resources (DWR) in the Sustainable Management Criteria Best Management Practice (BMP) document,⁴ are shown in **Figure 2**.

Figure 2. DWR's Sustainability Indicators and Metrics

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

⁴ https://water.ca.gov/LegacyFiles/groundwater/sgm/pdfs/BMP_Sustainable_Management_Criteria_2017-11-06.pdf

Table 1 describes the types of data that may possibly be monitored for each sustainability indicator. Sustainability indicators do not need to be tracked by every available monitoring type.

Table 1. Monitoring data for the SGMA sustainability indicators

Sustainability Indicator	Monitoring Data Types							
	Water Level	Extensometer	GPS	InSAR	Water Quality		Stream stages	Well and/or Site Data
					Chloride	±10 constituents		
Lowering groundwater levels	✓							✓
Reduction of storage	✓							✓
Seawater intrusion	✓				✓			✓
Degraded quality	✓				✓	✓		✓
Land subsidence	✓	✓	✓	✓				✓
Surface water depletion	✓						✓	✓

The DMS will accommodate data relevant to each sustainability indicator. The monitoring data types listed in **Table 1** represent the various data sets required to populate the DMS for tracking sustainability indicators. However, there is additional data that is readily available and may be included in the DMS to assist with preparation of GSPs and to support annual reporting.

3. Data Sources

Table 2 illustrates the data sources that will be used to populate the DMS to support GSP development, sustainability indicator monitoring, and annual reporting. The data categories listed below inform the design of the DMS and support the data needs presented previously in **Table 1**.

Table 2. Data Sources to Populate the DMS

Data Category	State and Federal Data Sources						Local Data Sources	
	California Statewide Groundwater Elevation Monitoring (CASGEM)	Well Logs	California Data Exchange Center (CDEC)	Geotracker Groundwater Ambient Monitoring and Assessment (GAMA)	United States Geological Survey (USGS)	Irrigated Lands Program	Participating Agencies	Other Groundwater Users*
Well and Site Info	✓	✓		✓	✓		✓	✓
Lithology	✓	✓		✓	✓		✓	
Water Level	✓				✓		✓	✓
Water Quality				✓	✓	✓	✓	
Subsidence					✓		✓	
Precipitation			✓				✓	
Land Use							✓	
Surface Water (Diversion, Stream Gages)			✓				✓	
Pumping							✓	✓

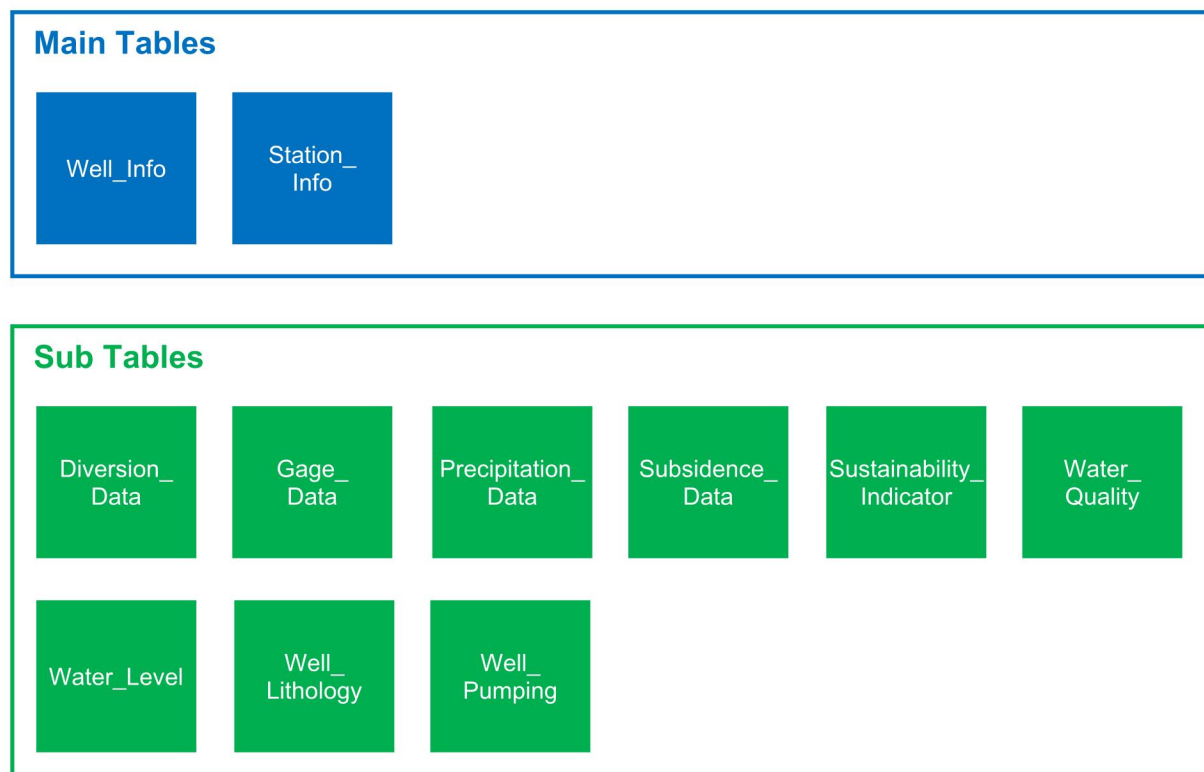
*Private parties and mutual water companies

4. Data Structure

The DMS will be comprised of a database plus an online web viewer. Data stored in the DMS will be separated by categories into tables. The tables shall contain columns and rows of data. Each field will hold a specific type of data, such as a number, text, or date. The planned DMS data tables are shown as **Figure 3**. The figure is color-coordinated to show the relationship between tables:

- **Main tables (Blue)** – Each dataset will be associated with EITHER a well or a station (e.g., extensometer). These are the main tables and include point data with unique identification and locations.
- **Sub tables (Green)** – Sub tables are related to the main tables and hold additional details about a well or site (e.g., correlation of a well with a water level measurement).

Figure 3. DMS Tables



A brief description of the main and sub tables is provided as **Table 3**.

Table 3. DMS Table Descriptions

Table	Description
Main Tables	
Station_Info	Information about type of station (recharge site, diversion, gage, extensometer, GSP) and location information
Well_Info	General information about well, including well construction and screen information
Sub Tables	
Diversion_Data	Diversion volume measurements for a diversion site or managed recharge
Gage_Data	Measurements collected at river or stream gages
Precipitation_Data	Volumetric measurements collected at precipitation monitoring stations
Subsidence_Data	Measurements collected at subsidence monitoring stations (e.g., extensometer)
Sustainability_Indicator	Minimum Thresholds and Measurable Objectives set for monitoring network sites tracking Sustainable Management Criteria for SGMA compliance
Water_Quality	Contains water quality data for wells or any other type of site
Water_Level	Water level measurements for wells
Well_Lithology	Lithologic information at a well site (each well may have many lithologies at different depths)
Well_Pumping	Pumping or recharge measurements for wells

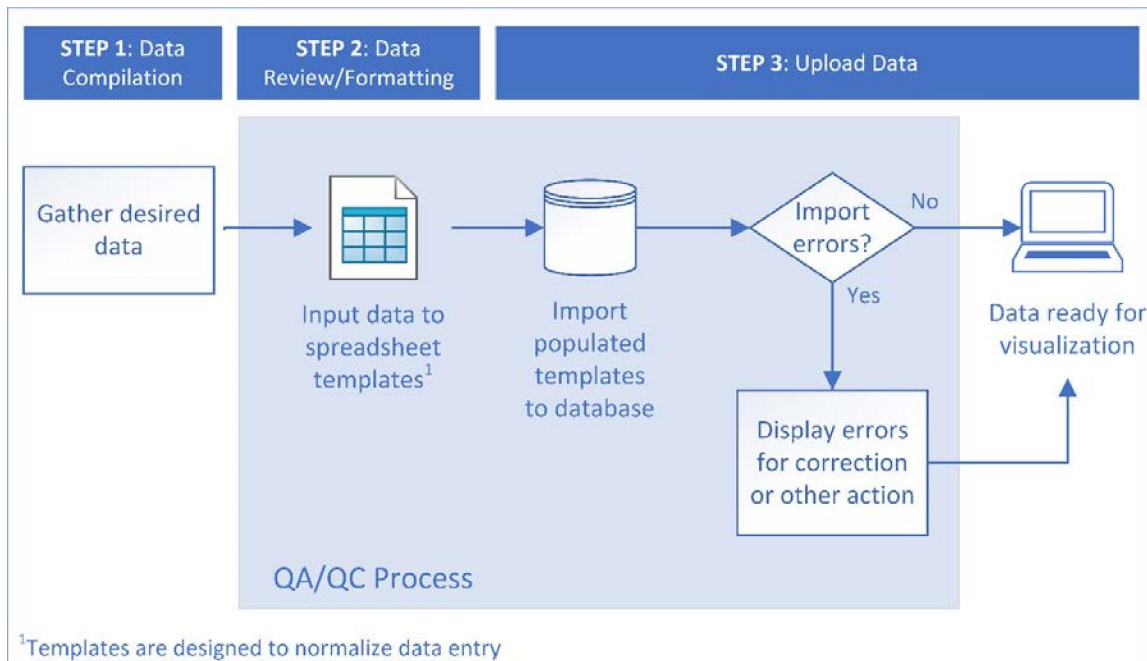
5. Data Import

Importing data to the DMS consists of three steps, as shown on **Figure 4** and listed below:

1. Data compilation
2. Data review and formatting
3. Upload data

The DMS shall be designed to use this process to import data for all basins in San Luis Obispo County. The DMS development team will upload data to support the SLO Basin GSP. Data for other basins will be loaded by other teams' GSP efforts.

Figure 4. Template Import Process for Local Data



5.1 Data Compilation (STEP 1)

Historical data must be gathered to populate the DMS. Select state and federal data (as provided earlier in **Table 2**) for the SLO Basin will be compiled by the GSAs and their consultant(s). Participating agencies and other stakeholders will compile local data and data for other basins in the County.

5.2 Data Formatting and Review (STEP 2)

After the data is compiled, it shall be normalized by use of Microsoft Excel templates designed exclusively for the DMS. Each of the main and sub tables, described previously in **Section 4**, will have a template.

The tables below list and describe the templates planned for the DMS. There are three types of data templates:

- Groundwater well data templates: for data associated with a well.
- Station data templates: for data associated with a station. A station is defined as any site, that isn't a groundwater well, tracking DMS data (e.g., extensometer).
- Independent data templates: for data that is not associated with a single well or station.

Table 4. Well Data Templates

Template	Description
WELL_INFO	Well site information including construction and location
WELL_SCREEN	Screened intervals associated with a well site
WELL_AQUIFER	Aquifers associated with a well site
WELL_LITHOLOGY	Lithologic information at a well site (each well may have many lithologies at different depths)
WELL_WATER_LEVEL	Water level measurements taken at wells
WELL_PUMPING	Pumping or recharge measurements for wells
WELL_WATER_QUALITY	Water quality data collected at well sites
WELL_SUST_INDICATOR	Minimum Thresholds, Measurable Objectives, and Interim Milestones set for wells (not stations)

Table 5. Station Data Templates

Template	Description
STATION_INFO	Information about a non-well station (e.g., recharge site) and location information
STATION_PRECIPITATION_DATA	Volumetric measurements collected at stations such as precipitation monitoring sites
STATION_SUBSIDENCE_DATA	Measurements from subsidence stations
STATION_GAGE_DATA	Measurements collected at river and stream gages
STATION_WATER_QUALITY	Water quality data collected at non-well stations
STATION_DIVERSION_DATA	Diversion volume measurements for a diversion site or managed recharge
STATION_SUST_INDICATOR	Minimum Thresholds, Measurable Objectives, and Interim Milestones set for stations (not wells)

Table 6. Independent Data Templates

Template	Description
AGENCY	Addresses and other identifying information about the source agencies for data in the system
WATER_YEAR	Water year type (e.g., dry)
DOCUMENT	Document information including file type, name, and file path

The data templates will include rules restricting formatting and alphanumeric properties to provide quality assurance/quality control (QA/QC) and to prevent errors and duplication when importing. The templates include pop-up windows to describe the type of data that should be entered in each column. If a specific filter must be applied, then only values that meet the criteria will appear in a drop-down list. **Figure 5** provides a screenshot of an example Excel template.

Figure 5. Example Template (Well Pumping)

	A	B	D	F	G	H
1	Well_Name	Agency_Name	Measurement_Method	SGMA_Use_Sector	Water_Year	Month
2						
3						
4						
5						
6						
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When data is compiled it must also be reviewed for accuracy. The template restrictions described above provide one level of QA/QC. As a second level of QA/QC, the initial set of compiled historical data will be reviewed by the consulting team before it is migrated into the database. This review will be focused and limited in scope. It will include the following manual checks:

- Identifying outliers that may have been introduced during the original data entry process
- Identifying potential duplication of data
- Removing or flagging questionable data
- Visualizing data in various software platforms outside the DMS to further assess the quality of the data

After the historical data is populated, future data will be reviewed by the County before it is fully imported to the DMS.

5.3 Data Upload (STEP 3)

Once the data is formatted and reviewed it will be uploaded to the DMS and displayed with a visualization tool (described in the next section). When loading the data, an automated check will be run by the DMS to capture errors or duplicates, if any, and a response will be generated to indicate errors so they may be corrected.

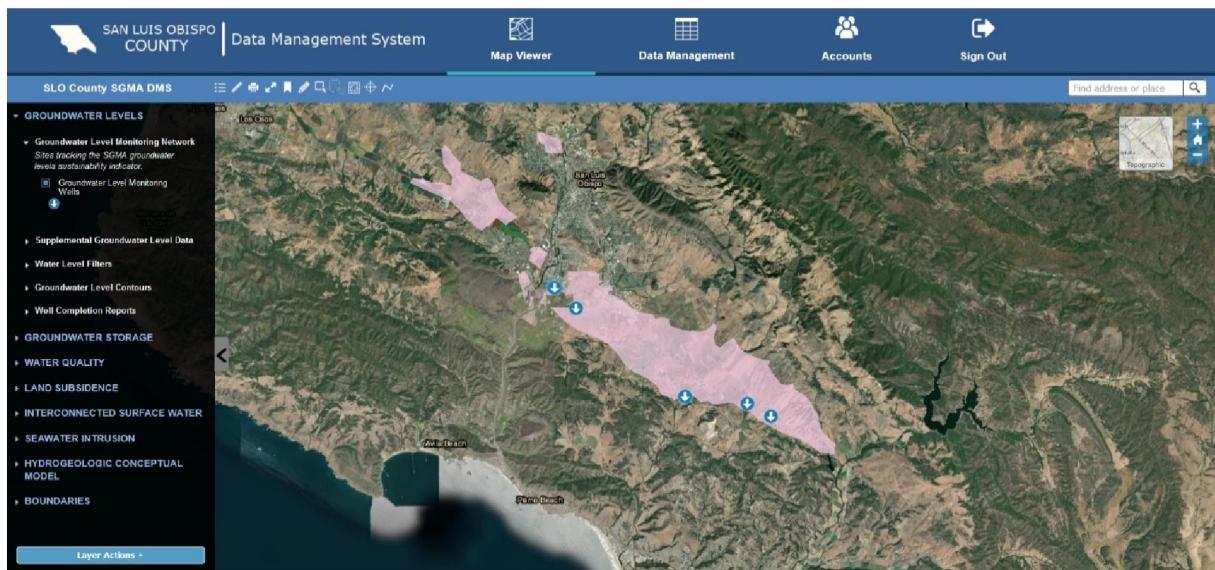
The upload templates will be available for download in the DMS interface to load future data.

6. SGMA Data Viewer

The DMS will include a user-friendly web viewer to display the SGMA data including the SGMA-specific sustainable management criteria (SMC) information such as representative monitoring sites, minimum thresholds, measurable objectives, and interim milestones.

The DMS SGMA data will display both with a map view and a detail view. Clicking on a point on the map will reveal details of the selected well or feature. The viewer will generate a hydrograph for points with water level data, and time-series graphs for water quality and subsidence data. The visual design of the Data Viewer (with test data) is shown in **Figure 6**.

Figure 6. Design for Data Viewer



The types of data to be visualized on the map and available via the map's navigation menu are listed in **Table 7**.

Table 7. Map Viewer Navigation

Menu Navigation	Description
Groundwater Levels	Water level data and associated wells with well completion reports.
Groundwater Storage	GSA groundwater storage monitoring network sites.
Water Quality	Water quality well and station data for greater than 100 constituents.
Land Subsidence	Subsidence data from extensometers and other stations plus InSAR data.
Interconnected Surface Water	Data related to the interconnected surface water sustainability indicator such as proximity wells, river and stream gages, precipitation stations, and more.
Seawater Intrusion	Sites tracking the SGMA seawater intrusion sustainability indicator.

Hydrogeologic Conceptual Model (HCM)	Data useful for development of a hydrogeologic conceptual model of the basin including suitability of soil for recharge, geologic maps, and fault maps.
Boundaries	GSA and other relevant boundaries.

There are two categories of data displayed on the map viewer: data stored in the DMS and reference data drawn directly from outside sources that is useful for groundwater management. All the data discussed in the previous sections, **3. Data Sources** and **4. Data Structure**, referred to data to be stored in the DMS database. **Table 8** below displays a list of reference data that is available for display in the map viewer but is tied directly to an external source (such as CDEC), not to the data stored in the DMS.

Table 8. Reference Data Not Stored in the DMS Database

Menu Navigation	Data Title	Source
Groundwater Levels	DWR Periodic Groundwater Measurements	- California Natural Resources Agency Open Data Platform https://data.cnra.ca.gov/dataset/periodic-groundwater-level-measurements - Water Data Library http://wdl.water.ca.gov/waterdatalibrary
	DWR Continuous Groundwater Measurements	https://data.cnra.ca.gov/dataset/continuous-groundwater-level-measurements http://wdl.water.ca.gov/waterdatalibrary
	USGS Periodic Groundwater Measurements	https://nwis.waterdata.usgs.gov/usa/nwis/gwlevels
	Seasonal Groundwater Level Reports	DWR Enterprise Water Management database (EWM), which includes water level data previously stored in the DWR Water Data Library and CASGEM databases.
	Well Completion Reports	https://data.cnra.ca.gov/dataset/well-completion-reports https://gis.water.ca.gov/arcgis/rest/services/Environment/i07_WellCompletionReports/FeatureServer https://gis.water.ca.gov/arcgis/rest/services/Environment/i07_WellCompletionReports/MapServer
Water Quality	Water Quality Portal (WQP)	https://www.waterqualitydata.us/
Land Subsidence	DWR Extensometers	https://data.cnra.ca.gov/dataset/wdl-ground-surface-displacement
	USGS Extensometers	https://waterservices.usgs.gov/rest/Site-Test-Tool.html
	TRE ALTAMIRA InSAR Dataset	- Image Server: https://gis.water.ca.gov/arcgisimg/rest/services/SAR - Download @OpenData: https://data.cnra.ca.gov/dataset/tre-altamira-insar-subsidence
	NASA JPL InSAR Dataset	- Image Server: https://gis.water.ca.gov/arcgisimg/rest/services/SAR - Download @OpenData: https://data.cnra.ca.gov/dataset/nasa-jpl-insar-subsidence
Interconnected Surface Water	CDEC Stations	http://cdec.water.ca.gov/

Menu Navigation	Data Title	Source
Water Budget	Statewide Crop Mapping 2014	- Feature Server: https://gis.water.ca.gov/arcgis/rest/services/Planning/CropMapping2014/FeatureServer - Map Server: https://gis.water.ca.gov/arcgis/rest/services/Planning/CropMapping2014/FeatureServer - Download and API @OpenData: https://data.cnra.ca.gov/dataset/crop-mapping-2014
Hydrogeologic Conceptual Model	UC Davis SAGBI	California Soil Resource Lab at UC Davis and UC-ANR.
	Soil Survey Geographic Database	https://services.arcgis.com/P3ePLMYs2RVChkJx/ArcGIS/rest/services/DownloaderBasinsv2/FeatureServer/0 http://www.arcgis.com/home/item.html?id=c2b408ba5c0a4fe1a79377906935c1a4
	CGS Geologic Map - 750k Generalized	- Metadata: https://maps.conservation.ca.gov/cgs/metadata/GDM_002_GMC_750k_v2_metadata.html - Webmap: https://maps.conservation.ca.gov/cgs/gmc/ - Service: http://spatialservices.conservation.ca.gov/arcgis/rest/services/CGS/GeologicMapCA/MapServer/21
	Quaternary Surficial Deposits	- Project Website: http://www.conservation.ca.gov/cgs/fwgp/Pages/sr217.aspx - Metadata: https://maps.conservation.ca.gov/cgs/metadata/QSD_metadata.html - Webmap: https://maps.conservation.ca.gov/cgs/qsdl/ - Service: https://spatialservices.conservation.ca.gov/arcgis/rest/services/CGS/GeologicMapCA/MapServer
	Fault Activity Map of California	- Metadata: https://maps.conservation.ca.gov/cgs/metadata/GDM_006_FAM_750k_v2_metadata.html - Webmap: https://maps.conservation.ca.gov/cgs/fam/ - Service: https://spatialservices.conservation.ca.gov/arcgis/rest/services/CGS/FaultActivityMapCA/MapServer
Boundaries	GSA Boundaries	DWR Bulletin-118 basin boundaries or as provided by client
	County Boundaries	https://data.cnra.ca.gov/dataset/california-counties
	Canals and Aqueducts	https://data.cnra.ca.gov/dataset/canals-and-aqueducts-local
	Disadvantaged Communities Blocks	https://data.cnra.ca.gov/dataset/census-block-group-2010
	Disadvantaged Communities Places	https://data.cnra.ca.gov/dataset/census-place-2016
	Disadvantaged Communities Tracts	https://data.cnra.ca.gov/dataset/census-tract-2010
	Water Agencies	https://data.cnra.ca.gov/dataset/water-districts
	CASGEM Groundwater Basins Prioritization – 2019 -	https://data.cnra.ca.gov/dataset/ca-bulletin-118-groundwater-basins

7. DMS User Types

All data stored in the DMS will be accessible by administrative users, based on user permissions. Some sensitive data, such as private well data, may require a higher level of permission to retrieve. These permissions will be determined by the client.

Monitoring sites and their associated datasets are added to the DMS by managing entity administrators. In addition to user permissions, access to the monitoring datasets is controlled through assigning one of three options to the data type as follows:

- **Private data** – Private data are monitoring datasets only available for viewing, depending on user type, by the entity's associated users in the DMS.
- **Shared data** – Shared data are monitoring datasets available for viewing by all users in the DMS, except for public users.
- **Public data** – Public data are monitoring datasets that are available publicly that can be viewed by all user types in the DMS; public datasets may also be published to other websites or DMSs as needed.

Managing entity administrators can set and maintain data access options for each data type associated with their entity.

8. Data Retrieval

Data may be retrieved in several ways: via the map viewer, by table, or by report type.

- **Map Viewer:** The map viewer will be used to retrieve small amounts of data currently displayed on screen.
- **By Table:** The Exports page will allow for export of entire DMS tables as comma-separated values (CSV) files. **Figure 7** illustrates the design for the Exports page.
- **By Report Type:** Reporting templates will be created to extract the specific group of data required for annual reporting to DWR.

Figure 7. SLO County Exports Page Design

Exports

Data from each table can be exported from the DMS as CSV files. Use the links below to export the desired table(s).

Well Data

Tables associated with wells can be exported using the links below.

Table Name	Description	Download File
WELL_INFO	General well information and metadata (e.g. well identifiers, locations, depths, etc.)	Download
WELL_LITHOLOGY	Lithology data associated with wells.	Download
WELL_PUMPING	Well pumping data.	Download
WELL_SUST_INDICATOR	Well sustainability indicators.	Download
WELL_WATER_LEVEL	Well water level data.	Download
WELL_WATER_QUALITY	Well water quality data.	Download

Station Data

Data associated with stations can be exported using the links below.

Table Name	Description	Download File
STATION_INFO	General station information and metadata (e.g. station identifier, location, type, etc.)	Download
STATION_DIVERSION_DATA	Station diversion data.	Download
STATION_GAGE_DATA	Station stream gage data (e.g. flow, discharge).	Download
STATION_PRECIPITATION_DATA	Monthly station precipitation data.	Download
STATION_SUBSIDENCE_DATA	Station subsidence measurements.	Download
STATION_SUST_INDICATOR	Station sustainability indicators.	Download
STATION_WATER_QUALITY	Station water quality data.	Download

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