WORKPLAN

Program Environmental Impact Report for Implementation of the Stanislaus County Groundwater Ordinance

1.0 BACKGROUND AND OVERVIEW

Stanislaus County is underlain by the Delta-Mendota, Eastern San Joaquin, Modesto, and Turlock groundwater subbasins of the San Joaquin Valley Groundwater Basin. In most of the County, groundwater has been sustainably managed for many years through conjunctive use with surface water under groundwater management plans that are being implemented by the San Luis and Delta-Mendota Water Management Authority (SLDMWMA), the Stanislaus and Tuolumne Rivers Groundwater Basin Association (STRGBA), and the Turlock Groundwater Basin Association (TGBA). Nevertheless, all four subbasins are experiencing storage depletion and other stresses resulting from current drought conditions. Particular concerns include new groundwater demand to supply the conversion of range land to agricultural production in the eastern portion of the County, and increased reliance on groundwater in the western portion of the County in areas where surface water deliveries have become unreliable. In addition, the Eastern San Joaquin Subbasin and the Delta-Mendota Subbasin, portions of which underlie the County, have been designated as critically overdrafted by the Department of Water Resources (DWR) due to overdraft conditions outside the County.

To address these stresses, Stanislaus County adopted a Groundwater Ordinance (Chapter 9.37 of the Stanislaus County Code, hereinafter the Ordinance) that is deliberately aligned with sustainable groundwater management concepts defined in the Sustainable Groundwater Management Act (SGMA). The Ordinance was adopted in November 2014, and codifies requirements, prohibitions, and exemptions for permitting new wells that are intended to support sustainable groundwater extraction. Implementation guidelines for well permitting under the new Ordinance were adopted in August 2015.

As the lead agency under the California Environmental Quality Act (CEQA), Stanislaus County is planning to prepare a Program Environmental Impact Report (PEIR) to develop a more robust basis for managing this program, and streamline the application and review process for new well permits. The core task of the project is to evaluate the potential environmental impacts of implementing the Ordinance; however, the scope of work will also involve gathering and evaluating information that will be relevant to Groundwater Sustainability Agencies (GSAs) in their early stages of SGMA-compliance planning, including identifying and filling outstanding data gaps. Stakeholder outreach will also provide a forum for potential data sharing opportunities to facilitate Groundwater Sustainability Plan (GSP) preparation by the existing groundwater management entities that have committed to become GSA's within the County, of which the County is a co-equal partner. The scope of work has been developed with these objectives in mind, and includes components specifically directed toward conducting an environmental review of the potential impacts associated with the Ordinance, as well as providing material data and support to stakeholders, and helping to facilitate a common basis to support future GSA formation and GSP preparation.

CEQA provides a lead agency with the flexibility to prepare different types of EIRs, and to employ different procedural means to focus environmental analysis on the issues appropriate for decision at each level of environmental review (Public Resources Code Section 21093[a]). CEQA provides that the "…degree of specificity required in an EIR will correspond to the degree of specificity involved in the underlying activity

which is described in the EIR" (State CEQA Guidelines Section 15146). In this case, the County will prepare a Tier-1 PEIR that considers broad-scale environmental impacts associated with issuing permits for new water-supply wells under the Ordinance. The PEIR may also provide policy alternatives and, if necessary, mitigation measures. Subsequent activities could then be evaluated in light of the PEIR to determine if additional environmental documentation is required (State CEQA Guidelines Sections 15168(b) and (c)).

The "program" to be addressed by the PEIR consists of the following actions that are implemented under the Ordinance:

- ***Issuing discretionary[1] well permits for proposed new wells that are not exempt from the Ordinance.*** Before a permit can be issued for a new non-exempt well, the Ordinance requires the applicant to provide substantial evidence that the proposed groundwater extraction will be sustainable, as defined under the Ordinance. In addition, the well permitting guidelines developed under the Ordinance prescribe well permit conditions for new wells as needed to assure they are operated sustainably as defined under the Ordinance.
- ***Issuing ministerial[2] well permits for proposed new wells that are exempt from the Ordinance.*** These include (1) proposed wells within the boundaries of water agencies that are in compliance with an existing Groundwater Management Plan or GSP, (2) "*de minimis"* wells that will be used to extract less than 2 acre-feet of water per year, and (3) in-kind replacement wells.[3]

Impacts will be evaluated over a Planning Horizon that extends until 2042, when all groundwater sub-basins within Stanislaus County are required under SGMA to be operated sustainably. It is anticipated, however, that the primary period during which impacts may occur as a result of implementing the Ordinance will be prior to the time that GSPs are adopted for the sub-basins (2020 for the Delta-Mendota and Eastern San Joaquin Subbasins, and 2022 for the Modesto and Turlock Subbasins). This is because the Ordinance will play a supporting role to GSPs in sustainable groundwater management after they are adopted, and the County's Well Permitting Guidelines will be amended to be consistent with the requirements of the GSPs.

[1] "Discretionary project" means a project which requires the exercise of judgment or deliberation when the public agency or body decides to approve or disapprove a particular activity. (State CEQA Guidelines Section 15357)

[2] A ministerial decision involves only the use of fixed standards or objective measurements, and the public official cannot use personal, subjective judgment in deciding whether or how the project should be carried out. (State CEQA Guidelines Section 15369). By themselves, ministerial actions are not subject to CEQA; however, because these permits are part of the County's well permitting responsibility under the Ordinance, they are considered part of the Project.

[3] It should be noted that areas falling under (1) are served primarily by surface water, and conjunctive use in these areas has resulted in generally stable groundwater levels over the last several decades.

2.0 DETAILED SCOPE OF WORK

The scope of work includes the following tasks and subtasks, which are described in detail in this section:

TASK 1 GRANT ADMINISTRATION:	TASK 1.1 GRANT MANAGEMENT TASK 1.2 REPORTING TASK 1.3 INVOICING
TASK 2 GSP TECHNICAL SUPPORT:	TASK 2.1 HYDROLOGIC MODELING • *Modeling Plan Development* • *Data Compilation* • *Model Construction* • *Model Calibration* • *Model Forecasts and Reporting* TASK 2.2 GSA SUPPORT
TASK 3 LOCAL GROUNDWATER ORDINANCE SUPPORT:	TASK 3.1 PEIR PREPARATION AND PROCESSING • *PEIR Scoping* • *Description of the Affected Environment* • *Project Description* • *Impact Analysis* • *Mitigation Monitoring and Reporting Program* • *PEIR Preparation and Processing* • *Findings of Fact and Statement of Overriding Consideration*

TASK 1 GRANT ADMINISTRATION

Task 1.1 Grant Management

Management of the project will include the following activities:

- ***Project Setup.*** Project setup will include completion of all contracting and subcontracting activities, verifying that procedures are in place to comply with grant requirements and assisting the County with completion of DWR-required grant management documents.
- ***Project Execution Plan.*** An integrated Project Execution Plan will be developed that includes a work plan, Microsoft Project schedule, budget breakdown, communication and file management plan, grant compliance plan, and quality assurance/quality control (QA/QC) plan. The plan will outline project tasks, milestones, deliverables, and meeting schedules to guide delivery of the PEIR and provide the basis by which the project status will be measured, communicated, and managed. The plan will include a detailed breakdown, by task, of deliverables, costs, staffing, and schedule, as well as an overall work flow chart identifying the critical path items.
- ***Team Meetings.*** A project kickoff meeting will be convened at the County offices in Modesto. The kickoff meeting will be attended by key project personnel from the County and Participating

Stakeholders[4] to present the project objectives and expectations and review the contents of the Project Execution Plan. A team conference call will be held each month to review the status report. In addition, up to four update meetings will be convened with the County and Participating Stakeholders to report and document the status of the work, identify and discuss potential issues, recommend action plans, and/or review findings and work products. For each meeting, an agenda and minutes will be prepared.

Task 1.2 Reporting

Project reporting will include the following activities:

- ***Project Status Reporting.*** Monthly status reports to the County and Participating Stakeholders and quarterly DWR progress will be prepared to summarize the status of the scope, schedule and budget; work completed in the past period and scheduled for the next period; and challenges encountered or anticipated, and corrective action plans.
- ***Project Completion Report.*** A Project Completion Report will be prepared documenting the project in accordance with DWR requirements. A draft and final report will be completed.

Task 1.3 Invoicing

This subtask will include invoice generation, project budget tracking and compilation of necessary documentation to assure that the project financial management meets DWR's requirements:

- ***Project Setup.*** Project setup includes establishing the Project in the team financial systems to assure that management and documentation are fully compliant with grant guidelines and grant agreement requirements.
- ***Invoicing and Financial Tracking.*** This subtask includes monthly generation and review of project financial reports, invoicing, and compilation of necessary backup documentation.

TASK 2 GSP TECHNICAL SUPPORT

Task 2.1 Hydrologic Modeling

Development of a Stanislaus County Hydrologic Model (SCHM) is proposed to serve as a key tool for impact evaluation under the PEIR, while also complementing ongoing efforts by the existing local groundwater management entities to update data sets, assess data gaps, identify and assess boundary flow conditions and perform other technical analysis that will assist future GSA formation and GSP development. The SCHM will consist of (1) a baseline model that simulates groundwater and surface water conditions from 2000 to 2014,[5] (2) a set of forecast scenarios from 2015 to 2042 that to evaluate the impacts of groundwater withdrawal from new wells permitted under the Groundwater Ordinance under reasonably-foreseeable

[4] The Participating Stakeholders are expected to include, but may not be limited to, existing groundwater management agencies that are actively engaged in a GSA formation process. This includes STRGBA, TGBA, SLDMWMA, and entities associated with GSA formation in the "northern triangle" of Stanislaus County.

[5] This time period is thought to represent an adequate range of climatic/groundwater conditions for meaningful model calibration.

water management scenarios,[6] and (3) a set of forecast scenarios to evaluate a range of possibilities that may be useful to inform future groundwater management planning.

Modeling Plan Development

A Modeling Plan will be developed based on review of available groundwater modeling data and resources studies, with the participation of stakeholders to avoid duplication of effort and ensure relevant data are gathered. It is the intention of the County and the Participating Stakeholders that the Modeling Plan serve as a vehicle for collaboration and transparency among stakeholders in the County, and as a pragmatic and comprehensive basis to build on the years of work in groundwater analysis and planning that has occurred. The Modeling Plan will be developed and vetted with stakeholders and the DWR as part of the scoping process. The Modeling Plan will be and guided by the following objectives:

- Extensive groundwater basin characterization and modeling has been completed in the County by the United States Geological Survey (USGS), DWR, STRGBA, TGBA, and other stakeholders. The proposed SCHM should not duplicate this work, and to the extent possible, should leverage previous work for the proposed effort.
- The SCHM will be sufficient for programmatic assessment of impacts associated with implementation of the Ordinance. A superposition modeling approach (i.e., a model that focuses on evaluating the effects of Ordinance implementation relative to a no-Ordinance baseline condition) that builds on existing models in the County is considered adequate for the PEIR.
- The modeling approach should address issues related to boundary conditions, inter-basin underflow, and groundwater-surface water-interactions at a level of detail appropriate to achieve the above modeling objectives.
- The model should incorporate current and reasonably foreseeable groundwater demand and trends to serve as a representation of the affected hydrologic environment.
- An additional goal of the modeling effort is to identify and fill data gaps to help characterize issues for GSA consideration, and to support further development of common data needed to plan for sustainable groundwater management in the County. Doing so may provide data useful to support GSAs during formation and the early stages of GSP preparation, and may facilitate outreach to their constituents.

Based on review of information regarding the available groundwater models that cover the County, the Modeling Plan will provide the rationale for code selection and utilization of existing models. The Modeling Plan will also define the modeling objectives, preliminary domain discretization, preliminary boundary conditions, calibration methodology, and forecasting scenarios. Options for future model updates and

[6] Although 2042 represents the time when all groundwater sub-basins within the County must be managed sustainably as defined in SGMA, and is thus an appropriate time frame for the PEIR impact evaluation, the specific requirements of GSPs necessary to achieve this objective remain to be developed. GSPs will be developed by GSAs to be formed within the County by June 2017 and vested with this responsibility. As such, the specific groundwater management strategies necessary to achieve sustainable groundwater management under SGMA are not considered reasonably foreseeable at this time, and will not be evaluated in the PEIR.

management will also be considered. The draft Modeling Plan will be provided for review and comment to key stakeholders in the County with sufficient time to allow for adequate and meaningful review.

Data Compilation

Hydrologic and Water Budget Data Compilation

Information regarding the water budget for relevant County groundwater subbasins will be compiled and incorporated into the SCHM to inform the analysis for a range of potential environmental impacts. Information may generally include, but is not limited to, the sources listed in Table 1, in addition to information derived from existing models and modeling results.

Table 1: List of Hydrologic Data Sources

Hydrologic Data	Sources
Groundwater Elevations	• California Statewide Groundwater Elevation Monitoring (CASGEM) data.
Surface Water Recharge/ Discharge	• CalLite model historical surface water data series, and historical data from gaging stations.
Underflow In/Out	• Water level data and Darcy flow calculations. • Published studies and reports. • Simulated water balances.
Areal Recharge from Precipitation	• Climate station data • Simulated water balances
Agricultural Groundwater Demand, Evapotranspiration of Applied Water and Deep Percolation	• Agricultural Water Management Plans (AWMPs) and reported pumping by irrigation districts. • Reported surface water diversions by irrigation districts and in the State Water Resource Control Board (SWRCB) Electronic Water Rights Information System (eWRIMS). • DWR studies for 2013 update of the California Water Plan. • Analysis of Geographical Information System (GIS) data, aerial imagery data, County Agricultural Commissioner Reports, and/or satellite data.
Domestic Groundwater Demand	• GIS analysis of census block data in areas not served by public water agencies. • Data regarding small water systems from the County and SWRCB Division of Drinking Water.
Municipal Groundwater Demand	• Urban Water Management Plans (UWMPs) and reported municipal pumping data. • DWR studies for 2013 update of the California Water Plan.
Municipal Wastewater Discharge	• Data from municipal wastewater treatment plants. • Data from the Regional Water Quality Control Board for Waste Discharge Requirements permits.

Geologic and Hydrogeologic Data Compilation

Data may be compiled to update and refine the geologic and hydrogeologic framework on which existing models are based. The progress of this work, and proposed updates, will be discussed during regularly scheduled update meetings attended by the County and the Participating Stakeholders. The initial premise will be that the existing models and model results provide sufficient characterization, unless data review indicates otherwise. These data may be derived from the several sources, including but not necessarily limited to the following:

- Published USGS studies and reports;
- Scientific papers and consulting reports; and
- Well logs, specific capacity test data, and pumping test data compiled by the County or available from DWR.

Model Construction

Construction of the SCHM will be guided by the Modeling Plan and will be discussed during regularly scheduled update meetings with the County and Participating Stakeholders, with the objective of developing a model domain that encompasses the entire County. The exact boundary locations and boundary conditions will be determined during the model-development process with the goal of minimizing the size of the model, to the extent possible, while not introducing artificial boundary effects within the model domain.

Several existing models provide a platform and fundamental data for development of the SCHM. The SCHM will incorporate more recent land use, water demand, streamflow, and groundwater recharge, such that the new baseline SCHM will simulate groundwater and surface water conditions through 2014. Geologic, hydrologic, and agricultural data compiled for Task 2.1.2 will form the basis for updating the SCHM, where appropriate.

Model Calibration

Model performance will be rigorously evaluated using quantitative statistical techniques. The accuracy of simulation results will be improved by analyzing the statistical results and identifying aquifer parameters that need to be modified, or additional processes that need to be considered. The baseline model will be calibrated for the period from 2000 to 2014 initially by matching of (1) historic groundwater levels for calibration wells distributed throughout the model domain within the County, and (2) historic streamflow in the Stanislaus River, Tuolumne River, and other County streams for which gaging data can be obtained. The calibration will then be expanded to include higher-order observations such as changes in water levels, vertical water-level differences, diversions, streamflow gains and losses, and pumpage through time. The calibration process will also consider qualitative and quantitative evaluation of the water budget.

The model performance objective is to minimize the residual between observed and simulated values. The modeling process will include a sensitivity analysis and iterative modification within appropriate ranges of aquifer parameters and boundary conditions to achieve this performance objective. After qualitative

calibration by trial-and-error, the final model will be calibrated quantitatively using the optimization-based inverse modeling techniques found in the Model-Independent Parameter Estimation code, PEST. These techniques facilitate quantification of (1) the quality of calibration, (2) data shortcomings and needs, and (3) uncertainty of parameter estimates and predictions.

Model Forecasts and Reporting

Once a baseline model has been constructed and calibrated, representing conditions from 2000 to 2014, forecast scenarios will be run for the time period from 2015 to 2042.[7] The proposed scenarios are described below, but may be adjusted pending input from stakeholders within the County. Each scenario would incorporate the potential effects of climate change as a baseline condition. Table 2 presents additional detail regarding the scenarios. The following scenarios will be simulated:

- ***Scenario 1 – Continuation of Current Conditions.*** Scenario 1 is based on the projected future groundwater demand forecasted in existing GWMPs, UWMPs and AWMPs.[8] In areas not subject to these plans, or where data regarding groundwater demand are not available, groundwater demand will be forecasted based on projected land use and agricultural trends.
- ***Scenario 2 – Implementation of the Groundwater Ordinance Well Permitting Program.*** This scenario will add implementation of the Ordinance to Scenario 1. Consistent with the County's Well Permitting Implementation Guidelines,[9] starting in 2015, the forecast would incorporate groundwater demand from new non-exempt wells only as long as the following conditions are met:[10]
    - No additional permitted groundwater demand in areas displaying evidence of unsustainable extraction (as defined in the Ordinance) under Scenario 1;
    - Additional drawdown of no more than 10% of aquifer thickness in any non-exempt area;
    - Additional drawdown of no more than 5 feet in the upper 50 feet of shallow aquifer in areas zoned Residential or Rural Residential that are not served by a municipal water agency or small community water supply system;
    - Additional drawdown of no more than 1 foot at any Groundwater-Dependent Ecosystem (GDE), if present;

[7] After 2042, all groundwater sub-basins within the County are required to be sustainably managed under SGMA; therefore, this time period represents a logical range for impact analysis.

[8] GSA's will form by June 2017 and will be required to develop and implement GSPs by 2020 or 2022, depending on the sub-basin; however, the requirements of these GSPs are currently not known. Therefore, GSP implementation will not be simulated. The model will use a superposition approach to evaluate the effects of implementing the Ordinance; therefore, it is not considered necessary to know or simulate the effects of GSP implementation in order to evaluate the effects associated with implementing the Ordinance.

[9] In the absence of specific data to establish sustainable yields, the County based its implementation guidelines on principals and significance thresholds commonly applied in groundwater resources impact assessment under CEQA.

[10] The Well Permitting Implementation Guidelines will be updated to be consistent with GSPs once they are adopted; however, for the purposes of the PEIR, potential adjustment of the implementation guidelines is considered speculative and will not be evaluated.

- Cumulative additional streamflow depletion at existing gaging stations (compared to an average year baseline) within the range of error of the gaging stations for groundwater-connected stream reaches; and
- Water levels maintained above historical lows in confined aquifer systems underlying the Corcoran Clay.

- ***Scenario 3 – Implementation of Alternative Well Permitting and Management Strategies.*** This modification of Scenario 2 is intended to explore the effects of using alternative management strategies, other than those evaluated under Scenario 2. It is envisioned that these "what-if" scenarios will be developed in consultation with stakeholders in the County during preparation of the Modeling Plan in order to help inform their ongoing groundwater resource evaluations.
- ***Scenario 4 – Recharge.*** This scenario is a modification of Scenario 2 to explore the potential effects of implementing enhanced recharge projects in the County, such as projects proposed by stakeholders for incorporation in the Stanislaus Regional Multi-Agency Stormwater Resource Plan. The analysis would be conceptual in nature (i.e., it will not evaluate any one specific project), and would build on past recharge studies to provide additional perspective on the recharge capacity that may be available in the County, identify general areas and project types that may be desirable, and evaluate the general effects of implementing enhanced recharge projects.

Table 2: Summary of Forecast Components

Forecast Component	Scenarios			
	1	2	3	4
Current and Forecasted Groundwater Demand	✓	✓	✓	✓
Ordinance Implementation		✓		✓
Alternative Management Strategies			✓	
Mitigation Concepts				✓
Climate Change	✓	✓	✓	✓

The following methods will be used to incorporate key input variables into each of the model scenarios:

- Each of the above scenarios requires groundwater demand, including the installation of new wells, to be projected into the future. Projected groundwater demand will be implemented by simulating groundwater extraction from a set of hypothetical wells added to the SCHM in areas where expanded extraction is expected or planned.
- To create the surface water inputs, monthly time series corresponding to the above scenarios will be developed using DWR's CalLite model. CalLite simulates the hydrology of the Central Valley,

reservoir operations, delivery allocation decisions, delta salinity, and habitat-ecosystem flow indices over an 88-year planning period (using data from 1922 to 2009). To simulate future flows during the forecast scenarios over 2015-2042, a sequence of years will be extracted from the CalLite time series to represent a range of future anticipated conditions, with appropriate adjustments or subsets selected to reflect changes in management conditions.

- The potential effects of future climate change will be simulated by repeating historical climatic conditions through the forecast period, but modifying precipitation and evapotranspiration by specified percentages. In addition, surface water time series will be selected to be representative of climate change within the period forecast, and may be adjusted. The assumptions used will be determined collaboratively with the County and stakeholders based on studies conducted for the 2013 update of the DWR California Water Plan[11] and USGS work on climate change in the Central Valley.[12]

For each multi-year hydrologic scenario, drawdown distribution, groundwater levels, and streamflow discharge will be compared to baseline conditions representing a normal hydrologic year[13], a dry hydrologic year[14], and a critically dry hydrologic period (drought),[15] and changes will be evaluated. Groundwater level trends at key locations and depths will be evaluated in detail. The results for the forecast scenarios will be compared to each other to assess the effects of adding the various scenario components. A technical memorandum will be prepared that presents the methods, findings and conclusions of the hydrologic modeling task. The memorandum will be supplemented with tables, figures, and attachments as necessary for clarity and completeness of presentation. The technical memorandum will discuss effects and trends relative to baseline conditions associated with well permitting under the Ordinance, possible mitigation through recharge augmentation, and alternative conceptual management strategies selected for evaluation in consultation with stakeholders in the County. Effects on groundwater levels and storage, surface water discharge, evapotranspiration and groundwater levels at potential GDEs, cross boundary fluxes and underflow, and unsustainable groundwater extraction will be discussed, and may be of use during future development of GSPs. The draft technical memorandum will be provided to the Participating Stakeholders for review and comment.

Task 2.2 GSA Support

The County will likely be a member agency to at least five GSAs within four related, but hydrogeologically distinct, groundwater subbasins. A single GSA is anticipated to be formed in the Modesto Subbasin by STRGBA, and a single GSA is likely to be formed by the County in cooperation with Calaveras County to cover the portion of the Eastern San Joaquin Subbasin that lies within the "northern triangle" area of the

[11] http://www.waterplan.water.ca.gov/cwpu2013/final/index.cfm
[12] http://ca.water.usgs.gov/projects/central-valley/climate.html
[13] 2010 is proposed based on precipitation of 106% of normal for the San Joaquin River Hydrologic Region.
[14] 2014 is proposed based on precipitation of 50% of normal, for the Southern Sierra 5-Station Precipitation Index.
[15] 2011 to 2015 is proposed based on current drought conditions.

County.[16] At least two GSAs are likely to be formed within the Turlock Subbasin, with the boundary generally consistent with the eastern boundary of Turlock Irrigation District. Multiple GSAs may form in the Delta-Mendota Subbasin, one of which will be located within Stanislaus County.

Existing local groundwater management entities anticipate the need for significant coordination at all stages of GSA formation and GSP preparation to ensure transparent, cohesive, and coordinated groundwater management under SGMA. GSA formation and GSP preparation activities will be specific to the local agencies and groundwater management entities that currently manage groundwater in the four subbasins. However, it is anticipated that the proposed PEIR will generate information that may help to facilitate and inform the GSA-formation and GSP-preparation processes. Therefore, the following GSA support tasks are included.

The County will engage in regular communication and share regional data with the Participating Stakeholders and via the Water Advisory Committee (WAC) and Technical Advisory Committee (TAC). Additional outreach, consultation, and data exchange may occur as requested by individual stakeholders to facilitate regional coordination, data sharing, dialog regarding issues, opportunities, data gaps, and priorities important to GSA formation and groundwater management planning. To further support this objective, up to five workshops will be held to discuss the findings of the evaluation described in Task 2.1. To the degree desired by individual stakeholders and groups, these findings will generally include, but may not be limited to, the following:

- Assessments (including land-use based assessment) to qualitatively and quantitatively describe the effects of alternative groundwater management strategies on a preliminary basis;
- Preliminary assessment of inter-jurisdictional and inter-subbasin groundwater fluxes;
- Evaluation of the current monitoring networks and data measurement accuracies for future groundwater management, and recommendations for improvements, as appropriate;
- Preliminary evaluation of the tools available to existing local groundwater management entities within the County and the identification of opportunities for GSA and inter-GSA collaborations to use or improve these tools;
- Evaluating potential data gaps and opportunities related to active groundwater management plans; and,
- Estimation of water budgets and identification of remaining data gaps.

[16] Activities in the northern triangle will also be coordinated with a larger group of San Joaquin County entities representing the remainder of the Eastern San Joaquin Subbasin.

TASK 3 – LOCAL GROUNDWATER ORDINANCE SUPPORT

Task 3.1 PEIR Preparation and Processing

PEIR Scoping

An Initial Study will be prepared using the checklist included in Appendix G to the CEQA Guidelines to help establish which resource areas should receive more detailed evaluation under the PEIR.

Scoping activities will include the following tasks.

- ***Notice of Preparation.*** The Notice of Preparation will be filed with the County Clerk, sent to stakeholders in the County and the adjacent counties as well as interested agencies, and filed with the California Office of Planning and Research.
- ***Scoping Meetings.*** Three scoping meetings will be held: one coinciding with a regularly scheduled meeting of the WAC, one coinciding with a regularly scheduled meeting of the TAC, and one at a public venue and time to be established by the County. The scoping meetings will be advertised in local newspapers and on the County's Groundwater Resources web page. In addition, notification regarding the scoping meetings will be sent to water agencies, cities, groundwater management associations, special interest groups, and other stakeholders within the County. Notification will also be sent to neighboring counties, potential participating agencies, and other interested parties in the region.
- ***Compilation and Review of Comments.*** Comments received during the scoping process will be compiled, reviewed, and addressed through adjustments to the scope of work, as appropriate.

Description of the Affected Environment

An overview of the affected environment will be developed based on information provided in the County General Plan and other planning documents and studies. The description will address each of the pertinent resource areas addressed by CEQA, and will include tables and maps as necessary for clarity of presentation. Based on the nature of the project, additional detail is anticipated to be compiled for resource areas listed in Table 3.

Table 3: Summary of Additional Data Requirements for Selected Resource Areas

Resource Area	Additional Detail Required for PEIR Preparation
Hydrology and Water Quality	• Maps and descriptions of the groundwater subbasins in the "white area" of the County derived from published reports, studies, public information websites, County databases, and other sources. • Maps and description of surface water hydrology overlying the groundwater subbasins within the County. • A summary of water resources and supply management within the "white area" of the County, with a focus on groundwater resources and on current and forecasted groundwater demand, derived from published General Plan documents, Urban Water Management Plans (UWMPs), Integrated Regional Water Management Plans (IRWMPs), Groundwater Management Plans (GMPs), Agricultural Water Management Plans (AWMPs), information available from water agencies within the County, and studies performed for the 2013 update of the California Water Plan. • A discussion of the management, hydrology, water demand, and environmental flow requirements for surface water resources in the County interconnected with groundwater.
Soils and Geology	• A description of the geology of groundwater basins in the County derived from published reports, studies, public information websites, County databases, and other sources. • An assessment of historical subsidence in the County, the findings of current subsidence monitoring programs, and the potential for future subsidence.
Agriculture and Forestry	• A discussion of the relationship between water management and agriculture in the County. • A summary of current agricultural land use and practices within the County, and anticipated trends. • Maps as needed to illustrate agricultural land use distribution.
Biology	• A discussion of potential GDEs within the County, including seeps, springs, wetlands, and riparian vegetation that are underlain by a shallow regional water table and may be affected by groundwater withdrawal. • A map showing the locations of potential GDEs derived from data regarding the depth to the regional water table, the USGS National Hydrography Database, the United States Fish and Wildlife Service National Wetlands Inventory, and other public GIS data sources.
Population and Housing	• A discussion of communities (including disadvantaged communities) and population trends within the County that may affect or may be affected by water management, as derived from UWMPs, the County General Plan, and studies conducted for the 2013 update of the California Water Plan.

Project Description

A detailed description of the "project" for which impacts are to be evaluated (i.e., the program), will be prepared to serve as a basis for impact evaluation. The project description will summarize the requirements for well permitting under the Ordinance, exemptions from the Ordinance, and procedures and criteria adopted under the implementation guidelines for well permitting under the Ordinance.

Impact Analysis

An impact analysis will be conducted to evaluate the potential direct and indirect environmental effects associated with implementation of the Ordinance. The following focus areas associated with the direct impacts of implementing the Ordinance will be evaluated.

Direct Hydrological, Water Supply and Water Quality Impacts

Consistent with the focus of the PEIR, the effect of the project on groundwater resources and interconnected surface water resources will be evaluated in greater detail, addressing the direct impacts of the well permitting program on Hydrology and Water Quality, Agriculture, Biology, Geology and Soils, and Utilities and Service Systems. This portion of the impact analysis will include the following.

- ***Regional Drawdown and Groundwater Storage Depletion.*** Predicted regional drawdown in Scenario 1 will be compared to Scenario 2, and groundwater level trends will be evaluated to assess whether or not the well permitting program may result in significant impacts under CEQA. Implementing the well permitting program is expected to result in a net decrease of drawdown and groundwater storage depletion, because the Ordinance is intended to avoid such effects.
- ***Surface Water Depletion.*** Predicted surface water depletion resulting from implementation of the well permitting program will be evaluated to determine if changes in discharge volumes for groundwater-connected stream reaches would be significant under CEQA. Discharges under Scenarios 1 and 2 will be compared, especially during seasonal low-flow periods. The predicted surface water depletion at established gaging stations will be compared to the error inherent in gaging station measurements (usually approximately +/- 5 percent).
- ***Water Quality.*** The potential for impacts to water quality in surface water and groundwater will be evaluated using a narrative approach to assess whether implementation of the well permitting program is likely to cause significant impacts to water quality under CEQA. In general, it is expected that implementation of the well permitting program will not result in a significant adverse effect, because the Ordinance is intended to avoid such effects.
- ***Land Subsidence.*** The potential for the well permitting program to result in significant subsidence will be evaluated on a narrative basis relative to the no-project condition. In general, it is expected that implementation of the well permitting program will result in less subsidence, because the Ordinance is intended to avoid such effects.

- ***Groundwater Dependent Ecosystems.*** In order to assess potential impacts to GDEs, the change in the water table elevation at groundwater-connected GDEs identified during Task 2.1 will be assessed and compared under Scenarios 1 and 2. In addition, the change in riparian evapotranspiration will be assessed. Based on these results, the general potential for habitat loss will be discussed, with emphasis on the general effects to aquatic habitat, riparian habitat, wetlands, and other sensitive natural communities and special status wildlife.
- ***Agricultural Resources.*** Implementation of the Ordinance may result in less water being available for irrigation in some areas before GSPs are adopted. The potential for a shortfall in the amount of groundwater available for irrigation will be evaluated by comparing the decrease in groundwater availability caused by implementation of the Ordinance with AWMP and GIS-based supply and demand forecasts. To evaluate the relative impact on agriculture caused by the Ordinance, Scenarios 1 and 2 will be compared.
- ***Utilities and Service Systems.*** The effect of the well permitting program on the ability of water agencies to meet the projected water demand in their service territories before GSPs are adopted will be evaluated by comparing the decrease in available groundwater with implementation of the Ordinance (i.e., by comparing Scenarios 1 and 2) with AWMP and UWMP supply and demand forecasts. Since areas within water agencies are currently exempt from the Ordinance prohibitions, it is anticipated that the Ordinance will have no impact in these areas.

Other Impacts

Non-hydrologic impacts and indirect impacts of implementing the Ordinance may be identified and discussed at a broad scale, with a focus on identifying the types of impacts that may be expected. Potential direct impacts include those associated with the installation and operation of new wells. Potential indirect impacts include effects resulting from range-land conversion to agricultural use. Special focus is expected to be placed on the following resource areas and impacts:

- Air Quality (including Greenhouse Gases (GHG));
- Biological Resources;
- Cultural Resources; and
- Land Use and Planning.

In addition to the above, the potential for the project to directly or indirectly contribute to cumulative effects related to the above resource areas will be discussed.

Mitigation Monitoring and Reporting Program

If deemed necessary, a Mitigation Monitoring and Reporting Program (MMRP) will be prepared as required by Section 15097 of the CEQA Guidelines. The program may include the following:

- Requirements for well permit applications in designated management zones to include studies focused on impacts in those areas;

- Implementation of monitoring programs; and
- Other concepts, policies on management programs, as appropriate.

PEIR Document Preparation

In preparation of the Draft PEIR, comments received on an administrative draft during internal review will be addressed. The Draft PEIR will be prepared and distributed for public review to a mailing list provided by County staff. Each comment received in response to the Draft PEIR review will be reviewed and catalogued. The team will prepare a matrix listing commenter, environmental issue area addressed, and work assignments required to adequately address each comment. A reasoned response to environmental issues raised in the comments will be prepared.

The comments and responses, along with any revisions to the text of the Draft PEIR incorporated to address these comments, will be used to produce the Final PEIR.

Preparation of Findings of Fact and Statement of Overriding Consideration (if needed)

Findings of fact will be prepared for each significant project impact as required by Section 15091 of the CEQA Guidelines. If necessary, a draft Statement of Overriding Consideration consistent with Section 15093 of the CEQA Guidelines will also be prepared.

3.0 PROJECT DELIVERABLES

The scope of work includes the project deliverables identified in Table 4, below.

Table 4: List of Deliverables

Task	Subtask	Deliverables
Task 1: Grant Administration	Task 1.1 Grant Management	• Project Execution Plan • Project meeting agendas and minutes • Environmental Information Form
	Task 1.2 Reporting	• Monthly Status Reports (with invoices) for County • Quarterly Project Progress Reports for DWR • Draft and final Project Completion Report for DWR
	Task 1.3 Invoicing	• Monthly invoices with backup documentation
Task 2: GSP Technical Support	Task 2.1 Hydrologic Modeling	• Modeling Plan • SCHM Technical Memorandum
	Task 2.2 GSA Support	• No less than five meetings • Stakeholder meeting agendas, minutes and attendee lists • Notices, handouts and presentations

Task	Subtask	Deliverables
Task 3: Local Groundwater Ordinance Support	Task 3.1 PEIR Preparation and Processing	• Initial Study • Notice of Preparation • PEIR scoping meeting agenda/minutes/attendee lists • Copies of CEQA public notices • Memorandum with catalog of scoping comments and responses • Notice of Completion/Notice of Availability • Draft PEIR • Final PEIR with MMRP and Responses to Comments • Findings of Fact • Statement of Overriding Considerations (if needed)