ATTACHMENT 3. WORK PLAN

- ✓ The following attachment outlines the proposed scope of work the East Stanislaus Regional Water Management Partnership (ESRWMP) will implement in order to develop and complete the East Stanislaus Integrated Regional Water Management Plan (IRWMP). This Work Plan has been prepared to document all necessary details to show the process to complete an IRWMP for the region and ensure compliance with the Plan Standards outlined in the California Department of Water Resources *Proposition 84 & Proposition 1E Integrated Regional Water Management Guidelines* (August 2010). Attachment 3, Work Plan contains three sections describing the following:

  (1) Current Status in Meeting IRWM Standards

  (2) Grant Work Plan Content

  (3) Additional Work Performed Outside the Grant

Attachment 3 – Work Plan

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The East Stanislaus Region, founded in July 2010, is a new Integrated Regional Water Management (IRWM) region that is working diligently to prepare its first comprehensive IRWM Plan (IRWMP). Recognizing the need for regional water resources planning and management in its part of the Central Valley, the East Stanislaus Regional Water Management Partnership (ESRWMP) has set out to efficiently develop the necessary plans and programs to facilitate regional solutions to local water management conflicts. In preparing this Proposition (Prop) 84 Round 2 Planning Grant application, the ESRWMP acknowledges that, unlike many IRWM regions in California, it has a significant level of work to complete in order to achieve the same level of regional coordination and resource management effectiveness that these regions current experience. The ESRWMP has, to date, committed funds to start the IRWM planning process, but has prepared this application in anticipation of obtaining additional funding to augment existing financial commitments to allow for a more comprehensive and detailed IRWMP.

The planning grant Work Plan included in this Proposal consists of seven tasks designed to collect existing data and studies and to analyze key water-related parameters on a regional basis to ultimately prepare a Standards-compliant IRWMP. This information will be used to augment current understanding and to promote the identification and development of programs and projects to achieve regional goals and objectives and resolve local and regional conflicts. Implementation of the scope of work contained herein will ensure that the State's Program Preferences are met by creating an IRWMP that:

- Is regional in nature and design;
- Provides for the identification and development of integrated multi-benefit projects that, when implemented, will help attain regional goals and objectives, and statewide priorities;
- Integrates regional land-use planning with water resources management;
- Provides solutions for mitigating regional and inter-regional water-related conflicts;
- Centralizes data collection, management and reporting and improves data accessibility; and
- Reaches out to, and coordinates with, all willing and interested regional stakeholders (including disadvantaged and Native American communities) in developing local and regional water resource management solutions.

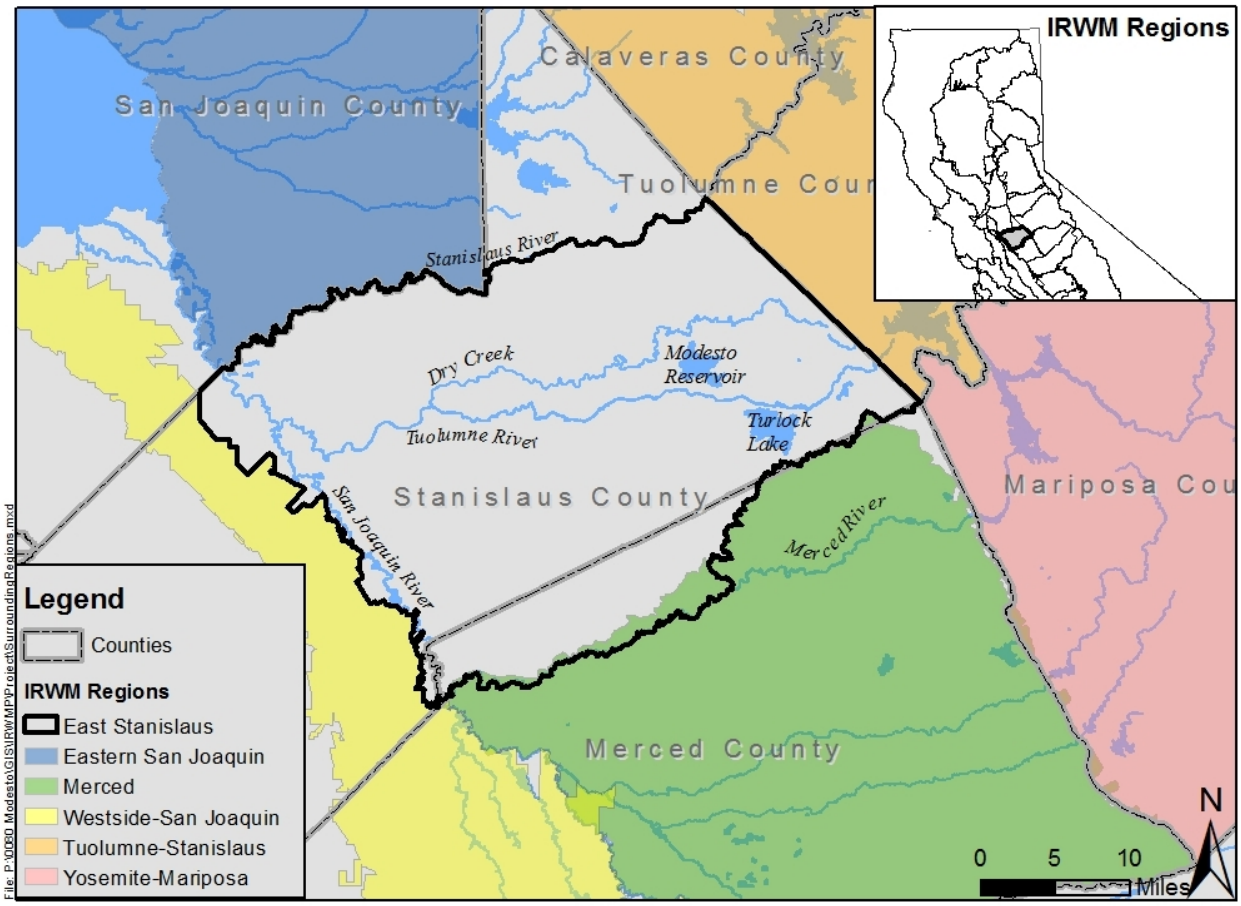
A more thorough description of how implementation of this Proposal will contribute to the State's Program Preferences is described in Attachment 6.

Chapter 1 Current Status in Meeting IRWM Plan Standards

The need for integrated regional planning in Stanislaus County, and therefore the need for an IRWM region, was most easily noted visually when viewing the Department of Water Resources' (DWR's) 2010 IRWM Regional Map. At the time, there was a void in IRWM coverage over the Cities of Modesto, Hughson, Turlock, and Ceres, in between the following five IRWM regions: Yosemite-Mariposa (formerly referred to as Central California), Merced, Eastern San Joaquin, Tuolumne-Stanislaus, and Westside-San Joaquin. As with other areas of the Central Valley, the potential for water resource conflicts are present in this region as agricultural, environmental, and urban demands collide; groundwater and surface water resources become impacted; and the Valley's population continues to grow. In response to these conditions, the East Stanislaus Regional Water Management Partnership (ESRWMP) was formed and the East Stanislaus IRWM Region was developed (Figure 1-1) in an effort to create a regional management solution for long-term water resources management and sustainability.

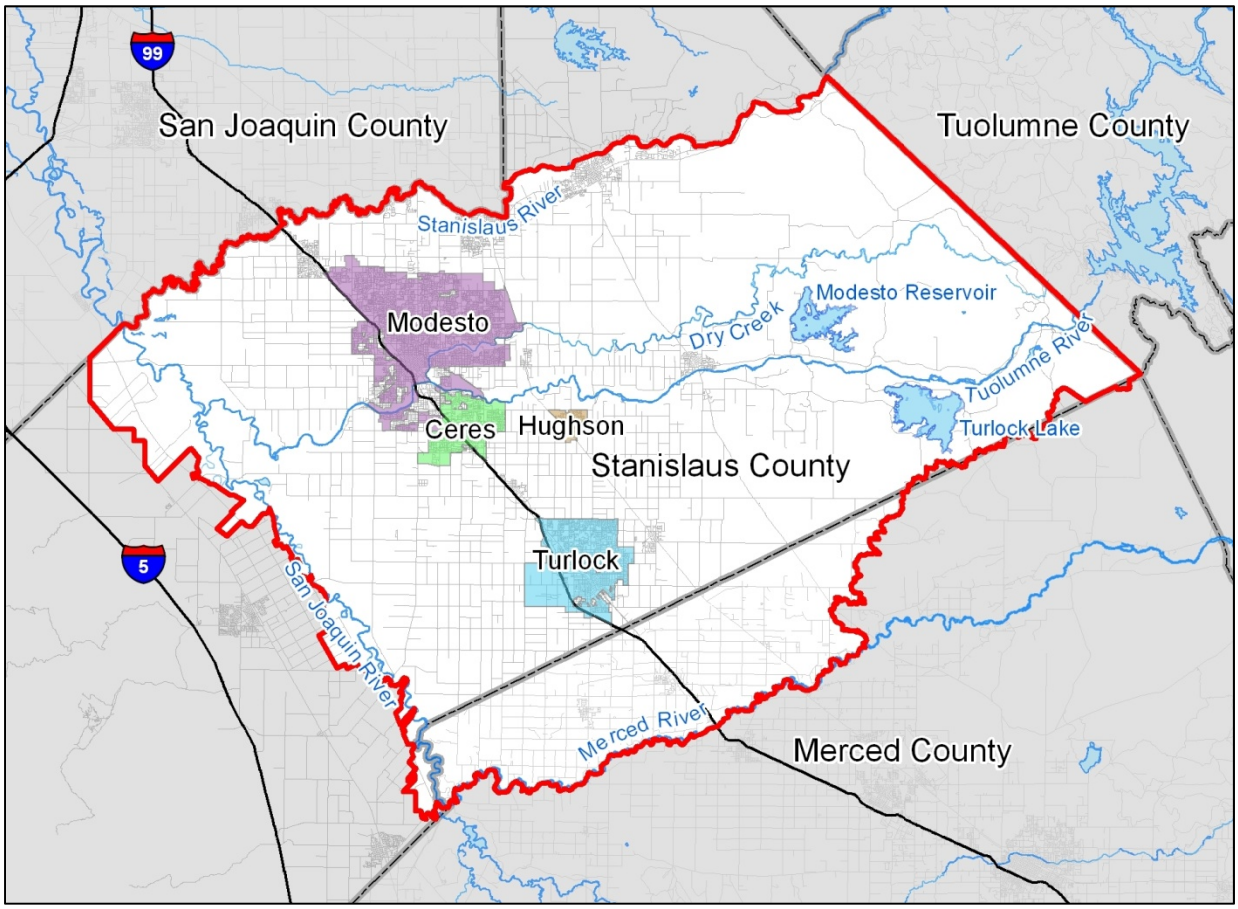
The ESRWMP, the Regional Water Management Group for the East Stanislaus region, is presently comprised of the Cities of Modesto, Hughson, Ceres and Turlock. According to California Water Code (CWC) §10539, a Regional Water Management Group (RWMG) is a "group in which three or more local agencies, at least two of which have statutory authority over water supply or water management, as well as those other persons who may be necessary for the development and implementation of a plan that meets the requirements of CWC §10540 and §10541, participate by means of a joint powers agreement, Memorandum of Understanding (MOU), or other written agreement, as appropriate, that is approved by the governing bodies of those local agencies." For the ESIRWM region, all four entities have statutory authority over water supply and/or management in their respective jurisdictions, and all ESRWMP members signed an MOU dated August 23, 2011 which formally formed the ESRWMP.

Figure 1-1: Boundaries of the East Stanislaus Region



The ESRWMP initiated development of the East Stanislaus Region and spearheaded completion of the Region Acceptance Process (RAP) application to become an official IRWM region in 2011. This Region, and its associated RWMG, are relatively new and were recently developed (beginning in July 2010) to foster regional communication and cooperation and to help coordinate solutions to potential water supply conflicts in the Region. Since July 2010, much IRWM planning work has been initiated, and some work has been completed, contributing to the development of the East Stanislaus Region and its associated IRWMP. Because all the IRWMP-related work that has been completed to date was done so after September 30, 2008, it is eligible to count toward the funding match for this proposal.

Figure 1-2: ESRWMP Member Agencies



The development of the East Stanislaus IRWMP itself has only recently begun. An outline of the East Stanislaus IRWMP has been prepared and some sections of the plan have been drafted, but none are currently complete or final. While the East Stanislaus IRWMP does not currently fully meet any Plan Standards as described in the *Proposition 84 & 1E IRWM Guidelines* (DWR, 2010), the East Stanislaus Region is striving to create an IRWMP that meets or surpasses each of those standards.

A description of the status of the East Stanislaus IRWMP under development and the IRWM planning work to date that has contributed to meeting the Plan Standards is briefly summarized in Table 1-1.

Table 1-1: How the Region is Meeting Plan Standards

IRWM Plan Standard	IRWMP to Include	IRWMP Meets Current Plan Standard	Description
Governance	• Name the RWMG responsible for development and implementation of the Plan. • RWMG and individual project proponents who adopted the Plan. • Description of the IRWM governance structure. • Description of how the chosen form of governance addresses various activities and decisions.	Partially	The governance structure for the Region has been developed but the work must be summarized and incorporated into the IRWMP.
Region Description	• Description of the watersheds and water systems within the Region. • Description of internal boundaries. • Description of water supplies and demands, including potential effects of climate change. • Comparison of current and future water quality conditions in the Region. • Description of social and cultural makeup of the regional community. • Description of major water related objectives and conflicts. • Explanation of how the IRWM regional boundary was determined and why it is appropriate. • Identification of neighboring and/or overlapping IRWM efforts and explanation of planned/working relationship.	Partially	The East Stanislaus regional boundaries were identified and much of the region has been characterized, but the information must be summarized and incorporated into the IRWMP. Additional regional information, such as location of disadvantaged communities and descriptions of regional groundwater quality, remains to be completed.
Objectives	• Present Plan objectives that are measurable and describe the process used to develop them. • Explanation of prioritization of objectives if they are prioritized or reason they are not prioritized.	Partially	The Region has recently completed identification and prioritization of regional goals and objectives; however, the prioritization of these goals and objectives remains to be completed. This information still needs to be incorporated into the IRWMP.
Resource Management Strategies	• Resource management strategies considered to meet IRWM objectives and which strategies were incorporated into the Plan. • Effects of climate change.	No	Resource Management Strategies have yet to be addressed.

IRWM Plan Standard	IRWMP to Include	IRWMP Meets Current Plan Standard	Description
Integration	• Structures and processes that provide opportunities to develop and foster integration.	No	Integration has yet to be addressed; project solicitation is still pending.
Project Review Process	• Procedures for submitting a project to the RWMG. • Procedures for review of projects considered for inclusion into the Plan. • Displaying the lists of selected projects.	Partially	The Public Advisory Committee and Steering Committee have developed the Project Solicitation Process, thought the Call-for-Projects has not yet been conducted. The project prioritization methodology has been developed but still requires finalization.
Impact and Benefit	• Discussion of potential impacts and benefits of Plan implementation.	No	Impact and Benefit has not yet been addressed.
Plan Performance and Monitoring	• Performance measures and monitoring methods to ensure the objectives of the Plan are met.	No	Plan Performance and Monitoring has not yet been addressed.
Data Management	• Process of data collection, storage, and dissemination to IRWM participants, stakeholders, public, and the State.	No	Data Management has not yet been addressed.
Finance	• Possible funding sources, programs, and grant opportunities for the development & ongoing funding of the Plan. • Funding mechanisms (e.g. rate structures) for projects that implement the Plan. • Explanation of the certainty and longevity of known or potential funding for the Plan and projects included in the Plan. • Explanation of how O&M costs for projects would be covered.	Partially	The ESRWMP member agencies have entered into a cost-sharing agreement and have identified potential methods for ensuring implementation of the IRWMP, but additional funding sources and financing mechanisms have yet to be explored and incorporated into the IRWMP.
Technical Analysis	• Data and technical analyses that were used in the development of the Plan.	No	As the IRWMP is developed, the data and technical analyses that were used will be described in the IRWMP.
Relation to Local Water Planning	• A list of local water plans used in the Plan. • Discussion of how the Plan related to planning documents and programs established by local agencies. • Description of the dynamics	No	Local water planning has not yet been fully addressed. A description of how the planning documents and programs are related to the IRWM planning process will be included in the IRWMP.

IRWM Plan Standard	IRWMP to Include	IRWMP Meets Current Plan Standard	Description
	between the Plan and local planning documents.		
Relation to Local Land Use Planning	• Current relationship between local land use planning, regional water issues, and water management objectives. • Future plans to further a collaborative, proactive relationship between land use planners and water managers.	No	Land use has not yet been addressed. The relationship between local land use planning and regional water resource management has yet to be completed and incorporated into the IRWMP.
Stakeholder Involvement	• Description of public process that provides outreach and an opportunity to participate in the Plan development and implementation. • Process used to identify, inform, invite and involve stakeholder groups in the IRWM process. • Discussion of how RWMG will endeavor to involve DACs and Native American trivial communities in the IRWM planning effort. • Description of the decision making process. • Discussion regarding how stakeholders are necessary to address the objectives and resource management strategies. • Discussion of how collaborative processes will engage a balance of the interest groups regardless of their ability to contribute financially to the Plan's development or implementation.	Partially	Since approval of the East Stanislaus Region by DWR, the ESRWMP has been conducting public meetings and workshops. Additional public outreach, specifically for DACs and Native American tribes, has been initiated. All progress regarding stakeholder involvement and outreach remains to be incorporated into the IRWMP. The decision-making process for the region was identified during development of the governance structure, as well as the process to identify, inform, and involve stakeholders. These processes must be incorporated into the IRWMP.
Coordination	• Identification of process to coordinate water management projects and activities of participating local agencies and stakeholders to avoid conflicts and take advantage of efficiencies. • Identification of neighboring IRWM efforts and how cooperation/ coordination with these efforts will be accomplished. • Identification of areas where a State agency may be able to assist	Partially	Some coordination methodologies have been identified (e.g. identification of how coordination with neighboring regions will occur) but the items described for this Standard must be further addressed and incorporated into the IRWMP.

IRWM Plan Standard	IRWMP to Include	IRWMP Meets Current Plan Standard	Description
	in communication, cooperation, or implementation of Plan components, processes, projects, etc.		
Climate Change	• Discussion of the potential effects of climate change on the IRWM region, including an evaluation of the IRWM region's vulnerabilities to the effects of climate change and potential adaptation responses. • Process that discloses and considers greenhouse gas emissions when choosing between project alternatives.	Partially	An overview of how climate change may affect the East Stanislaus Region has been prepared but remains to be completed. Adapting to the potential changes from Climate Change will be discussed in relation to regional vulnerabilities and adaptive management, and the project review process will include a greenhouse gas emissions component.

Chapter 2 Grant Work Plan Content

The East Stanislaus Region is submitting this Prop 84 Round 2 Planning Grant Application in order to obtain planning grant funds from DWR to augment current funding to create an IRWMP that meets all of the Prop 84 IRWM Plan Standards and fully addresses the Region's needs, objectives, and provides appropriate solutions. Because the East Stanislaus Region is relatively new, there is much work to be completed in a short time in order to have a robust and useful IRWM Plan.

This proposal includes seven tasks that address areas where the IRWMP remains to be completed and provides the East Stanislaus Region with vital, focused information to ensure the resulting IRWMP fully complies with the IRWM Plan Standards. Table 2-1 lists the seven tasks and indicates how and where these tasks help to address specific IRWMP standards.

Table 2-1: How Proposed Tasks Aid in Meeting Plan Standards

Application Task	Description of Task	IRWM Plan Standard Addressed/Areas for Incorporation
Task 1 – Prepare East Stanislaus IRWMP	Preparation of the IRWM Plan itself, including completion of all required plan sections and incorporation of results and deliverables from the other tasks.	• All IRWMP standards addressed
Task 2 – DAC and Native American Outreach and Technical Assistance	This task will provide for focused and extended outreach to DAC and Native American communities and to provide technical assistance to these communities for the development and submittal of projects that directly support them for inclusion in the IRWMP.	• Project Review Process • Stakeholder Involvement • Coordination

Application Task	Description of Task	IRWM Plan Standard Addressed/Areas for Incorporation
Task 3 – Customize and Implement Online Data Management System	This task will create a consolidated, web-based data management system to facilitate the collection and analysis of data, monitoring and reporting, and easier access to data.	• Plan Performance and Monitoring • Data Management • Technical Analysis
Task 4 – Planning Grant Administration	Provides for grant funding administration activities as required by DWR, including but not limited to, regional coordination, communication with DWR, contract management, invoicing and claim submittals and quarterly and final reporting.	• No IRWMP standards addressed; this task has been included to address grant requirements as identified on page 16 of the *IRWM Grant Program Proposal Solicitation Package for Round 2 Planning Grants.*
Task 5 – Regional County Island Sewer Connection Study	This task will identify areas of Stanislaus County that are currently on septic systems and (1) evaluate the potential impacts of septic systems on the underlying groundwater basin and (2) determine if these septic systems should be improved and/or connected to either centralized or satellite collection and treatment systems in order to protect groundwater quality. This study will help with the evaluation and long-term management of the underlying groundwater basins, a primary source of potable water in the East Stanislaus Region.	• Region Description • Resource Management Strategies • Project Review Process • Technical Analysis • Relation to Local Land Use Planning
Task 6 – Regional Water Needs Assessment	This task will develop a region-wide demand projection that will cover both areas currently evaluated under existing Urban Water Management Plans (UWMPs) and areas outside urban water management planning requirements. This task will use existing plans and demand projections, including UWMPs and land use plans (such as General Plans), to develop the regional demand projection which will, in turn, contribute to the understanding and management of local water supplies.	• Region Description • Resource Management Strategies • Project Review Process • Technical Analysis • Relation to Local Water Planning • Relation to Local Land Use Planning • Coordination • Climate Change
Task 7 – Integrated Stormwater Resource Management and Groundwater Augmentation Plan	This task will result in an Integrated Stormwater Resource Management and Groundwater Augmentation Plan that will evaluate and describe stormwater management in the region and identify opportunities and projects that will provide flood protection, stormwater management, water supply augmentation, water quality and/or environmental benefits for inclusion in the IRWMP. As part of this task, potential recharge locations will be mapped and	• Region Description • Resource Management Strategies • Integration • Technical Analysis • Relation to Local Water Planning

Application Task	Description of Task	IRWM Plan Standard Addressed/Areas for Incorporation
	opportunities for recharging the groundwater subbasins and/or improving water quality with stormwater runoff management will be identified, thereby providing both stormwater management and water supply benefits. Task 7 will contribute to the region description and aid in the identification of opportunities to develop projects and programs to meet several regional goals (water supply, water quality and flood protection).	• Relation to Local Land Use Planning

As indicated above, the result of all tasks included in this Proposal (except Task 4 – Planning Grant Administration) will be incorporated into the East Stanislaus IRWMP. Stand-alone plans or reports to be developed (such as the Integrated Stormwater Resource Management and Groundwater Augmentation Plan), will also be included in the East Stanislaus IRWMP by integrating the information throughout the appropriate plan sections. The reports and studies themselves will also be provided as appendices to the IRWMP. Task 4, Planning Grant Administration, will provide all the activities necessary for successful funding agreement implementation, including but not limited to, execution of the funding agreement with DWR, preparation and submittal of quarterly progress reporting and preparation of claim submittals. The East Stanislaus Region presents the following Prop 84 Round 2 Planning Grant Work Plan, demonstrating the feasibility of preparing a robust IRWMP meeting existing Plan Standards.

The total cost for the tasks identified in this Proposal is $1,018,319 with a local match of $270,365 and a total grant request of $747,954. Detailed budget information is included in Attachment 4 for each task identified below; a detailed schedule for implementation of these tasks is included in Attachment 5 of this Proposal.

Task 1: Prepare East Stanislaus IRWM Plan

As described in Chapter 1, Current Status in Meeting IRWM Plan Standards, the East Stanislaus Region became an approved IRWM region during the 2011 RAP and has begun to prepare its IRWMP. Some of the work described in Task 1 has been completed, including establishing the Regional Water Management Group, preparing and submitting the RAP application, developing an outreach and communications plan, drafting the project solicitation process and conducting various meetings with the cities and committees to initiate and proceed with IRWM planning in the Region. However, the remainder of the IRWMP still requires completion and is currently under development.

The City of Modesto entered into an agreement with RMC Water and Environment (the consultant) on June 22, 2010 to prepare the East Stanislaus IRWMP. The agreement, and the scope of work it contained, was based on the IRWM Guidelines that were available at that time, and includes a scope of work to prepare the East Stanislaus IRWMP in a more limited fashion than would be prepared as described herein. Although this agreement would allow for the creation of an IRWMP that addresses all of the Plan Standards and Program Preferences, if grant funding were made available to the Region, a more robust IRWMP could be created, further addressing the Standards and Preferences in a fashion that reduces data gaps and provides for analyses that better meet current expectations. Additionally, during completion of the contracted scope of work (which was written in early 2010, prior to the release of the Proposition 84 & 1E Guidelines), there were changes to DWR's RAP schedule, other changes to the project schedule and modifications to the vision for the

East Stanislaus IRWM planning process. Task 1, as described in this Work Plan, includes the scope of work included in the agreement between RMC Water and Environmental and the City of Modesto, but adds to existing subtasks to account for present IRWM planning requirements and expectations. Work that has been completed to date based on the June 2010 contract between RMC and the City of Modesto, as well as work to be completed in the coming months, is described as it is part of the overall Work Plan to implement the proposal and contributes to local match.

The subtasks outlined in the following sections to prepare the East Stanislaus IRWMP are divided into two phases (as specified in the RMC-Modesto contract). The first phase of work consists of the subtasks required to initiate the IRWM planning process for the Region. First and foremost, the cities of Modesto, Ceres, Hughson and Turlock formally established the Regional Water Management Group (RWMG) and defined their associated region (described in Subtasks 1.1 through 1.3). The second phase of work encompasses the required steps leading up to and including preparation of the IRWMP. Specifically, Phase II involves coordination of regional goal setting, development of a project identification, prioritization, and ranking process, development of an implementation protocol, as well as compilation of all work-to-date into a completed IRWMP for the Region (described in Subtasks 1.4 through 1.7). In summary, the Phase I scope of work consists of:

- Subtask 1.1: Establish Regional Water Management Group
- Subtask 1.2: Regional Acceptance Process
- Subtask 1.3: Phase I Project Management.

The Phase II scope of work includes:

- Subtask 1.4: Initial IRWMP Development
- Subtask 1.5: IRWMP Projects
- Subtask 1.6: IRWMP Preparation
- Subtask 1.7: Phase II Project Management.

Subtask 1.1: Establish Regional Water Management Group

Subtask 1.1 Work Completed To-Date

To establish an effective governance structure for the East Stanislaus Region, the RWMG was first defined, and then coordination activities were identified. Identifying the RWMG and determining a governance structure are highly related. DWR requires that each IRWM region develop a governance structure and RWMG as part of the Region Acceptance Process (RAP) further described in Subtask 1.2. Not only is the development of a RWMG and governance structure a requirement for region acceptance, but it ensures effective communication and progression forward during development of the IRWMP and beyond. It is important to establish a governance structure—including ground rules and RWMG communication protocols —that is inclusive and transparent. The governance structure considers decision making practices for:

- Establishing IRWMP goals and objectives
- Implementing plan activities
- Soliciting and prioritizing projects
- Revising the IRWMP in the future
- Financing RWMG activities

- Hiring and managing consultants

The governance structure includes not only how decisions are made, but who is involved in making those decisions. A balance must be maintained in which various parties are engaged in the process, regardless of their ability to contribute financially; public workshops and the development of the advisory committee will help ensure this.

As part of Subtask 1.1, the consultant met with the cities to present and discuss various alternatives for RWMG structure and governance. Once a format for the RWMG structure was formulated and the ESRWMP agreed upon, the consultant facilitated an initial public workshop, budgeted under Subtask 1.3, to notify interested parties that the RWMG is developing an Integrated Regional Water Management Plan (IRWMP), to educate stakeholders and interested parties in the IRWM process, and to solicit future participation in the Steering Committee (SC) and Public Advisory Committee (PAC), the two advisory committees within the governance structure of the Region. In general, the ESRWMP acts as the lead voice in the IRWM planning and implementation process for the East Stanislaus Region, facilitates communication, cooperation, and education between member agencies, and provides oversight to the SC and PAC. The SC acts as program managers for the region, ensuring that the planning process stays on track by managing budget, schedule, and contracts with outside vendors/consultants. The PAC is the stakeholder committee that provides input and recommendations to the ESRWMP and SC. The PAC is still being formed as finding members to commit to attending meetings and participating in the planning process has proved difficult; and the composition of all committees may change with time. Additional outreach to potential PAC members will be made and at future public workshops, participation for the PAC will be solicited.

The ESRWMP, SC and PAC meet periodically, as necessary, to support development of the IRWMP and funding applications. Meetings are budgeted under Subtask 1.3. These meetings are important to maintaining ongoing communication between the ESRWMP and their associated advising committees (the SC and PAC). In addition, these meetings are critical to gathering input needed from the committees to make key program decisions. To assist in facilitating these meetings, the consultant prepared Roles and Responsibilities for the SC and PAC members as it relates to meeting conduct and speaker recognition, and so they understand the importance of their role in decision-making. The SC and PAC members reviewed and revised these documents, which were then finalized and implemented as part of the regional governance process.

In coordination with the ESRWMP, the consultant prepared an Outreach and Communications Plan identifying a proposed methodology and approach to ensure dissemination of information associated with preparation and implementation of an IRWMP. The Outreach and Communications Plan contains a special focus on outreach to disadvantaged communities (DACs), environmental justice (EJ) representatives and Native American tribes, but implementation of this Outreach and Communications Plan has been limited to date. This outreach and implementation of this plan is furthered through implementation of Task 2 (as described below). DACs were identified using 2000 U.S. Census data; during completion of Subtask 1.4, this analysis will be updated using 2010 Census data to provide a more accurate portrayal of the location and number of DACs in the Region.

Subtask 1.1 Work To Be Completed Under Grant Agreement

None; Subtask 1.1 is complete.

Subtask 1.1 Deliverables: Draft and final Roles and Responsibilities for the SC; Draft and final Roles and Responsibilities for the PAC; Draft and final Outreach and Communications Plan.

Subtask 1.2: Region Acceptance Process

Subtask 1.2 Work Completed To-Date

In order to become an accepted IRWM region, the Region went through the 2011 Region Acceptance Process (RAP). The consultant prepared a RAP application in coordination with the ESRWMP, which was submitted on April 13, 2011 to DWR for 'official' recognition and approval of the East Stanislaus Region.

The cities provided available and relevant information to the consultant in support of the specific data needs outlined in the Final RAP Program Guidelines. Geographic Information System (GIS) data layers available from the cities were used to develop the regional boundary and prepare necessary maps for the RAP submittal. The purpose of the maps was to effectively describe the region's boundaries in relation to other boundaries such as political and natural boundaries. The consultant developed a list of information that was required to develop the RAP submittal which consisted of the report and associated maps. Planning documents and studies that were available to serve as background and foundation documents for the IRWMP were reviewed to identify and become familiar with potential water-related issues within the region. The consultant then met with the SC and PAC to identify issues and conflicts within the region that should be addressed in the IRWMP; this meeting is budgeted under Subtask 1.3.

Once all necessary data was collected and reviewed, the consultant prepared a Draft RAP Submittal clearly addressing DWR reviewer's information needs. The application covered the topics listed in the RAP Guidelines, including the RWMG and governance documents prepared under Subtask 1.1 and the water management issues identified during Subtask 1.2.

The Draft RAP submittal was provided to the ESRWMP for review. The consultant facilitated a meeting with the ESRWMP to review the RAP requirements, obtain input on specific language to be used for some of the submittal responses, and discuss comments on the draft RAP submittal. The consultant finalized the RAP submittal based on comments received and provided copies to DWR for review and approval.

The final step in the approval process was an interview with DWR in which DWR asked Region representatives follow-up questions regarding the development of the new Region and the associated IRWMP. The consultant helped prepare a draft PowerPoint presentation for the representatives of the Region to review and use at the interview.

The East Stanislaus IRWM Region was formally approved by DWR in July 2011.

Subtask 1.2 Work To Be Completed Under Grant Agreement

None; Subtask 1.2 is complete.

> *Subtask 1.2 Deliverables:* List of consultant's information requests; Electronic copy (.PDF) of the Draft RAP Submittal for ESRWMP review; Final RAP Submittal of 3 hard copies and 5 electronic copies in Microsoft Word on 5 CDs to DWR; One hard copy and one electronic copy of all materials submitted to DWR for the ESRWMP; PowerPoint presentation for use at the DWR interview.

Subtask 1.3: Phase I Project Management and Meetings

Subtask 1.3 Work Completed To-Date

Under this task, the consultant monitored progress of Phase I of IRWMP development. The consultant prepared monthly progress reports and invoices for the contract manager and the ESRWMP that reported on the scope, cost and schedule status of the project. On-going coordination and conference calls were conducted as necessary. Additionally, all meetings for Phase I (i.e. Subtasks 1.1 and 1.2) are budgeted under this subtask. This subtask included:

- Preparing and sending out public meeting notices for publication and distribution to a variety of stakeholder groups identified by the ESRWMP and through other means;
- Preparing and maintaining an electronic database of all potential stakeholders including at a minimum, their contact information and organizational affiliation;
- Preparing PowerPoint presentations and customizing them to applicable stakeholder groups and committees;
- Providing meeting facilitation services for a variety of stakeholder outreach meetings;
- Preparing meeting handouts and materials;
- Preparing a comment/feedback questionnaire to be distributed at the meetings; and
- Preparing and disseminating meeting minutes to all stakeholders.

The following meetings were prepared for and conducted by the consultant during Phase 1:

1. Kickoff meeting on July 15, 2010 with the cities of Modesto, Turlock, Ceres and Hughson (and others) to discuss the governance structure, the regional boundary, the RAP and develop an initial stakeholder contact list.
2. Progress meeting on August 26, 2010 to review and discuss the governance structure and public outreach outlines, as well as the ESRWMP MOU.
3. Progress meeting on October 28, 2010 to discuss the RAP application in more detail, provide comments on the Governance Structure and Public Outreach memoranda, and obtain necessary background information (e.g. history of planning in the Region) for the application.
4. Progress meeting on March 2, 2011 with the ESRWMP to prepare for the public workshop on March 16th.
5. Public workshop on March 16, 2011 to notify interested parties that the ESRWMP is developing an IRWMP, to educate stakeholders and interested parties in the IRWM process, and to solicit future participation in the IRWM planning process.

Subtask 1.3 Work To Be Completed Under Grant Agreement

None; Subtask 1.3 is complete.

Subtask 1.3 Deliverables: Meeting agenda and handouts, conference call-in information, meeting notes; Electronic spreadsheet (in MS Excel) of stakeholders; Monthly progress reports and invoices.

Subtask 1.4: Initial IRWMP Development

Subtask 1.4 Work Completed To-Date

Subtask 1.4 begins Phase II of IRWMP development. Once the East Stanislaus Region became an approved IRWM region by DWR in July 2011, preparation of the IRWMP began. This work is currently ongoing; initial IRWMP development includes executing the MOU to formally form the ESRWMP, identifying the East Stanislaus IRWM goals and objectives, identification of and initial targeted outreach to DACs and Native American tribes, and creating a website for the East Stanislaus IRWMP (www.eaststanirwm.org). Following the RAP approval, an outreach effort was initiated to solicit participants for the IRWM planning process and periodic meetings have been held to move the process forward and accomplish the work items previously mentioned. Potential region stakeholders contacted regarding participation in developing the IRWMP include:

- Modesto Irrigation District
- Turlock Irrigation District
- Stanislaus County
- Keyes Community Services District
- Monterey Park Tract
- Eastside Water District
- Hilmar Community Water District
- Northern Valley Yokuts Tribe
- Southern Sierra Miwok Nation
- Stanislaus Farm Bureau

The consultant supported the ESRWMP in identifying regional IRWM program goals, objectives, and priorities. Goal setting, necessary to reach consensus, was the highlight of SC Meeting #1 and PAC Meeting #1 on September 29, 2011 (budgeted under Subtask 1.7). The basis for determining the goals, objectives, and priorities was outlined through the development of the governance structure and regional issues in Subtask 1.2. A number of other meetings were conducted, as described in Subtask 1.7, which helped further develop the IRWM region and contributed to initial IRWMP development. Meetings on May 3, 2011 and August 18, 2011 allowed for discussion and review of the draft ESRWMP MOU, prior to execution on August 23, 2011. In addition, a new program website for use in disseminating IRWM program information to a wide audience was developed.

Subtask 1.4 Work To Be Completed Under Grant Agreement

Future work to be completed in this task includes performing a new DACs analysis using the most recent economic median household income (MHI) data available (likely 2010 Census or American Community Survey data) to update the analysis prepared using 2000 U.S. Census data. Newly identified DAC and Native American communities, and other identified special interest groups, will then be contacted, briefed as to the IRWM planning process and invited to participate in IRWMP development and implementation. If needed, additional targeted outreach efforts will be made to these groups within the IRWM region to clarify and focus their water management-related issues and needs. This subtask assumes a total of two meetings each (i.e. two with DACs and two with tribal communities); more focused outreach and technical support to DAC and Native American communities would be conducted under Task 2.

This subtask will also include approximately bi-monthly updates to the website to maintain current meeting information and post project updates, press releases, meeting materials, and other items of interest.

> *Subtask 1.4 Deliverables:* Draft and final goals, objectives and priorities summary; Two DAC / EJ outreach meetings and two meetings with tribes, including meeting agendas and hand-outs, presentations (if applicable), coordination of speakers/presenters (if applicable), meeting notes; draft and final content for the IRWMP website.

Subtask 1.5: IRWMP Projects

Subtask 1.5 Work Completed To-Date

Develop Project Solicitation Process. The ESRWMP, SC, and PAC developed a project solicitation process to gather potential projects for inclusion in the East Stanislaus IRWMP. A project information form was prepared that includes the necessary information to understand, rank and prioritize individual projects and programs in context of the IRWMP. The solicitation form was developed with input from the region stakeholders, and provided in draft form to the SC and PAC for review. Revisions were made to the form based on feedback received. As part of this subtask, the form is currently being converted to an online form which will allow data to be entered directly into a East Stanislaus Region-specific electronic project database linked to the existing East Stanislaus IRWMP website.

Develop IRWMP Project Prioritization Process. The PAC developed a draft prioritization process in conjunction with input from the SC. The consultant introduced project solicitation and prioritization as a concept to the PAC during PAC Meeting #2; at PAC Meeting #3, the PAC developed a draft project prioritization method. Then, at SC Meeting #4, the SC had the opportunity to review and comment on the method developed by the PAC. These meetings are described and budgeted under Subtask 1.7.

The project prioritization process will form the basis for evaluating projects submitted for inclusion in the IRWMP. Based on the Prop 84 IRWM Guidelines released by DWR, the project prioritization process developed by the Region considers the following factors, among others:

1. If the projects are consistent with the IRWMP's goals and objectives, established in Subtask 1.4
2. How the projects are related to resource management strategies selected for use in the IRWMP
3. Technical feasibility of the project
4. Specific benefits to DACs
5. Environmental Justice considerations
6. Project costs and financing
7. Economic feasibility, including benefits to water quality and water supply
8. Project status
9. Strategic consideration for IRWMP implementation
10. Contribution of the projects to reducing greenhouse gas emissions and adapting to the effects of climate change

Subtask 1.5 Work To Be Completed Under Grant Agreement

Future work items to be completed in this subtask include working in conjunction with PAC and SC members to finalize the project solicitation process, establish final weights in the prioritization process, and implement the project solicitation and evaluation processes.

Implement Project Solicitation Process. Creation of the online project database will be completed, and the database linked to the ESIRWMP website; upon completion and activation, the

'Call for Projects' will be conducted. Project solicitation will consist of distributing the link (URL) to the IRWM Project Database to interested stakeholders and advertising it on the ESIRWM website, the ESRWMP member agency websites and in local circulars. The Project Information Template will also be made available to interested stakeholders via electronic and/or paper format, as appropriate. Project submittal via a paper format is provided as an alternative to online submittal. A public workshop will be conducted after announcing the 'Call for Projects' to explain the purpose of the process and to answer any questions. The workshop is included under Subtask 1.7. Following receipt of project information, the consultant will develop a project database that contains relevant information on every submitted project for use in the evaluation and ranking processes.

Assess Project Integration and Implementation. Following project solicitation, a subcommittee composed of PAC and SC members will assess the projects with an eye toward integration and enhancement, such that the maximum benefits are achieved by the projects; this process will be facilitated by the consultant. The consultant, on behalf of and in cooperation with the subcommittee, will then prepare a written assessment of the overall IRWMP benefits that will be achieved through project integration and implementation. This assessment will identify projects that offer the greatest synergies in integrated water management. This feedback will be transmitted back to the project proponents, who will then have an opportunity to enhance/revise and resubmit their projects. This assessment will also be included within the IRWMP document and on the IRWMP website to illustrate the added value of integrated regional planning.

Develop IRWMP Project Rank List. The PAC and SC members will apply the approved prioritization process to all submitted projects, and draft evaluations describing how the established process impacted each project's ranking will be prepared. This subtask will include working in conjunction with ESRWMP members to compile a draft and final project priority list for inclusion in the IRWMP. The consultant will facilitate a workshop with the committees, budgeted under Subtask 1.7, to review the projects, prioritization process and project rankings.

> *Subtask 1.5 Deliverables:* Draft and final Project Information Template; Draft and Final East Stanislaus IRWM Project Database; Compiled database of projects submitted for IRWMP; Draft and final project prioritization process for IRWMP; Draft and final project evaluations for all submitted projects; Draft and final project ranking list; Draft and final Assessment of Project Integration and Implementation; List of final project priority list of inclusion in the East Stanislaus IRWMP.

Subtask 1.6: IRWMP Preparation

Subtask 1.6 Work Completed To-Date

Under Subtask 1.6, the consultant will prepare an administrative draft IRWMP for review by the ESRWMP and its advisory committees. The IRWMP will be in compliance with DWR's IRWMP specifications, including the final Prop 84 & 1E IRWM Guidelines. The administrative draft IRWMP will contain the following required components as outlined in the Guidelines:

- Governance
- Region Description
- Objectives
- Resource Management Strategies
- Integration
- Project Review Process
- Impact and Benefit
- Plan Performance and Monitoring
- Data Management
- Finance
- Technical Analysis
- Relation to Local Water Planning

- Relation to Local Land Use Planning
- Stakeholder Involvement
- Coordination
- Climate Change

As part of the plan preparation process, the IRWMP will document how it meets State goals and priorities. The IRWMP will contain a clear description outlining the location of all content as required by DWR's Guidelines. The IRWMP will also clearly articulate steps for evaluation and measurement of plan progress toward achieving regional objectives. The consultant has started to prepare the East Stanislaus IRWMP; some sections have been partially drafted, but none are complete or finalized.

Subtask 1.6 Work To Be Completed Under Grant Agreement

The consultant will continue to prepare the East Stanislaus IRWMP. All of the work completed in Tasks 1 through 7 as described in this Work Plan will be incorporated into the Administrative Draft IRWMP (except for Task 4, Grant Administration). A facilitated meeting will be conducted with the ESRWMP (and advising committees) to receive feedback on the administrative draft IRWMP, present Plan changes in response to comments, and solicit agreement on the proposed changes; this meeting is budgeted under Subtask 1.7. The consultant will compile all comments into a response to comment matrix for discussion.

Based on one round of review and comments, the consultant will prepare a Public Draft IRWMP for review and consideration by the ESRWMP and stakeholders. The consultant will then facilitate one public workshop in conjunction with the ESRWMP to present and discuss the Public Draft IRWMP, budgeted under Subtask 1.7. The stakeholders' comments will be compiled into a comments matrix for RWMG review.

During a conference call with the ESRWMP, the consultant will review comments on the Public Draft IRWMP, present Plan changes in response to comments, and solicit agreement from the ESRWMP (and advising committees) on the proposed changes. Based on the comments received, the consultant will prepare a draft Final IRWMP to be submitted to the ESRWMP for one more round of review. The consultant will finalize the Plan and provide assistance with plan adoption. Each member of the ESRWMP must adopt the Plan; it is assumed the council/board meetings held for Plan adoption will be open to the public.

> *Subtask 1.6 Deliverables:* Administrative and public review draft IRWMP, in accordance with State Guidelines and RWMG needs; Compiled response to comments matrix, advisory committee, and stakeholders; Draft final and final IRWMP.

Subtask 1.7: Phase II Project Management and Meetings

Subtask 1.7 Work Completed To-Date

Meetings and/or conference calls/webinars for Phase II (Subtasks 1.4, 1.5, and 1.6) are budgeted under this subtask. The SC meets primarily on a monthly basis through preparation and adoption of the IRWMP. These meetings are critical to maintaining ongoing communication among SC members. The PAC also meets monthly during this same period for the most part. This subtask includes the consultant's continued support of the ESRWMP, including preparation for, facilitation of, and participation in monthly SC and PAC meetings, two public workshops, and four ESRWMP meetings. Under Subtask 1.7, a total of about 25 meetings or conference calls/webinars for Phase II are assumed for the SC and PAC.

Ten of these Phase II meetings have already been conducted; these meetings include:

1. Progress meeting on May 3, 2011 to discuss execution of the ESRWMP MOU with the cities, and other next steps related to preparing the IRWMP.
2. Progress meeting on August 18, 2011 to discuss the strategy for preparing the IRMWP, developing an associated schedule, and the option of an electronic IRWM project database for the Region.
3. SC Meeting #1 in September 2011 was conducted to kickoff the official formation of the SC, review the draft SC Roles and Responsibilities, discuss regional goals and objectives and discuss future coordination.
4. PAC Meeting #1 was conducted in September 2011 to kickoff the official formation of the PAC, orient the PAC to the IRWM planning process, establish and adopt PAC Roles and Responsibilities, and identify regional goals and objectives for the region.
5. SC Meeting #2 in October 2011 allowed the SC and consultant to have a preliminary discussion regarding project solicitation and prioritization and reach consensus on the Final SC Roles and Responsibilities and Outreach Plan.
6. At the PAC Meeting #2 in October 2011 the consultant introduced the concept of project solicitation for the IRWMP and introduced methods for project prioritization.
7. SC Meeting #3 in December 2011 to discuss the project solicitation and prioritization in more detail.
8. PAC Meeting #3 in December 2011 allowed the PAC to develop a draft project prioritization method.
9. At the SC Meeting #4 in January 2012, the SC reviewed the project prioritization method the PAC developed at PAC Meeting #3.
10. PAC Meeting #4 in February 2012 to discuss climate change and the East Stanislaus IRWMP's relation to local land use planning.

Subtask 1.7 Work To Be Completed Under Grant Agreement

There are eight additional meetings/conference calls/webinars currently planned for Phase II for the SC, one of which is specific to the preparation of this planning grant application. The purpose and goals of these meetings are summarized in the following table.

Table 2-2: SC Meetings

SC Meeting No.	Estimated Date	Meeting Topic / Purpose
5	2/2012 (conf. call)	Planning Grant
6	4/2012	Projects submitted, integrated and prioritized
7	5/2012	Report on prioritization results Impacts, benefits and financing
8	6/2012	Revisit project details Outline Implementation Plan
9	7/2012	Implementation plan: schedule, financing, environmental, integration
10	8/2012	Monitoring plan to track East Stanislaus IRWMP performance Data Management
11	9/2012	Draft plan review
12	10/2012 (conf. Call)	Final plan review

Note: These dates may be revised pending the outcome of this application to allow for incorporation of additional work products into the IRWMP.

Similarly, seven additional meetings are anticipated for the PAC, as shown in below.

Table 2-3: PAC Meetings

PAC Workshop No.	Estimated Month, Year	Meeting Topic / Purpose
5	4/2012	Project Review, Integration and Prioritization
6	5/2012	Report on prioritization results Impacts and Benefits
7	6/2012	Revisit Project Details Outline Implementation Plan
8	7/2012	Implementation Plan: schedule, financing, environmental, integration
9	8/2012	Monitoring Plan to track East Stanislaus IRWMP performance Data Management
10	9/2012	Draft Plan Review
11	10/2012	Individual endorsement of final plan

Note: These dates may be revised pending the outcome of this application to allow for incorporation of additional work products into the IRWMP.

Four ESRWMP meetings will be conducted at key milestones of the IRWM planning process. These include:

1. ESRWMP Meeting #1 – prior to the project solicitation process to gain insight and input for directing the solicitation process.
2. ESRWMP Meeting #2 – following project solicitation to discuss the projects submitted.
3. ESRWMP Meeting #3 – following completion of the Draft IRWMP to discuss the Plan.

4. ESRWMP Meeting #4 – prior to Plan adoption to discuss the final Plan and coordinate regarding adoption by all ESRWMP members.

Also under Subtask 1.7, two public meetings/workshops will be conducted. One public workshop will be conducted during the project solicitation process (as described in Subtask 1.5) to describe the process and answer any questions regarding the Project Information Template and/or IRWM Project Database. Another public meeting will be conducted to present the Public Draft IRWMP and obtain input and comments prior to finalization.

Under this subtask, the consultant has and will continue to monitor progress and performance. The consultant will prepare monthly progress reports and invoices for the contract manager and the ESRWMP that report on the scope, cost and schedule status of the project. In Phase II, invoices and progress reports will be prepared and submitted to the ESRWMP and Grant Administrator (City of Turlock) and on-going project management services will be provided.

> *Subtask 1.7 Deliverables:* Coordination and facilitation of 25 committee meetings, four ESRWMP meetings, and two public workshops; Meeting agendas and handouts, presentations, coordination of speakers/presenters (if applicable), and meeting notes; Monthly progress reports and invoices.

Task 2: DAC and Native American Outreach and Technical Assistance

The East Stanislaus Region recognizes the importance of engaging DACs and Native American tribal communities as a means of ensuring that their water supply and wastewater requirements are being met. Thus far, some initial contact has been made to DACs and no Native American communities have been identified in the region, but a more robust outreach effort is necessary to reach these dispersed communities to ensure their needs are addressed.

Subtask 2.1: Perform Focused Outreach

In addition to the SC, PAC, and public meetings that are and will be conducted during completion of Task 1, focused outreach to disadvantaged communities and Native American tribal communities will be performed under this subtask in order to help address critical water supply, water quality, and wastewater needs for these communities. The focused outreach will consist of interviewing individual tribal community leaders/representatives as well as individuals representing DACs in the East Stanislaus Region. Sometimes there are no individual representatives for these communities; in this case, a public meeting will be scheduled in the DAC or tribal community to encourage attendance and representation. Up to five interviews, that may be conducted in person or over the phone, are budgeted under Subtask 2.1. The purpose of the interviews will be to gain insight into the communities' water resource issues and concerns, to help the communities identify specific projects that will help address their needs, and also to inform targeted communities of the IRWM planning process in the region and how they can get involved.. With the information gathered through the meetings, as well as review of existing studies and documentation provided by the communities or jurisdictional authorities under whom they reside, a preliminary needs assessment will be performed and summarized in a technical memorandum (TM). The preliminary needs assessment will help identify projects to include in the East Stanislaus IRWMP and also contribute to identifying integration of projects that will help not only cities or agencies within the region, but also the DACs and/or Native American tribal communities. Additionally, DACs and/or Native American communities that may require extra support in meeting these objectives, specifically with technical support, will be identified. These identified DACs and Native American communities, should they be interested, will receive as-needed technical support as part of Subtask 2.2.

*Subtask 2.1 Deliverables: five (*5) individual meetings/interviews; DACs and Native American Tribal Communities Preliminary Needs Assessment TM.

Subtask 2.2: DAC and Native American Community Technical Assistance

The preliminary needs assessment prepared above will address the fact that DACs and Native American communities do not always have the financial capabilities and resources to perform necessary analyses or complete preliminary work items to ultimately achieve a safe and secure water supply and adequate wastewater services, let alone adequately maintain system facilities. The ESRWMP will provide as-needed technical support to these communities to help further projects designed to provide safe, reliable and sustainable water and wastewater services to DACs and Native American communities. The technical assistance to be provided under Subtask 2.2 could, for example, include helping a particular DAC gather data to identify water quality issues in its area, or to complete permit applications in order to move a project forward. Another example could be working with DACs to identify projects that should be included in the East Stanislaus IRWMP so that they can be part of the IRWM planning process and see benefits from achieving the region's goals and objectives.

Subtask 2.2 Deliverables: up to 52 hours of technical assistance to DACs and/or Native American communities as identified during Subtask 2.1.

Task 3: Customize and Implement Online Data Management System

The ESRWMP will develop and implement a program for managing historical and future water-related data for integration in comprehensive water resource planning and decision-making. This task will consolidate readily-available surface water flow and quality data, groundwater quality and groundwater elevation data, and environmental data (e.g. fish counts) from the East Stanislaus Region into a centralized database as a water resources management tool for agricultural and urban planning. This task includes the implementation of a Data Management System (DMS), data collection and interpretation, and quality control to develop and implement a customized tool for the East Stanislaus IRWM region. The proposed project supports the goals and objectives of the East Stanislaus IRWMP by developing a structure for long-term data management and serving as the repository for surface water and groundwater data collected as part of IRWMP implementation and under non-IRWMP programs. Description of this online DMS, and its coordinated implementation with the overall IRWM data management requirements, will be described in the Data Management section of the East Stanislaus IRWMP.

Groundwater from the Modesto and Turlock Groundwater Subbasins and surface water from the Tuolumne River are the primary water resources utilized in the East Stanislaus Region. The Stanislaus and Tuolumne Rivers Groundwater Basin Association (STRGBA) developed an *Integrated Regional Groundwater Management Plan* (GWMP) for the Modesto Subbasin, while the Turlock Groundwater Basin Association (TGBA) developed a *Turlock Groundwater Basin Groundwater Management Plan* for the Turlock Subbasin. Members of the STRGBA include the Cities of Modesto, Oakdale and Riverbank, Stanislaus County, and Modesto and Oakdale Irrigation Districts. Members of the TGBA include Turlock and Modesto Irrigation Districts, the cities of Ceres, Turlock, Modesto and Hughson, Hilmar and Delhi county water districts, the Keyes, Denair, Ballico community services district, Eastside and Ballico-Cortez water districts and Stanislaus and Merced counties. The GWMPs are key to sustainably managing the groundwater subbasins for those communities dependent upon groundwater for their supply. Effectively managing the associated groundwater monitoring programs, and the data they create, are also vital in meeting the Basin Management Objectives established in the GWMPs and the basins themselves to prevent overdraft conditions,

such as those that have developed in the past. Maintaining consistent and reliable information is critical to providing efficient and effective groundwater management for a sustainable, high quality supply of groundwater.

Tuolumne River flows also provide an essential water supply for the East Stanislaus Region. Modesto Irrigation District and Turlock Irrigation District are primary water rights holders on this river, and work toward utilizing the river in a sustainable fashion. Key data of interest from the Tuolumne River include surface water flows, surface water quality and environmental/fisheries data such as fish counts. These data are important in providing insight into the river's health and viability.

Of the many organizations participating in regional groundwater and surface water monitoring programs in the East Stanislaus Region, the Cities of Modesto, Ceres, Turlock, Hughson and Riverbank are also active participants in the IRWM planning process. Many others (e.g. Modesto and Turlock Irrigation Districts, Stanislaus County) have been invited to participate in the IRWM planning process but have declined to participate at this time. Communications with these organizations continue on a regular basis.

The ESRWMP will implement a DMS to centralize high quality, historic and future surface water, groundwater and environmental data. The ESRWMP will consolidate data currently submitted to the California Department of Public Health (CDPH) Drinking Water Program by regulated drinking water systems and available wells, and will combine it with data submitted under the California Statewide Groundwater Elevation Monitoring program (CASGEM) and other reporting programs. Incorporation of data collected via annual monitoring programs conducted by participating entities will be conducted, as feasible and reasonable, along with data from monitoring and reporting efforts to and by the USGS, CDPH, DWR, and SWRCB. The ESRWMP will also initiate data management coordination with the existing groundwater basin associations, explore the viability and feasibility to act as a regional clearinghouse for groundwater quality data to better diagnose issues, and develop cooperative solutions to ensure the sustainability of the underlying groundwater basins. The DMS will help make existing and future data more accessible.

The goal of the proposed work is to implement a reliable local and regional tool to enhance the knowledge of surface water and groundwater conditions within the region, to establish a water level/flow, supply and quality baselines, and to aid in the planning process to define projects to improve water supplies. The quantity of information made available from implementation of this task will be substantial; the DMS will provide easier access to data and streamline analysis and reporting. Significant funds are currently spent on monitoring in the region, and the DMS will ensure that those data are available to decision-makers addressing critical needs and developing long-term plans for the region.

Subtask 3.1: Collect and Analyze Data

This subtask consists of coordinating data collection, collecting and analyzing data, and developing and executing access protocols. Effective communication and coordination will be the key to successful development of the DMS. The consultant will work with the ESRWMP and participating agencies to provide technical information, but will also help to identify non-technical issues related to user needs and expectations, and develop strategies and solutions. The parties who provide data or have access to the DMS portal will have an opportunity to voice concerns and provide ideas and input to the process. A draft agreement describing the methods and means for data transfer and sharing protocols will be developed.

Surface water flow data, groundwater level data, water quality data, groundwater pumping data, and any other data the ESRWMP determines to be available and of value will be collected and analyzed. Additional data will be compiled from various sources, including the California Water Data Library, local measurements, as well as estimates of groundwater pumping data for a baseline period for agricultural, rural, and municipal pumping, and existing land use and soils coverage data. Data quality flags to note important qualifiers on the data will also be collected. The consultant will document and obtain ESRWMP input and use the information to develop a comprehensive summary of the databases, data source, data formats, GIS shapefiles, and analytical tools that are currently used by staff and stakeholders.

> *Subtask 3.1 Deliverables:* Draft and final agreements describing method and means for data transfer and sharing protocol; Inventory of data to be converted and uploaded into the DMS.
>
> *Subtask 3.1 Assumptions:* ESRWMP will provide data in an electronic format (i.e. Excel, MS Access, CSV).

Subtask 3.2: Design Database and Implement Data Management System (DMS)

This subtask consists of designing and developing the database, customizing the DMS user interface, and implementing data reporting queries. The database will be designed and implemented according to the data requirements defined in Subtask 3.1. The database will also contain multiple levels of user and agency access based on the defined data access protocols.

At a coordination meeting, budgeted under Subtask 3.4, the consultant will present the existing DMS (previously developed by the consultant) to the ESRWMP and explain the interface and functionalities. The consultant will work with the ESRWMP to define the functional specifications for standard reports, including CASGEM reporting requirements.

The DMS will be developed and customized for specific use by the ESRWMP and agencies/entities within the East Stanislaus Region. The DMS will be enhanced to include modules that will be designed and developed to export seasonal groundwater level data associated with the CASGEM program for reporting to the DWR CASGEM Online System. The CASGEM reporting module will allow ESRWMP to manage a list of CASGEM reporting wells and export their associated seasonal data. This module will also contain reporting tools to track submittals to DWR to ensure the ESRWMP is meeting the CASGEM program reporting requirements and protocols as a designated monitoring entity. Other similar reporting modules may be identified and developed for linking to the DMS as budget constraints allow.

> *Subtask 3.2 Deliverables:* Presentation of existing DMS; Preliminary DMS installed on test environment; CASGEM reporting module.

Subtask 3.3: Convert and Upload Data

This subtask consists of developing software tools and procedures to upload and verify the data collected in Subtask 3.1 in order to populate the DMS. The data will first be converted to a format consistent with the tools and procedures for upload. During this process, the data will be quality controlled for significant discrepancies or omissions. Software tools and procedures will be developed to load the converted data into the DMS test environment. These tools will assist in implementing the quality assurance/quality control (QA/QC) process and may include the following elements: security, data validation, data rejection, and timely data upload.

Upon upload to the DMS, the data will be reviewed for quality control using tools and reports available in the DMS. System testing and data quality control will be conducted in cooperation with the ESRWMP. Discrepancies and inconsistencies will be corrected in coordination with the ESRWMP. The DMS and converted data will be installed on a production environment and be ready to use by ESRWMP staff and stakeholders.

Subtask 3.3 Deliverables: Populated DMS installed on production environment.

Subtask 3.3 Assumptions: Only readily available public data will be incorporated into the database; Data conversion and upload will be limited to a total of 120 hours.

Subtask 3.4: Public Outreach, Training, and Meetings

The purpose of this subtask is to provide public outreach, ensuring that appropriate level of reporting and feedback are implemented among the technical teams, and between the technical team and the public (including the ESRWMP staff and participating members). Public outreach will be conducted throughout the task and also incorporated into the meetings conducted as part of the IRWMP preparation task (Task 1) to inform the general public. Public outreach will include workshops, meetings, webinar/conference calls and presentations held quarterly to update on project status, review information collected and encourage participation and contribution to the overall process of the project.

Upon completion of Subtask 3.3, one training session will be performed, which includes an overhead presentation, live demonstration, and user documentation.

ESRWMP Meetings

The ESRWMP will meet six times to properly setup the project to ensure project needs are met and to review results and provide input. Meetings will cover:

- Meeting 1 – Project kickoff
- Meeting 2 – Data Analysis and Baseline TM
- Meeting 3 – Demonstration of DMS
- Meeting 4 – Conclusion of data acquisition, evaluation, and interpretation
- Meeting 5 – DMS Training Session
- Meeting 6 – Project wrap-up; demonstrate DMS and provide final report

Public Meetings

Three public meetings will be held to discuss accomplishments to-date and future work. These meetings will be held following the corresponding ESRWMP meeting and will incorporate information developed at those meetings. The meetings will cover:

- Meeting 1 – Project kickoff
- Meeting 2 – Presentation of DMS prior to testing period
- Meeting 3 – Project wrap-up; present DMS and final report

Subtask 3.4 Deliverables: Meeting agenda, presentation or other materials, and meeting summaries.

Subtask 3.5: Project Management

This subtask includes coordination with the ESRWMP and other stakeholders to ensure the project purpose is met with full participation. Monthly progress reports will be prepared and submitted to the ESRWMP to inform on progress and accomplishments and the status of budget and schedule, including planned activities for the next reporting period.

Subtask 3.5 Deliverables: Monthly progress reports, quarterly contract reports.

Task 4: Planning Grant Administration

As indicated in the letters from the Cities of Modesto, Ceres, and Hughson included in Attachment 1, the City of Turlock has agreed to serve as the lead agency responsible for submitting, and ultimately administering, this Prop 84, Round 2 planning grant proposal on behalf of the East Stanislaus IRWM Region. As such, the City of Turlock will administer the grant, manage consultants/contracts as necessary, and complete all work items as described under Task 4. Grant administration includes the day-to-day program management and administrative overhead for the project. Work items, such as execution of the funding agreement with DWR, administration of consultant contracts, coordination with other agencies, development and execution of agreements, and processing invoices and grant payments, are included in the following subtasks.

Subtask 4.1: Prop 84 Funding Agreement Administration

Subtask 4.1 encompasses all direct program and funding agreement administration activities that will be required for successful execution and implementation of a funding agreement between the City of Turlock and DWR. Work to be completed under this subtask includes, but is not limited to:

- Coordination of funding agreement execution
- Ongoing communications with DWR
- Maintenance of project files as it relates to funding agreement implementation
- Project close-out activities, including preparation of files for future storage

Subtask 4.1 Deliverables: Executed funding agreement with DWR.

Subtask 4.2: Consultant Contract Administration

The City of Turlock, or its designee, will administer, sign, and track any contracts with consultants or other agencies to complete the other tasks included in this grant application. All funds relating to this grant application and the tasks contained herein will be managed by the City of Turlock. Contract administration includes invoice management (consultants and subconsultants), tracking task progress, ensuring that tasks are completed on time and within budget, reporting, contract management, claim preparation and submittal, and any other tasks necessary for administering the grant.

Subtask 4.2 Deliverables: Executed contract(s) with consultant(s); Consultant invoices and progress reports; Claim submittals to DWR.

Subtask 4.3: Quarterly and Final Reporting

As will be required by the executed funding agreement, the City of Turlock project manager will prepare and submit to DWR quarterly reports documenting work completed during the quarter, budget expenditures, schedule updates, invoicing and accounts receivable, and project performance. The quarterly reports will also identify any potential problems that may be foreseen in completion of the proposed scope of work.

Following completion of the proposed scope of work, the City project manager will prepare and submit a Final Report, as required by the funding agreement. It is anticipated that this report will summarize the region's goals and objectives, describe the work that was conducted, document the outreach that was completed as part of the project, and provide a summary of the project effectiveness and contribution towards preparation of the ESIRWMP and meeting the region's goals and objectives for the program.

The quarterly reports may include, but are not limited to, the following information:

1. Time period covered by the request
2. Description of activities since the previous report
3. Status of the project relative to the schedule
4. Estimated percentage of work completed
5. Records of expenditures
6. Percentages of State and total funding expended to date
7. Key issues that need to be resolved

The City of Turlock will keep all records and documents pertaining to the project for a minimum of three years after project completion.

Subtask 4.3 Deliverables: Quarterly Reports (7 reports) and one Final Report.

Task 5 – Regional County Island Sewer Connection Study

Many areas in rural Stanislaus County are not connected to municipal sewer systems and instead rely on stand-alone septic tanks/systems for wastewater disposal. These areas, referred to as County "islands", are often the same areas that rely on private groundwater wells for water supply. Septic systems are, however, a key source of contamination to shallow groundwater aquifers and as such, pose a continuing source of groundwater quality problems for these rural communities and for the groundwater basins as a whole. Groundwater is a critical water supply for the East Stanislaus Region, and understanding and managing potential sources of contamination to the underlying groundwater basins is needed to sustain this important supply.

The County has started to identify septic systems within the jurisdictional areas of the cities of Modesto, Ceres, Turlock, and Riverbank, but there are many additional systems outside of these areas that have not yet been identified and the degree to which these septic systems may be impacting groundwater is unknown. In Task 5, the East Stanislaus Region plans to undertake a Regional County Island Sewer Connection Study to identify County "islands" within the region that are on septic systems, determine potential groundwater impacts (current and future) from the septic systems, analyze the feasibility of connecting these areas to centralized or satellite collection and treatment systems, and perform an associated preliminary financial analysis of the most feasible and reasonable alternatives.

Essentially, there are three alternatives to individual septic systems:

1. Connect the County "island" to a municipal centralized system
2. Develop a stand-alone centralized system with a satellite wastewater treatment plant
3. Improve the existing septic system's functionality on an individual basis

The purpose of this task is to expand upon work started by the County, with an additional focus of understanding the impacts of these systems on groundwater in order to protect groundwater quality. This task will focus on rural, often disadvantaged communities, as these areas tend to be on individual aging septic systems.

Subtask 5.1: Data Collection and Analysis

This subtask includes collecting existing relevant data regarding areas still on septic systems within the Region and identifying areas that have not yet been located. For septic system areas, the following information will be collected and reviewed:

- Location
- Proximity to potable groundwater wells
- Nearby groundwater quality and level data (if available)
- Number of lots relying on septic system
- Number of septic system repairs and/or failures
- Distance from existing municipal centralized collection system

For areas where no information is available regarding wastewater collection and treatment, written resident surveys will be developed and distributed, if needed, to identify wastewater treatment processes and further identify these septic system "islands".

Information collected and analyzed under this subtask will be coordinated with the cities, Stanislaus County and other agencies within the Region, as appropriate. The data will be obtained in electronic format whenever possible. The ESRWMP will coordinate contacting other agencies and entities to obtain necessary information as described in this subtask. Analyses to be conducted will include maps presenting areas by wastewater collection/treatment methods and an evaluation of existing and potential future groundwater impacts resulting from these County islands. The information will be compiled into draft and final TMs.

Subtask 5.1 Deliverables: Draft and Final TM summarizing data collected.

Subtask 5.2: Establish Ranking Criteria

Two sets of criteria will be established under this subtask; one set will be used to determine which septic areas should be prioritized for modifications/improvements versus replacement, while another set of criteria will be used as the basis for evaluating the alternatives developed under Subtask 5.3. Criteria to determine which septic areas should be connected to a centralized system, connected to a satellite wastewater treatment plant, or upgraded may include the volume of wastewater to be managed, the severity of the groundwater quality impacts resulting from the existing system, and/or the number of septic system failures. The criteria for determining which alternative is best for an island area could include cost, technical feasibility and/or regulatory issues. One workshop will be conducted with local and regional stakeholders to develop the sets of criteria.

Subtask 5.2 Deliverables: Septic Area Ranking Criteria; Alternative Ranking Criteria; Meeting materials and notes from the workshop.

Subtask 5.3: Rank "Islands" and Develop Island Connection Alternatives

Based on the data collected during Subtask 5.1 and the criteria developed in Subtask 5.2, the septic systems identified for modifications/improvements will be ranked to develop a prioritized list of potential areas to be addressed. The higher priority areas may have greater impacts to groundwater quality or have more failures. The list of ranked septic areas will help the Region identify order of implementation, prioritizing those with the greatest risk to groundwater.

Following ranking of the County "islands" and using the analyses conducted under Subtask 5.1, up to six preliminary alternatives will be developed to address the priority County "islands". Preliminary alternatives will be developed considering, among other factors, proximity to existing centralized sanitary collection systems, existing system capacities, estimated volumes of wastewater to be managed by area, local land uses and treated wastewater disposal options. It will be assumed that all treated wastewater will be required to meet Title 22 requirements and opportunities for reuse of the treated wastewater to offset existing potable uses will be considered at all locations.

Subtask 5.3 Deliverables: Ranked list of septic areas requiring further evaluation; Septic island replacement/improvement alternatives.

Subtask 5.4: Rank Alternatives

Using the alternatives developed in Subtask 5.3 and the criteria developed in Subtask 5.2, the alternatives developed for the priority "islands" to be replaced will be evaluated and prioritized. This will help to determine the most effective, cost-efficient means of addressing those septic islands.

The list of septic areas, alternatives, and summaries of the ranking process will be presented to stakeholders in a workshop to solicit feedback. Comments and insights will be incorporated into the alternatives, and the results re-ranked if necessary.

Subtask 5.4 Deliverables: Alternative evaluation; Workshop materials and notes.

Subtask 5.5: Prepare Report

The work conducted under Subtasks 5.1 through 5.4 will be presented in a report. This report will summarize the work conducted to identify the sanitary islands, describe the prioritized septic areas, and present the alternatives evaluated for centralized and/or satellite connections, including the potential for reusing the treated wastewater to offset existing potable uses. The report will also include a section providing a recommended implementation plan for improving and/or connecting the priority septic systems.

A draft report will be prepared and provided to the ESRWMP and other stakeholders electronically prior to a public workshop to discuss the study results and recommended next steps. Based on input from the ESRWMP and the stakeholders, the report will be finalized and the results incorporated into the East Stanislaus IRWMP as part of the regional description, relation to local water management and regulatory programs, and as individual projects.

Subtask 5.5 Deliverables: Draft and Final Report; Workshop meeting materials and notes.

Task 6: Regional Water Needs Assessment

The purpose of this task is to complete a comprehensive assessment of current and future potable water demands within the entire East Stanislaus Region. This information is critical to managing water supplies under various hydrologic conditions to ensure water supply reliability and to prepare for droughts and potential climate change impacts. In essence, one must know the demands in order to be able to ensure the supply. UWMPs have been prepared by many entities within the Region (for example, by the Cities of Modesto, Turlock and Ceres), but not all areas and water users are included in the urban water management planning jurisdictions as required by the State (e.g. Hughson), and these areas are typically dependent on groundwater as their primary supply. This task will help fill the information gap and assess the current and future demands from those parts of the region where UWMPs are not required and, as needed, update the information where UWMPs are required so as to provide the region with essential information regarding projected future demands in order to effectively manage their water supplies to meet demands in a sustainable fashion.

The assessment and information gathered during this task will be incorporated into the East Stanislaus IRWMP as part of the regional description and will help direct regional water supply projects and programs to ensure the long-term reliability and sustainability of local and regional water supplies. As projects are submitted for inclusion in the East Stanislaus IRWMP and are further developed, understanding regional water needs will help determine specific quantities of water that local agencies and unincorporated areas require. As water demands within the Region continue to increase and as groundwater quality continues to be a major factor threatening the sustainability of regional supplies, it is critical that a complete understanding of regional demands be prepared; that new, supplemental supply sources be identified, obtained, and integrated into the Region's water supply portfolio; and that effective programs be established to protect and sustain existing regional water supplies for all users, including the environment.

Subtask 6.1: Gather and Review Data

Based on the various local agencies' adopted General Plans, Comprehensive Planning Districts, Specific Plans, UWMPs, and other local and/or regional water planning and land use documents, the consultant will calculate and verify the estimated average day and maximum day demands for existing and build-out conditions within the East Stanislaus Region. The first step in this process is to gather and synthesize the multiple planning documents available. It is assumed that the ESRWMP and participating agencies and stakeholders will provide the consultant with available reports and data electronically, including available GIS shapefiles depicting land uses within the region. Each agency will provide the consultant with its latest and most accurate existing and build-out population projections for the purpose of determining the total future water demands. Using a combination of land-based estimates and population projections, a forecast of future populations will be prepared for the Region. For the purposes of this work, demand increases from 2012 to build-out will be assumed to be linear. The consultant will prepare a list and brief summary of the gathered information and data to provide a basic overview to the ESRWMP and participating agencies.

Subtask 6.1 Deliverables: List and summary of gathered reports and data.

Subtask 6.2: Develop Methodology for Water Demands Assessment

The consultant will calculate regional water demands by entity/agency/city and unincorporated areas for different scenarios, assuming wet year conditions, dry year conditions, and multiple dry year conditions. The proposed methodology is to update Existing Land Use Demand (LUD) Factors for all land use categories, according to the following sequence:

- Develop meter data by region and by existing land use using agency-supplied data
- Identify recycled water use areas and other non-potable supply usage and their areal extent
- Identify high water users, quantities, and locations (areal extent of land)
- Develop existing LUDs taking into account recycled and high water users
- Conduct normalization analysis (weather and economics) on existing LUDs
- Based on existing consumption and production data, determine historic unmetered water estimates and identify existing unmetered water by the smallest region possible
- Present LUDs and existing demands to Regional stakeholders for consideration before finalizing

A methodology will also be developed for estimating the existing and build-out demands under these conditions, and will be presented at a meeting with the ESRWMP and regional stakeholders to discuss the methodology and answer any questions. Water use demand patterns, with higher use in the summer months and lower use in the winter months, will be accounted for.

> *Subtask 6.2 Deliverables:* Meeting materials, agenda and notes summarizing the demand methodology.

Subtask 6.3: Conduct Regional Water Demands Assessment

After the meeting conducted during Subtask 6.2, the selected water demands methodology developed to confirm regional demands will be implemented. Land use agencies' spheres of influence will be confirmed and available maps edited as appropriate, existing land use categories will be reviewed to determine if future land use categories should be adjusted, changes to the general plan land uses for vacant lands will be identified, as will changes to built-out areas targeted for intensification and redevelopment based on the review of the general plans. The selected methodology will then be applied and the findings summarized in regards to the Region's water demands in a draft TM. The TM will describe and justify the methods employed in generating current day and future water demand projections under various scenarios (wet years, dry years, multiple dry years), as well as any assumptions and data sources used. Analysis results and conclusions documented in the draft TM will be presented and discussed at a meeting with the ESRWMP and regional stakeholders. Comments received will be incorporated into the final TM. Finally, the completed analysis will be incorporated into the East Stanislaus IRWMP, specifically into the water demands and supplies subsection of the regional description section. The information will also be considered and utilized during project solicitation and development of integrated projects and programs for the Region.

> *Subtask 6.3 Deliverables:* Meeting materials, agenda and notes for meeting to discuss demand methodology; Draft and final TM summarizing the regional water demands assessment; meeting materials, agenda, and notes for meeting to review and discuss Draft TM.

Subtask 6.4: Project Management and Coordination

A kickoff meeting will be conducted with the ESRWMP and regional stakeholders to discuss the scope of work and the strategy for completing the project on time and within the budget identified. Effective communication will be ensured throughout the project period through periodic progress reports, emails and conference calls. The ESRWMP will prepare quarterly invoices and progress reports, providing updates on project status, schedule and budget.

> *Subtask 6.4 Deliverables:* Kickoff meeting agenda and notes; quarterly invoices and progress reports.

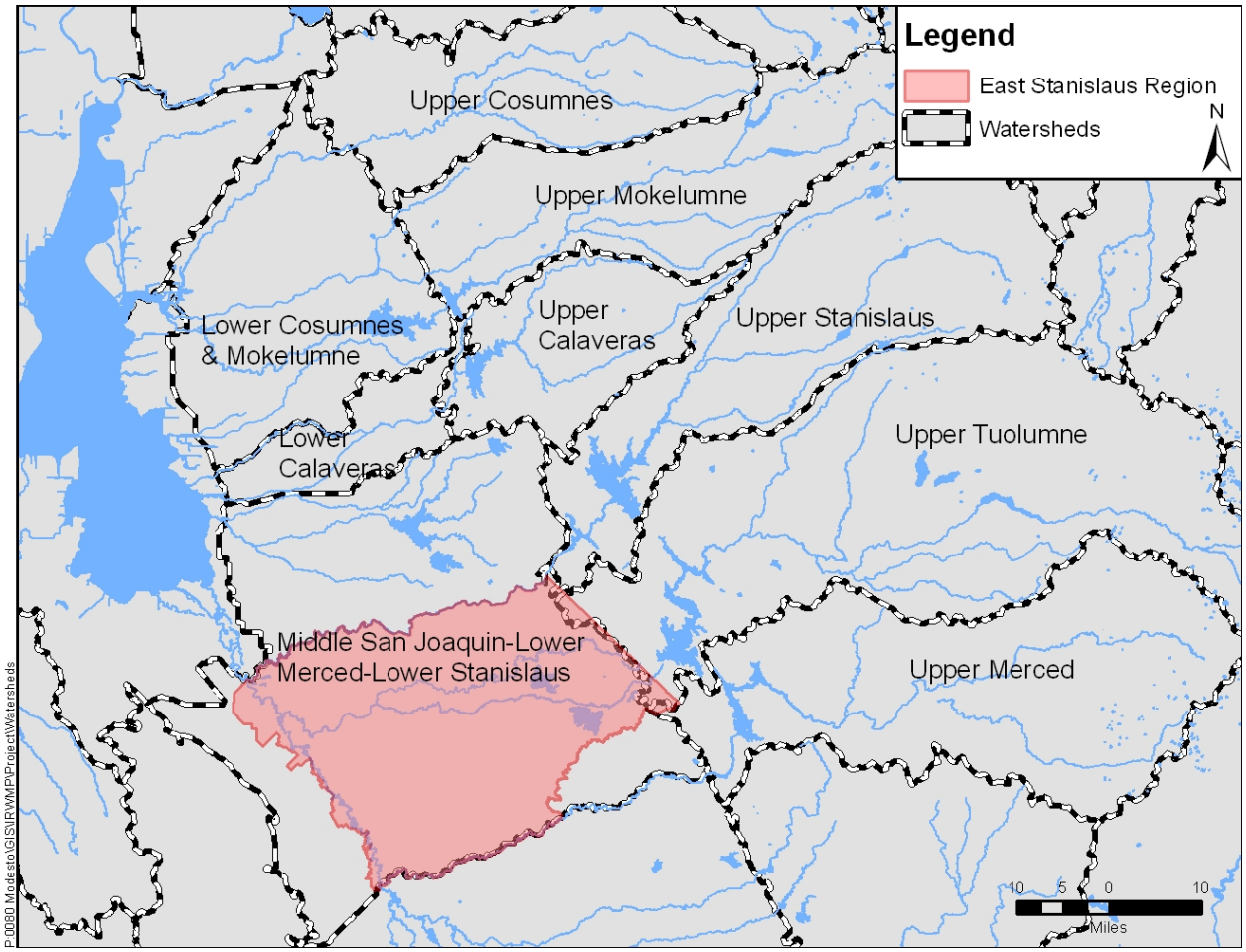
Task 7: Integrated Stormwater Resource Management and Groundwater Augmentation Plan

Storm drainage systems are used to capture and route stormwater runoff to reduce flooding and to meet regulatory requirements regarding stormwater runoff. A Stormwater Master Plan (SWMP) was prepared for Stanislaus County in 2004. As an operator of a Small Municipal Storm Sewer System (MS4) that serves urbanized areas, the County filed a Notice of Intent to participate in the State Water Resources Control Board (SWRCB) General Permit. To comply with State and Federal requirements, also referred to as Phase II Stormwater Requirements, designated MS4s must develop a plan to implement measures to control stormwater quality, develop a 5-year plan for implementation, and prepare an associated budget. The SWMP for the County covers the County's unincorporated communities, including Empire, Keyes, Salida, Crow's Landing, Denair, Diablo Grande, Del Rio, Grayson, Hickman, Knight's Ferry, La Grange, Sunset Oaks Estates, Valley Home and Westley, as well as the industrial area known as Beard Tract between Modesto and Empire. The Cities of Modesto, Turlock, Ceres, Hughson, Oakdale, Patterson, and Riverbank are also subject to Phase II Stormwater Requirements. Ceres, Oakdale, Patterson, and Riverbank prepared a joint-Stormwater Management Program in 2003. The Cities of Modesto, Turlock, and Hughson each prepared individual SWMPs in 2009, 2003, and 2007, respectively. In addition to developing SWMPs, many of the cities have prepared Storm Drainage Master Plans which also provide valuable information regarding the storm drainage systems within the region.

The East Stanislaus IRWM Region will address stormwater management in its IRWMP, in addition to water supply, water quality and environmental conditions. To contribute to a more thorough evaluation and integration of these subjects in the IRWMP, the Region will prepare an Integrated Stormwater Resource Management and Groundwater Augmentation Plan that will focus on the required Integrated Stormwater Resource Plan standards outlined in California Water Code (CWC) Section 10562 in order to identify key related issues to be addressed and to aid in identifying multi-benefit projects through the IRWM planning process that will contribute to effective stormwater runoff management, maximize groundwater supply augmentation, improve and protect water quality, and/or restore environmental habitat, as well as other benefits. The SWMPs referenced above will be utilized, along with other relevant documents, in preparing the Plan.

Almost all of the East Stanislaus IRWM Region is within the Middle San Joaquin-Lower Merced-Lower Stanislaus Watershed. The Integrated Stormwater Resource Management and Groundwater Augmentation Plan will be prepared for the Region with the possibility to expand the study area in the future to the entire watershed.

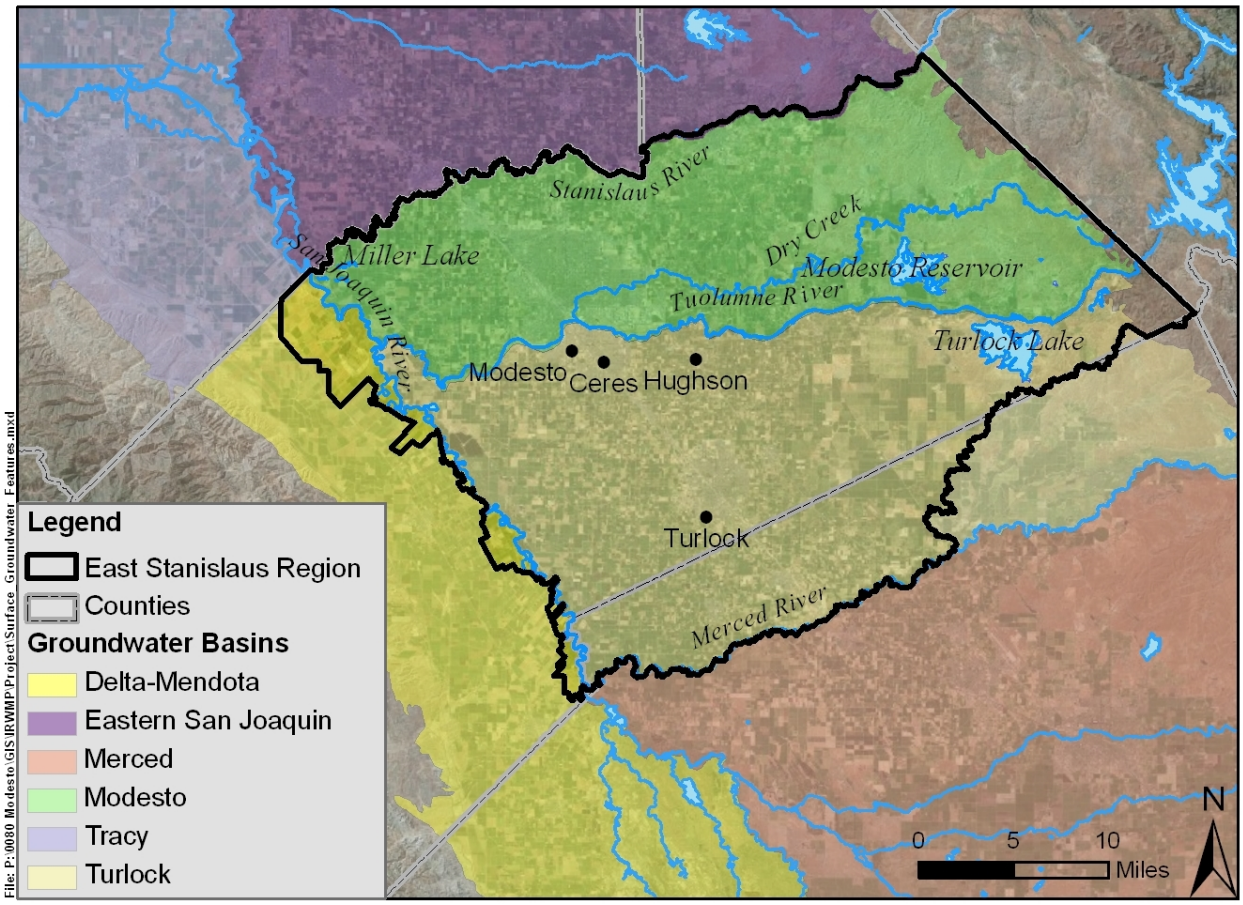
Figure 2-1: Watersheds and the East Stanislaus Region



The purpose of this task is three-fold; first, to develop a comprehensive understanding of stormwater resource management in the region, including identification of areas where stormwater runoff is currently causing problems and where stormwater runoff is critical to maintaining habitats; second, to conduct a groundwater quality study of the Modesto and Turlock Groundwater Subbasins of the San Joaquin Valley Groundwater Basin to aid in understanding regional groundwater quality and the role that stormwater percolation has on groundwater quantity and quality; and third, to analyze the feasibility of managed groundwater recharge in the East Stanislaus IRWM region using stormwater runoff as a potential source water. This effort will contribute to a better understanding of the underlying groundwater subbasins (a principal source of potable water in the East Stanislaus IRWM region), the impacts of land use planning and stormwater management activities on these subbasins, and to developing possible, multi-benefit solutions for managing the Region's water resources and improving stormwater management in a coordinated fashion.

The study area to be evaluated under this task is the East Stanislaus IRWM region, and will encompass both the Modesto and Turlock Groundwater Subbasins and nearly the entire Middle San Joaquin-Lower Merced-Lower Stanislaus Watershed, as shown in Figure 2-2.

Figure 2-2: Groundwater Basins within and Surrounding the East Stanislaus Region



The groundwater management areas identified in existing groundwater management plans for both subbasins, as prepared by the Stanislaus & Tuolumne Rivers Groundwater Basin Association (STRGBA) and the Turlock Groundwater Basin Association (TGBA), are included within this study effort. In implementing this task, it is anticipated that the ESRWMP will assign the lead for this task to one of the participating agencies or districts. This Project Lead will manage a consulting team implementing the following scope of work and report progress to the ESRWMP as well as to the City of Turlock, which is serving as Grant Administrator. The following subtasks will be completed in order to prepare an Integrated Stormwater Resource Management and Groundwater Augmentation Plan.

Subtask 7.1: Stormwater, Flood, and Groundwater Data and Information Collection and Analysis

Stormwater- and groundwater-related information and data will be identified, collected, and analyzed under this subtask. These data will consist both of stormwater runoff and groundwater quantity information and water quality data. Information that influences the water quantity and quality, such as hydrogeology, soil type, and land use data, will also be collected for evaluation.

A Data Needs Assessment TM will be prepared by the selected consultant as part of this subtask and presented to the ESRWMP and other interested stakeholders in the region during a kickoff meeting. Additionally, during this meeting, issues such as data availability, local monitoring practices, lines of

communication, and project management will be discussed, along with the goals for aquifer characterization. The kickoff meeting will also be held to coordinate the Integrated Stormwater Resource Management and Groundwater Augmentation Plan development and to identify major data gaps and further define needs and goals for each subtask described in the following sections. This will include an initial review of available data and identification of management issues for each of the participating agencies. Brief "windshield surveys" of the two groundwater subbasin areas and a few selected site visits of critical management area (such as aquifer recharge zones) will also be conducted.

In order to conduct a comprehensive basin/watershed analysis and prepare maps of recharge areas, readily-available soil, geologic, hydrologic and hydrogeologic data for the study area will be collected in addition to data provided by the member agencies. These data will include, but are not limited to, the following:

- Hydrologic soil groups
- Soil Texture
- Slope
- Corcoran clay spatial extent
- Existing land uses
- Water Quality
- Depth to groundwater
- Existing studies mapping recharge areas

A literature review of existing information on the watershed and aquifer systems within the study area will be performed. Sources of information that may be reviewed include the afore-mentioned stormwater master plans, STRGBA's *Integrated Regional Groundwater Management Plan* for the Modesto Subbasin, TGBA's *Groundwater Management Plan* for the Turlock Subbasin, and existing publically available reports (such as the USGS Scientific Investigation Reports) and groundwater flow model data (developed by USGS). A large-scale aquifer characterization was conducted by USGS in the Modesto area and has been documented in Scientific Investigation Report 2004-5232: *Hydrogeologic Characterization of the Modesto Area, San Joaquin Valley, California.* Additionally, a detailed study of groundwater flow in the study area (including conceptual model development) was conducted by the USGS and documented in the Scientific Investigation Report 2007-5559: *Simulation of Multiscale Ground-Water Flow in Part of the Northeastern San Joaquin Valley, California.* These reports and other published data and information obtained from the USGS and regional stakeholders will be used in Subtask 7.4, along with the previously-described analyses, to conduct a refined hydrologic/hydrogeologic characterization of the study area. This effort may include refinement/verification of hydraulic properties as well as flow path characteristics in the study area. The characterization effort will also include a general evaluation of any potential water quality concerns related to the examined sources and aquifers.

Pertinent well data (as available from the participating agencies) will also be collected as part of this effort. Specifically, these data will be gathered to support implementation of Subtask 7.4 - Aquifer Hydrogeologic Characterization and Aquifer Recharge Analysis by providing additional hydrogeologic information and groundwater extraction data. In general, any information required to identify and provide general aquifer characterizations in key groundwater management areas will be identified and utilized, if possible. An itemized list of all sources needed for the review will be developed and included as part of the Data Needs Assessment TM previously described. For budgetary purposes, it was assumed that this task will include gathering well data for a total of approximately 100 wells within the region.

At present, groundwater elevations in the Modesto and Turlock Subbasins are monitored on a local basis by individual agencies and on a subbasin-basis by the groundwater management agencies (STRGBA and TGBA). These monitoring programs will be re-evaluated in a regional context and data gaps involving spatial or vertical distribution identified. Recommendations for addressing these data gaps will be included in the Data Needs Assessment TM produced for this subtask. This TM may include provisions or justifications for persistence of a data gap (e.g., lack of suitable monitoring wells) and provide suggested recommendations for additional projects to be included in the East Stanislaus IRWMP that, when implemented, may fill these gaps.

In order to ensure consistency with existing total maximum daily load (TMDL) implementation plans, national pollutant discharge elimination system (NPDES) permits, waste discharge permits, and other relevant permits, existing documentation and available relevant reports will also be compiled and reviewed. Documents, other than those previously mentioned, that will be considered in development of the Integrated Stormwater Resource Management and Groundwater Augmentation Plan include watershed plans, geologic maps and hydrogeologic reports, urban water management plans, Storm Drainage Master Plans, and the SWMPs previously mentioned. It is anticipated that a substantial amount of related work has been completed that can be melded into the Plan, but it is the goal of the ESRWMP to assess stormwater on a more regional basis and to identify opportunities for the development of multi-benefit projects to enhance water supply and environmental resources for the East Stanislaus Region.

Data collected under this subtask will also be incorporated into the online data management system to be prepared under Task 3, as appropriate. All data collected will be evaluated for consistency and completeness. In the absence of any of the above data, alternative data may be recommended for collection in order to conduct an understandable analysis. The ESRWMP and other agencies will provide the consultant with electronic versions of the files whenever possible.

> *Subtask 7.1 Deliverables:* Draft and Final Data Needs Assessment TM; Kickoff meeting agenda and minutes.

Subtask 7.2: Identify Regional Needs and Develop Regional Vision

After reviewing the existing stormwater management and groundwater-related documents in Subtask 7.1, the ESRWMP will work with the communities and agencies in the Region to understand and document existing stormwater management needs and to identify areas where current stormwater management practices are causing flooding and/or water quality problems, and to provide insight in regards to groundwater augmentation goals. Up to ten personal interviews will be conducted, either live or via telephone, with staff from municipalities and other local agencies/groups in order to understand these needs wishes that may not be adequately addressed in existing plans.

Following development of the regional needs assessment, the ESRWMP will continue working with interested stakeholders in the region to develop a regional vision for what, how, and where multi-benefit stormwater management and groundwater augmentation projects shall be developed in response to the identified needs and opportunities. This vision shall include examples from projects local to the Central Valley and in regions with similar features elsewhere in Northern and Southern California. Locations where habitat restoration had been identified and improvements to groundwater recharge will be researched and identified.

> *Subtask 7.2 Deliverables:* Vision for multi-benefit flood protection

Subtask 7.3: Develop Methodology to Prioritize Projects

Working with ESRWMP and interested stakeholders, a methodology will be developed to catalog and prioritize stormwater management and groundwater augmentation projects to be considered for inclusion in the East Stanislaus IRWM Plan. This methodology will follow the methodologies used for ranking other IRWM projects but will also consider issues specific to stormwater management (such as flood frequency and flood severity) and groundwater augmentation (such as recharge methodology and forebay locations), and give highest priority to projects that provide flood protection and stormwater management benefits while recharging groundwater, protecting water quality, and enhancing habitat. If deemed feasible following Subtask 7.1, a ranking system will be developed for evaluating potential recharge locations in light of providing the stormwater management benefits such that the prioritization can be applied using GIS. Under such a method, the features on each dataset (i.e. aquifer outcropping, proximity to stormwater recharge areas) will be ranked and weighted using ranking and weighing criteria developed in coordination with the regional participants and stakeholders. The resulting methodology will help prioritize projects designed specifically to meet stormwater management and groundwater augmentation objectives, but may also serve as the basis for future grant applications for programs focused solely on this subject.

> *Subtask 7.3 Deliverables:* Draft and final memo of methodology to prioritize projects and opportunities

Subtask 7.4: Aquifer Hydrogeologic Characterization and Aquifer Recharge Analysis

Using the data collected in Subtask 7.1 along with the regional vision for integrated stormwater management and groundwater augmentation projects, conceptual models of the Modesto and Turlock Groundwater Subbasins will be prepared. These models will describe how and where the groundwater subbasins are being recharged, primary groundwater flow pathways, summarize groundwater extractions, and describe significant areas of water quality degradation. These models will form the basis for developing and recommending conceptual-level artificial and managed recharge projects for consideration and inclusion in the East Stanislaus IRWMP.

Once the conceptual models have been completed, an aquifer recharge analysis will be performed to identify the best means for recharging the underlying groundwater subbasins. Hydrologic parameters utilized to quantify recharge conditions may include, but are not limited to, the following:

- Hydrologic soils group: Hydrologic soils group shows the capability of near-surface soils to infiltrate water. The classification of the hydrologic soil groups is provided by the United States Department of Agriculture, Natural Resources Conservation Service (USDA-NRCS). Typically, areas identified as having a small runoff potential (i.e., the highest capacity for infiltration) through areas identified as having a great runoff potential would be mapped. Any unmapped areas may be estimated using nearby hydrologic soils group classifications.
- Soil Texture: Soil texture at depth identifies areas that have both an ability to store water and to transmit water due to large grain sizes, such as sands and gravels.
- Surface Slope: Areas with significant slope result in more rainfall running off to streams and rivers rather than infiltrating to groundwater.
- Corcoran Clay: The Corcoran Clay layer is a regional aquitard that typically limits the vertical migration of water in the subbasins; thus, the Corcoran Clay layer would inhibit

passive surface recharge beyond a certain depth. The location, extent and depth of this aquitard will affect the managed groundwater recharge projects recommended.

- Existing Land Use: Urban development, as shown through land use patterns, has a significant impact on the recharge of the groundwater subbasins. Increased impervious surfaces, such as asphalt, concrete, or structures, increase runoff and decrease recharge. Other land uses, such as irrigated agriculture where significant amounts of surface water are applied and outside the limits of the Corcoran Clay layer, may result in deep percolation and increased groundwater recharge.
- Depth to Groundwater: Depth to groundwater may limit recharge if groundwater is too close to the ground surface.

During the characterization process, any potential target aquifer(s) for future groundwater recharge will be identified. Local hydrogeology, source water quality and other factors will be taken into consideration when making this determination. The aquifer recharge analysis will result in the identification of areas where both passive (surface percolation and land management) and direct (groundwater injection) recharge projects can occur in the two subbasins. The developed recharge analysis must be adequate to graphically represent the natural and anthropogenic recharge areas within the management area. Refinements of the recharge areas within specific key areas within the basin may also be required as part of the analysis.

Also under this subtask, a comprehensive water quality evaluation will be performed for the two groundwater subbasins. As groundwater is vulnerable to contamination, and as the region is already taking wells out of service as a result of groundwater quality impacts, understanding the existing qualities of this important resource is important to mitigate for or avoid future quality impacts. As part of the evaluation, an investigation of the different types of water qualities and contaminants present in certain portions of the two subbasins will be identified. Groundwater management strategies to control the occurrence and transport of the contaminants within the study area will be identified. Specific monitoring plan(s), comprised of existing wells or recommended new monitoring wells, will be developed to monitor groundwater quality. A condition assessment of existing monitoring wells currently owned by the USGS and others within the study area will also be prepared. For budgeting purposes, it was assumed that condition assessments would be conducted for up to twenty monitoring wells.

In general, the analysis will focus on areas within the subbasins where potential groundwater recharge would be viable. The aquifer hydrogeology characterization and recharge analysis will be summarized in a draft and final TM that includes, but is not limited to the following:

- Presentation of the conceptual basin models;
- Summary of aquifer recharge areas identified in the two groundwater subbasins;
- Summary of water quality conditions within the study area and identification of major contaminants of concern;
- Identification of contaminated aquifers (source) and contaminant transport mechanisms; and
- Groundwater management recommendations in order to minimize contaminant occurrence, and/or transport.

The ESRWMP and participating agencies will have the opportunity to provide comments on the TM to the consultant prior to finalization. The consultant will also develop area maps showing the natural, anthropogenic and potential recharge areas.

Subtask 7.4 Deliverables; Draft and Final Aquifer Characterization and Recharge Analysis TM; Five 24"x36" Area Maps showing potential recharge areas; Meeting agenda and minutes.

Subtask 7.5: Project and Opportunity Identification and Prioritization

This subtask will identify various project opportunities that could potentially be included in the East Stanislaus IRWMP. Opportunities to augment local groundwater supply, improve water quality, and/or improve or enhance environmental resources in conjunction with stormwater management will be identified, along with the targeted aquifer for recharge. Projects in California that have been permitted to implement or are already implementing a recharge project will be identified, along with their project milestones, obstacles, and accomplishments, including their general methods of aquifer recharge, to provide ideas and guidance for project development.

The following information will be prepared, as appropriate, for each of the projects, programs or opportunities identified as part of this subtask:

- A description of the project, program or opportunity, including the benefits achieved by the project as it related to the regional vision for this study;
- The hydrogeologic setting for the project;
- A summary of recommended facilities, including detention and/or recharge basins, diversion dams, injection/extraction wells;
- A description of any evaluated or recommended water management scenarios;
- An evaluation of the project/program/opportunity benefits and impacts;
- Any foreseen environmental, legal, and engineering matters that may be present (including permitting challenges);
- Preliminary high-level cost estimates; and
- Recommendations for future testing in support of the project/program/opportunity.

Potential institutional arrangements for these projects will be identified and developed, as budget allows, to form the basis for regional coordinated stormwater management planning as well as provide a funding stream for projects identified through this and ongoing stormwater-related planning efforts. For budgeting purposes, it was assumed that up to five stormwater management/groundwater recharge alternatives will be developed and analyzed.

The projects and opportunities identified above will then be prioritized using the methodology developed under Subtask 7.3 to both identify key areas and projects to be targeted to meet stormwater management and flood protection objectives while providing groundwater augmentation, water quality and/or environmental resource benefits, and for integration into the ESIRWMP. Identified projects will be submitted into the ESIRWMP as separate projects for prioritization within the goals and objectives of that plan.

Subtask 7.5 Deliverables: Draft and final prioritized list of projects and opportunities.

Subtask 7.6: Prepare Integrated Stormwater Resource Management and Groundwater Augmentation Plan

Draft and final Integrated Stormwater Resource Management and Groundwater Augmentation Plans will be prepared using the subtask technical memoranda and other deliverables completed in Subtasks 7.1 through 7.5 as a basis for each section. These plans will include, but is not limited to, the following information:

- Summaries of the regional groundwater situation, includes the groundwater subbasin conceptual models and a summary of the region-wide groundwater quality.
- Future regional goals and needs with regards to stormwater management and groundwater augmentation.
- A regional vision for achieving effective stormwater management while securing other benefits, including, but not limited to, groundwater augmentation, water quality improvements and/or protection, and enhancement of local environmental resources.
- Potential studies, projects and programs that could be implemented to help achieve the regional vision for integrated stormwater management.
- Recommendations for future studies, analysis, testing, and monitoring.

An administrative draft plan will be presented to the ESRWMP and participating stakeholders and to DWR for review and comment. A conference call/webinar will be conducted to discuss the administrative draft plan, answer questions and solicit comments. Comments received will be incorporated into the plan to prepare a public draft version for release; this version will be made available to regional stakeholders and the public electronically through the East Stanislaus IRWM planning website. Comments from the public will be compiled and addressed in the final Integrated Stormwater Resource Management and Groundwater Augmentation Plan. The results of the plan, and identified opportunities, studies, projects and programs included in the plan, will be incorporated into the East Stanislaus IRWMP and will be used to help further regional solutions for water supply reliability and drought preparedness. The plan, in its entirety, will also be included as an appendix in the East Stanislaus IRWMP.

> *Subtask 7.6 Deliverables:* Administrative Draft, Public Draft and Final Integrated Stormwater Resource Management and Groundwater Augmentation Plan; meeting agenda and notes.

Subtask 7.7 – Project Management and Coordination

This subtask will provide for coordination between the consultant and regional participants and stakeholders, as good communication will be essential throughout task implementation to ensure the thorough transfer of information. The consultant will prepare monthly invoices and progress reports for submittal to the Project Lead to contribute toward preparation of the quarterly reports submitted to DWR.

> *Subtask 7.7 Deliverables:* Meeting agendas and notes; monthly invoices and progress reports.

Chapter 3 Additional IRWM Plan Work

The East Stanislaus Region anticipates completing an IRWMP compliant with existing Plan Standards, and preparing supporting documentation and studies using grant funds provided by DWR through its IRWM grant program. There is no other work that the Region plans to complete outside of the grant scope of work described in this Work Plan.